Readings on Agricultural Marketing

Advisory Committee

- **L. A. BEVAN**
  University of New Hampshire
- **JOHN D. BLACK**
  Harvard University
- **M. E. BRUNK**
  Cornell University
- **SIDNEY HOOS**
  University of California
- **JOSEPH G. KNAPP**
  Farm Credit Administration
- **WILLIAM H. NICHOLLS**
  Vanderbilt University
- **GUSTAV F. PAPANEK**
  Technical Cooperation Administration
- **HAROLD B. ROWE**
  Brookings Institution
- **GEOFFREY S. SHEPHERD**
  Iowa State College
- **HERMAN M. SOUTHWORTH**
  Bureau of Agricultural Economics
- **FRANK J. WELCH**
  University of Kentucky

Readings on Agricultural Marketing

Assembled and Published
Under the Sponsorship of the

AMERICAN FARM ECONOMIC ASSOCIATION

Frederick V. Waugh
Editor

The Iowa State College Press
Ames, Iowa

Copyright, 1954, by The Iowa State College Press. All rights reserved. Composed and printed by The Iowa State College Press, Ames, Iowa, U. S. A.

Library of Congress Catalog Card Number: 53–7167

S571
W357r

Editor's Preface

The American Farm Economic Association has carefully assembled this book of readings on agricultural marketing, with the hope that the present book will be useful to graduate students, researchers, administrators, and economists in the distributive trades. Such persons are finding it increasingly difficult to keep in touch with the numerous books, reports, and scientific papers dealing with agricultural marketing. The readings in this book were selected to cover a wide range of subject matter, to give different points of view on some controversial matters, and to illustrate new and promising techniques of economic research. In like fashion, the Association earlier had sponsored (1949) *Readings on Agricultural Policy,* edited by Professor O. B. Jesness.

The editor was helped by an exceptionally able advisory committee. The members of that committee are listed opposite the title page. All members helped outline the book, suggested materials, and criticized early drafts. The editor gratefully acknowledges the excellent cooperation received from every member of a large committee. Especially he thanks Harold B. Rowe for help on Section 3, Max Brunk for help on Section 4, Bill Nicholls for help on Sections 5 and 6, Joe Knapp for help on Section 7, and Gus Papanek for assembling the first draft. And he acknowledges very great indebtedness to Herman Southworth who was practically associate editor.

He wishes to acknowledge also the degree to which this undertaking was facilitated by the Agricultural Marketing Act of 1946. The stimulated interest, expanded research, and added resources for agricultural marketing studies contributed to the need as well

464907

as the content of this book. The encouragement and aid received through the good offices of the Agricultural Research Policy Committee, Harry C. Trelogan of the Agricultural Research Administration, and Oris V. Wells of the Bureau of Agricultural Economics were of great help.

But the editor is responsible for everything in the book — and for everything left out. No member of the committee will be fully satisfied with the book. Nor is the editor satisfied. He hopes only that many readers will find in this book material which will stimulate them to do further reading and to do more constructive work in a very important field.

FREDRICK V. WAUGH

August, 1953

Table of Contents

A detailed table of contents appears at the beginning of each chapter. Only the section and subsection headings are listed below.

1. Introduction **3**

1.1 Definitions 4
1.2 The Size and Expense of the Job 6
1.3 Public Attitudes 10
1.4 Aims of Agricultural Marketing 20

2. The Market as Equator of Demand and Supply **27**

2.1 Demand Curves and "Price Elasticity" 29
2.2 "Engel's Curve" and "Income Elasticity" 42
2.3 Joint Effects of Prices and Incomes 48
2.4 The Supply Function in Agriculture 51
2.5 Derived Demand for Farm Products and the Incidence of Marketing Charges 63
2.6 The Market as Equator of Demand and Supply 70
2.7 Methods of Measuring Demand 94

3. Place, Time, Form, and Ownership Aspects of Marketing **109**

3.1 The Four (or Three) Kinds of Utility 111
3.2 Location as a Factor in Agricultural Marketing 114
3.3 The Timing of Marketing 142
3.4 Changes in Form 159
3.5 Transfer of Ownership 165

4. Efficiency **195**

4.1 Processes, Operations, Work Elements, and "Therbligs" . . . 197
4.2 An Efficient Business Unit 211
4.3 An Efficient Wholesale Market 218
4.4 Efficient Assembly and Distribution 225
4.5 Efficiency of the Marketing System 235

5. Competition in Agricultural Markets **244**

5.1 Trends in Size of Business 246

5.2 Causes of Concentration 254
5.3 Imperfections of Competition and Their Consequences . . . 273

6. Government Policy Toward Competition 298

6.1 Facilitating Competition Through Marketing Services . . . 300
6.2 Enforcing Competition by Public Regulation 313
6.3 Governmental Restrictions and Modifications of Competition . 330

7. Agricultural Cooperation 355

7.1 Trends and Present Scope 357
7.2 Philosophy and Theory of Agricultural Cooperation 366
7.3 Aims 379
7.4 Integration 397
7.5 Legal Aspects 402

8. Market Development and Improvement 413

8.1 Aims 414
8.2 Market Surveys 417
8.3 Promotion: Advertising and Merchandising Campaigns . . . 427
8.4 The Economist's Part in Development Programs 437

Index 443

We have brought together in this book a large number of readings, some of which are very short. It seemed necessary to tie this material together with numerous editorial comments. The editorial comments are printed in reduced type in order to distinguish them from the readings. Each reading is designated by three numbers; for example, 2.1.4 is the fourth reading in the first subsection of Section 2.

A complete citation is given at the head of each reading. In addition, all the readings in each section are listed by author and title at the head of the section. Footnotes have been omitted from the readings except where they seemed essential.

SECTION 1

Introduction

Section 1 provides introductory material: definitions of common terms, statistics concerning the size and cost of agricultural marketing, material on public attitudes, and a discussion of the aims of agricultural marketing.
— EDITOR

1.1 Definitions 4

1.1.1 Thomsen, Frederick Lundy. *Agricultural Marketing.*
1.1.2 United States Agricultural Research Administration. *Administrative Procedures for State Agricultural Experiment Station Research Under Agricultural Marketing Act of 1946.*
1.1.3 Rowe, Harold B. "Economic Significance of Changes in Market Organization."
1.1.4 Larson, Adlowe L. *Agricultural Marketing.*

1.2 The Size and Expense of the Job 6

1.2.1 United States Bureau of Agricultural Economics. *Marketing and Transportation Situation.*
1.2.2 United States Bureau of Agricultural Economics. *Marketing and Transportation Situation.*
1.2.3 United States Bureau of Agricultural Economics. *Marketing and Transportation Situation.*
1.2.4 Black, John D. and Kiefer, Maxine E. *Future Food and Agriculture Policy.*

1.3 Public Attitudes 10

1.3.1 Washington, George. From a letter to Joseph Reed, dated Dec. 12, 1778, in *The Writings of George Washington.*
1.3.2 Cassels, J. M. "The Significance of Early Economic Thought on Marketing."
1.3.3 Reid, Margaret G. *Consumers and the Market.*
1.3.4 Clark, F. E. and Weld, L. D. H. *Marketing Agricultural Products in the United States.*
1.3.5 Nourse, Edwin G. *The Chicago Produce Market.*

1.4 Aims of Agricultural Marketing 20

1.4.1 Thomsen, Frederick Lundy. *Agricultural Marketing.*
1.4.2 7 U.S.C. 1621 (Public Law 733, 79th Congress).
1.4.3 H. Rep. 2458, 79th Congress, 2nd session.
1.4.4 Wells, Oris V. "Summary of Presentation on Scope and Objectives of Marketing Research."
1.4.5 Norton, L. J. "The Effectiveness of Market Mechanism for Adjusting Farming to Public Need."
1.4.6 Reid, Margaret G. *Consumers and the Market.*

1.1 Definitions

Marketing is sometimes defined as buying and selling, i.e., the exchange of goods and services. But much of the marketing work done by the colleges and by government agencies would not be covered by such a narrow definition. Agricultural economists have rather generally followed a broad definition of marketing, covering not only buying and selling but also such subjects as transportation, processing, and storage.—*Ed.*

1.1.1 Thomsen, Frederick Lundy. *Agricultural Marketing.* McGraw-Hill, New York, 1951. P. 1. Reprinted by permission.

The study of agricultural marketing, then, comprises all of the operations, and the agencies conducting them, involved in the movement of farm-produced foods and raw materials, and their derivatives such as textiles, from the farms to final consumers, and the effects of such operations on farmers, middlemen, and consumers.

This sort of broad definition has been rather generally accepted by the colleges and the governmental agencies working in the field of agricultural economics. For example, the following excerpt provides a good working definition of marketing research.—*Ed.*

1.1.2 United States Agricultural Research Administration. *Administrative Procedures for State Agricultural Experiment Station Research Under Agricultural Marketing Act of 1946.* Washington, Nov., 1951. P. 3. (Processed.)

More specifically, for administrative purposes, marketing research under the Agricultural Marketing Act is interpreted as research on the organization, methods, and practices used, and the operations involved, in the transfer of title and in the physical handling of products, in their natural or processed form. Projects giving primary emphasis to utilization research are excluded under this definition.

So interpreted, marketing research includes, but may not be limited to, research on assembling, packing, packaging, handling, transporting, and storing farm products; on standardization, grading, and distribution; on the operations of middlemen and marketing institutions, including financing; on problems basic to effective educational, service, and regulatory activities designed to improve distribution; and on the development of improved ways of moving farm products through the distributive channel.

The above definitions are broad, but they emphasize the production aspects of marketing, rather than those of

pricing. This book covers the *economics* of agricultural marketing. Prices and pricing are at the heart of marketing. This aspect of agricultural marketing is emphasized in the following definition of market organization.—*Ed.*

1.1.3 Rowe, Harold B. "Economic Significance of Changes in Market Organization." *Jour. Farm Econ.*, Vol. XXII, No. 1, Feb., 1940. P. 173–74.

But the ultimate economic significance of a change in marketing is not determined solely by its influence upon costs and efficiency. It depends also upon the promptness and precision with which this influence is reflected in the prices of marketing and processing services — that is, in the charges established — and how these charges affect volume and price adjustments at all stages from farm to consumer. Hence, in order to consider the problems raised . . . it is necessary to examine the bearing of combination and integration upon marketing as a process of exchange — a process in which prices are established.

The dictionaries give several definitions of the word *market,* and there often is confusion about that word, even in professional literature. While this is undoubtedly unfortunate, we can do little about it. We can't very well decree that from now on everyone must use the word in one particular sense. But it is well to remember the different meanings of the word *market,* and it is often wise to qualify the word to indicate in which sense it is used.—*Ed.*

1.1.4 Larson, Adlowe L. *Agricultural Marketing.* Prentice-Hall, New York, 1951. Pp. 33–34. Reprinted by permission.

The term *market* has a variety of meanings. In some cases the *market* may mean (1) the *place* where buying and selling take place, such as the public market, the retail store, or the vegetable market in a city. Again, it may be thought of as (2) an *area* in which a good is sold, such as the United States market, the European market, or the world market. The market may be thought of as (3) a *group of people* carrying on buying or selling. This group may be (*a*) unorganized (for example, ladies selling cake at a church bazaar) or (*b*) organized (for example, board of trade). Too, the market may be (4) the *commodity* traded, such as the corn market, the cotton market, or the livestock market. The market is also defined with respect to (5) *time* (for example, the cash market and the futures market).

More general definitions include: The market is the opportunity to buy or sell. The qualifications of this definition might be met when two or more people are in communication with

each other. Hibbard's definition is "A market is the sphere within which price-making forces act." Kiekhofer states, "Markets may be properly described as the entire area within which the forces of demand for and supply of a given commodity or service interact in effecting exchanges and establishing prices. Wherever and whenever buyers and sellers are brought together, whatever the means for achieving communication, markets exist."

A market, therefore, is the ~~mechanism through which exchanges are made~~. The term "mechanism" is a broad concept similar to "sphere" in the definition above. There must be communication between prospective buyers and sellers, and facilities for completing transactions.

1.2 The Size and Expense of the Job

Agricultural marketing, as we have defined it, is important partly because it is a big, expensive job.

We are not concerned here with the details of costs and margins, but we shall provide a few general facts and figures to give some idea of the magnitude of the job.

The data given in the following excerpts relate only to foods. Hence they underestimate the importance of agricultural marketing. Food products account ultimately for only about 80 per cent of farm marketings, and an even smaller percentage of marketing charges, since nonfood products like textiles require more expensive processing than do most foods.—*Ed.*

1.2.1 United States Bureau of Agricultural Economics. *Marketing and Transportation Situation.* Oct., 1952. (1953 Outlook Issue). P. 15.

The Bureau of Agricultural Economics makes annual estimates of the total farm value, retail cost, and marketing charges of all farm foods bought by civilian consumers in the United States. Estimates also are made for the six major farm food commodity groups. These estimates reflect variations in the total volume of food marketed, as well as variations in prices and marketing that are measured by the "market basket" series. . . .

The total retail-store value of all farm food bought by civilian consumers in the United States in 1951 is estimated at 38.8 billion dollars and the total charges for marketing these foods at 19.1 billion dollars. This estimate of the total marketing bill includes charges for local assembly, transportation, storage, processing, wholesaling, and retailing, but not the additional service charges for food sold in the form of meals in restaurants and other eating places.

1.2.2 United States Bureau of Agricultural Economics. *Marketing and Transportation Situation.* Oct., 1951, p. 12. Oct., 1952, p. 16.

TABLE 4

DOMESTIC CIVILIAN PURCHASES OF FARM FOOD PRODUCTS

Farm Value, Retail Cost, and Marketing Charges, All Farm Foods and Six Major Commodity Groups, 1913–51 (*in Billions of Dollars*)

	All Farm Foods			Meat Products			Dairy Products			Poultry and Eggs		
	Farm Value*	Retail Cost†	Marketing Charges‡	Farm Value*	Retail Cost§	Marketing Charges‡	Farm Value*	Retail Cost§	Marketing Charges‡	Farm Value*	Retail Cost§	Marketing Charges‡
1913.....	3.53	7.41	3.88	1.35	2.26	0.91	0.62	1.23	0.61	0.45	0.66	0.21
1919.....	7.55	15.22	7.67	2.50	4.14	1.64	1.34	2.38	1.04	1.03	1.45	.42
1921.....	5.05	12.57	7.52	1.40	3.45	2.05	1.15	2.34	1.19	.77	1.16	.39
1929.....	7.22	17.08	9.86	2.23	4.45	2.22	1.76	3.33	1.57	1.12	1.70	.58
1932.....	3.40	10.61	7.21	.91	2.67	1.76	.97	2.21	1.24	.54	.88	.34
1935–39 average..	5.43	13.63	8.13	1.72	3.65	1.89	1.37	2.76	1.39	.76	1.15	.39
1940.....	5.57	13.77	8.19	1.75	3.56	1.81	1.48	3.05	1.57	.78	1.23	.45
1944.....	11.20	21.35	10.72	3.52	5.32	2.13	2.35	4.15	1.91	1.73	2.48	.75
1948.....	18.69	35.83	17.13	7.26	11.55	4.29	4.07	6.97	2.90	2.83	4.14	1.31
1949.....	16.59	33.66	17.05	6.48	10.76	4.28	3.46	6.33	2.87	2.71	4.06	1.35
1950.....	17.06	34.92	17.84	6.80	10.91	4.11	3.50	6.43	2.93	2.52	4.08	1.56
1951.....	19.62	38.77	19.13	7.90	12.29	4.39	3.99	7.23	3.24	3.28	4.93	1.65
1952**.....	20.0	40.5	20.5	.....	.....	.....	.....	.....	.....	.....	.....	.....

(*Continued on next page*)

TABLE 4 (*continued*)

	Fruits and Vegetables			Bakery and Other Cereal Products			Miscellaneous Food Products		
	Farm Value*	Retail Cost§	Marketing Charges‡	Farm Value*‖	Retail Cost§	Marketing Charges‡	Farm Value*	Retail Cost§	Marketing Charges‡
1913	0.55	1.44	0.89	0.44	1.42	0.98	0.12	0.40	0.28
1919	1.13	3.33	2.20	1.21	2.90	1.69	.34	1.02	.68
1921	.95	2.64	1.69	.62	2.42	1.80	.16	.56	.40
1929	1.21	3.89	2.68	.68	2.86	2.18	.22	.85	.63
1932	.61	2.29	1.68	.26	1.91	1.65	.11	.65	.54
1935–39 average	.88	2.83	1.95	.50	2.42	1.89	.20	.82	.62
1940	.92	2.65	1.73	.44	2.35	1.91	.20	.93	.72
1944	2.17	4.83	2.70	.92	3.20	2.37	.51	1.37	.86
1948	2.47	6.58	4.11	1.39	4.85	3.46	.67	1.74	1.06
1949	2.15	5.85	3.70	1.20	4.82	3.62	.59	1.84	1.23
1950	2.23	6.33	4.10	1.26	5.24	3.98	.75	1.93	1.16
1951	2.35	6.80	4.45	1.38	5.57	4.19	.72	1.95	1.21

* Farm value is adjusted to eliminate imputed value of nonfood by-products and income from products not purchased by domestic civilian consumers. It does not include Government payments to producers such as soil conservation payments and feed subsidies.

† Retail cost equals the sum of the retail costs for the six commodity groups. For derivation of retail cost by commodity groups, see footnote §.

‡ Marketing charges equal margin (difference between retail cost and farm value) minus processor taxes plus Government payments to producers. Taxes and payments are estimated by applying ratios from price-spread data to retail cost. (Agr. Inf. Bull. No. 4, "Price Spreads Between Farmers and Consumers," Nov. 1949.)

§ Retail cost for each commodity group is derived by dividing farm value by farmer's share estimated from commodity price spreads.

‖ Farm value includes bakery ingredients other than flour.

** Preliminary estimates.

1.2.3 United States Bureau of Agricultural Economics. *Marketing and Transportation Situation.* March–April, 1952, p. 6. Oct., 1952, p. 10.

TABLE 1

THE MARKET BASKET

Retail cost of 1935–39 average annual purchases of farm food products by a family of three average consumers, farm value of equivalent quantities sold by producers, marketing charges, and farmer's share of the consumer's food dollar, 1935–52

Year	Retail Cost*	Farm Value†	Marketing Charges‡	Farmer's Share
	Dollars	*Dollars*	*Dollars*	*Percentage*
1935–39 average..	341	135	204	40
1940.....	319	127	192	40
1941.....	349	154	194	44
1942.....	409	195	213	48
1943.....	459	236	229	51
1944.....	451	233	230	52
1945.....	459	246	229	54
1946.....	528	279	258	53
1947.....	644	335	308	52
1948.....	690	350	340	51
1949.....	646	308	338	48
1950.....	645	308	337	48
1951.....	722	361	361	50
1952§.....	740	355	385	48
1952—Jan.....	746	364	382	49
Feb.....	726	354	372	49
Mar.....	725	356	369	49
Apr.....	738	358	380	48
May.....	744	362	382	49
June.....	746	359	388	48
July.....	755	365	390	48
Aug.....	754	359	394	48
Sept.§.....	738	348	390	47

* Calculated from retail prices collected by the Bureau of Labor Statistics and the Bureau of Agricultural Economics.

† Payments to farmers for equivalent quantities of farm produce minus imputed value of by-products obtained in processing.

‡ Marketing charges equal margin (difference between retail cost and farm value) minus processor taxes plus Government payments to marketing agencies.

§ Preliminary.

1.2.4 Black, John D. and Kiefer, Maxine E. *Future Food and Agriculture Policy.* McGraw-Hill, New York, 1948. P. 150. Reprinted by permission.

. . . In the United States around 1913 to 1915, the statistics show that 46 per cent of the consumer food dollar went to the farmer. The rest went to transportation, storage, buying and selling, and the other middleman activities. This percentage increased in the early years of the First World War because farm prices rose faster than transportation rates and middleman

margins, but it fell off to 40 per cent in the postwar depression of 1921 to 1923. After some recovery, it then fell off to 32 per cent with the very low farm prices of 1932. In the immediate prewar years it had returned to a level of around 39 cents. With the subsequent rise in prices, the percentage rose to 55 at the peak. No doubt the Office of Price Administration (OPA) program of putting ceilings on prices had much to do with the attainment of this high level — these held retail prices down while farm prices were rising. One might assume that the marketing agencies lost money as a result, but the evidence runs to the contrary. They handled a larger volume with less labor and other inputs and furnished less services with the goods. Whether this 55 per cent of the war years and postwar years to date will return to 39 per cent depends in considerable part upon the level to which prices of farm products fall. If such prices are kept above 90 per cent of parity, as under present legislation, around 45 per cent is likely to be the lower limit of the farmers' share of the consumer dollar.

1.3 Public Attitudes

Middlemen have historically been looked upon with great disfavor and suspicion. Both the farmer and the consumer have often suspected that they were being robbed by parasitic dealers, transporters, bankers, and others who lived off the marketing of food, yet contributed no essential service. This suspicion has largely developed from the fact that many middlemen perform no apparent physical function.

The essentiality of the middleman's function has become increasingly obvious, however, as our national economy has grown. Farmers have become specialized producers of raw materials, which are far separated in form and time, as well as in space, from the processed food products purchased at retail by consumers in our great urban centers. Marketing research has contributed to a change in public attitudes by showing that many of the vague suspicions of the past are not well founded. It has shown the futility of general attacks upon middlemen and, instead, has pointed the way to concrete, specific improvements which can benefit farmers, consumers, and dealers alike. Some thoughts on the efficiency of marketing and specific measures to improve it appear in Section 4.

We first present an excerpt from a letter written by George Washington; following this are excerpts from J. M. Cassels tracing the attitudes of leading thinkers in history toward marketing and the role of the middleman.—*Ed.*

1.3.1 Washington, George. From a letter to Joseph Reed, dated Dec. 12, 1778, in *The Writings of George Washington.* Vol. 13, ed. by John C. Fitzpatrick, U. S. Government Printing Office, Washington, 1936. P. 382.

It gives me very sincere pleasure to find that there is likely to be a coalition of the Whigs in your State (a few only excepted) and that the assembly of it, are so well disposed to second your endeavours in bringing those murderers of our cause (the monopolizers, forestallers, and engrossers) to condign punishment. It is much to be lamented that each State long ere this has not hunted them down as the pests of society, and the greatest Enemys we have to the happiness of America. I would to God that one of the most atrocious of each State was hung in Gibbets upon a gallows five times as high as the one prepared by Haman. No punishment in my opinion is too great for the Man who can build his greatness upon his Country's ruin.

1.3.2 Cassels, J. M. "The Significance of Early Economic Thought on Marketing," *Jour. Marketing,* Vol. 1, No. 2, Oct., 1936. Pp. 129–33.

The place given to marketing in Plato's brief but penetrating analysis of the economic foundations of society is highly significant. The Greek city states of his day were, in his opinion, essentially economic communities which owed their very existence to the advantages that were to be gained in the production of economic goods from the application of the principle of division of labor. He recognized that individuals, although acting purely from self-interest, would gradually discover the benefits to be gained from specialization and exchange and would thus be drawn together naturally into economically efficient social units. "All things," he says, "will be produced in superior quantity and quality, and with greater ease, when each man works at a single occupation, in accordance with his natural gifts, and at the right moment, without meddling with anything else." Having pointed out that even the minimum amount of specialization would bring into existence within the economic community separate classes of husbandmen, house-builders, weavers, shoemakers, carpenters and blacksmiths, he goes on to ask "how are they to exchange their several production?" He recognizes the need for an established market and an acceptable medium of exchange. Then he proceeds to explain the function of the middlemen in the following passage:

"Suppose then that the husbandman, or one of the other craftsmen, should come with some of his produce into the

market, at a time when none of those who wish to make an exchange with him are there, is he to leave his occupation and sit idle in the market place?

"By no means: there are persons who, with an eye to this contingency, undertake the service required; and these in well-regulated states are, generally speaking, persons of excessive physical weakness, who are of no use in other kinds of labor. Their business is to remain on the spot in the market, and give money for goods to those who want to sell, and goods for money to those who want to buy." The development of a specialized class of middlemen was, to Plato, merely a further application of the same principle of social division of labor which gave rise to the different classes of basic and secondary producers referred to above. His reference to the fact that they would be persons unsuited to more strenuous types of labor is typical of his whole treatment of specialization and is especially interesting because it illustrates a point on which his discussion of this subject differs fundamentally from the more famous one given by Adam Smith in his *Wealth of Nations.* Plato, reflecting the characteristic views of his age, recognized the existence of innate differences between individuals and attached much importance to the advantage of fitting people into the occupations for which their "natural gifts" best suited them, whereas Smith, writing in an era of revolutionary democracy and liberalism, accepted the general view that men were born equal and was obliged, therefore, to develop an explanation of division of labor in which "natural gifts" play no part at all.

The views of Aristotle on marketing are strikingly at variance with those of Plato, but they are typical, nevertheless, of an attitude towards traders which has been shared by many in all periods of history not excluding the present. He regarded them as useless profiteering parasites. A certain limited amount of direct exchange between the primary producers of the necessaries of life he was prepared to accept as a part of the "natural art of acquisition" contributing to the "good life" of the families concerned, but professional trading he condemned as unnatural, mercenary, exploitative and corrupting. It was unnatural, in his opinion, because the wealth obtained from trading was not "given by nature" but was acquired by "experience and art"; it was mercenary because money, "a spurious kind of wealth," was "the starting point and the goal of the exchange"; it was exploitative because the services for which the traders charged

added nothing to the life-sustaining qualities of the goods they handled; and it was corrupting because the desire for money, unlike the desire for natural forms of wealth, was absolutely insatiable. In summing up he says:

"Of the two sorts of acquisition one is a part of household management and the other is trade: the former is necessary and honorable, the latter a kind of exchange which is justly censured; for it is unnatural, and a mode by which men gain one from another."

Partly as a result of Aristotle's influence on their thinking and partly as a result of certain passages contained in the Bible itself the teachings of the early fathers of the Christian Church were frequently unfavorable to the activities of middlemen. Cassiodorus, for example, had said that trading was sinful because "he who in trading sells a thing for more than he paid for it must have paid for it less than it was worth or must be selling it for more than it is worth." Others condemned trading not because it was inherently unproductive, but because it developed in the individuals engaged in it characteristics which were unchristian. These views, however, were not universally accepted and as time went on there was a tendency for the hostility of the Church towards middlemen to be gradually relaxed.

An authoritative refutation of the Aristotelian views was given in the thirteenth century by the greatest of all the scholastic philosophers, Thomas Aquinas. Living at a time when the Italian cities were rising to positions of prosperity and power on the basis of their commerce, he was naturally inclined to look more favorably on the activities of the merchant class. He points out in the first place that although the object of trading is to make money and although that in itself is not an honorable end, it is not necessarily sinful since the gains may be quite moderate and may be devoted to ultimate objectives which are definitely honorable. Then he goes on to deal specifically with the question of "whether in trading it is lawful to sell a thing for more than was paid for it." Although he seems to disapprove of purely speculative transactions in which the trader "buys for the express purpose of selling dearer," he states quite definitely that a person may lawfully sell a thing at an enhanced price "either because he has improved the thing in some way, or because the price has changed with a change of place or time, or because of the risk he takes in transporting the thing from one place to another, or even in having it transported for him. Ac-

cording to this reasoning neither the purchase nor the sale is unjust." This, it will be observed, is not a complete justification of the middleman's activities since it takes no account of those productive services which result merely in the creation of possession utility through the transfer of goods into the hands of those who have the greatest need for them, but it marks, nevertheless, a turning point in thought in favor of the merchant class.

* * *

. . . Sir William Petty, classified in the history of economic thought as a liberal mercantilist, expressed the opinion that "a large proportion of these merchants and retailers might be retrenched, who properly and originally earn nothing from the public, being only a kind of gamester that play with one another for the labor of the poor; yielding themselves no fruit at all, otherwise than as veins and arteries, to distribute forth and back the blood and nutritive juyces of the body politick, namely the products of husbandry and manufacture." Petty seems to have been particularly concerned about the tendency he observed for wasteful duplication to develop in the distribution field but economists in general since his day have, until very recently, remained optimistically oblivious to the problems thus created.

A good statement of the case for the middlemen was given in 1734 by Richard Cantillon. He stresses the "uncertainty" of the mercantile "entrepreneur's" activity when he is obliged to pay for commodities at fixed prices and then sell them later for what he can get. Cantillon then proceeds to explain the function of the storekeeper in terms reminiscent of Plato. "What encourages and maintains entrepreneurs of these kinds," he says, "is the fact that the consumers, who are their customers, prefer to pay a little more in order to find at hand what they need in small quantities, rather than to lay in a stock of it."

* * *

To bring this brief survey of thought relating to marketing down to the beginning of modern times it remains only to mention finally the characteristically optimistic views of Adam Smith. In a digression concerning the corn trade he gives an interesting discussion of the functions of the dealers and of the attitude of the public towards them. The dealer with his knowledge of crops and markets is able by raising his price in time

of threatened scarcity to restrain consumption and thereby confer great benefit on the community. "It is his interest," says Smith, "to raise the price of corn as high as the real scarcity of the season requires and it can never be his interest to raise it higher. . . . Without intending the interests of the people, he is necessarily led, by a regard to his own interest to treat them, even in years of scarcity, pretty much in the same manner as the prudent master of a vessel is sometimes obliged to treat his crew." Smith recognized that in times of scarcity the dealers will make enormous gains, but these he regards as natural and necessary. That they are no more than sufficient to put this trade on a fair level with others and to compensate for the many losses sustained on other occasions is evident, he says, "from the single circumstance that great fortunes are as seldom made in this as in any other trade." He also believed that the numbers of middlemen engaged in different trades and located in different places would be so regulated by natural economic forces as to be most conducive to the general welfare. According to him "the prejudices of some political writers against shopkeepers and tradesmen are altogether without foundation" since "they can never multiply so as to hurt the public although they may so as to hurt one another."

From Adam Smith's time to the present day this age-old controversy about the nature and value of middlemen's services has continued. There have always been some who were inclined to regard middlemen as robbers who took advantage of their strategic positions of control over the channels of distribution to exploit both the producers and the consumers, while there have also been others who were ready at all times to defend them on the ground that their activities were economically productive (creating at least possession utility) and that under the competitive conditions which seemed generally to prevail in this field their services were probably paid for roughly according to the marginal productivity principle. Classical and neoclassical economists have been infected to a considerable extent with the optimism of Adam Smith and have been much less critical of the agencies developed for commodity distribution than were the ordinary untrained observers and the minority of economists who held unorthodox points of view. There have been in recent years, however, certain significant changes both in economic theory and in the methods of distribution which have aroused among economists in general a new interest in

marketing problems and created an attitude towards them more likely to lead to practically useful results.

It is widely recognized today that the sort of competition which is so much in evidence in the marketing of various types of products and between various types of outlets is not the "pure competition" which is postulated in the deductive analyses of economic theory. It is recognized that, even where the number of middlemen in the market is large and the rivalry between them, as evidenced by sales efforts, is keen, their policies may nevertheless be non-aggressive and the system as a whole may be wastefully inefficient from a social point of view. As a result of this new attitude towards the problems of distribution attempts are now being made to study them more directly and specifically by methods of theoretical analysis combined with empirical research. Considerable progress has already been made and much more may be hoped for in the future from efforts directed along these promising lines provided always that the details of empirical research are not allowed to obscure the broader issues that are involved nor the basic principles of social efficiency which were outlined so long ago by Plato and have been further developed by so many important thinkers between his day and the present time.

Mention should be made here also of Colin Clark's *The Conditions of Economic Progress,* which distinguishes primary, secondary, and tertiary industries. Agriculture, fishing, forestry, and hunting are classified as primary; mining, manufacturing, construction, gas, and electricity as secondary; and distribution, transport, public administration, domestic services, and all other activities as tertiary. Clark shows that the most prosperous nations have highly developed tertiary industries.

The remaining three excerpts in this subsection give the attitudes of modern students of agricultural marketing. —*Ed.*

1.3.3 Reid, Margaret G. *Consumers and the Market.* 3rd ed., Crofts, New York, 1942. Pp. 123–24.

The present marketing system is a direct outcome of certain areas specializing in the production of fruits, vegetables, cotton, corn, clothing or some other product; of giant factories replacing small community shops, where with simple tools goods were formerly manufactured; and of people living in great cities far from sources of basic raw materials. Exchange and specialization go hand in hand, and markets provide the channels through

which goods flow from makers to users. Without an elaborate system of exchange and a means of physical transfer of goods, mass production and specialization of territories and of workers would not occur, and people would live and work close to sources of supplies or raw materials used.

Marketing is one of the steps in making goods available. Were it not for our elaborate marketing facilities agriculture and manufacturing would be very different. This simple fact needs emphasis because some people are prone to think that agriculture, manufacturing and certain other industries — such as lumbering and mining — in some mysterious way render more important functions in society than does marketing. They fail to recognize the importance of services performed by middlemen; some people, in fact, go so far as to infer, perhaps unintentionally, that middlemen are often little better than highway robbers, who levy high charges and render little or no service in return. This idea probably arises from the fact that manufacturers and farmers, for example, change the form of the commodity, or, in the terms of the economist, they create substance and form utility. What they do is thereby quite conspicuous. The marketing system effects no such change in commodities. Retailers, wholesalers, and other market agencies merely transport, store, buy, and sell goods so that finally they reach consumers. Marketing services, even though they do not change the form of goods, are yet indispensable. Apples in the State of Washington may be crisp, lovely to look at, delicious in flavor, beautifully packed, but they are of no use to a consumer living in Missouri. The latest model from a New York dressmaker is not yet ready for the consumer living in Cleveland, Ohio, who has neither time nor money for a trip East. In our economic system the functions of creating time, place and possession utilities are exceedingly important.

* * *

In the process of marketing certain functions have to be performed. To be socially necessary, an activity must be an essential part of making goods available at the place and time desired by consumers. The nature of marketing, the reason for the development of certain agencies and the incurring of various costs, can best be appreciated by examining the major functions to be performed. Four major groups of functions are noted here: those related to (1) exchange, (2) information, (3) physical supply and (4) general business.

MARKETING FUNCTIONS

A. Exchange
   1. Merchandising
   2. Selling
   3. Buying
   4. Price setting

B. Information
   5. Market news and information
   6. Grading and description of products

C. Physical Supply
   7. Transportation
   8. Storage

D. General Business
   9. Financing
   10. Risk taking

1.3.4 Clark, F. E. and Weld, L. D. H. *Marketing Agricultural Products in the United States.* Macmillan, New York, 1932. Pp. 16–18.

The Farmer and Marketing. The grower labors under distinct disadvantages in his attempts to market. He has frequently neither the time, the merchandising ability, nor the information necessary to market his products successfully. He is, moreover, likely to be particularly busy caring for one crop — plowing, planting, or harvesting — just when it may be the most opportune time to market another. And in the winter season, when he has time to market, country roads are often impassable. Since effective production calls for a high degree of specialized knowledge, most farmers are unable to become specialists in marketing as well. They have, consequently, insufficient knowledge of marketing methods and of market conditions, and possess little or no information as to the price of their products in other markets than the local one in which they sell. They know even less of the broad market influences which determine prices. They are often uninformed as to the type of product that factories and final consumers are most willing to purchase.

The operations of the average farmer are on too small a scale to warrant giving much time to marketing or to the performance of certain important marketing activities. This is true in spite of the high degree of specialization that has taken place in agriculture. And it is one of the most important limitations to effective marketing. With his operations conducted on such a small scale the average farmer cannot effectively sort and

grade, sell or advertise his crop. His total crop is so small and its quality so variable that he can gain few of the advantages of branding, and for these same reasons he cannot make or maintain effective sales contacts. He cannot, as a rule, economically operate the most effective storage, sorting, and other mechanical equipment for the physical handling of his product. In other words, the individual farm unit is too small to utilize effectively and economically the methods of sale and the physical equipment for effective marketing which have been developed in the industrial field.

These facts are largely responsible for the development of independent local middlemen, who operate on a large enough scale to warrant devoting their time to marketing and their capital to the construction of marketing equipment. And it is to overcome the disadvantage of individual and scattered efforts that farmers have been resorting more and more to cooperative marketing.

1.3.5 Nourse, Edwin G. *The Chicago Produce Market.* Mifflin, Boston, 1918. Pp. 11–12, 235.

. . . It is not strange that the irritation of consumers against any one who may be suspected of responsibility for any part of the rising prices of food products should be somewhat pointedly directed at the dealers in farm produce. The grocer is so close to the consumer that a measure of friendship often protects him from attack. Besides this, his unstinted services and modest profits are patent. The producers, likewise, offer no fair target, being too far away, too numerous, and too little organized. But the commission man is protected neither by distance nor by friendship; he is at once impersonalized and accessible. For the same reasons he is exposed to the missiles of the grower, who cannot fight a whole world of consumers, but who finds in the produce dealer — a shrewd city fellow reputed to be making enormous profits from speculation in the farmer's wares — a shining point for his attack. We are all prone to retain a good deal of the mediaeval philosophy which gives all the credit of wealth-creation to the man who performs the technical process of production and calls the merchant a parasite. This is natural enough in the farmer who has sweated through planting time and harvest.

* * *

The Chicago market is a conspicuous example of the fully developed "middleman" system against which so much com-

plaint has of late been directed. Whatever burdens the roundabout method imposes fall upon Chicago's trade; whatever merits the system possesses she may claim in full measure.

Some of the ways by which the middleman system has grown up through the differentiation of marketing functions in the hands of specialized agencies have been pointed out. Such division of labor means increased efficiency in the business of marketing in quite the same way that it does in other lines of economic activity. From Böhm-Bawerk's classic discussion of the superiority of the roundabout over the direct method to Weld's excellent exposition of the gains from specialization in marketing, economic literature is strewn with evidences that society's progress from crude to efficient methods of carrying on its economic life has been accompanied by the multiplication of processes and the appearance of new intermediaries — possessed of special training and equipment — between the one desiring goods and the source from which the satisfaction of his need must come. It is naive in the extreme to suppose that the efficiency of a given marketing system varies in inverse ratio to the number of types of middlemen engaged in it.

The new market agencies added from time to time have been enabled to gain foothold only by rendering a service in return for which they could secure a wage or profit. To admit this historical justification, however, does not constitute a valid argument for their continuance through all time. They have no vested interest in their job or its emoluments for a moment longer than the time when we can dispense with them. If we can devise a simpler market mechanism all superfluous wheels and levers must go. Mr. Edison is credited with having said that the best way of accomplishing a mechanical task is the simplest, and is the last and hardest to find out. Presumably the same may be said of socio-economic undertakings.

1.4 Aims of Agricultural Marketing

Some of the aims and purposes of agricultural marketing have been implicit in the preceding expressions of attitude towards it. A more explicit statement of aims is necessary, however, to come to grips with the problem of "improving" the marketing system.

Just what do we want from agricultural marketing? What is the purpose of research in this subject? Obviously, the answer depends on one's point of view.—*Ed.*

1.4.1 Thomsen, Frederick Lundy. *Agricultural Marketing.* McGraw-Hill, New York, 1951. Pp. 3–4. Reprinted by permission.

Marketing Objectives. — Frequent public references to the "marketing problem" raise the question, What is the problem? What do people mean when they use this term? In few instances, probably, do they have any definite idea concerning a single problem. They are thinking about the assumed general inefficiency of marketing, the "small" proportion of the consumer's dollar spent for food which is passed on back to farmers, the sometimes erratic price fluctuations for farm products, which are commonly attributed to deficiences of the marketing system, the fact that many people may be suffering from malnutrition while producers search vainly for satisfactory markets for their food.

Actually, there is no *one* marketing problem. Farmers, middlemen, and consumers have different ultimate objectives in their desire for better marketing, although the means to these ends may be similar in many respects. It is difficult even to state their general objectives in simple terms which stand up under careful scrutiny.

The consumer wants a marketing system which will provide adequate quantities of foods and fiber products, of appropriate qualities, conveyed to him, with all necessary incidental services, at the lowest possible cost. But the terms "adequate," "appropriate," and "necessary" cover a multitude of questions which make the statement little more than a restatement of the original question.

The agencies which operate the marketing system, commonly referred to as "middlemen," have as their primary objective the largest possible total net profit. But this, too, is not as simple as it sounds. Total profits may be largest when profit per unit is relatively small. Not all middlemen seek maximum immediate profits.

The farmer's objective is a marketing system which will give him the largest possible returns for the products which he can produce most efficiently. Obviously, this statement also begs the question. If we assume the production of fixed quantities of specific products, the problem is simple. The farmer would want to obtain the highest possible prices for these commodities. But marketing affects the kinds and proportions of products which can be sold, and these in turn affect the costs and

efficiency of production. Therefore, the "perfect" marketing system, from the farmer's standpoint, is one which will induce him to produce those quantities of those products which, when sold to consumers, will result in maximum returns after deduction of minimum marketing charges for these commodities and his own production costs. This is complicated, but not ambiguous.

From the public standpoint, the marketing problem is how the operations involved in marketing can be rendered with maximum efficiency or minimum costs. Here, again, we see the difficulty of generalizing. "Marketing operations" may include services which from a social standpoint are not essential or which consumers or producers would not be willing to pay for if they had a choice.

In studying the subject of marketing, our approach must be affected considerably by which of these objectives is our primary goal. . . .

> The Congress of the United States set forth several important aims in connection with the Agricultural Marketing Act of 1946, which authorized an expanded program of research, service, and educational work in agricultural marketing.—*Ed.*

1.4.2 7 U.S.C. 1621 (Public Law 733, 79th Congress, Title II, Sec. 202).

The Congress hereby declares that a sound, efficient, and privately operated system for distributing and marketing agricultural products is essential to a prosperous agriculture and is indispensable to the maintenance of full employment and to the welfare, prosperity, and health of the Nation. It is further declared to be the policy of Congress to promote through research, study, experimentation, and through cooperation among Federal and State agencies, farm organizations, and private industry a scientific approach to the problems of marketing, transportation, and distribution of agricultural products similar to the scientific methods which have been utilized so successfully during the past eighty-four years in connection with the production of agricultural products so that such products capable of being produced in abundance may be marketed in an orderly manner and efficiently distributed.

1.4.3 H. Rep. 2458, 79th Congress, 2nd session, July 8, 1946.

. . . to the end that marketing methods and facilities may be improved; that distribution costs may be reduced; that the price spread between the producer and the consumer may be

narrowed; that dietary and nutritional standards may be improved; that new and wider markets for American agricultural products may be developed; and that the full production of American farms may be disposed of usefully, economically, profitably, and in an orderly manner. It is generally recognized and admitted that many of the major and most pressing problems in agriculture lie in the field of marketing and distribution. In the past, major emphasis has been placed on problems of production, and marketing problems to a large extent have been ignored. Unless intensive research is carried out to improve the processes of distributing agricultural products capable of being produced in abundance, many of the benefits and improvements developed through research in the field of production will be dissipated. Production is but half the problem. It is equally important, if agriculture and the Nation is to prosper, that there be an efficient marketing system to distribute in an economical and orderly manner that which is produced.

The following comment emphasizes two of the Congressional aims.—*Ed.*

1.4.4 Wells, Oris V. "Summary of Presentation on Scope and Objectives of Marketing Research," U. S. Agr. Research Admin. Marketing Research Notes from National Workshop, Aug. 29–Sept. 8, 1949. P. 18. (Processed).

. . . I want to turn to the Research and Marketing Act and try to reconstruct what was in the Congressional mind when the Act was passed and appropriations made. It seems to me that Congress had in mind first that marketing research and services should be developed which would reduce the cost of marketing agricultural commodities and the products thereof, preferably in such a way that the reduced costs would be reflected in terms of increased prices to farmers. Second, the Congress had in mind as an alternative, the development of additional or increased markets for farm commodities, the successful criteria for which would be to sell more farm commodities at essentially the same price that prevailed for the smaller quantity.

None of the above aims can be accomplished without efficient pricing, and it is well to emphasize that efficient pricing is an aim in itself.—*Ed.*

1.4.5 Norton, L. J. "The Effectiveness of Market Mechanism for Adjusting Farming to Public Need," *Proc. of the Sixth Internat'l Conf. of Agr. Econ.*, Oxford Univ. Press, London, 1948. Pp. 113–116.

The pricing process is the heart of the market mechanism. What are the criteria of efficiency in this process? I tell my

marketing classes that the pricing mechanism is to be judged by the following tests. It should: (1) develop prices which reflect to producers the basic demands of consumers as to kind, quantity, and quality of goods and so guide production; (2) reflect prices which will move existing and forthcoming supplies into consumption; (3) provide a price structure that maintains economically justified stocks both within and between production seasons; (4) treat all parties alike; (5) reflect the quality differences recognized by the trade and consumers; and (6) do these things economically and efficiently.

* * *

The only concept of 'public need', a phrase used in my topic, that the farmer can grasp is the willingness of consumers to buy his products. . . .

* * *

It is clear by now, I hope, that the pricing function of the marketing mechanism is the only phase of that mechanism which I consider to be relevant to my topic and that 'public need' is made known to farmers by demands in the market or reflected in prices . . .

* * *

I am old-fashioned enough to believe that the best test of any economic policy is: Does a programme contribute to maximum production of things for which there is effective demand? All programmes should be subjected to this test of maximizing production of needed things. To raise the level of food consumption we must increase the level of production of food. Many technical factors are involved, but a consideration of these is not a part of my assignment. On the market side, however, a mechanism of free, open, competitive markets will, in my opinion, maximize production. Most control programmes aim at curtailing or withholding output to sustain market prices. All of these fail the test of maximizing production of goods for which an effective demand exists.

Consumers, as well as farmers, obviously have a major stake in agricultural marketing. This stake is often overlooked, since it is commonly assumed that the consumer's interest is automatically protected by the working of the free market mechanism. But with the recent recognition of widespread imperfections of the market, consumers' aims and interests have begun to receive more attention in agricultural marketing research.—*Ed.*

1.4.6 Reid, Margaret G. *Consumers and the Market.* 3rd ed., Crofts, New York, 1942. Pp. 111, 115.

Consumers want certain goods and services; their quality and cost in time and energy as well as money are important. A good market thus has several characteristics:

(1) It provides commodities which consumers want and stand ready to pay for.

(2) It provides wide variety from which to choose, without needless variety to confuse.

(3) In it no "harmful" products are offered for sale without taking precautions to protect consumers.

(4) Information is provided about the presence of goods in the market and about their relative merits so that comparisons are facilitated.

(5) There is no pressure to buy.

(6) Retailing services are provided for those who want them.

(7) There is no inefficiency or waste.

(8) Prices are fair.

* * *

The final criterion of a good market relates to price. To some consumers the market may be rated unsatisfactory if the price is higher than they can afford. The best that consumers as a whole can ask is that prices be "fair." They do not want to pay more than is necessary to ensure a continuous supply of the commodity in the market.

We must briefly explain "fair" price as here used. Some people are inclined to say that consumers want *low* prices, not *fair* prices. But low price for one product may not be in line with consumers' interest if it is accompanied by "high" prices at another point. Low prices for one or more products may occur because an undue quantity of labor and other productive resources is being used in producing them. A condition of oversupply exists. Consumers' needs would be better met if production of them were contracted somewhat and production of something else expanded. A satisfactory economic system must use resources fully, and a market system that functions well is efficient not only in getting goods to consumers from producers, but in bringing price adjustments between products that reflect consumer preferences and the cost of making them available.

The six excerpts in this subsection present aims from somewhat different points of view. It is important to bear in mind that divergent views exist in agricultural marketing as in all fields of human endeavor. Without such differences in perspective, agricultural marketing would be a dry, noncontroversial subject.

Many groups of people are concerned with agricultural marketing. They include farmers, processors, bankers, dealers of various kinds, college professors, congressmen, and government bureaucrats. Each has a different point of view, and each emphasizes certain aims. To some extent the aims of these groups may conflict with one another. In such cases the average farmer or businessman will defend his own special interests as he sees and understands them.

But there is to some degree a harmony of interests — some elusive but important general interest, or public interest. Our aim in this book is to place proper emphasis upon this public interest.—*Ed.*

SECTION 2

The Market as Equator of Demand and Supply

Agricultural marketing research is constantly looking for improvement — that is, for changes which will result in economic benefits. The aim may be to raise farm incomes, to reduce price fluctuations, to increase efficiency, to accomplish wider distribution, to increase food consumption, or to reach some other economic or social objective.

How can one judge the economic effectiveness of our present marketing system or the economic consequences of proposals to change market organization or market practices? This can be done only by economic analysis. It requires an understanding of economic theory and the ability to use the tools of economic analysis. So-called "practical" marketing experts occasionally disparage economic theory, saying, for example, that they "deal with facts, not with theories." But there is no conflict between facts and theories. Theory is the best available explanation of observed facts. Too much of our marketing research has been devoted to the gathering and tabulation of statistical facts, and too little to the careful analysis of facts in such a way as to help us understand them.

The economist who analyzes marketing problems needs to be especially familiar with such concepts as a demand curve and a supply curve. He must know how to estimate such curves from statistical data, and he must know how to use such curves in analyzing marketing problems.

The readings in Section 2 were selected with these needs in view.—EDITOR

2.1 Demand Curves and "Price Elasticity" 29

2.1.1 Marshall, Alfred. *Principles of Economics.*
2.1.2 Cournot, Augustin. *Mathematical Principles of the Theory of Wealth.*
2.1.3 Marshall, Alfred. *Principles of Economics.*
2.1.4 Allen, R. G. D. *Mathematical Analysis for Economists.*
2.1.5 Waite, Warren C. and Trelogan, Harry C. *Agricultural Market Prices.*
2.1.6 Waite, W. C. and Cassady, Ralph, Jr. *The Consumer and the Economic Order.*
2.1.7 Stokdyk, E. A. "Marketing Tokay Grapes."
2.1.8 Black, Guy. "Product Differentiation and Demand for Marketing Services."

2.2 "Engel's Curve" and "Income Elasticity" 42

2.2.1 Burk, Marguerite C. "A Study of Recent Relationships Between Income and Food Expenditures."
2.2.2 Schultz, T. W. *Agriculture in an Unstable Economy.*
2.2.3 Burk, Marguerite C. "Changes in the Demand for Food From 1941 to 1950."

2.3 Joint Effects of Prices and Incomes 48

2.3.1 Allen, R. G. D. and Bowley, A. L. *Family Expenditure.*
2.3.2 Southworth, Herman M. "The Economics of Public Measures To Subsidize Food Consumption."

2.4 The Supply Function in Agriculture 51

2.4.1 Schultz, Theodore W. *Production and Welfare of Agriculture.*
2.4.2 Galbraith, John K. and Black, John D. "The Maintenance of Agricultural Production During Depression: The Explanations Reviewed."
2.4.3 Johnson, D. Gale. "The Nature of the Supply Function for Agricultural Products."
2.4.4 Bean, Louis. "The Farmers' Response to Price."

2.5 Derived Demand for Farm Products and the Incidence of Marketing Charges 63

2.5.1 Thomsen, Frederick L. *Agricultural Marketing.*
2.5.2 Warren, G. F. and Pearson, F. A. *Interrelationships of Supply and Price.*
2.5.3 Cassels, John M. *A Study of Fluid Milk Prices.*
2.5.4 Waite, Warren C. and Trelogan, Harry C. *Agricultural Market* Prices.
2.5.5 Shepherd, Geoffrey S. *Agricultural Price Analysis.*

2.6 The Market as Equator of Demand and Supply . . . 70

2.6.1 Clark, Fred E. and Weld, L. D. H. *Marketing Agricultural Products in the United States.*
2.6.2 Riddell, G. E. "Farmers in Low Countries Sell by the Clock."
2.6.3 Nicholls, William H. "Market-Sharing in the Packing Industry."
2.6.4 Nicholls, William H. *A Theoretical Analysis of Imperfect Competition With Special Application to the Agricultural Industries.*
2.6.5 Ezekiel, Mordecai. "The Cobweb Theorem."
2.6.6 Cochrane, Willard W. "Farm Price Gyrations — An Aggregative Hypothesis."
2.6.7 Schultz, T. W. *Production and Welfare of Agriculture.*
2.6.8 Welden, W. C. "Formula Pricing of Class I Milk Under Market Orders."
2.6.9 Johnson, Stewart. "Formula Pricing of Class I Milk Under Market Orders."

2.7 Methods of Measuring Demand 94

2.7.1 Fox, Karl A. "Relations Between Prices, Consumption, and Production."
2.7.2 Working, E. J. "What Do Statistical 'Demand Curves' Show?"
2.7.3 Moore, Henry L. *Synthetic Economics.*
2.7.4 Leontief, Wassily W. "Input-Output Economics."
2.7.5 Marschak, Jacob. *Statistical Inference in Dynamic Models.*
2.7.6 Tolley, George. "Short Run Demand and Supply in the Hog Market."
2.7.7 Staehle, Hans. "Relative Prices and Postwar Markets for Animal Food Products."
2.7.8 Katona, George. *Psychological Analysis of Economic Behavior.*

2.1 Demand Curves and "Price Elasticity"

When an economist speaks of the demand for potatoes, he means a *demand curve* or a *demand schedule.* In market analysis we are often concerned with three kinds of demand curve or demand schedule: those showing the demand of a single family, those showing the demand in a segment of the market, and those showing the aggregate demand of all buyers in the entire market for a commodity.

The following excerpt is the classical discussion of demand schedules and demand curves of Alfred Marshall. —*Ed.*

2.1.1 Marshall, Alfred. *Principles of Economics.* 8th ed., Macmillan, London, 1936. Pp. 96–100.

To obtain complete knowledge of (an individual's) demand for anything, we should have to ascertain how much of it he would be willing to purchase at each of the prices at which it is likely to be offered; and the circumstance of his demand for, say, tea can be best expressed by a list of the prices which he is willing to pay; that is, by his several demand prices for different amounts of it. (This list may be called his demand schedule.)

Thus for instance we may find that he would buy

6 lbs. at	50d.	per lb.	10 lbs. at	24d.	per lb.
7 lbs. at	40	"	11 lbs. at	21	"
8 "	33	"	12 "	19	"
9 "	28	"	13 "	17	"

If corresponding prices were filled in for all intermediate amounts we should have an exact statement of his demand. We cannot express a person's demand for a thing by the "amount he is willing to buy," or by the "intensity of his eagerness to buy a

certain amount," without reference to the prices at which he would buy that amount and other amounts. We can represent it exactly only by lists of the prices at which he is willing to buy different amounts.

When we say that a person's demand for anything increases, we mean that he will buy more of it than he would before at the same price, and that he will buy as much of it as before at a higher price. A general increase in his demand is an increase throughout the whole list of prices at which he is willing to purchase different amounts of it, and not merely that he is willing to buy more of it at the current prices.

So far we have looked at the demand of a single individual. And in the particular case of such a thing as tea, the demand of a single person is fairly representative of the general demand of a whole market: for the demand for tea is a constant one; and, since it can be purchased in small quantities, every variation in its price is likely to affect the amount which he will buy. But even among those things which are in constant use, there are many for which the demand on the part of any single individual cannot vary continuously with every small change in price, but can move only by great leaps. For instance, a small fall in the price of hats or watches will not affect the action of every one; but it will induce a few persons, who were in doubt whether or not to get a new hat or a new watch, to decide in favour of doing so.

* * *

In large markets, then—where rich and poor, old and young, men and women, persons of all varieties of tastes, temperaments and occupations are mingled together, — the peculiarities in the wants of individuals will compensate one another in a comparatively regular gradation of total demand. Every fall, however slight, in the price of a commodity in general use, will, other things being equal, increase the total sales of it; just as an unhealthy autumn increases the mortality of a large town, though many persons are uninjured by it. And therefore if we had the requisite knowledge, we could make a list of prices at which each amount of it could find purchasers in a given place during, say, a year.

* * *

There is then one general *law of demand*: — The greater the amount to be sold, the smaller must be the price at which it is offered in order that it may find purchasers; or, in other words,

the amount demanded increases with a fall in price, and diminishes with a rise in price. There will not be any uniform relation between the fall in price and the increase of demand. A fall of one-tenth in the price may increase the sales by a twentieth or by a quarter, or it may double them. But as the numbers in the left-hand column of the demand schedule increase, those in the right-hand column will always diminish.

* * *

The demand prices in our list are those at which various quantities of a thing can be sold in a market *during a given time and under given conditions.* If the conditions vary in any respect the prices will probably require to be changed; and this has constantly to be done when the desire for anything is materially altered by a variation of custom, or by a cheapening of the supply of a rival commodity, or by the invention of a new one. For instance, the list of demand prices for tea is drawn out on the assumption that the price of coffee is known; but a failure of the coffee harvest would raise the prices for tea. The demand for gas is liable to be reduced by an improvement in electric lighting; and in the same way a fall in the price of a particular kind of tea may cause it to be substituted for an inferior but cheaper variety.

The French economist and mathematician Augustin Cournot developed, half a century before Marshall, the mathematical formulation of demand for a commodity as a function of its price. His presentation has the great merit of envisioning the statistical measurement of aggregate demand in a market, including such problems as use of annual average date and the characteristics of the total revenue function.

The reader not versed in mathematics should have no difficulty in understanding the following selections from Cournot if he keeps in mind:

1. that $F(p)$ is the demand curve, which states that consumption is a function of price
2. that $pF(p)$ — or price times quantity — represents total expenditures for a commodity or total returns to the seller of it
3. that $F(p) + pF'(p)$ represents marginal expenditures or marginal returns to the seller
4. that, while Cournot did not use the term *elasticity of demand,* he did discuss rising and falling returns curves, which is essentially the same thing and is much easier to understand. (The demand for a commodity is elastic if the total-returns curve is rising and inelastic if it is falling.)

The last paragraph of the following excerpt thus consists of a proposal for classifying all major goods into two classes – those with elastic demand and those with inelastic demand.—*Ed.*

2.1.2 Cournot, Augustin. *Mathematical Principles of the Theory of Wealth.* 1838, translated by Nathaniel T. Bacon, Macmillan, New York, 1929. Pp. 47–48, 51–53.

Let us admit therefore that the sales or the annual demand D is, for each article, a particular function F (p) of the price p of such article. To know the form of this function would be to know what we call *the law of demand* or *of sales.* It depends evidently on the kind of utility of the article, on the nature of the services it can render or the enjoyments it can procure, on the habits and customs of the people, on the average wealth, and on the scale on which wealth is distributed.

Since so many moral causes capable of neither enumeration nor measurement affect the law of demand, it is plain that we should no more expect this law to be expressible by an algebraic formula than the law of mortality, and all the laws whose determination enters into the field of statistics, or what is called social arithmetic. Observation must therefore be depended on for furnishing the means of drawing up between proper limits a table of the corresponding values of D and p; after which, by the well-known methods of interpolation or by graphic processes, an empiric formula or a curve can be made to represent the function in question; and the solution of problems can be pushed as far as numerical applications.

* * *

To define with accuracy the Quantity D, or the function F (p) which is the expression of it, we have supposed that D represented the quantity sold *annually* throughout the extent of the country or of the market under consideration. In fact, the year is the natural unit of time, especially for researches having any connection with social economy. All the wants of mankind are reproduced during this term, and all the resources which mankind obtains from nature and by labour. Nevertheless, the price of an article may vary notably in the course of a year, and, strictly speaking, the law of demand may also vary in the same interval, if the country experiences a movement of progress or decadence. For greater accuracy, therefore, in the expression F (p), p must be held to denote the annual average price, and the curve which represents function F to be in itself an average of all the curves

which would represent this function at different times of the year. But this extreme accuracy is only necessary in case it is proposed to go on to numerical applications, and it is superfluous for researches which only seek to obtain a general expression of average results, independent of periodical oscillations.

Since [we assume that] the function F (p) is continuous, the function pF (p), which expresses the total value of the quantity annually sold, must be continuous also. This function would equal zero if p equals zero, since the consumption of any article remains finite even on the hypothesis that it is absolutely free; or, in other words, it is theoretically always possible to assign to the symbol p a value so small that the product pF (p) will vary imperceptibly from zero. The function pF (p) disappears also when p becomes infinite, or, in other words, theoretically a value can always be assigned to p so great that the demand for the article and the production of it would cease. Since the function pF (p) at first increases, and then decreases as p increases, there is therefore a value of p which makes this function a maximum, and which is given by the equation,

$$(1) \qquad F(p) + pF'(p) = 0,$$

in which F′ according to Lagrange's notation, denotes the differential coefficient of function F.

* * *

We may admit that it is impossible to determine the function F (p) empirically for each article, but it is by no means the case that the same obstacles prevent the approximate determination of the value of p which satisfies equation (1) or which renders the product pF (p) a maximum. The construction of a table, where these values could be found, would be the work best calculated for preparing for the practical and rigorous solution of questions relating to the theory of wealth.

But even if it were impossible to obtain from statistics the value of p which should render the product pF (p) a maximum, it would be easy to learn, at least for all articles to which the attempt has been made to extend commercial statistics, whether current prices are above or below this value. . . .

We return to Marshall for the classical exposition of elasticity of demand.—*Ed.*

2.1.3 Marshall, Alfred. *Principles of Economics.* 8th ed., Macmillan, London, 1936. Pp. 102–4.

The Elasticity of Wants: We have seen that the only universal law as to a person's desire for a commodity is that it diminishes,

other things being equal, with every increase in his supply of that commodity. But this diminution may be slow or rapid. If it is slow the price that he will give for the commodity will not fall much in consequence of a considerable increase in his supply of it; and a small fall in price will cause a comparatively large increase in his purchases. But if it is rapid, a small fall in price will cause only a very small increase in his purchases. In the former case his willingness to purchase the thing stretches itself out a great deal under the action of a small inducement: the elasticity of his wants, we may say, is great. In the latter case the extra inducement given by the fall in price causes hardly any extension of his desire to purchase: the elasticity of his demand is small. If a fall in price from say 16d. to 15d. per lb. of tea would much increase his purchases, then a rise in price from 15d. to 16d. would much diminish them. That is, when the demand is elastic for a fall in price, it is elastic also for a rise.

And as with the demand of one person so with that of a whole market. And we may say generally: — The *elasticity* (or *responsiveness*) of *demand* in a market is great or small according as the amount demanded increases much or little for a given fall in price, and diminishes much or little for a given rise in price.[1]

The price which is so high relatively to the poor man as to be almost prohibitive, may be scarcely felt by the rich; the poor man, for instance, never tastes wine, but the very rich man may drink as much of it as he has a fancy for, without giving himself a thought of its cost. We shall therefore get the clearest notion of the law of the elasticity of demand by considering one class of society at a time. Of course there are many degrees of richness among the rich, and of poverty among the poor; but for the present we may neglect these minor subdivisions.

When the price of a thing is very high relatively to any class, they will buy but little of it; and in some cases custom and habit may prevent them from using it freely even after its price has fallen a good deal. It may still remain set apart for a limited number of special occasions, or for use in extreme illness, etc. But such cases, though not infrequent, do not form the general

[1] We may say that the elasticity of demand is one, if a small fall in price will cause an equal proportionate increase in the amount demanded: or as we may say roughly, if a fall of one per cent in price will increase the sales by one per cent; that it is two or a half, if a fall of one per cent in price makes an increase of two or one half per cent respectively in the amount demanded; and so on. (This statement is rough; because 98 does not bear exactly the same proportion to 100 that 100 does to 102.)

rule; and anyhow as soon as it has been taken into common use, any considerable fall in its price causes a great increase in the demand for it. The elasticity of demand is great for high prices, and great, or at least considerable, for medium prices; but it declines as the price falls; and gradually fades away if the fall goes so far that satiety level is reached.

This rule appears to hold with regard to nearly all commodities and with regard to the demand of every class; save only that the level at which high prices end and low prices begin, is different for different classes; and so again is the level at which low prices end and very low prices begin. There are however many varieties in detail; arising chiefly from the fact that there are some commodities with which people are easily satiated, and others — chiefly things used for display — for which their desire is almost unlimited. For the latter the elasticity of demand remains considerable, however low the price may fall, while for the former the demand loses nearly all its elasticity as soon as a low price has once been reached.

Most discussions of elasticity are unnecessarily long, and most of them are inaccurate. Only those who understand the differential calculus have a real comprehension of the expression *coefficient of elasticity*. Those who use this term should be familiar with the precise mathematical definition. —*Ed.*

2.1.4 Allen, R. G. D. *Mathematical Analysis for Economists.* Macmillan, New York, 1939. P. 251.

Definition: The elasticity of the function $y = f(x)$ at the point x is the rate of proportional change in y per unit proportional change in x:

$$\frac{Ey}{Ex} = \frac{d(\log y)}{d(\log x)} = \frac{x}{y}\frac{dy}{dx}$$

Waite and Trelogan make some interesting observations concerning factors affecting demand and also discuss the relationship between the demand curves for individual families and for the market as a whole.—*Ed.*

2.1.5 Waite, Warren C. and Trelogan, Harry C. *Agricultural Market Prices.* 2nd ed., John Wiley & Sons, New York, 1951. P. 43.

The factors which ordinarily influence the elasticity of demand for a particular commodity are three in number. The first is the *number of uses* for the commodity. Those commodities having many uses will tend to have more elastic demands. The

second is the *number of substitutes,* those commodities for which there are many substitutes having the more elastic demands. Substitution is possible between many food products, and a number of such commodities as fruits and meats have considerable elasticity. The third factor is the *importance of the expenditure on the commodity relative to the consumer's income;* the greater the relative expenditure, the greater the elasticity is likely to be. This is a principal reason why the demand for a particular commodity is likely to be less elastic among high-income groups than among low-income groups.

Demand is, generally speaking, very inelastic for absolute necessaries and for some of the luxuries of the rich that do not absorb much of their income. The most probable assumption regarding the elasticity of the demand curve of an individual buyer of a particular commodity is that the curve would be inelastic at low prices and that the elasticity would be greater at high prices. The individual consumer is likely to reach a saturation point in his consumption at some low price, and even with still lower prices will not increase his consumption of the commodity. Whether the price is high or low is a relative matter which depends upon the income of the consumer and his spending habits.

The demand curve for the whole market will depend to a considerable extent upon the number of income classes in the market and the height of the price in relation to their respective income levels. If the market has a number of classes differing in income so that a fall in price not only results in larger purchases by present consumers but also induces new groups to purchase the commodity, demand will probably be elastic. The demand curve will be more elastic the larger the new groups are relative to the old. The importance of the number of families consuming the product at various income levels upon the increase in consumption of a commodity has already been illustrated. If the market were composed of buyers all alike in income and taste, elasticity would be likely to decline as price fell.

We have mentioned the distinction between the demand of an individual and the demand of the whole market. In marketing research we are often concerned with the demand for the products of a single firm. This concept is developed in the excerpt that follows. The last two paragraphs deal with "kinked" demand curves. This concept is useful in the analysis of problems of monopolistic competition discussed in Section 5.—*Ed.*

2.1.6 Waite, W. C. and Cassady, Ralph, Jr. *The Consumer and the Economic Order.* McGraw-Hill, New York, 1949. Pp. 163–65. Reprinted by permission.

Elasticity of Demand for the Industry and the Firm: There has been increasing recognition that the amounts of a commodity or product taken can be examined from several points of view. Thus, demand may be thought of as (1) a schedule of amounts taken at different prices by an individual buyer, (2) a schedule of amounts taken of a generic product by a group of buyers, or (3) a schedule of amounts taken of a particular brand of product by a group of buyers.

The first of these is not particularly useful in this connection except to emphasize the fact that the demand for any product is made up of the aggregate demands of many individuals; that is, schedules of amounts that would be taken at particular prices prevail for each of us, which in combination with those of others make up an aggregate demand situation. The last two are, however, very important both from a theoretical and from a practical point of view. What we are saying is that while the concept is important, one must proceed beyond a consideration of demand as the amounts taken of a general commodity (salt, say) if he is to obtain maximum value from a demand analysis. It is extremely useful to consider in addition the amounts taken of a particular seller's product ("Morton's Salt," for example), which might have entirely different characteristics.

* * *

The demand for a particular seller's product is a schedule of his share of total industry sales at various prices, given certain competitive price conditions; note that the individual seller's demand curve is conditioned by the existence of competitive offerings and the prices set thereon. Thus the response to one seller's price changes may be merely proportionate to the change for the industry or much more substantial, depending upon how competitors react.

This of course is a matter involving some rather subtle aspects of demand elasticity. The demand for the product of the industry might be quite inelastic providing there is intense need for the commodity and few substitutes are available, while the demand for the product of any one firm is highly elastic (assuming competitors do not meet the seller's price changes) because each seller's product is a perfect substitute for the others. Actually, under such conditions, sellers usually feel that they *must* meet rival prices.

Just one further point: under certain circumstances, at least, the demand curve of the individual seller is "kinked" or "bent" because if the seller drops his price competitors are likely to meet it, since otherwise they run the risk of losing the large proportion of their volume; but if the individual seller raises his price, rivals may *not* meet it (because they need not) and if not, he must retreat or be faced with a loss of much if not all of his volume. Thus, under certain conditions, the individual seller's demand curve possesses the same degree of responsiveness to price change as that of the industry curve *below* the prevailing price and flattens out *above* that price.

* * *

There is considerable evidence that businessmen are inclined to consider demand curves for their products more inelastic than they actually are and that vigorous action in drastically reducing prices well beyond previous levels uncovers a volume of purchases previously thought impossible. For example, "In November, 1938, as a promotion scheme, a New York newspaper offered classical albums to its readers at prices averaging about 49 cents per record. At a time when the record companies considered that the average sales of a classical album should be about 6,000 sets, and a sales volume of 10,000 sets, even over a period of two years, was extremely unusual, the newspaper sold more than 50,000 sets of a single symphony in a few weeks. . . ."

In many marketing problems it is necessary to use several demand curves to indicate demands in different segments of the total market for a commodity. Thus we may need the separate demand curves for fresh oranges and for frozen orange juice, the demand for oranges by weeks or by months during the season, or the demand for oranges in each of the principal cities of the United States.

The graphs in Reading 2.1.7 are based upon a study made by Stokdyk for the purpose of determining the most profitable distribution of Tokay grapes among eleven auction markets. Section 3 discusses the problem of distribution to several markets, including different geographic markets, different times, and different forms of a commodity. Here we are interested only in the fact that an aggregative demand curve can be broken down into segments.—*Ed.*

2.1.7 Stokdyk, E. A. "Marketing Tokay Grapes," *Calif. Exper. Sta. Bull. 558,* 1933. P. 27.

MARKET CAPACITY OF ELEVEN AUCTION MARKETS FOR TOKAY GRAPES, 1929–1931

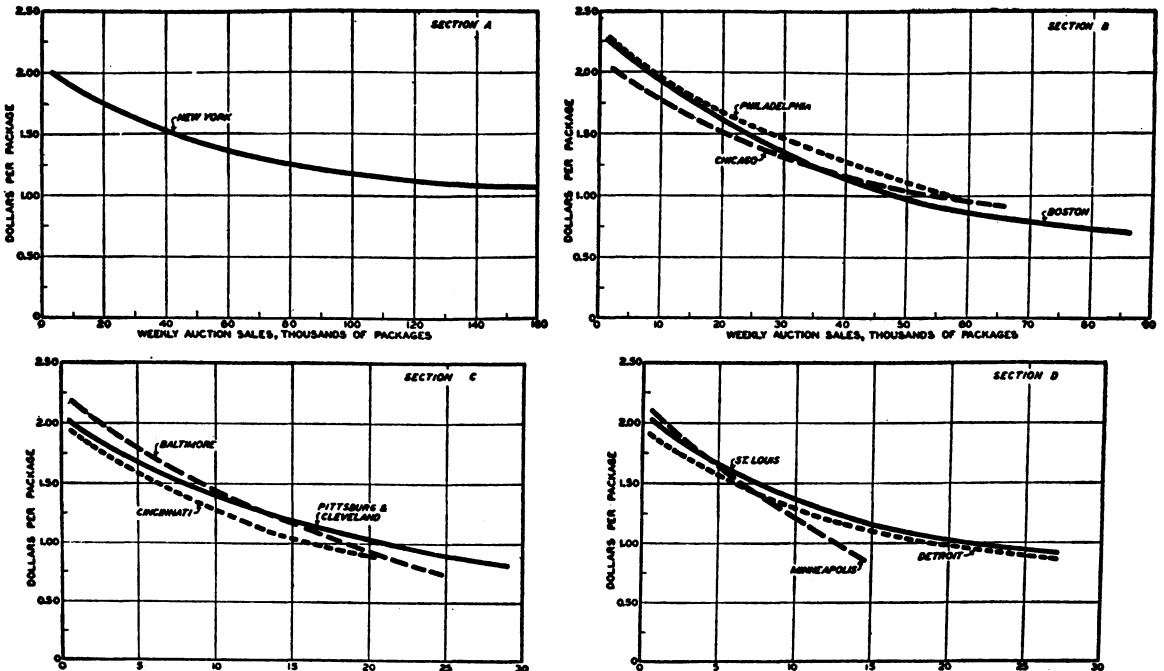


Fig. 6. The volume of Tokay grapes sold in each of the principal auction markets had an important influence on prices. This figure shows the average relation between the quantity sold and prices during the 1929–1931 seasons. A knowledge of such relations may aid in planning the distribution of supplies to obtain the highest total returns.

A major difficulty in agricultural marketing theory is the relationship between demand at the retail level and at the farm level. This usually is dealt with by subtracting from the retail price a "marketing margin," as described in the later section on derived demand. However, this merely glosses over important aspects of the problem.

One approach to the problem involves recognition of the fact that the consumer ordinarily is buying not just a commodity but also a group of associated services – ranging all the way from processing, transportation, and storage to the provision of convenience of location and courtesy and helpfulness of service in the retail store. From this fact arises the concept of a "demand for marketing services" as distinct from demand for the commodities with which the services are associated.

Practically no statistical measurements have been made of demand for marketing services, but the concept and some of the difficulties associated with it are here described.—*Ed.*

2.1.8 Black, Guy. "Product Differentiation and Demand for Marketing Services," *Jour. Marketing*, Vol. XVI, No. 1, July, 1951. Pp. 73, 75, 77, 78.

The entrepreneurial procedure carried on by most marketing firms consists of forwarding a product through time or space, breaking it down into smaller units, giving consumers a chance to examine and consider buying it, and making them aware of its existence and availability. There is little difference between the product received by the entrepreneur and the one he hands over to the consumer, except in terms of these services. The range of activity in which he operates is the additional services performed by his firm. The production function which applies to his firm is the production function for these additional services, and equilibrium of the firm must be stated essentially in terms of the production function and demand for these additional services.

* * *

Introducing the demand for service means injecting into the theory of markets a new element, where previously consideration of this element had been evaded by the use of a general and perhaps overly inclusive classification of product differentiation. In recasting the form of the theory, the problem is one of developing a treatment of production and demand effectively distinguishing commodities and services where they had previously been treated as one. The problem of where to draw the line of demarcation is essentially a problem of separating those characteristics which are part and parcel of the physical good, no matter where

it is sold, and those which are exogenous, logically. This distinction has difficulties. A product, such as wheat flour, may be sold in 5-, 25-, and 49-pound bags, and in the physical sense it is essentially the same product. Yet the different sized packages are not perfect substitutes for each other, and the cross elasticity of demand might be expected to vary with income classes and the kinds of stores handling the flour. It is not easy to decide if container size is exogenous to the product, since the product could be packaged either by the miller or the retailer. Likewise, a manufacturer's guarantee, when applied to articles commonly sold in many retail stores, is hard to pigeonhole. It could also be argued that brand names are more an attribute of the seller than of the products. Some package for flour is essential but if the miller packaged the flour himself, packaging would be a service little related to the service functions of retailers. An abstract classification between service production and commodity production would cut across a classification based on industrial structure.

* * *

It is apparent that introducing the marketing service as a separate good means that we must consider demand and supply functions for this good as well as demand and supply functions for the commodities. . . .

Applying the theory of the firm to the marketing service problem is first of all a problem in joint supply and demand. There is a demand for several goods: the commodities, and marketing services. Demand for each can be described in the usual way. The peculiar relationship between marketing services and commodities gives reason for believing that the demand functions, particularly with regard to cross elasticities, might have special properties.

Several different supply situations suggest themselves also. It is possible for services to be so physically separate that they do not even need to be bought from the same person who sold the goods. There will often be economies of joint supply, so that the supply curves for services will be interrelated with the supply curves for commodities. We need to dig into the supply relationships for commodities and services because of the commonness of certain unexplained phenomenon. In marketing we find entrepreneurs deluging prospective customers not only with advertising but also with utility-creating services (advice, demonstrations,

conveniences, etc.). Under theoretical treatments which lump all such activity as product differentiation or advertising, for which the customer pays when he buys goods, an important point is overlooked. Prospective customers (many never buy anything) are given economic goods free of charge, in the sense that they are given goods not contingent on any payment or purchase of commodities. The form of supply and demand curves for commodities and services under which a profit-maximizing firm would be led to this behavior is a nice point. Can we use our value theory adequately to explain such phenomena?

There are in addition many marketing services for which no price is charged, and which the customers do not buy, but obtaining them is contingent on purchase of goods. In buying goods the customer gets both goods and services. There can be quite separate demand functions for the commodities and services, which may influence entrepreneurial behavior, even if they have no chance to make themselves explicit in the market place. Commonly, marketing services and commodities are sold in the form of a "tie-in sale." This form of entrepreneurial behavior has never been analyzed, to the best of my knowledge, except under the conditions of shortages of one commodity. The nonexplicit nature of the tie-in makes it hard to recognize the separate existence of marketing services.

* * *

For the purposes of working with marketing firms there are good reasons for considering services as separate entities, and considering the theory of the marketing firm to be a case of the theory of multiple product firms. It is quite likely that studies of markets can be formulated along these lines, and there is every reason to expect that the understanding of the marketing process, the process by which the actual quantity and nature of services provided by retailers, wholesalers and others, is determined, can be better explained, or more precisely estimated, by this procedure.

2.2 "Engel's Curve" and "Income Elasticity"

The term *demand curve* is specifically used to name the relation of consumption to prices. But in a dynamic society such as ours, *changes* in demand are fully as important a field of study as the static demand curves themselves. Some of the factors underlying the characteristics of demand curves—and hence influencing changes in them—have al-

ready been discussed. The factor to which chief statistical attention has been given is income.

One of the first economists to make surveys of family consumption was Ernst Engel (not to be confused with Friederich Engels, Karl Marx's collaborator). Engel's name is customarily associated with the relationship that has generally been found to exist between the incomes of families and their expenditures for food and numerous other commodities.

The first of the following excerpts summarizes both the nature of Engel's findings with respect to food expenditure and some of the limitations of his famous law in relation to the study of demand for food. The second offers a critical appraisal of the present status of research in the field of family expenditures.—*Ed.*

2.2.1 Burk, Marguerite C. "A Study of Recent Relationships Between Income and Food Expenditures," *Agr. Econ. Res.*, Vol. 3, No. 3, July, 1951. Pp. 87–88.

Let us begin by recalling the circumstances under which Engel developed his law. Ernst Engel studied the expenditures of families of all levels of income in Belgium and Saxony, in the middle of the nineteenth century. His data showed a consistently higher percentage of total expenditures going for food coincident with lower average incomes per family. He concluded, "The poorer a family, the greater the proportion of the total outgo that must be used for food." It is to be noted that Engel's analysis was confined to one period in time. The data on food expenditures which he examined included costs of alcoholic beverages, and the food purchases were almost entirely for home consumption. Furthermore, food commodities in that century were not the heterogeneous commodities they are today. Families bought raw food from rather simple shops or local producers and did most of the processing at home. Their food expenditures did not include such costs as labor and cooking facilities in the homes. Now, families have a wide choice of kinds of places to buy their food, of many more foods both in and out of season, of foods extensively processed into ready-to-serve dishes, and of eating in many kinds of restaurants. . . .

Such developments in food commodities and marketing might be expected to affect income-food expenditure relationships over time in the same way as at a particular period. Numerous other factors are present in the dynamic situation which do not enter into the problem at a given period and given place, although they are significant in place-to-place comparisons, which are considered only incidentally in this study. These

dynamic factors include changes in the average level of income, distribution of income, the geographic location and the composition of the population, relative supplies of food and nonfood commodities, and changes in both the general price level and relative prices, and also changes in the manner of living that are independent of income. . . .

> It is generally agreed that the "income elasticity" for food is low; in other words, if incomes should rise one per cent, *and if food prices should remain constant,* the physical consumption of foods would increase by much less than one per cent.—*Ed.*

2.2.2 Schultz, T. W. *Agriculture in an Unstable Economy.* Committee for Econ. Devel. Res. Study, McGraw-Hill, New York, 1945. Pp. 68–70. Reprinted by permission.

From the preceding analysis it may be presumed (very tentatively indeed) that the income elasticity of farm products lies somewhere between .4 (based on expenditures for food, from the Consumer Purchase Studies) and about .1 (based on expenditures for farm products, from the rough historical data prior to World War I). To take the mid-point, namely, .25, is a crude way of ascertaining the approximate point.

Until more exhaustive studies have been made, we must draw upon qualitative analysis, turning principally on the supposition that people as they become richer increase their expenditures proportionately more for the nonfarm services in food than for the farm products in food. (For example, people eat more meals in restaurants and other public establishments as their incomes rise.)

Certain commodities tend to stay fairly constant in their physical composition as farm products, but may change substantially in value at the point at which consumers buy them, reflecting the amount and kind of nonfarm services added in processing, handling, delivering, and serving these products as food. Examining the expenditures for such products, we can obtain another approximation of the income elasticity of food products at the farm level. Cheese is a good example. Whether cheese is prepared as common Cheddar or whether it is eventually made into a highly refined Blue cheese, the raw materials do not vary greatly, nor, consequently, do the claims made on agricultural resources. In Table III, a number of commodities of this type have been selected, and their elasticities have been ascertained, both for physical consumption (quantity) and for

value of consumption (quantity plus quality) against income. In each case the elasticity of physical consumption is less, and considerably less, than the elasticity of the value of consumption of the product. For the products listed, the average difference for the lower-income range ($1,233–$1,707) appears to be nearly 25 per cent, that is, the elasticity based on physical consumption is about a fourth less than it is when based on value of consumption.

A new index of consumption, prepared by the Bureau of Agricultural Economics, U. S. Department of Agriculture, attempts to establish the relationship between changes in income and physical consumption (again, however, in terms of retail sales). For the period 1929–1942 the elasticity of per capita consumption of food (physical volume) with respect to real per capita income was approximately .21. These various bits of information do suggest that the rough procedure of taking the mid-point, namely, .25, may not be very far wrong. At least it is not inconsistent with the evidence at hand.

One additional observation needs to be made: whatever the income elasticity of farm products is at a given level of incomes, there is a strong likelihood that as incomes rise further, this elasticity will become even less.

The following excerpt discusses the elasticity of food expenditures with respect to incomes. Food prices are not held constant. For that reason, Miss Burk's findings differ from Professor Schultz's. Both are important.—*Ed.*

2.2.3 Burk, Marguerite C. "Changes in the Demand for Food From 1941 to 1950," *Jour. Farm Econ.*, Vol. XXXIII, No. 3, Aug., 1951. Pp. 281–82, 291, 294–95, 298.

Analyses of the relevant data, after appropriate adjustments, indicate that food expenditures in 1949 were about 10 to 15 per cent higher than would have been expected solely on the basis of prewar relationships between consumer incomes and food expenditures. Those relationships indicate that a one per cent increase in disposable income was associated with increased food expenditures of about 0.8 per cent. The higher level of postwar food expenditures is largely due to increased demand for services with food, extra purchasing power, and the change in the distribution of income.

Regression analyses of time series data on food prices and food consumption, as well as an income level analysis of the quantity of food consumed per capita, support the conclusion

that food prices paid and quantities of food consumed (after postwar adjustments had been made) are well in line with prewar relationships to disposable income per capita. Retail food prices have almost unit elasticity (1.0) with disposable income when the supply of food is held constant. The analyses indicate a 0.2 increase in food consumption with one per cent increase in disposable income, holding retail food prices constant, which is mathematically consistent with the elasticity of food expenditures of 0.8 mentioned earlier.

These conclusions suggest that much of the discussion of the inelasticity of demand for food based on physical needs and static family expenditure data has been misleading. The demand for food in terms of price and quantity through time is surprisingly responsive to income.

* * *

To summarize the above calculations: (1) on the basis of changes in average income and in the distribution of income, but with no change in static income-elasticity of demand, we would have expected food expenditures to take 24 per cent of income in 1948, and about the same proportion in the following two years. (2) Use of postwar average incomes per capita with the patterns of relationships of food expenditures to disposable income in prewar years 1929–41 indicates that food expenditures in 1947 were roughly 25 per cent higher than expected (comparing percentages in Tables III and IV); in 1948, 20 per cent; in 1949, 15 per cent; but in 1950, only about 10 per cent. The gradual reduction in the gap between actual and estimated food expenditures leads to the hypothesis that the relatively high levels of food expenditures in 1946–48 may have been temporary.

* * *

All three of the series on food expenditures in terms of current dollars indicate that such expenditures per person increased more between 1941 and 1949 than did disposable income. On the basis of the prewar dynamic pattern of income-food expenditure relationships, taking the level of real income into account, we would expect food expenditures to have averaged about 23.5 per cent of disposable income in 1949 or $295 per person. We have accounted for most of the difference between this and the actual expenditure of approximately $335 (the average of the three series) as follows: (1) change in distribution of income,

$7; (2) extra purchasing power from use of liquid assets and consumer credit, $8; (3) expenditure for additional processing outside the home and public eating places, $5; (4) rural-urban shift in prices paid for food, $7; (5) increased costs of eating away from home, $8. These adjustments account for $35 of the $40 difference between estimated and actual expenditures.

A rather clear way of indicating the net change in the level of food expenditures in postwar years is to add 1949 and 1950 to [the regression of] adjusted Department of Commerce statistics of food expenditures against disposable income [1929–41]. This raises the dynamic income elasticity of food expenditures from 0.8 to 1.0. The fact that this change arose principally from increased marketing services can be demonstrated in a similar manner by comparing the elasticity of price times quantity with a change in disposable income from a regression for the years 1922–41 with another using the same factors but adding 1949 and 1950. The coefficients or elasticities are virtually equal — 0.8.

The magnitude of the elasticity of the latter measure of food expenditures with respect to disposable income has an important bearing on the demand for farm food products. Because of the relative constancy of marketing margins for farm products, it appears likely that the elasticity of cash receipts by farmers for food products to a one per cent change in average disposable income is higher than 0.8 per cent. This indicates a much greater degree of income elasticity of demand for farm food products than the .25 estimated by T. W. Schultz in 1945. In fact, the elasticity of .25 is remarkably close to the income elasticity of the quantity of food purchased as measured by the quantity index of per capita food consumption, holding price relationships constant. But it is the combined elasticities of quantity and price (0.8) which have most economic significance — for farmers are interested in total receipts, not just in quantities demanded.

* * *

From this discussion we may conclude that the combination of the rates of food consumption and levels of retail food prices in 1949 and 1950 were quite close to what would be expected from prewar relationships to income, if the extra purchasing power is taken into account for 1949. The greater variation between expected and actual per capita food consumption and

retail food prices in 1947 and 1948 apparently arose from the lag in adjustment of food expenditures to the rapidly changing price and income situation, and to the nonavailability of much wanted durable goods, as noted above. Accordingly, it appears that the dynamic income-elasticity of demand for food commodities has remained substantially unchanged. In other words, the quantity of food demanded per person and retail food prices combined have followed in the later two years approximately the same pattern of relationship to available purchasing power as in prewar years. From this conclusion, it follows that factors other than income which might have affected the per capita demand for food over the same 10 years have either offset each other or have had relatively little effect.

2.3 Joint Effects of Prices and Incomes

Most studies of demand concern themselves with only one aspect. Some concentrate upon the effects of changes in price, and some upon variations in income. In the actual market both prices and incomes vary at the same time. Yet we know very little about the joint effects of prices and incomes upon demand.

For example, does the demand for any specific commodity become *more* elastic or *less* elastic as incomes rise? Bowley and Allen answer "*more* elastic." The editor believes that the Bowley and Allen findings apply only to inferior goods. —*Ed.*

2.3.1 Allen, R. G. D. and Bowley, A. L. *Family Expenditure.* King & Son, London, 1935. P. 125.

The price elasticity of demand is, however, dependent on the level of income or total expenditure, amongst other factors. But, in our linear case, the first term k_r is unaffected by income changes and the price elasticity of demand is only modified by changes in the substitution factor as income changes. It is to be expected, moreover, that substitution becomes more easy for most goods as income rises. The larger expenditure is spread over a wider range of items and the possibilities of substituting other items for a given item are thereby increased. It follows that the elasticity of demand for any item with respect to changes in its price is likely to increase with income. Demands tend to become more elastic as the income level rises.

The opposite conclusion was reached by Harrod in *The Trade Cycle,* namely, that demand becomes *less* elastic as incomes rise. The editor believes that the "Harrod Law" applies to most commodities, and that the Allen-Bowley

statement applies only to inferior commodities, that is, commodities which are bought as substitutes for more desirable ones.

To study the joint effects of prices and incomes upon demand we need either a three-dimensional diagram or a set of "indifference curves." We shall not take the space here to explain indifference curves in any detail, but refer the reader to standard sources such as Hicks' *Value and Capital,* Oxford, 1939. Indifference curves can be very useful in the analysis of marketing problems. A good example is the following ingenious analysis of the economics of various forms of "food stamp plans."—*Ed.*

2.3.2 Southworth, Herman M. "The Economics of Public Measures To Subsidize Food Consumption," *Jour. Farm Econ.,* Vol. XXVII, No. 1, Feb., 1945. Pp. 48–50.

For analysis of effects on individual participants, indifference curves provide a useful tool. Diagram 1 represents relationships between food consumption (measured horizontally, in terms of a suitable index of physical volume) and money (measured vertically) as representative of consumption of all other goods and services. Each of the curved lines (indifference curves) connects a series of points representing levels of consumption jointly of foods and other goods that the family considers equally desirable. Successive indifference curves from left to right represent increasingly desirable levels of consumption.

The diagonal straight lines represent what the family can buy at two different incomes, unsubsidized and subsidized, assuming that the price of food is the same in both cases. The lower price line starts at the original level of income (vertical axis) and ends on the quantity of food (horizontal axis) that the family could buy by spending all its income. Each intermediate point along the line shows how much money the family will have left after buying an intermediate quantity of food at the given price. Thus the price determines the slope of the line, the original income its position. The upper price line, having the same slope, represents the same price of food but shows the alternative levels of food purchase open to the family starting with the subsidized level of income.

At each level of income the family will plan to buy the quantity of food indicated by the intersection of the price line with the highest indifference curve that it reaches; this will represent the most desirable consumption pattern available. At the unsubsidized level of income, this will be the point marked "original consumption." With the subsidized income, it will be

the point marked "cash grant." Thus the effect of the subsidy will be to increase somewhat the family's food consumption (by an amount represented by the bar at the bottom of the chart)

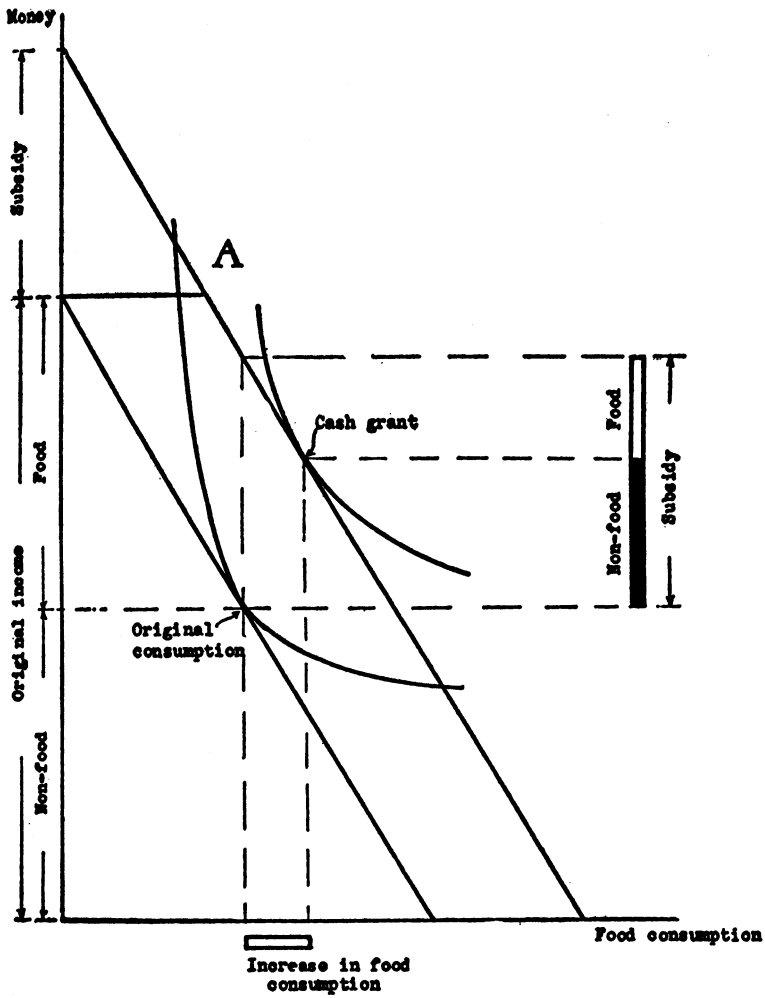


Fig. 1. Effects of subsidy in the form of cash grant on consumption of an individual family.

but also to increase its expenditure for non-food items. The division of the subsidy between additional money spent for food and additional money spent for nonfood items is indicated by the bar at the right of the chart.

2.4 The Supply Function in Agriculture

A demand curve shows how much consumers would buy at various prices. A supply curve shows how much producers would sell at various prices.

Supply curves for farm products are quite different from the supply curves for many industrial goods. Some interesting comparisons are shown below.

2.4.1 Schultz, Theodore W. *Production and Welfare of Agriculture.* Macmillan, New York, 1949. Pp. 67–70.

It is obvious from an inspection of these data that American agricultural production *taken as a whole* is remarkably stable.

TABLE I

Change in Production From the Preceding Year (*Percentages*)	Agricultural Production * 1910–1946 (*No. of Years*)	Industrial Production † 1919–1945 (*No. of Years*)
+26 to +30	.....	2
+21 to +25	.....	3
+16 to +20	.....	4
+11 to +15	1	2
+ 6 to +10	4	4
0 to ± 5	29	4
− 6 to −10	2	1
−11 to −15	.....	1
−16 to −20	.....	2
−21 to −25	.....	3
Average Variation (*Percentage*)	3.9	15.0

* This is based on production for sale and consumption. It gives the best measure of the current year volume of farm products which enter the marketing system and thus contribute to gross cash or realized farm income. See U.S.D.A., "Farm Production in War and Peace," F. M. 53, by Glenn T. Barton and Martin R. Cooper, 1945. Especially pp. 66 to 71.

† From Federal Reserve Board Bulletin.

Only twice during the last three and a half decades did aggregate output fall more than 5 per cent from the preceding year, namely 10 per cent in 1921 and 6 per cent in 1932. In both cases the drop was caused by what happened in crops, for livestock output stayed almost constant. The sharp depression of 1920–21 may have been a minor factor although the total crop acreage did not change appreciably, suggesting that a drop in yields was the main cause. In the other case, the crop acreage actually increased between 4 and 5 million acres. Accordingly

it is hard to ascribe even these relatively small decreases to the downward shift in aggregate demand.

The data in Table II seem to support the following tentative inferences:

1. The aggregate output of American agriculture is, if anything, conspicuously stable.

2. It is not affected adversely in the short run by a drop in aggregate demand such as occurred in 1920–21, 1930–33, and 1937–38.

TABLE II

Change in Production From Preceding Year (*Percentages*)	All Farm Commodities (*No. of Years*)	All Livestock and Livestock Products (*No. of Years*)	All Crops (*No. of Years*)
+16 and more	.....	.....	3
+11 to +15	1	.....	5
+ 6 to +10	4	7	5
from 0 to ±5	29	27	12
− 6 to −10	2	1	6
−11 to −15	.....	1*	4†
−16 and less	.....	.....	1‡
Average Variation (*Percentage*)	3.9	3.6	9.5

* 1935.
† 1913, 1916, 1932, and 1934.
‡ 1921 dropped 22 per cent.

3. Nor, contrary to general opinion, is the aggregate output of agriculture affected substantially from year to year by changes in weather.

4. The aggregate production effort (input of resources) in agriculture is probably even more stable than is the aggregate output (production for sale and consumption).

It may be observed that the aggregate output of agriculture in the United States provides consumers about the same volume of farm products during a depression as in prosperous years; that "big crops" do not come along to "help" business recover from a depression; that attempts to make agricultural production a variable, even on such a colossal scale as that of the AAA in the thirties, did not reduce agricultural output as a whole; and that the adverse effects of business depressions creep into agriculture and seriously upset prices and income but not production as a

whole. Thus far, at least, farmers have not responded to a cyclical decline in the aggregate demand for farm products by curtailing the employment of land and labor.

This does pose a significant issue: Why is the aggregate output of agriculture in the United States so stable, despite the vagaries of weather and of business cycles? More particularly in this context, why is agriculture so immune to the cycle virus? If we can identify the causes for this immunity, may it not suggest an antitoxin for what now plagues so much of our non-agricultural economy?

If these observations create the impression that each of the several parts of agriculture also has a stable production record, it needs to be corrected. In fact, agricultural production as an aggregate hides a lot of "costly" variability, so much that one might well ask what meaning can be attached to the aggregate. The Bureau of Agricultural Economics (Glen T. Barton and Martin F. Cooper already cited) has developed a set of indices for *gross farm production* by geographic regions which show three regions (New England, Pacific, and Middle Atlantic) with average mean deviations from 3.2 to 4.4 per cent; four additional regions (East North Central, Mountain, South Atlantic and East South Central) falling between 6.7 and 8.1 per cent; and the West North Central at 10.7 per cent, with the West South Central having the most extreme record, namely a mean average deviation of 11.7 per cent. The year to year variations in gross farm production from 1919 to 1945 are given in Table III.

It is also plain from the data that particular farm products are far from stable in output. Moreover, these fluctuations give rise to specific problems. These fluctuations in product output are mainly caused by variations in yields. The situation in feed crops is striking, and because of the importance of feed in the agricultural economy of the United States there is a strong presumption that it deserves serious attention. Furthermore, it should be noted that although the aggregate output of agriculture is notably stable, a fortunate situation from the point of view of the economy as a whole, the variations in production on individual farms is a basic consideration to the farm family concerned. These variations from farm to farm are obviously hidden by a national average. We may presume, however, that in the main they are not caused by the periodic rise and fall of the aggregate demand but by technical production circumstances such as weather, disease, insects, damage and others.

It may well be true that a few particular products will, upon closer analysis, show expansion and contraction characteristics over the cycle akin to those of industry. The principal policy consideration for agriculture taken as a whole, however, is not one of achieving tolerable production stability but to maintain that which has developed.

Various explanations have been offered why the response of supply to price change in agriculture is so different from that in much of the industrial sector of the economy, particularly with respect to the maintenance of agricultural production during depression. The papers from which the following two excerpts are taken explore various of the suggested explanations. The first, by Galbraith and Black, is concerned specifically with the depression situation, and the analysis is reproduced here rather fully. The second, by Gale Johnson, written a decade later, had the benefit also of our wartime experience of increased production. The excerpt from Johnson presents only his major conclusions. —*Ed.*

2.4.2 Galbraith, John K. and Black, John D. "The Maintenance of Agricultural Production During Depression: The Explanations Reviewed," *Jour. Pol. Econ.*, Vol. 46, No. 3, June, 1938. Pp. 307, 308, 311, 313, 314, 316–22.

Two matters of a preliminary sort must be cleared up at the outset. In the first place, in terms of conventional equilibrium analysis the factors which cause agriculture to maintain its output must have to do with the supply curve. Certain popular discussion runs in terms of a "stable" demand for agricultural products during depression, which is met in turn by a stable flow of supplies. But such an argument is tenable only if the demand is effective in maintaining stable prices. Actually farm prices tend to fall more quickly and farther than the prices of other products; it is in face of this that supplies tend to remain fairly constant, and hence our analysis has to do with the supply price of farm products.

* * *

. . . The first explanation to be considered relates to certain physical or technological peculiarities of agricultural production. These can mostly be included under two heads: (a) a long production period and (b) the "accidental" effects of weather. The most obvious consequence of both of these is that farmers cannot adjust their production programs promptly or certainly to changing prices. . . .

* * *

In the statistics of agricultural production in recent years

around 15 per cent of the value of net agricultural output has commonly been assigned to consumption by the households of the farms on which it is produced. Obviously this 15 per cent, or whatever more than this that a better job of valuation would report, is likely to be a more stable physical volume than that which is produced for market. But how stable is it during a depression? And how large a factor is it in the maintenance of total output at such times? Clearly its importance is not great, but a few aspects of it are somewhat interesting to explore.

* * *

We may next examine what is doubtless the most popular lay explanation of maintained agricultural production — that the farmer instead of reducing production because of lower prices may actually seek to increase it because of the higher marginal utility of his diminished income. In the common expression, he works harder to "make up" for the lower price he is receiving for his product. . . .

. . . In simple language, if the farmer is more influenced by his need for increased money revenue he will increase his own expenditure of effort. If he is more impressed by the meagerness of the return he will decrease his expenditure of effort. This carries the matter a step beyond the movement of income at which Mr. Harrod leaves it, and casts some doubt on his hypothesis that a diminution of return to the self-employed operator leads to an increased expenditure of effort. And, more important, the increased effort, because it may be only a substitution for other factors, need not lead to increased output.

* * *

1. *Rent-capitalization costs* are those expenditures which relate to the farmer's investment in a given grade of land and location. If this is a past investment without recurrent charges, it has no bearing direct or indirect on the maintenance of production. But taxes must be paid currently, and well over half of the farms in the country must meet a contractual annual charge in the form of rent or interest. To the individual entrepreneur struggling to maintain possession of his property, interest and taxes represent no less urgent disbursements than seed or fertilizer. They may affect the level of output in two possible ways. As already suggested, these charges, by acting to increase the marginal utility of money, may lead to a larger input of noncash factors. On the other hand, the effect may be directly

to decrease the input of cash factors; the farmer with limited cash resources available at a given time may devote these to interest and taxes rather than to fertilizer. In any particular situation, one or the other of these effects may be the more important.

2. The same analysis may be extended to *recurrent-overhead charges* against capital equipment which is durable beyond the period of time under consideration.

3. Rent-capitalization charges and overhead do not vary with the level of production, and the same is true of the next category of agricultural costs, which have been labeled *joint-prime costs.* There is nothing particularly novel about this class of costs; they are an inevitable part of the process of combining several lines of production in the farm business. Where a variety of products are combined, the prime-cost factors employed in one line of production may also be used and behave as overhead costs for another line of production. Thus on farms where crop production is dominant, the livestock production makes use of the same labor supply during "off" seasons. No reduction in the amount of livestock maintained would alter the marginal cost of labor; the size of the labor force is governed by the crop production. And even should labor employed in the crops be curtailed in response to a changed marginal cost-price relationship, the labor demands of the subsidiary livestock production will often be sufficiently modest and supplementary so that no change in it is necessary.

Every diversified farm provides examples of these prime costs which behave as overhead costs for certain lines of production. Their effect is that certain agricultural products — those that occupy a subsidiary role — may be produced with few or no variable costs. Consequently, reduction of the price of these products will have no effect, or a diminished effect, on output.

4. As to *prime cost proper* — i.e., costs which vary with the scale of production — the first distinction of importance in agriculture is between cash and noncash costs. So far as noncash costs are concerned, there is little to add to earlier discussion. The most important by far of these is the input of the entrepreneur's own labor together with that of his family. We have seen that we cannot be certain, on a priori grounds, whether there will be a decrease or an increase in this input with falling prices.

Within the category of cash-prime costs it is necessary to distinguish between *lumpy* and *smoothly variable costs.* Lumpiness

is important in agriculture as in other small-scale enterprise, but especially so because the same unit of a factor may be used on several products. Thus a man is a small unit of cost in an automobile factory; on a farm he may be the entire purchased labor input for several lines of production. Partly for this reason and partly because of the technical character of the industry, a number of types of agricultural costs must be incurred *en bloc* if there is to be any production at all within a given season or short-run period. . . .

To be sure, lumpy costs need not of themselves maintain the volume of factors employed with a fall in price; but in agriculture the lumpiness for important factors is such that withdrawal may mean either a cessation of production or a general reorganization of the combination of factors. Such a step is likely to be delayed under any circumstances; and in a depression which is assumed to be temporary it is not likely to be taken at all.

We now turn to divisible or *smoothly variable costs* — the costs of those factors presenting no physical barrier to the exact equating of marginal costs and marginal returns. But even here one must distinguish between what have been termed *recovery costs* and *planning costs.* The distinction is necessarily somewhat vague, for it depends to a considerable extent on the way in which the entrepreneur is assumed to behave in planning his production. Nonetheless, it is of some importance. By recovery costs in agriculture are meant those costs which must be incurred to protect or recover an investment already made within a given process or period of production. When production is under way the costs which are incurred are governed not so much by the relation of these costs to returns as by the amount of the previous expenditure on production. The wheat-grower's expenditure on twine is governed not by the relation of this outlay to price but by the necessity for cutting and binding the crop if he is to recover earlier expenditures. Likewise, the fruit-grower makes an expenditure for picking that is set by his earlier expenditure, even within the season, upon pruning, spraying, and similar cultural practices.

It is apparent that if all costs are forecast in advance no distinction can be drawn between planning and recovery costs. But it is precisely this need for forecasting which would appear to make the distinction of importance in agriculture. The period of production under the purview of one entrepreneur is longer in agriculture than in most industry — or such seems to be a

common assumption. It may reasonably be argued that the longer the period the greater the likelihood that forecasts will not be made; or that the conditions upon which the forecasts are based will change. Furthermore, of course, the amount of the recovery costs will vary with yields.

Finally, we are left with a class of prime-cash costs which are susceptible to variations in accordance with the farmers' forecast of cost-price relationships: the costs which presumably will be curtailed in the face of declining prices if the producer keeps marginal costs in line with price. It is adjustment in these costs which governs adjustment in output. The most important question concerning these costs is their quantitative importance in agricultural production. This, obviously, is a question of fact. If these costs are small or insignificant in the short-run period, as seems possible, they will be an important element in the explanation of the maintenance of agricultural production. For to say that the costs that can be reduced in the face of falling prices are small or insignificant is of course to say that the curtailment of factor inputs is small or insignificant and that output is likewise changed but little. Or, in technical terms, while the marginal smoothly variable cash costs may be reduced to equal the price which obtains after a fall in demand, these are related to output by so nearly vertical a curve (in the conventional schemata) that the output is changed but slightly. As in the case of fertilizer on the cotton crop in 1931, it is quite possible that the effect of change in smoothly variable inputs may be insufficient to escape the disguising influence on yields of weather or pests.

There is one further explanation of maintained production in terms of costs which deserves mention. It is that the prices of the variable cash-cost factors themselves declined sufficiently during the depression so that the depression adjustment of marginal cost to price was at an output approximating the 1929 level. It is true, of course, that prices of these cost factors did decline during the depression, but not so much as prices of farm products. The Department of Agriculture's index of prices of commodities used by farmers in production was 83 per cent of 1929 in 1931 and 73 per cent in 1932. Prices received by farmers were 60 per cent of 1929 in 1931 and 45 per cent in 1932. It is entirely possible that with an appropriately shaped cost curve a small percentage decline in costs would be sufficient to maintain production in face of a relatively much larger decline

in price. But in this case the disparity seems to be too large, although it is obvious that such decline in prices of cost factors as occurred did assist farmers in maintaining former levels of production. In this particular connection labor costs need to be distinguished from costs of commodities used in production. Farm-labor wage rates did drop significantly during the depression. In 1931 they were 68 per cent of 1929, and in the next year 51 per cent of 1929. The relative decline in farm wage rates was much greater than the decline in industrial wage rates. It was sufficiently great, in fact, so that real farm wages in terms of agricultural output increased but moderately between 1929 and 1932. In comparison with industrial production, the flexibility of farm wage rates may perhaps be considered an important factor in the maintenance of agricultural production.

We are now in a position to make a few comments about the current explanations of the behavior of agricultural production in depression in terms of differences between the markets in which agricultural and industrial producers sell their products and the "rigidity" of prices in the markets. It is apparent from the foregoing survey that no simple statement in terms of agriculture as "pure" competition and industry as "imperfect" or "monopolistic" competition will suffice as an explanation of agricultural behavior during depression. There are peculiarities of agricultural enterprise which would work on the side of high aggregate production during depression quite without reference to the character of the market. But it also seems clear that no explanation of the differences in behavior between agriculture and industry generally can overlook the differences in competitive organization between the markets in which the products are sold. These differences need no elaboration at the present stage of economic thinking on this subject — the theoretical framework of the analysis, at least, seems fairly clear. Through much of industry it is possible for the individual producer to support marginal revenue by curtailing output. Large-scale units or oligopoly, or product differentiation or a combination of the two, provide the opportunity for such action. In the purely individual agricultural economy there is not such opportunity of supporting marginal returns by curtailing production. Likewise, we need not elaborate on the further influence on industrial production of rigid prices and capricious price movements which are sanctioned by monopoly power in an industry. These may have an even greater effect in reducing output than

will controlled prices so adjusted as to maximize current income. But the effect of monopoly power in the industrial market is to sharpen the contrast between industrial and agricultural behavior during depression rather than to explain agricultural behavior itself. The absence of monopoly elements makes it impossible for agriculture to behave as does industry generally, but agriculture also deviates from the behavior which would be expected of a perfectly competitive industry with mobile and divisible factors. It is with such deviations, so far as they are toward maintained production, that our first five explanations deal.

Our analysis must have made apparent that the behavior of agricultural production in depression arises from a complex set of relationships, including, among others, the six that have been discussed. Of these, the nature of cost in agriculture and the technical peculiarities of agricultural production, including its long period of production and its dependency upon the weather, probably emerge as the more important. Any definite conclusions as to the relative weight to be assigned to various elements, or even as to the combined weight and effect of all, must, however, wait upon quantitative analysis that is mostly still in the offing.

2.4.3 Johnson, D. Gale. "The Nature of the Supply Function for Agricultural Products," *Amer. Econ. Rev.*, Vol. 40, No. 4, Sept., 1950. Pp. 546, 548, 563.

Summary of the explanation: Most of the preceding explanations of the difference between the behavior of output in agriculture and in non-agriculture must be rejected. High fixed costs, the importance of subsistence production, technological conditions are clearly invalid explanations. The differences in the competitive structure of agriculture and industry in the degree of enterprise monopoly is a superficially more plausible explanation, yet I believe it, too, is invalid. An enterprise monopoly faced with the same factor supply conditions as agriculture would, in my view, react in much the same way as a competitive firm.

The belief that farm workers may work harder during periods of low income cannot be rejected on the basis of existing data, and this hypothesis is consistent with actual behavior.

* * *

Summary: The theory presented in this article to explain the output behavior of agriculture rests on two major assumptions: (1) That farmers are profit-maximizing entrepreneurs

and (2) that the supply functions of factors to agriculture have certain characteristics. These characteristics are: (a) The labor supply function shifts with changes in the general level of business activity and unemployment (reflecting the alternatives to farm employment) and for any level of business activity, unemployment and nonfarm wage rates, the price elasticity with respect to labor returns in agriculture is small enough to lead to essentially full employment of labor. (b) The land supply function has a very low price elasticity in the short run in part due to the lack of alternative uses outside of agriculture and due to small changes that can be made in the quantity of land through investment and disinvestment. (c) The supply function of capital assets has a very small price elasticity for downward movements in prices since the quantity of such assets existing at any one time can achieve higher returns in agriculture than elsewhere; in response to upward movements in prices, the price elasticity is higher as new investment becomes profitable to farmers.

* * *

These conditions of supply would mean that during a major prolonged decline in business activity that (1) farm prices, farm wage rates, and land rents would fall in about the same proportion and (2) the employment of land, labor, and machinery would not change appreciably. Condition (2) might prevail without (1) if the resources had to be used in fixed proportions or if one of the resources had a fixed coefficient of production, conditions that seem less plausible than the conditions of supply outlined above.

* * *

This theory, simple as it is, seems to be consistent with the observed phenomena. The theory seems much more useful in understanding the behavior of agricultural output under various sets of circumstances than other explanations that have been offered. The high fixed cost explanation of constancy of output during a depression not only has the defect of being inconsistent with the observed behavior of the employment of hired labor and rented land, but high fixed costs are not an explanation at all of output responses to rising real output prices. Nor does the competitive structure of agriculture seem to have much relevance to output behavior. Other explanations — the length of the production process and the importance of subsistence production — have been found to be unsatisfactory. The effect

of the real wage upon the amount of effort a given labor force will exert is an explanation of behavior that seems consistent with observed phenomena. It is a hypothesis that deserves further investigation. The hypothesis is not inconsistent with the theory expounded here. If we knew more of its relevance and significance, it would be possible to specify with greater accuracy the nature of the labor supply function.

Statistical derivation of supply curves for agricultural commodities has been sadly neglected in recent years. A paper by Louis Bean in 1929 summarized the information then available; and the reader would still do well to turn to his paper for analysis in this field. We present here some of his conclusions concerning the supply of potatoes. —*Ed.*

2.4.4 Bean, Louis. "The Farmers' Response to Price," *Jour. Farm Econ.*, Vol. XI, No. 3, July, 1929. Pp. 377–78, 379, 381.

Other evidence pointing to the reasonableness of results presented here is found in the regional differences in prices of potatoes associated with acreage stability. Usually prices received by growers in New York are above the general average for the country as a whole, while in Michigan and Idaho they are below the average, these relationships reflecting largely freight differentials and location with respect to consuming markets. As might be expected from these price differences, it is found that for the country as a whole the price associated with acreage stability is about $1.00, for New York, $1.11, for Michigan, 85 cents and for Idaho, 63 cents.

* * *

Examining first the data for potatoes, it will be seen that with price 10 per cent below the equilibrium point, acreage tended to be reduced the first year 7 to 8 per cent in each area, and with price 20 per cent below the equilibrium point, acreage tended to be reduced 9 to 10 per cent below in New York, Michigan and the United States, but 15 per cent in Idaho. With prices 10 per cent above the equilibrium price, acreage increased 5 to 7 per cent in New York, Michigan and the United States, and 9 per cent in Idaho, while prices 40 per cent above resulted in a 15 per cent increase in acreage in Idaho but only 7 to 9 per cent in the other areas. In each of the areas the additional increase in acreage for prices 40 per cent above was only slightly greater than for a price 10 per cent above, except in Idaho. In the latter state, potato acreage appears to be more

sensitive, the response to a given price high or low, being greater than in the other three areas.

2.5 Derived Demand for Farm Products and the Incidence of Marketing Charges

The usual textbook theory suggests that prices are established at the intersection of a demand and a supply curve. This simple relationship exists in the case of direct barter between producer and consumer. But in most agricultural marketing, the price the consumer pays and the price the farmer receives are separated by substantial marketing costs. As was pointed out in the introduction, the "farmers' share" of the consumer's dollar currently averages around 50 cents for foods, although it varies a good deal from one commodity to another.

This section is concerned with the relationships that exist between demand at the retail level and the prices that the farmer can get for his products at the farm. It explains why demand at the farm level is ordinarily much less elastic than demand at the retail level. It also points out the effects of changes in marketing charges upon the prices that consumers pay and the prices that farmers receive.

We start with a general discussion of derived demand.—*Ed.*

2.5.1 Thomsen, Frederick L. *Agricultural Marketing.* McGraw-Hill, New York, 1951. Pp. 171–73. Reprinted by permission.

Derived Demands for Farm Products. — If there were no consumer retail demand for fresh foods and for processed products made from agricultural raw materials, there would be no demand for the fresh products in wholesale markets and no demand for agricultural raw materials in processing markets. Nor would there be a demand for the services of various types of middlemen found in the marketing system. All of the latter demands, therefore, are derived demands, just as the demands for bricks, lumber, and other building materials are derived from the consumer demand for houses and commercial building facilities.

Since the demand for farm products in various types of wholesale markets, including the local farm market, is derived from consumer demand, it has many of the characteristics of consumer demand for the finished product. Thus, the demand for salt at the mines and refineries is inelastic because the consumer demand for salt is inelastic. The demand for strawberries in local growers' markets of Florida or Arkansas is more elastic than the demand for potatoes at shipping points in Maine be-

cause strawberries are a luxury food, whereas potatoes are a staple item of diet, and consequently the consumer demand for strawberries is more elastic than for potatoes.

However, the derived demands for fresh products and raw materials differ from the corresponding consumer demands in some important respects, owing to the intervening marketing operations and charges.

The differences between consumer demands for fresh or processed products and the demands for agricultural commodities from which they are derived arise mainly from three factors:

1. *The demand for products at the farm end of the marketing system consists of consumer demand* (i.e., prices which consumers will pay for different quantities) *minus a schedule of marketing charges* (i.e., per unit marketing margins associated with different quantities marketed). These marketing charges are determined largely by conditions divorced from consumer demand and hence cannot be expected to change in complete harmony with changes in the retail prices and quantities of commodities marketed.

If the marketing charge is a flat rate per unit, regardless of the price paid by consumers or the quantity marketed, the prices received by farmers in local farm markets for different total quantities marketed would be a uniform absolute amount less than the price paid by consumers for such quantities. If the consumer demand curve is a straight line, the demand curve for the local farm market would be parallel to and below (or to the left of, depending on which scale is considered the base) the consumer demand curve. This means that the farmers' demand curve would be *less* elastic for the same quantity than the consumers' demand curve.

If the total marketing charge per unit is a constant percentage of the retail price regardless of the quantity marketed, the demand curve for the local farm market would have a slope less steep than that of consumer demand, which would make for a farm market demand having the same elasticity as consumer demand. However, such a situation is very improbable. Transportation and many other charges are generally on a flat-rate basis. Retailers' and wholesalers' margins, on the other hand, frequently are based on a percentage markup or margin, so that we should expect per-unit marketing charges to be about halfway between a flat rate per unit and a percentage basis. This

conclusion is borne out by studies of the Bureau of Agricultural Economics. . . .

* * *

2. *The demands for various commodities in farm markets reflect the differing seasonality of production and consumption* of those products which can be stored, and hence the demand in farm markets would fluctuate during the year even if there were no change in consumer demand. The amount of fluctuation normally to be expected from this factor would be the amount of seasonal change in the over-all marketing margin attributable to the differences in storage charges.

3. *Wholesale-market dealers anticipate changes in retail demand.* Even if marketing costs including storage costs were zero, the demand for farm products in local assembly and other wholesale markets would not coincide with consumer demand, because middlemen in the wholesale markets recognize impending changes in retail demand and adjust their offering prices for different quantities accordingly.

The relative instability of farm prices is due in part to the rigidity of marketing charges. This point was emphasized by Warren and Pearson.—*Ed.*

2.5.2 Warren, G. F. and Pearson, F. A. *Interrelationships of Supply and Price.* Cornell Univ., Agr. Exper. Sta. Bull. 466, March, 1928. Pp. 143–44.

Consumption of that part of the supply which is used on the farm is affected by farm prices, which fluctuate violently. Consumption of that part of the supply which sells at retail is affected by retail prices, which fluctuate little. Consumption of that part of the supply which sells in tin cans is affected by prices of canned goods, which fluctuate still less. Consumption of that part of the supply which is consumed in hotels is affected by prices on the bill of fare, which are practically indifferent to supply.

The statement is constantly reiterated that supply and demand govern prices. The assumption is made that all prices are thus explained. If this were true, low prices would be explained either by high supply or by low demand. Consumers' prices are governed by supply and demand. Prices paid to farmers are consumers' prices less the cost of distribution. They may be low because supply or demand has made consumers' prices low, or they may be low, in spite of high consumers' prices if distributing charges have risen.

* * *

The producer pays the freight and all other distributing costs until such a time as he is able to reduce production and so pass on a part of these charges to the consumer. If retail prices were raised because handling charges were raised, the consumer would not take all the product and prices would have to be lowered. For most farm products a number of years are required in order to reduce production and pass on part of the distributing charges.

* * *

The violence with which farm prices fluctuate was becoming an important national problem even before the war. Eating in restaurants, stabilized retail prices, increased use of package goods, commercialized agriculture, specialized farming, and living in large cities rather than in small villages, all tend to make farm prices fluctuate violently.

Cassels' analysis of the costs of marketing fluid milk brings out not only that there is no reason to expect absolute marketing margins to decrease when farm prices go down but that they may, under some circumstances, move in the opposite direction.—*Ed.*

2.5.3 Cassels, John M. *A Study of Fluid Milk Prices.* Harvard Economic Studies, Vol. 54. Harvard Univ., Cambridge, Mass., 1937. Pp. 44–45.

If the consumers' demand for fluid milk is inelastic, that part of the dealers' demand which is derived from it will certainly be inelastic in an even higher degree. As was indicated above, the dealers' demand is a composite demand derived from two different underlying demands, one the consumers' demand for fluid milk and the other the demand for the dairy products into which the milk in excess of fluid sales is manufactured. In studying the character of the total dealers' demand we naturally consider first the effects of its dependence on the ultimate demand for fluid milk.

The prices f.o.b. city plants at which dealers will buy different quantities of milk depend on the prices at which they can sell it and the margins that they themselves demand for the services they perform in distributing it. It must be recognized that the presence of monopoly elements in the distribution field will tend to make these margins wider than they would be under conditions of pure competition, but what is most important to note in the present connection is that even under conditions of pure competition there would be no necessary tendency for proportionate relations to be maintained between prices and margins. Still less,

of course, would there be any such tendency when the competition among the dealers is imperfect. The price of milk depends on the conditions of supply and demand for that commodity, while the margins depend in a similar way on the conditions of supply and demand for distributors' services. These two sets of conditions are, to a considerable extent, independent of one another. The factors which cause a shifting to the right or left of the producers' supply curve for milk may be of such a nature as to cause no corresponding shifts in the supply curve for the dealers' services. Technical or economic changes might cheapen the production of milk on the farms without affecting in the least the costs of retail distribution. On the other hand, economies might be introduced in the methods of retail distribution while the costs of farm production underwent no reduction. Indeed it seems that changes such as these might well have opposite effects on the prices paid to producers and the margins taken by the dealers. The increase in the volume of milk marketed by farmers as a result of the cheapening of production would actually constitute an increased demand for the services of distributors and would (in the absence of conditions of constant or decreasing costs) tend to widen the margins going to the dealers. In a similar way the narrowing of the margins through the introduction of economies in distribution would increase the derived demand for milk and tend to raise the prices received by the producers.

On the basis of this analysis, it is evidently a mistake to suppose that overproduction in the milk industry and the low prices to producers which result from it should necessarily be accompanied, for any economic reasons, by low margins to the distributors. And, if the operation of a freely competitive pricing system is accepted as the best means of directing and adjusting production, it would be undesirable to have the middlemen sacrifice (out of generosity) any of their share in the retail price for the benefit of the farmers. It is the farmers' output which is in excess of the equilibrium amount and which should be cut down, according to this view, through the impact upon them of the full effects of the price decline brought about by their misdirected efforts. This is pointed out here, not because the writer accepts this as the best method of directing production, but merely to show that neither the principles nor the philosophy of the laissez-faire system require that dealers' margins should be proportionate to producers' prices. It must be recognized, however, that conditions of decreasing costs, excluded from consideration above, will frequently pre-

vail in the businesses of milk distribution, and that in such cases the increase in volume which lowers the price will also tend to lower to some extent the dealers' margins.

Most statistical studies of the demand for farm products have been made on the basis of farm or central market prices, rather than retail prices. Some typical findings regarding demand elasticity are shown below. It should be noted that the estimates were made by different economists, using different methods, and studying different periods of time. Thus, they are not comparable with one another, but they do give some idea of the scope and diversity of available estimates of the elasticity of demand for farm products. —*Ed.*

2.5.4 Waite, Warren C. and Trelogan, Harry C. *Agricultural Market Prices.* 2nd ed., John Wiley & Sons, New York, 1951. Pp. 46–47.

TABLE 8

ELASTICITIES OF DEMAND DERIVED IN CERTAIN STATISTICAL STUDIES IN THE UNITED STATES

Commodity	Market	Elasticity	Years
Milk	Boston, Class I	0.07	1922–31[a]
Milk	Several markets, fluid	0.27	1934–35[b]
Sugar	U. S.	0.31	1915–29[c]
Wheat	Chicago	0.36	1896–1913
Wheat	Chicago	0.24	1921–34[d]
Wheat	U. S. Farm	0.21	1921–34[c]
Lemons	California	0.33	1910–37[e]
Potatoes	Minneapolis	0.46	1902–24[f]
Potatoes	U. S. Farm	0.30	1915–29[c]
Barley	U. S. Farm	0.53	1915–29[c]
Oats	U. S. Farm	0.60	1915–29[c]
Corn	Chicago	0.59	1897–1926[g]
Corn	U. S. Farm	0.70	1921–38[h]
Rice	New Orleans	0.65	1914–30[i]
Coffee	Import price	0.75	1881–1913[j]
Pork	U. S. Farm	0.65	1921–37[k]
Pork	U. S. Retail	0.93	1922–30[l]
Cranberries	Wholesale, fresh	0.80	1931–41[m]
Peaches	U. S. Farm	1.20	1910–15 and 1921–25[n]
Apples	New York, wholesale	1.42	1898–1914[o]
Veal	U. S. Farm	1.50	1921–41[p]
Tokay grapes	Auction market	1.40	1921–31[q]
Lambs	.....	1.58	1907–26[r]
Bananas	New York, wholesale	2.56	1897–1914[s]

[a] John Cassels, "Fluid Milk Programs of the AAA," *Jour. Pol. Econ.*, Vol. 43, p. 416 (1935).

[b] E. W. Gaumnitz and O. M. Reed, "Some Problems in Establishing Milk Prices," *U. S. Dept. Agr.* DM-2, p. 44.

[c] Henry Schultz, *The Theory and Measurement of Demand.* University of Chicago Press, 1938.
[d] H. Working, "The Elasticities of Demand for Wheat," *Econometrica*, Vol. 5, No. 2, pp. 185–86 (1937).
[e] H. Wellman and E. Braun, "Lemons," *Calif. Agr. Exper. Sta. Bull. 460*, p. 20.
[f] H. Working, "Factors Affecting the Price of Minnesota Potatoes," *Minn. Agr. Exper. Sta. Tech. Bull. 29*, p. 13.
[g] R. W. Cox, "Factors Influencing the Price of Corn," *Minn. Agr. Exper. Sta. Tech. Bull. 81*, p. 23.
[h] G. Shepherd, "Controlling Corn and Hog Supplies and Prices," *U. S. Dept. Agr. Tech. Bull. 826*, pp. 18–19.
[i] C. E. Campbell, "Factors Affecting the Price of Rice," *U. S. Dept. Agr. Tech. Bull. 297*, p. 20.
[j] E. W. Gilboy, "The Leontieff and Schultz Methods," *Quar. Jour. Econ.*, Vol. 44, p. 233 (Nov., 1930).
[k] G. Shepherd and W. W. Wilcox, "Stabilizing Corn Supplies by Storage," *Iowa Agr. Exper. Sta. Bull. 368*, p. 337.
[l] E. J. Working, "Changes in Demand," *Jour. Farm Econ.*, Vol. 14, p. 246.
[m] C. D. Hyson and F. H. Sanderson, "Monopolistic Discrimination in the Cranberry Industry," *Quar. Jour. Econ.*, May, 1945, p. 342.
[n] E. M. Daggit, *Yearbook of Agriculture*, 1936, p. 566.
[o] G. F. Warren and F. A. Pearson, *N. Y. State Coll. Agr. Farm Econ. 48*, p. 777.
[p] M. Ezekiel, (reported by Warren and Pearson), "Interrelationships of Demand and Supply," *Cornell Univ. Agr. Exper. Sta. Bull. 466.*
[q] E. A. Stokdyk, "Marketing Tokay Grapes," *Calif. Agr. Exper. Sta. Bull. 558*, p. 17.
[r] M. Ezekiel, "Factors Relating to Lamb Prices," *Jour. Pol. Econ.*, Vol. XXXV, p. 241 (April, 1927).
[s] G. F. Warren and F. A. Pearson, *op. cit.*, p. 778.

Who pays the cost of marketing? Who is benefited by a reduction in marketing charges? Who bears the burden of an increase? These questions are currently important. Freight rates and other marketing charges have been rising, and further increases are likely. Will this reduce farm incomes, raise the bill of consumers, or both?

A partial answer to such questions is given in the following excerpt from Shepherd.—*Ed.*

2.5.5 Shepherd, Geoffrey S. *Agricultural Price Analysis.* 3rd ed., The Iowa State College Press, Ames, Iowa, 1950. P. 212.

This chapter can be summarized in these words (the statement is put in terms of a decrease in middleman's margin; the effects of an increase in middleman's margins is the converse of these): A decrease in middleman's margins (1) increases production and consumption (by the same amounts, since what is produced is consumed, no more and no less); and (2) both lowers prices to consumers and raises prices to producers, by amounts which added together equal the decrease in the middleman's margin. The division between the producer and consumer depends upon (is inversely proportional to) the relative elasticities of their supply and demand; the one with the more elastic curve gets the smaller share.

Results such as those stated by Shepherd are subject to two qualifications. First, they are based upon the assump-

tion that the demand for and the supply of the commodity or group of commodities are both independent of the prices of all other commodities. When several commodities compete in consumption, in production, or both, the incidence may be very different. In fact, Hotelling showed in "Edgeworth's Taxation Paradox, . . ." *Jour. Pol. Econ.*, Vol. 40, 1932, that a tax on a particular commodity (or an increase in the cost of marketing it) might lower the retail prices both of that commodity and competing commodities. Second, Shepherd's statement in terms of the relative *elasticities* of demand and supply holds when both curves are in terms of retail prices—or both in terms of farm prices. Shepherd's analysis is consistent on this point, since the two curves are in terms of the same prices. But if the supply curve is in terms of prices received by producers, and if the demand curve is in terms of prices paid by consumers, it is the relative *slopes* that count—not relative *elasticities*.—*Ed.*

2.6 The Market as Equator of Demand and Supply

The purpose of markets is to provide for the exchange of goods between buyers and sellers. The terms on the basis of which buying and selling occur are prices. Hence, a main function of markets is price-making.

We have a fairly simple theoretical model of how prices adjust under competitive conditions so as to equate demand with supply and "clear the market." We also have numerous descriptive studies of markets for particular commodities that indicate substantial departures from this simple model. We are short on analytical studies that appraise the prevailing institutional arrangements and pricing practices from the standpoint of efficiency of the price-making process.

The readings in this subsection start with Clark and Weld's brief description of the "equalization" process as it should work ideally in markets for agricultural commodities.—*Ed.*

2.6.1 Clark, Fred E. and Weld, L. D. H. *Marketing Agricultural Products in the United States.* Macmillan, New York, 1932. P. 13.

Here occurs what may be termed a process of "equalization." The wholesale market may be looked upon as a reservoir. The supplies that flow into this reservoir are more or less fluctuating in quantity and quality. Some products are intensely seasonal in character; others, even though they are grown throughout the year, come to market in irregular quantities, due to weather changes, condition of country roads, price changes, or the whims of shippers and buyers. On the other hand, demand is constantly changing. By releasing the supply so there can be an adequate flow to

users, by keeping the markets in balance through interchange of information, and by directing commodities to those localities where demand is the greatest; in short, by adjusting a fluctuating supply to a constantly changing demand, the great wholesale reservoirs perform an indispensable equalizing process.

Many farm products are sold at auction both in the United States and elsewhere, and the operation of auction markets has been a subject of a good deal of study. An interesting account of auction pricing in the Netherlands and Belgium has been given by Riddell. (A similar system, without the mechanical accouterments, is used in the Baltimore fruit auction in this country.) Such a market is clearly competitive. The reader is left to ponder, however, the relationship of the range of prices that result with this selling procedure to the idealized intersection of a supply and demand curve in the economists' competitive model.—*Ed.*

2.6.2 Riddell, G. E. "Farmers in Low Countries Sell by the Clock," *News for Farmer Cooperatives,* U. S. Farm Credit Admin., Sept., 1950. P. 3.

Agricultural cooperatives in the Low Countries of Holland and Belgium have developed "sales line" marketing comparable in efficiency to "production line" manufacturing in this country. They do it primarily through auctions that move along smoothly, quietly, and swiftly. Several things enter into this systematized operation.

First of all, the auction method differs essentially from that prevailing in our country in that the sale is made on the first bid — the top price anyone is willing to pay. This is really "auction in reverse."

* * *

. . . These buyers had already examined and tasted the samples from the various lots to be sold before coming in to the auction room.

* * *

The sale began with a brief announcement by the auction manager of the maximum and minimum number of 30 kilogram boxes to be allowed on a single sale. The manager called the first "lot" number and the great hand or pointer started moving slowly counterclockwise to the numbers indicating prices on the border of the dial. When the hand reached a price acceptable to some buyer he pushed the electric button at his seat and the hand stopped. His number lighted up on the board. He indicated the number of cases by holding up the corresponding num-

ber of fingers. The amount was then called off and recorded by the sales assistant. The sale was completed.

The hand returned rapidly to the top of the dial, or to a point well above the probable sale price, and started down again. The auction manager called the next lot number and another sale was under way. These auctions sell much faster than our own fruit and vegetable ones. The products that feed into this and other auctions come from an agriculture that differs from ours in many ways but also ranks high in efficiency.

Section 5 will deal with conditions of imperfect competition and monopoly, but we shall include an excerpt here to show how imperfect competition affects pricing in some agricultural markets.—*Ed.*

2.6.3 Nicholls, William H. "Market-Sharing in the Packing Industry," *Jour. Farm Econ.*, Vol. XXII, No. 1, Feb., 1940. Pp. 234–37. (As corrected in *Jour. Farm Econ.*, Vol. XXII, No. 2, May, 1940. P. 497.)

Time will not permit the detailed demonstration of the theory of market-sharing here, although the writer has tentatively worked out what he believes is a valid theoretical analysis of the problem. This analysis may be summarized in the following way.

First, it should be said that, when only two or a few large firms buy in a market, the supply curve of (say) hogs to any one (and hence all) of them depends not only upon the market supply curve but also upon the buying policies of its few rivals. Thus uncertainty as to its rivals' future policies would lead to uncertainties as to the conditions of supply which face this company. The same would be true of demand conditions on the selling side. If a certain percentage division of the buying and selling markets becomes recognized as "fair," however, the uncertainties as to one's rivals' policies largely disappear, and its own supply and demand curves tend to become merely proportional parts (say 40 per cent) of the market curves. What price and production policies might be expected under such conditions of market-sharing?

If the marginal costs of processing and distribution were identical among the few large firms for every possible total volume so shared, hog prices and pork prices (and hence the spread) would be in no wise different from that of outright collusion. Total excess profits would be shared in the same proportion as total volume, the few firms all being equally satisfied with the sharing arrangement. Although the market could be

shared in given proportions at any price level from the monopoly level to that of pure competition, presumably each firm would realize that any endeavor to increase its own relative volume of purchases by price competition would only reduce its own profits, due to inevitable retaliation by its competitors.

Once we drop the highly restrictive assumption of identical marginal costs among the few firms, however, no one total volume, and hence buying or selling price, would be equally acceptable to all of them. It can be shown that, in this situation, the most efficient of the few firms would be the price leader. This firm would determine the prices which would maximize its own profits on its recognized share of the business. The less-efficient firms will find themselves accepting the leader's price. At this price they may conceivably choose to buy less than their "fair" share, in which case the leader will gain a growing percentage of the market.

If this analysis is valid, what are the implications when we extend it to the realities of fluctuating hog supplies? It is almost inconceivable that the marginal cost of processing of two or a few packers would be identical for a given sharing of all possible total hog receipts (as we first assumed). Yet apparently over considerable periods of time — at least in individual markets — we find actual packers' percentages very stable. This might indicate a certain equalizing of cost between firms by non-price competition — such as advertising and other selling costs — in the short run.

Over a longer period of time, on the other hand, there have been significant shifts in the national importance of the "Big Four" packers relative to each other. If, as is commonly asserted by those familiar with the packing industry, Swift is the most efficient, as well as the probable price leader, of the "Big Four," its gradual gains over its closest rival, Armour, since the War might corroborate our theory. Rapid gains on Swift's part would doubtless be prevented by fear of anti-trust action, even if such were possible on the basis of relative costs. Differing cost conditions among a few firms, however, by leading to different preferences as to price and volume policies, apparently favor farmer and consumer somewhat in the long run compared with identical cost conditions, under which identity of interests would be complete.

We have so far assumed that a few firms handle the entire supply of hogs. Actually, however, there are a few dominant

packing firms, undoubtedly too large to ignore their own influence on prices, and a considerable number of firms so small that they can ignore their effect on prices. Where a few firms dominate both the buying and selling markets, although they may not possess complete control of either, they may be able to establish the level of buying and selling prices — and hence the spread — in such a way as to maximize their joint profits, if the smaller firms "follow the leader." The essence of price leadership is that the dominant firms are not aggressive, that is, they take what is left over by the small firms at the price which the large firms dictate.

It is important to note that while, in their relationship to each other, a few dominant firms may have to recognize the most efficient of their number as their leader, the dominant firms — regardless of efficiency — may assume a position of leadership relative to the rest of the industry by the nature of their size alone. The dominant firms may be expected to take the initiative in making price changes as they seek to maximize their profits under varying market conditions. To each new position taken by the dominant firms the small ones will tend to adjust on the basis of competitive behavior. The largest units have the greatest interest in preventing price competition, and their greater amount of unused capacity and financial resources are such as to enable them to enforce their policy on others if necessary. Finally, the smaller firms are likely to regard the large firms as better equipped to frame a satisfactory policy for the whole industry. Our over-all theory, then, would lead us to expect that prices throughout the industry would tend to be established at such a level as to maximize the profits of the most efficient of the dominant firms.

While such price policies might result in excessive profits in the short run, the long-run effect might be quite different. It appears to be a common fate of price leaders to suffer a decline in their proportion of the total business. The fact that independent packers have grown rapidly since the War would indicate that prevailing spreads were sufficient for handsome profits on the part of smaller firms not burdened by considerable overcapacity. The four major packers, although their own capacity was already underutilized, have been able to prevent smaller firms from taking over an even greater share of the market by buying out some of these firms, often closing down the acquired plants, and redirecting the additional volume

through their old plants. While this "rationalization" process was partly forced upon them by the shift away from the terminal markets as a source of supply, the failure to use price competition as an alternative means of gaining needed volume is liable to lead to *chronic* overcapacity, if there is a failure of price competition to act as a corrective. Thus, ultimately high costs may bring only a normal or even a sub-normal return on the large firms' investment and yet the farmer and consumer suffer as much as if the industry were fully monopolized.

It has not been the purpose of this section to present an analysis of the actual price and production policies of the dominant firms in the packing industry. The intent has rather been to show that both constant purchase percentages and marked shifts in the relative national positions of the leading packers, such as we noted earlier, may be fully consistent with the existence of imperfectly competitive conditions in the industry.

Agricultural supplies do not come into immediate adjustment with market prices. While "there is always one more apple on the tree" that the farmer might be induced to pick if the price were high enough, and while, if prices are sufficiently low, it may not pay him to pick his apples at all, for the most part the farmer can respond to increases or decreases in price of a crop only by increasing or decreasing his acreage of the commodity in the following year. In the case of most livestock products — meat animals and milk — it takes a still longer time to change the level of production substantially. In the case of orchard fruits, five or ten years may elapse between the time that farmers set out new orchards and the time that these trees come into heavy bearing.

This lag in the response of production to price change sets in motion forces that frequently lead to cycles. One of the most familiar is the hog cycle, described in the following excerpt from Nicholls. The theoretical model developed to explain this type of phenomenon is called "The Cobweb Theorem." The classic description of this process is that of Ezekiel, presented in the succeeding excerpt.—*Ed.*

2.6.4 Nicholls, William H. *A Theoretical Analysis of Imperfect Competition With Special Application to the Agricultural Industries.* The Iowa State College Press, Ames, Iowa, 1941. Pp. 310–11.

Most of the variations in the production of field crops are of an annual nature. It requires only one year to increase or decrease production in response to price changes and weather conditions are so irregular as frequently to counterbalance the actions of producers in increasing or decreasing acreage. But for

agricultural products which take a longer time for adjustment in response to price, such as livestock and orchard fruits, a tendency toward more or less regularly recurring "production cycles" has long been recognized. For hogs a cycle of 2–3 years each of increasing and decreasing production has usually been indicated; for beef cattle, 6–9 years; for sheep, 3–5 years; and for horses (in pre-tractor days), 10–15 years. The production of strawberries, wheat, apples and other orchard fruits, and many other agricultural products, has also been alleged to move in cycles.

Probably the most famous production cycle is that of hogs, largely due to the fact that it is short enough in span to have

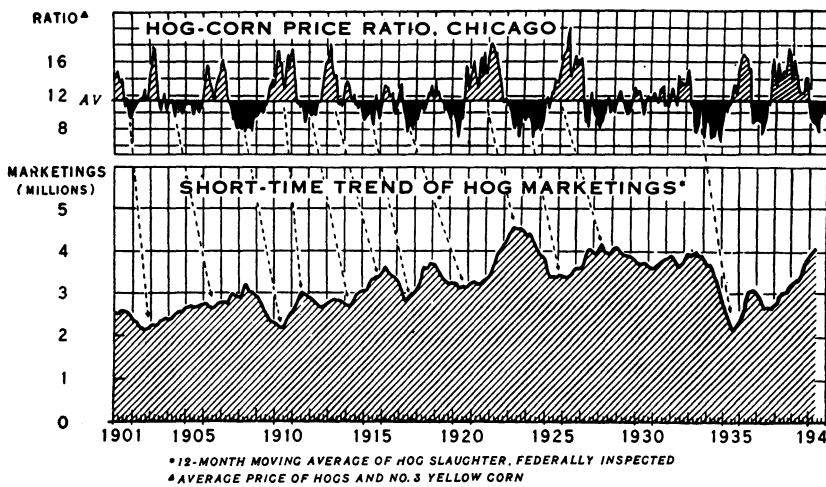


Fig. 39. Changes in corn-hog price ratio and subsequent marketing of hogs.

shown persistent recurrence over the past 80 years. Some 15 such cycles have occurred since 1860. These changes in hog production have been closely associated, not with hog prices alone, but rather with the relation between hog prices and the price of corn, the principal feed. This relation is termed the corn-hog price ratio. It represents the price of hogs per hundred pounds divided by the price of corn per bushel. When corn is relatively cheap and hogs relatively high, the corn-hog ratio is high and hog feeding is profitable. When corn is relatively dear and hogs relatively cheap, the ratio is low and feeding becomes unprofitable to most farmers.

The effect of the changing corn-hog ratios on the marketing

of hogs one or two years later is shown in Figure 39. The upper part of the chart shows the corn-hog ratios drawn above and below the average line, and the lower part shows the changes in hog marketings with the seasonal variation removed. Comparison of the upper part of the chart with the lower shows how a period of greater than average corn-hog ratios causes an increase in hog marketings a year or two later, while a period of less than average ratios causes a decrease in marketings a year or two later. For example, the high prices of hogs in 1921 resulted in a relatively high ratio and increased marketing by 1923 from 61.5 to 77.5 million hogs. The low ratio of 1923-24 in turn brought decreased marketings in 1925 and 1926 (62.6 million hogs). In 1935, due to the combined effects of drought and a production-control program, hog marketings fell to the lowest figure since 1910, 46.2 million.

2.6.5 Ezekiel, Mordecai. "The Cobweb Theorem," *Quar. Jour. Econ.*, Vol. 52, No. 2, Feb., 1938. Pp. 262–66, 268–70, 272.

The "Cobweb Theory": The phases of the cobweb theory which have already been stated by others may first be briefly summarized:

Case 1, continuous fluctuation. In the lower portion of Figure 2, the series of reactions is portrayed for the curves shown in the upper portion of the figure. The quantity in the initial period (Q_1) is large, producing a relatively low price where it intersects the demand curve, at P_1. This low price, intersecting the supply curve, calls forth in the next period a relatively short supply, Q_2. This short supply gives a high price, P_2, where it intersects the demand curve. This high price calls forth a corresponding increased production, Q_3, in the third period, with a corresponding low price, P_3. Since this low price in the third period is identical with that in the first, the production and price in the fourth, fifth, and subsequent periods will continue to rotate around the path Q_2, P_2, Q_3, P_3, etc. As long as price is completely determined by the current supply, and supply is completely determined by the preceding price, fluctuation in price and production will continue in this unchanging pattern indefinitely, without an equilibrium being approached or reached. This is true in this particular case because the demand curve is the exact reverse of the supply curve, so that at their overlap each has the same elasticity. This case has been designated the "case of continuous fluctuations."

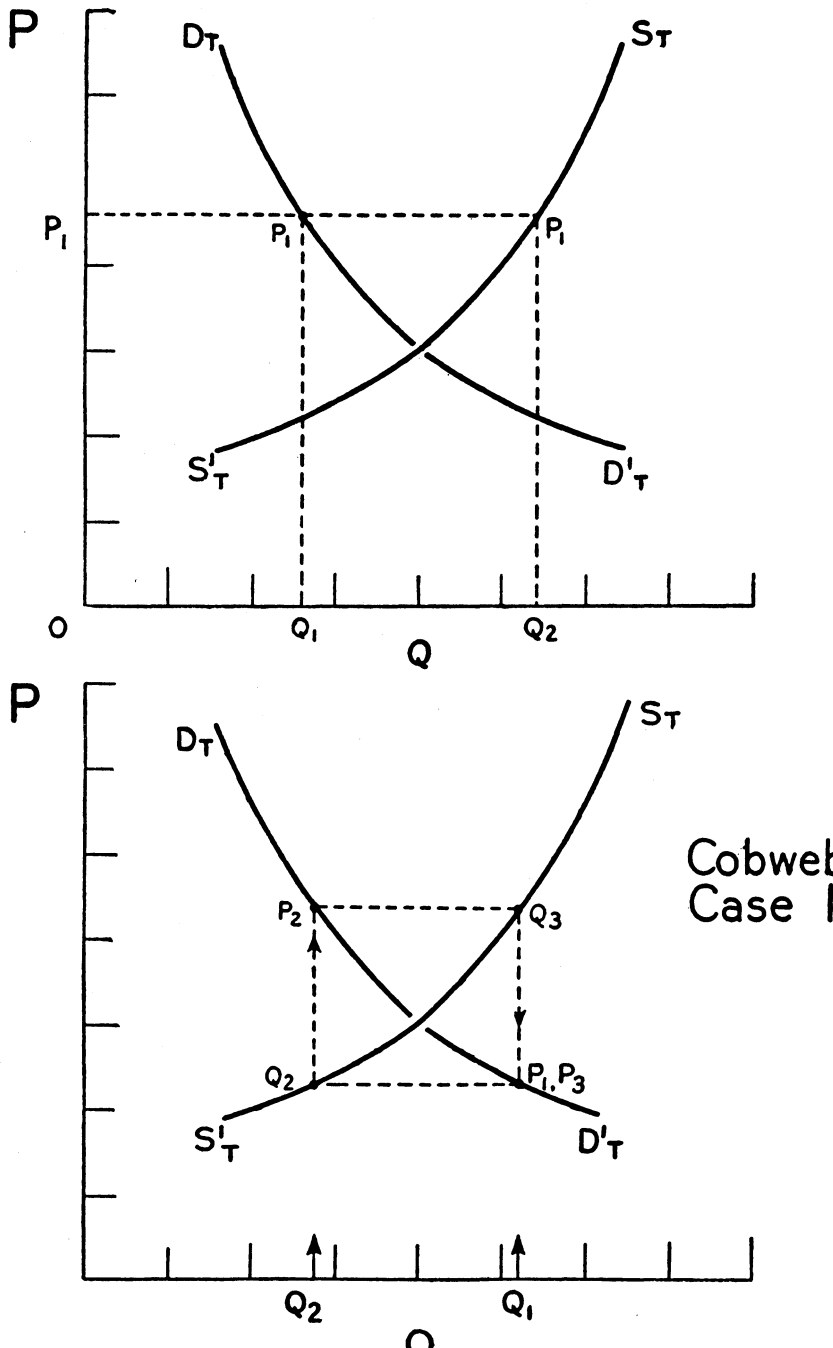
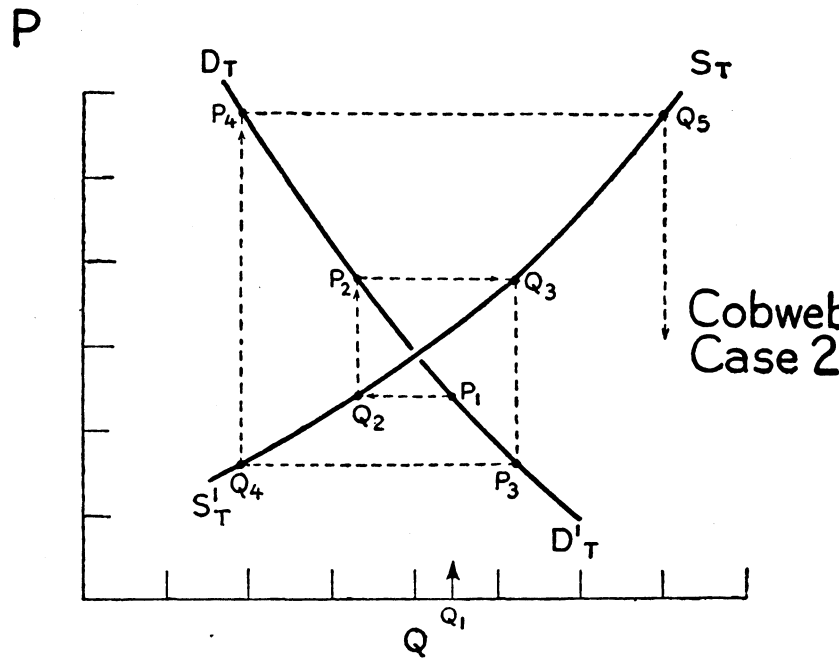


Fig. 2. Curves and series of reactions for Cobweb Case 1.

Case 2, divergent fluctuation. Where the elasticity of supply is greater than the elasticity of demand, the series of reactions works out as shown in the upper portion of Figure 3. Starting with the moderately large supply, Q_1, and the corresponding price, P_1, the series of reactions is traced by the dotted line. In the second period, there is a moderately reduced supply, Q_2, with the corresponding higher price, P_2. This high price calls forth a considerable increase in supply, Q_3, in the third period, with a resulting material reduction in price, to P_3. This is followed by a sharp reduction in quantity produced in the next period to Q_4, with a corresponding very high price, P_4. The fifth period sees a still greater expansion in supply to Q_5, etc. Under these conditions the situation might continue to grow more and more unstable, until price fell to absolute zero, or production was completely abandoned, or a limit was reached to available resources (where the elasticity of supply would change) so that production could no longer expand. The case has been designated the "case of divergent fluctuation."

Case 3, convergent fluctuation. The reverse situation, with supply less elastic than demand, is shown in the lower portion of Figure 3. Starting with a large supply and low price in the first period, P_1, there would be a very short supply and high price, Q_2 and P_2, in the second period. Production would expand again in the third period, to Q_3, but to a smaller production than that in the first period. This would set a moderately low price, P_3, in the third period, with a moderate reduction to Q_4 in the fourth period; and a moderately high price, P_4. Continuing through Q_5, P_5, and Q_6 and P_6, production and price approach more and more closely to the equilibrium condition where no further changes would occur. Of the three cases considered thus far, only this one behaves in the manner assumed by equilibrium theory; and even it converges rapidly only if the supply curve is markedly less elastic than the demand curve. The case has been designated "the case of convergent fluctuation."

To this point this paper has merely reviewed the points developed in earlier papers on the theory of price analysis and on the cobweb theory. As thus developed, the cobweb theory explains swings in production and price in successive production periods, but does not fully explain the long cycles observed in many commodities. The following portions of this paper present a further extension of the cobweb analysis that may be



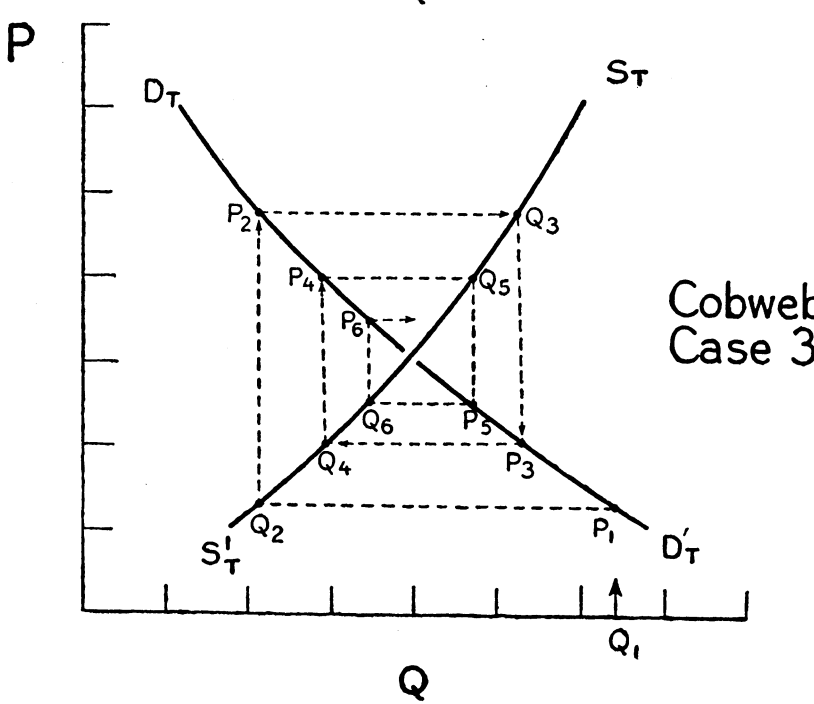


Fig. 3. Series of reactions for Cobweb Cases 2 and 3.

useful as a theoretical framework for the investigation of such long cycles.

* * *

The time series traced by price and production. A time-series

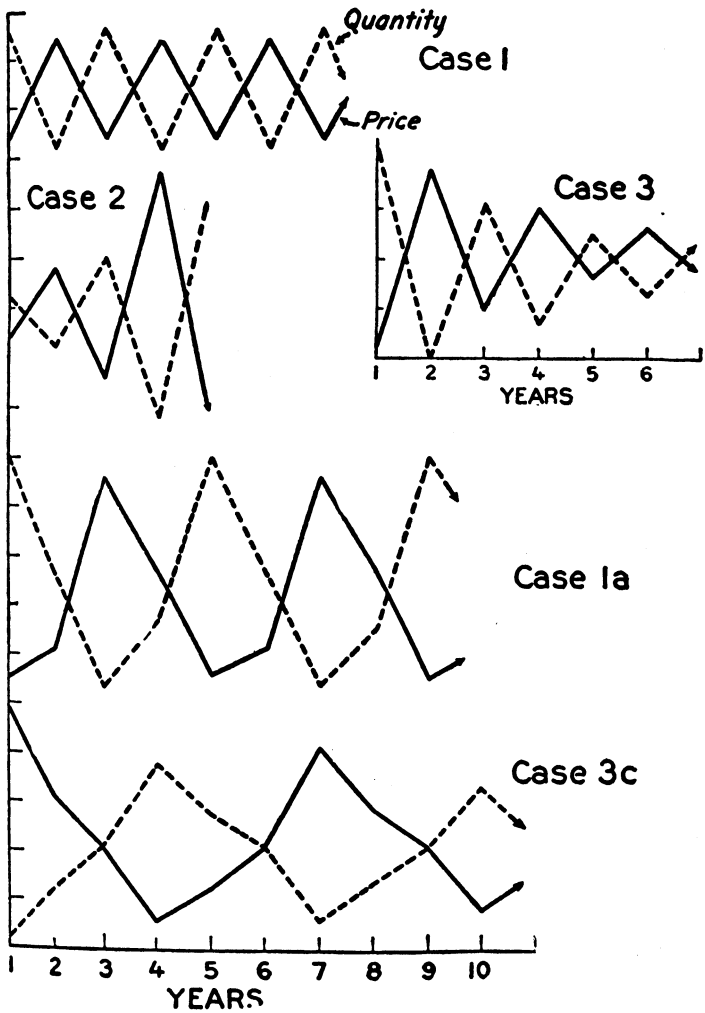


Fig. 5. Time series of price and quantity.

chart of prices and production in the successive periods shown in Figures 2 and 3, reveals more clearly the cyclical character of the resulting processes, as shown in Figure 5. Cases 1, 2, and 3,

with a one-year lag in response, all produce two-year cycles. The continuous, divergent, and convergent character of the three cases is clearly evident, both in production and in price. Case la, with a two-year lag in production, has a four-year period from peak to peak; and Case 3c, with a three-year lag, a six-year period. The continuous character of the cycle in Case la, and the slow convergence of the cycle in Case 3c, are also apparent.

While it is evident that these synthetic time series have been constructed under highly rigid assumptions, it is interesting to compare them with some actual price and production cycles. . . . Figure 6 shows the prices of cows and cattle corrected for changes in wholesale prices; . . . The changes in the adjusted prices of cattle and milk cows both reflect the underlying cycle in cattle numbers. The similarities are evident; it is also apparent that the actual cycles are more irregular, both in length and in shape, than are the cycles based upon the fixed periods of the theory.

Limitations of the Cobweb Theory: The cobweb theory can apply exactly only to commodities which fulfill three conditions: (1) where production is completely determined by the producers' response to price, under conditions of pure competition (where the producer bases plans for future production on the assumption present prices will continue, and that his own production plans will not affect the market); (2) where the time needed for production requires at least one full period before production can be changed, once the plans are made; and (3) where the price is set by the supply available. Obviously commodities where either price or production is set by administrative decisions (i.e., where monopolistic competition prevails), or where production can respond almost immediately to changed demands, cannot be expected to show the cobweb reaction.

The attempt to introduce dynamic elements into the supply-price analysis has been carried further by Cochrane.

The Cobweb Theorem explains how the lag in production responses to price changes can give rise to cycle fluctuations. But the Cobweb Theorem, like the static analysis, assumes that both the demand curve and the supply curve are fixed. Actually, both the demand curve and the supply curve are likely to change over a period of time. Demand varies in an irregular fashion due to such factors as depressions and wars. In our generation, these changes in demand have been sudden, violent, and unpredictable.

It has sometimes been assumed that the supply curve for

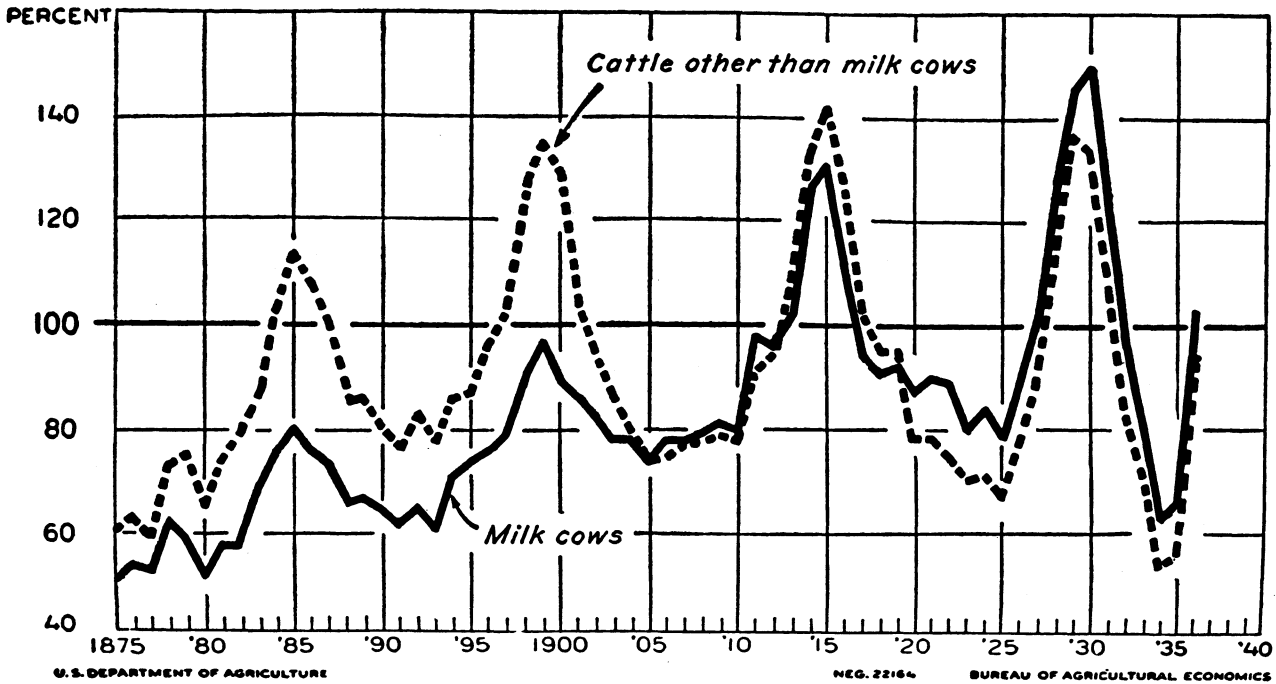


Fig. 6. Purchasing power per head of milk cows and cattle other than milk cows, 1875 to date. Index numbers (1910—14 = 100).

agricultural products is more stable, changing only gradually as farmers adopt new production methods. Cochrane has presented evidence that the supply curve, as well as the demand curve, may increase suddenly and substantially—and that once it shifts to the right, it does not shift back again. Such shifts in demand and supply help explain the instability of prices in agricultural markets.

Cochrane's discussion is in terms of aggregate supply and demand for all farm products (or for all food) rather than for individual commodities.—*Ed.*

2.6.6 Cochrane, Willard W. "Farm Price Gyrations—An Aggregative Hypothesis," *Jour. Farm Econ.*, Vol. XXIX, No. 2, May, 1947. Pp. 386, 388–89, 391–92, 394.

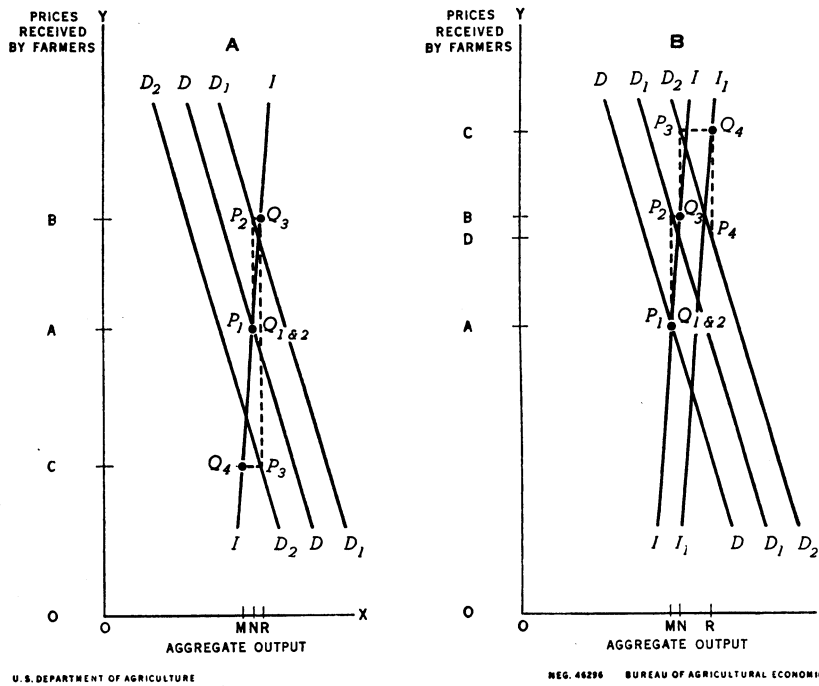


Fig. 1. A working hypothesis regarding the slope and relationship of the aggregate demand curve to the aggregate output curve.

The logic of the shift to the right in the position of the aggregate output function in response to an increase in demand is evident if we reflect for a moment on the relationship of technological change and the introduction of innovations to demand and price conditions. In the first place, the output curve shifts to the right as output per unit of input increases. And the output per unit of input usually increases as new tech-

nologies are incorporated into the production process. But if demand is not expanding — that is, if the curve DD is not shifting to the right thus creating a favorable economic milieu — most farmers would not have (1) the optimistic price expectations and (2) the financial resources to introduce labor saving or capital saving innovations into their farming operations even though the introduction of those innovations would reduce unit costs in any period. Farmers, like other businessmen, tend not to make net investments in machinery and equipment when their outlook is dampened by currently depressed prices and their sources of credit are restricted; they tend to invest when the future looks bright and credit is easy.

In a period of stationary or contracting demand, "know how" and enhanced physical productive capacity accumulate, so to speak, in an unused pool. Now given an expansion in demand, output increases as known technologies are put into practice, with the result that the aggregate output curve jumps to the right or drifts to the right through a succession of temporary positions, taking up a new fixed position defined by a new productive organization centered around the technologies recently placed in operation. But once the pool of unused technologies are incorporated into the production organization, limited always by the labor force on family farms, further increases in demand fail to increase productivity — shift the output curve further to the right. Further increases in demand simply develop a stimulus-response sequence centered around the inelastic output curve (I_1I_1 in Fig. 1, Chart B) yielding substantially higher prices and inconsequential quantity increases. In general terms then, an increase in demand may, in one phase, increase price and not output, and, in another phase, may increase output and not price.

The skipping action described above, however, is not readily reversible. If, for example, the aggregate demand curve DD moves sufficiently to the right in the necessary technological context to cause the output curve to also shift to the right, the output curve does not shift back to the left with a contraction in demand. The demand curve will rather initiate a stimulus-response sequence centered around the output curve I_1I_1 wherein prices fall precipitously and quantity changes almost not at all. For the behavior of aggregate output in the field of agriculture following a general price decline is not one of contraction. On the contrary, it is one of sustained output. Once the output

function (schedule of intentions to produce) has shifted to the right, it remains fixed in that inelastic position until some new demand stimulus causes it once again to shift to the right.

* * *

When we relate an index of aggregate food output to an index of "responsible prices" over the historical period 1912–

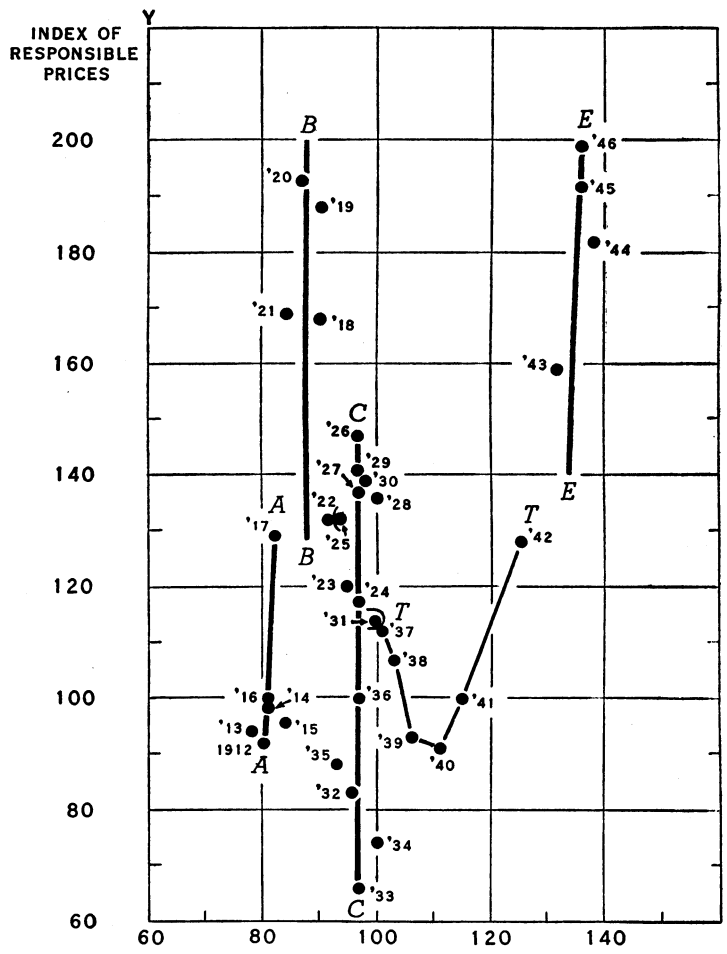


Fig. 2. The index of aggregate food output is plotted against the index of responsible prices to yield a nest of aggregative output curves. These curves are historical in the sense that they emerge through time. But the quantity points through which the curves are drawn are a function of prices (responsible prices); thus in those cases where the schedule of intentions to produce remains unchanged throughout the phase (1912–17, 1918–22, 1923–36, and 1943–46) the fitted curves must be the true output curves.

46, the resulting price quantity points fall into a definite and meaningful pattern (see Fig. 2). In appraising the configurations of Figure 2, however, it must be constantly held in mind that the years (e.g., 1944, 1945, and 1946) associated with particular points refer only to realized output. The responsible prices — the prices that induced these outputs — are of an earlier date corresponding to the beginning of the production process. The movement in demand and the stimulus-response sequences centered around the demand curve are simply assumed here, with only the "end product" realized output taking on concreteness in the form of a quantity point. And from these realized output points which differ from the original intentions only by the modifying factors at work during the production process we derive the output curve.

It will be observed that there are five historical phases (1912–17, 1918–22, 1923–36, 1937–42, and 1943–46) through which curves are drawn in Figure 2. It is our contention that four of those curves (AA, BB, CC, and EE) are true output functions. No significant change in productivity (output per worker) occurred in agriculture during any one of those phases, although it certainly changed — increased — as between the delineated phases (see Table 1). Nothing changed technologically within each of the phases under consideration to cause farmers in the aggregate to plan to produce more product at the same price in the succeeding year than in the current year. Consequently, the shifting demand curve *within each phase* traces out an output curve which is representative of the aggregate schedule of intentions to produce.

The disastrous effects upon farm income of violent fluctuations in farm prices have come to be a matter of considerable public concern. A wide variety of legislation has been enacted providing for price supports, marketing agreements, marketing quotas, and other marketing devices for preventing severe drops in farm prices. While these are dealt with more fully in Section 6, three readings are inserted here. The first raises some fundamental questions both regarding the effect of our policy objectives on the efficiency of prices in equating demand and supply, and regarding the efficiency of performance of this function by free market prices in an unstable economy. The others discuss in some detail the rather elaborate system that has been developed for determining the minimum price for fluid milk under federal regulation in the Boston market. —*Ed.*

2.6.7 Schultz, T. W. *Production and Welfare of Agriculture.* Macmillan, New York, 1949. Pp. 71–75.

Our quest is for an efficient pricing system, efficient in performing several functions that integrate major economic processes. As policy with regard to farm prices has taken shape, four fairly distinct functions have come to the forefront, namely: (1) prices to guide the allocation of resources in production; (2) prices to channel products into trade both at home and abroad; (3) prices to distribute income from farming over time; and (4) prices to distribute income among persons.

Can a pricing system be "efficient" in all these functions at one and the same time? Are we not putting altogether too big a burden on the pricing system and thereby weakening it and making it less efficient than it otherwise would be in performing the more limited tasks that are appropriate to its capacity? The answer to the latter question appears to be strongly in the affirmative, both on theoretical grounds and from the lessons taught to us by experience.

Let me make explicit at this point that the formulation of the pricing problem that follows is based on the belief that prices are not an appropriate means for "stabilizing" the income from farming over time, and also that they are not suited to lessen the inequality in the personal distribution of incomes. Moreover, I shall assume that the main positive role of the pricing system is to guide production and to channel products into trade for domestic and foreign use. To take still another step, given the existing state of our political economy — chiefly the prevailing attitudes toward economic policy, the nature and capacity of economic institutions, and the type of development that characterizes our economy — it is my belief that that part of the pricing system on which agriculture depends most directly *will not be permitted* (politically and institutionally) to perform its production and marketing functions efficiently, unless ways and means are first found (1) to make the flow of farm income much steadier than it has been from one year to another and (2) to reduce substantially the inequality in income among families. The first of these is, politically, much the more urgent of the two. Plainly we came out of the inter-war period and World War II with a price policy for agriculture designed primarily to attain the objective of stabilizing farm incomes over time. If this appraisal proves to be correct, it follows that a high priority should be given to inquiry for finding ways and means that will free the pricing system from the two income

burdens described above, especially that of putting the flow of farm income on a steadier basis.

Let us then proceed by leaving the income problems aside, which means that we shall assume at this point that the pricing system is freed so that it can concentrate on the first two functions outlined above, namely guide agricultural production and channel farm products among their various uses. How efficient would such a pricing system be? When put this way, there is still a strong presumption in my judgement, that the pricing system would prove to be quite inefficient under conditions of the kind that have prevailed since 1910-1914.

This takes us to the heart of the difficulty because there can be little doubt that it has been the unstable character of the economy that has undermined the pricing system. In its simplest terms what appears to have been happening has been a breaking apart of the network of prices connecting the decisions to utilize resources for production and the decisions to utilize products for consumption. This separation has come about as a result of inconsistencies that have emerged between the long and the short run when the aggregates of an economy are fluctuating widely. The commitments with regard to factors to achieve allocative efficiency in farming involve production plans that are essentially long run in nature relative to the kind of commitments that arise when processors and other handlers buy farm products with a view of marketing them to consumers. In an economy with a steady rate of development and with relatively little economic uncertainty — like the years, say, from 1895 up to World War I — these two sets of decisions may be sufficiently integrated by the pricing system to give satisfactory results, approximating the economist norm based on a stationary state in equilibrium. Since 1910–14, however, the economy has been so unstable, economic uncertainty has bulked so large, and the fluctuations in farm prices have been so violent and great that the pricing system could not integrate these two sets of decisions. As a consequence a gap has appeared in the network of prices. In short, conditions have been such that the pricing system has not been able to guide the allocative process in production efficiently and at the same time keep farm products moving into foreign and domestic markets at a rate consistent with short-run developments.

Minimum prices to farmers for milk going into different uses have for many years been established under federal marketing agreements and orders in a number of the major

fluid milk markets in the United States. These orders commonly establish higher prices for milk for fluid use (Class I) than for "surplus" milk going into manufactured dairy products. In 1948, a new type of formula was introduced in the Boston market for determination of the Class I price. It represents an ingenious attempt to provide automatic changes in the price in response to the same major factors that would influence prices in a competitive market, while still maintaining a price differential for Class I milk.—*Ed.*

2.6.8 Welden, W. C. "Formula Pricing of Class I Milk Under Market Orders," *Jour. Farm Econ.*, Vol. XXXI, No. 1, Pt. 2, Feb., 1949. Pp. 420, 422–23.

Efforts to stabilize our agricultural economy in recent years have involved a substantial amount of commodity price-fixing by governmental agencies. Success in the eyes of the public has been relatively elusive in this job. This has sharpened the interests of economists in the subject of administered prices and has made each new line of effort a topic of lively discussion.

* * *

It should be possible to make automatic or formula prices for Class I milk as logical and as understandable to dairy farmers as fixed or pegged prices. Sound formula prices provide an infinitely greater guarantee of security to farmers and of fair and reasonable prices to the public than prices fixed at any specific level for an advance period. It is most important to recognize also that if an obvious defect develops in the formula or if it needs to be amended temporarily to meet a special local situation, then a formula can be amended after a public hearing just as quickly and just as easily as a price level can be changed in a fixed-price type of order. The formula, therefore, is in no respect more fixed or rigid than a pegged price, but does guarantee timely price changes in the interim between public hearings.

Briefly the new Boston formula provides that the Class I milk price shall vary in accordance with changes in a composite formula index calculated on a 1925–29 base. This index is the simple average of (a) the latest monthly index of all wholesale commodity prices in the United States as published by the Bureau of Labor Statistics, (b) the average of the last three monthly indices of Department Store Sales in New England as published by the Federal Reserve Bank, and (c) a joint index of the latest available costs for farm labor and for dairy feeds in New England as calculated by the Market Administrator each month from regularly published figures. The basic Class I price varies in

intervals of 22 cents per 100 pounds in accordance with bracketed changes in this composite formula index.

Super-imposed on this basic price structure is a seasonal pattern which provides a price 44 cents per 100 pounds above the basic level in the 4th calendar quarter, and 44 cents below the basic level in the 2nd calendar quarter each year. An additional seasonal safe-guard prevents any price increase from March through June and any price drop from September through December each year.

Also super-imposed on the basic price is a provision whereby the Class I price is automatically lower by 44 cents as soon as and so long as the percentage of surplus in the market for the most recent 12 months is above the critical level defined as 41 per cent. Similarly the critical level on the low side is 33 per cent, which calls for a price 44 cents higher than otherwise provided so long as the shortage continues. Only such part of this supply-demand adjustment can operate as will not cause a price change from the same month a year earlier of more than 88 cents per 100 pounds.

The three basic factors in the formula are designed to reflect local supply, local demand, and general economic conditions. The three are given equal weight for reasons of simplicity and logic, and also because the results met the empirical test. So far this has had very popular appeal. With a relatively inelastic demand and with delayed if not inelastic supply responses, this equal weighting might not have been necessary to meet some of the objectives, but it is fair and reasonable and is safeguarded by the supply-demand adjustment. Also, the weightings might not have been equal if the results of detailed statistical and correlation analysis of factors affecting the Class I price had been adopted. The objectives called, however, for a more general empirical analysis with logic and equity and sound public policy as the standards.

The wholesale price level represents a basic tie-in with the whole economy of the nation, measuring the level of general economic conditions as reflected on a composite basis in the primary wholesale markets. In any analysis of factors affecting Class I prices, the first step would probably be to deflate the price series by this wholesale price level, just as for resale price analysis the series might first be deflated by the consumer price index.

Grain and labor costs reflect the main cash cost items in milk production in New England. Changes in such costs may not forecast precisely changes in the supply on a short-run basis, but a stable relationship between these costs and milk prices is neces-

sary to a stable milk supply. Changes in these costs, also, must be important factors in the timing and degree of milk price changes if such milk prices are to bring economic stability to the farmer. Total production costs are more difficult to measure. Also, they are partly reflected by the wholesale price index.

The demand factor used in this new pricing formula has probably created more comment than any other factor. The index of New England Department Store Sales was selected as a measure of changes in New England consumer purchasing power.* It comes closer to measuring changes in the disposable income than any other factor available — payrolls, industrial activity, or others. It is available monthly, whereas actual income figures regionally are available only on an annual basis and are not available on an annual basis until August of the following year.

There is available, of course, a current monthly figure on the amount spent for milk. To use such a figure as the demand factor, however, would be to flaunt public interest and potentially at least exploit the inelastic demand for milk. It would be comparable to using the farm value of all the milk produced as an index of the supply part of a pricing arrangement. It would be circular reasoning of the worst type. If the supply were inelastic this value would change only after a price change rather than before. The same would be true of the money spent for milk if demand were inelastic.

This index of consumer purchasing power does not necessarily measure or forecast in any precise or accurate manner changes in the sales of milk at various prices. This need not be its restricted purpose, however, in the pricing formula. It is the key factor on the demand side, fundamentally affecting the price consumers will pay for milk and the amount they will purchase, and thus the basic factor in the reasonableness of milk prices from a public interest standpoint. The formula recognizes that changes in income-price relationships will affect sales just as changes in cost-price ratios will affect production, and that sound orderly prices require a balanced relationship to both incomes and costs. This balancing job may change in character if there is a basic change in milk using habits or in the techniques of milk production. Any formula may need basic changes accordingly.

---

* ED.—Since this was written, a derived index reflecting per capita disposable income in New England has been substituted for Department Store Sales. The supply-demand adjustment and base period have likewise been modified.

The special seasonal pricing provisions are designed to encourage a return to the more normal pre-war seasonal pattern of milk production. Short-season market receipts in Boston in recent years have been only about half of flush season receipts, as compared with 60 to 65 per cent before the war. Emergency imports from as far west as Minnesota have been necessary in four of the last five short seasons in order to meet sales needs, and in two of these four years milk sales actually had to be restricted because the milk could not be obtained. Last year's imports were close to 20 million pounds. Yet in June this year Class I sales were less than 50 per cent of market receipts.

The special supply-demand adjustment is a basic safeguard and an integral part of the entire program. The critical limits of 41 and 33 per cent surplus on an annual basis are designed to correspond to 25 and 15 per cent necessary operating reserve in the short production months. The mid-point of 37 per cent annually would normally provide a 20 per cent operating reserve to cover day to day fluctuations and thus insure an adequate supply in the shortest month of production.

2.6.9 Johnson, Stewart. "Formula Pricing of Class I Milk Under Market Orders," *Jour. Farm Econ.*, Vol. XXXI, No. 1, Pt. 2, Feb., 1949. P. 430.

. . . Considering the prime movers only, two of the three are local factors. If similar formulas were adopted in all other markets, inter-market differentials would be adjusted from month to month on the basis of differences in movement in these two factors. The escape provision might cause counter movements in the differentials after several months had elapsed, but the initial and continuing adjustors would be the two prime movers which are local factors.

It is extremely doubtful if changes in inter-market price differentials resulting from the adoption of this formula in some or all of the other 27 federal order markets would be logical or reasonable, judged either from the empirical record or from the standpoint of economic theory.

The record indicates that department store sales in various markets have followed widely different courses from month to month and from year to year. Such differences have not been associated with varying rates of fluid milk consumption. . . .

Historical data thus suggest that automatic adjustment of inter-market price differentials would result in pricing chaos if the model now used in federal order markets in New England should

be adopted in other markets. That such would result is also in line with what would be expected on the basis of economic theory.

Determining changes in inter-market differentials by these factors assumes that fluid milk consumption is closely related to department store sales, and that fluid milk supply is closely related to feed-labor costs. Since there are so many factors affecting fluid milk consumption and supply, these assumptions would not be expected to be true. . . .

2.7 Methods of Measuring Demand

Reasonably accurate demand curves are essential in the analysis of many marketing problems. The market analyst must know approximately how many pounds of beef the American public would buy in 1952 if the average retail price were 40, 50, or 60 cents a pound; or how much milk could be sold in the Boston market area if the price were 18, 20, or 22 cents a quart.

Since the days of Cournot considerable progress has been made toward the statistical measurement of demand. Under the leadership of Dr. O. C. Stine, a wide variety of demand studies have been carried out in the Bureau of Agricultural Economics. These analyses are basic to the Outlook reports and to the periodic Situation reports.

The student who wants a detailed discussion of statistical methods used in demand analysis should consult Henry Schultz, *The Theory and Measurement of Demand,* Chicago, 1938; Mordecai Ezekiel, *Methods of Correlation Analysis,* New York, 1941; and several publications of the Cowles Commission in Chicago.

Our first selection presents three statistical approaches to demand analysis.—*Ed.*

2.7.1 Fox, Karl A. "Relations Between Prices, Consumption, and Production," *Jour. Amer. Stat. Assoc.*, Vol. 46, No. 255, Sept., 1951. Pp. 325, 327–29.

. . . At the present time persons doing applied work in demand analysis may be divided into three groups. The first group carries on in the tradition of Moore and Ezekiel, using the single equation, least squares approach and relying upon judgment to cope with pitfalls such as multicollinearity and nonidentifiability. The second group supplements this approach with the application of bunch map analysis to select "useful" variables and to avoid multicollinearity. The third, centering around the Cowles Commission, uses a multiple equation approach and takes explicit account of the so-called "identification problem." The methods used by the three groups were largely developed in three successive decades.

* * *

The two monuments of the first group were Ezekiel's "Methods of Correlation Analysis" (1930) and Schultz's "The Theory and Measurement of Demand" (1938). Schultz's applied work belongs with this group although some of his theoretical chapters go beyond the usual scope of its interests.

The second group doing work on demand analysis relies on methods developed by Ragnar Frisch (1929, 1934). Frisch was concerned with the danger of obtaining spurious results due to the combined (and unrecognized) effect of random errors and high inter-correlation between the explanatory variables. He believed that this situation was very common in practice, and wrote that "a substantial part of the regression and correlation analyses which have been made on economic data in recent years is nonsense for this very reason." To cope with this problem, Frisch developed his method of "statistical confluence analysis by means of complete regression systems." This technique was used extensively by Tinbergen in business cycle analysis (1939) and by Stone (1945) and Prest (1949) in the analysis of price-consumption relationships.

The third group is largely identified with the Cowles Commission and is almost wholly a development of the past decade. Marschak traces the systematic consideration of the identification problem back to an unpublished memorandum by Frisch in 1938. The first major article on what is frequently called the Cowles Commission technique was published by Haavelmo in 1943. The main feature of the Cowles Commission approach is its emphasis upon the simultaneous determination of interdependent relationships. Moore and other analysts had used two or more equations to indicate an equilibrium solution, for example, the intersection of a supply and a demand curve to determine price. Tinbergen calculated large numbers of equations which were theoretically interdependent, but his method of fitting assumed that each of them was statistically independent.

* * *

The "identification problem" is inherent in the nature of economic data. A set of simultaneous price-quantity observations describes the points of intersection of a supply curve and a demand curve. Unless additional information is available (for example, on the variables causing shifts or "disturbances" in each curve) we do not know whether a curve fitted to the observations is a demand curve, a supply curve, or some uninterpretable combination of the two.

. . . Fortunately, the "identification problem" can be readily solved for an important class of agricultural commodities. For many of these, particularly annual crops, current production is not influenced by current price. Hence, a net relation between production and current price will approximate a demand function. In Marschak's terminology this demand function will be a "uniequational complete model." Most applications of the single equation approach which have yielded useful results relate to this model.

The problem of "identification" was pointed out in 1927 by Elmer Working. Since then the Cowles Commission has done a great deal of work on the subject, but we shall not take the space to report their studies here.—*Ed.*

2.7.2 Working, E. J. "What Do Statistical 'Demand Curves' Show?" *Quar. Jour. Econ.*, Vol. XLI, No. 2, Feb., 1927. Pp. 218–23.

But what of statistical demand curves in the light of this analysis? If we construct a statistical demand curve from data

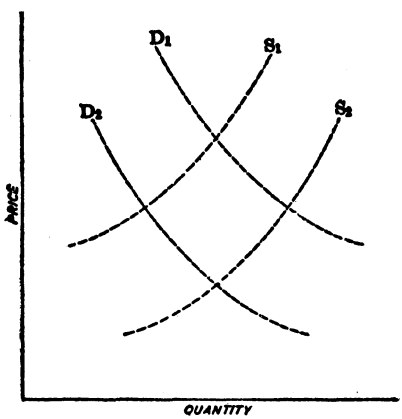


Fig. II. Chart showing approximately equal shifting of demand and supply curves.

of quantities sold and corresponding prices, our original data consist, in effect, of observations of points at which the demand and supply curves have met. Altho we may wish to reduce our data to static conditions, we must remember that they originate in the market itself. The market is dynamic and our data extend over a period of time; consequently our data are of changing conditions and must be considered as the result of shifting demand and supply schedules.

Let us assume that conditions are such as those illustrated in Figure II, the demand curve shifting from D1 to D2, and the

supply curve shifting in similar manner from S1 to S2. It is to be noted that the chart shows approximately equal shifting of the demand and supply curves.

Under such conditions there will result a series of prices which

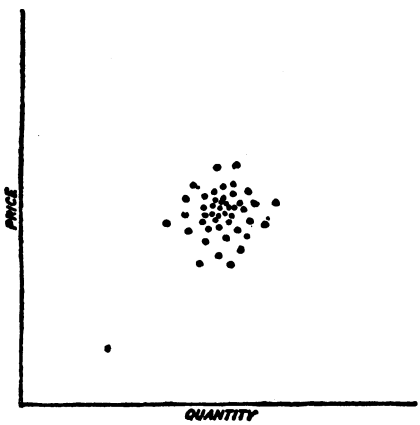


Fig. III. Price series resulting from conditions represented in Figure II.

may be graphically represented by Figure III. It is from data such as those represented by the dots that we are to construct a demand curve, but evidently no satisfactory fit can be obtained. A line of one slope will give substantially as good a fit as will a line of any other slope.

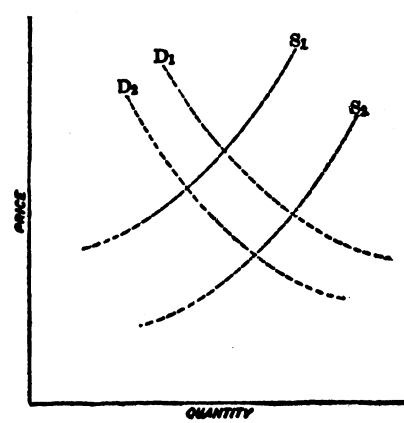


Fig. IV. Chart showing a shifting of the supply curve greater than that of the demand curve.

But what happens if we alter our assumptions as to the relative shifting of the demand and supply curves? Suppose the supply curve shifts in some such manner as is indicated by Figure IV, that is, so that the shifting of the supply curve is greater than the

shifting of the demand curve. We shall then obtain a very different set of observations — a set which may be represented by the dots of Figure V. To these points we may fit a curve which will have the elasticity of the demand curve that we originally assumed,

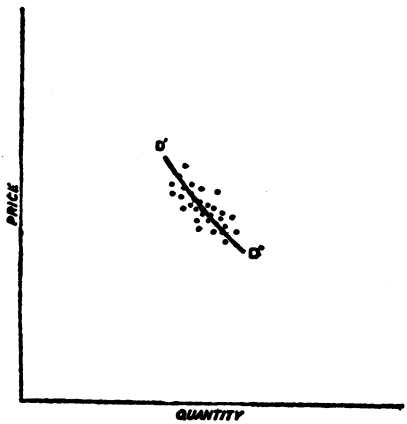


Fig. V. Price series resulting from conditions represented in Figure IV.

and whose position will approximate the central position about which the demand curve shifted. We may consider this to be a sort of typical demand curve, and from it we may determine the elasticity of demand.

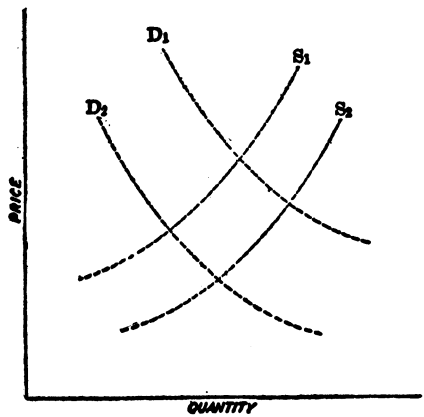


Fig. VI. Chart showing a shifting of the demand curve greater than that of the supply curve.

If, on the other hand, the demand schedules of buyers fluctuate more than do the supply schedules of sellers, we shall obtain a different result. This situation is illustrated by Figure VI. The resulting array of prices and quantities is of a very different sort from the previous case, and its nature is indicated by Figure VII.

A line drawn so as most nearly to fit these points will approximate a supply curve instead of a demand curve.

If this analysis is in accord with the facts, is it not evident that Professor Moore's "law of demand" for pig iron is in reality a "law of supply" instead? The original observations of prices and corresponding quantities are the resultant of both supply and demand. Consequently, they do not necessarily reflect the influence of demand any more than that of supply. The methods used in constructing demand curves (particularly if the quantity data are of quantities sold) may, under some conditions, yield

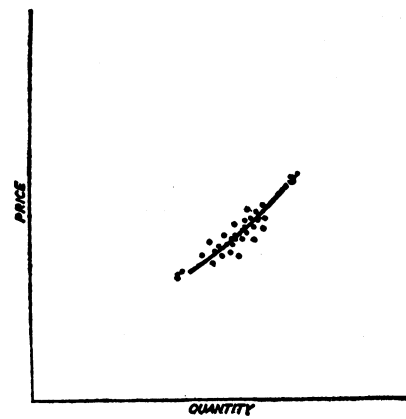


Fig. VII. Price series resulting from conditions represented in Figure VI.

a demand curve, under others, a supply curve, and, under still different conditions, no satisfactory result may be obtained.

Statistical research in demand has followed the lead of Cournot and Marshall rather than that of Walras, Pareto, and Hicks. The distinction was pointed out by Moore, one of the great pioneers in the statistical anlysis of demand. —*Ed.*

2.7.3 Moore, Henry L. ***Synthetic Economics.*** **Macmillan, New York, 1929. Pp. 27–28.**

If one employs the postulate of the negligibility of indirect effects, a first approximation to the laws of demand and supply may be obtained by representing both demand and supply as functions of a single variable. This is the course followed by Cournot and Marshall. If, on the other hand, one aspires to explain general economic equilibria, and to follow out the oscillations about the general equilibria, the *liaisons* among all the elements of the systems must be known, and the indirect effects of perturbations become the conditions of the explanation of oscil-

lations. The point of departure for this undertaking is to represent demand and supply not as functions of a single price but as functions of all prices. This is the course followed by Léon Walras and his disciples of the Ecole de Lausanne.

Although all statistical analysis in the field of demand is based upon aggregates (instead of the elaborate equations of Walras), there is now great interest in the possibility of analyzing large sets of "inter-industry" equations to get a more basic understanding of the forces underlying demand and supply. Several industries can be studied together by means of simultaneous equations. This requires an enormous amount of computation, but can be done with modern computing machinery. The Bureau of Labor Statistics has recently solved a set of 196 equations with 196 unknowns (one equation for each of the 196 industries) using the electronic computer.

Leontief, the pioneer in this field, has written a popular article describing the method. We reproduce a portion of that article below.—*Ed.*

2.7.4 Leontief, Wassily W. "Input-Output Economics," *Scientific American*, Vol. 185, No. 4, Oct., 1951. Pp. 15, 18–20.

This article is concerned with a new effort to combine economic facts and theory known as "interindustry" or "input-output" analysis. Essentially it is a method of analysis that takes advantage of the relatively stable pattern of the flow of goods and services among the elements of our economy to bring a much more detailed statistical picture of the system into the range of manipulation by economic theory. As such, the method has had to await the modern high-speed computing machine as well as the present propensity of government and private agencies to accumulate mountains of data. It is now advancing from the phase of academic investigation and experimental trial to a broadening sphere of application in grand-scale problems of national economic policy. The practical possibilities of the method are being carried forward as a cooperative venture of the Bureau of Labor Statistics, the Bureau of Mines, the Department of Commerce, the Bureau of the Budget, the Council of Economic Advisers and, with particular reference to procurement and logistics, the Air Force. Meanwhile the development of the technique of input-output analysis continues to interest academic investigators here and abroad. They are hopeful that this method of bringing the facts of economics into close association with theory may induce some fruitful advances in both.

* * *

The essential principles of the method may be most easily comprehended by consulting the input-output table on the past two pages.* This table summarizes the transactions which characterized the U. S. economy during the year 1947. The transactions are grouped into 42 major departments of production, distribution, transportation and consumption, set up on a matrix of horizontal rows and vertical columns. The horizontal rows of figures show how the output of each sector of the economy is distributed among the others. Conversely, the vertical columns show how each sector obtains from the others its needed inputs of goods and services. Since each figure in any horizontal row is also a figure in a vertical column, the output of each sector is shown to be an input in some other. The double-entry bookkeeping of the input-output table thus reveals the fabric of our economy, woven together by the flow of trade which ultimately links each branch and industry to all others. Such a table may of course be developed in as fine or as coarse detail as the available data permit and the purpose requires. The present table summarizes a much more detailed 500-sector master table which has just been completed after two years of intensive work by the Interindustry Economics Division of the Bureau of Labor Statistics.

* * *

. . . there is a fundamental relationship between the volume of the output of an industry and the size of the inputs going into it. It is obvious, for example, that the purchases of the auto industry (column 18) from the glass industry (row 13) in 1947 were strongly determined by the number of motor vehicles produced that year. Closer inspection will lead to the further realization that every single figure in the chart is dependent upon every other. To take an extreme example, the appropriate series of inputs and outputs will show that the auto industry's purchases of glass are dependent in part upon the demand for motor vehicles arising out of the glass industry's purchases from the fuel industries.

These relationships reflect the structure of our technology. They are expressed in input-output analysis as the ratios or coefficients of each input to the total output of which it becomes a part. . . .

* * *

The ratios shown in these two tables are largely fixed by

* ED.—The table is too large to reproduce here, having 42 rows and 42 columns. A general idea of the table is given in this paragraph.

technology. Others in the complete matrix of the economy, especially in the trade and services and households sectors, are established by custom and other institutional factors. All, of course, are subject to modification by such forces as progress in technology and changes in public taste. But whether they vary more or less rapidly over the years, these relationships are subject to dependable measurement at any given time.

Here we have our bridge between theory and facts in economics. It is a bridge in a very literal sense. Action at a distance does not happen in economics any more than it does in physics. The effect of an event at any one point is transmitted to the rest of the economy step by step via the chain of transactions that ties the whole system together. A table of ratios for the entire economy gives us, in as much detail as we require, a quantitatively determined picture of the internal structure of the system. This makes it possible to calculate in detail the consequences that result from the introduction into the system of changes suggested by the theoretical or practical problem at hand.

In the case of a particular industry we can easily compute the complete table of its input requirements at any given level of output, provided we know its input ratios. By the same token, with somewhat more involved computation, we can construct synthetically a complete input-output table for the entire economy. We need only a known "bill of final demand" to convert the table of ratios into a table of magnitudes. The 1945 estimate of post war steel requirements, for example, was incidental to a study of the complete economy based upon a bill of demand which assumed full employment in 1950. This bill of demand was inserted into the total columns of a table of ratios based on the year 1939. By arithmetical procedures the ratios were then translated into dollar figures, among which was the figure for steel, which showed a need for an absolute minimum of 98 million ingot tons. Actual production in 1950, at the limit of capacity, was 96.8 million tons.

* * *

A demonstration of input-output analysis applied to a typical economic problem is presented in the table on the opposite page, which shows the price increases that would result from a general 10 per cent increase in the wage scale of industry. Here the value of the matrix distinguishing between direct and indirect effects is of the utmost importance. If wages constituted the only ulti-

mate cost in the economy, a general 10 per cent rise in all money wages would obviously lead to an equal increase in all prices. Since wages are only one cost and since labor costs vary from industry to industry, it can be seen in the chart that a 10 per cent increase in wages would have decidedly different effects upon various parts of the economy. The construction industry shows the greatest upward price change, as it actually did in recent decades. For each industry group the chart separates the direct effect of increases in its own wage bill from the indirect effects of the wage increase in other industries from which it purchases its inputs. Giving effect to both direct and indirect increases, the average increase in the cost of living is shown in the chart to be only 3.7 per cent. The 10 per cent money-wage increase thus yields a 6.3 per cent increase in real wage rates. It should be noted, however, that the economic forces which bring increases in wages tend to bring increases in other costs as well. The advantage of the input-output analysis is that it permits the disentanglement and accurate measurement of the indirect effects. Analyses similar to this one for wages can be carried through for profits, taxes and other ultimate components of prices.

Leontief's conception of "inter-industry relations" involves a substantial amount of aggregation. Thus, instead of starting with a set of equations for each individual, Leontief starts with equations for industries. The Cowles Commission approach, commonly called "structural analysis" involves still more aggregation. But, like the Leontief analysis, it is based upon a model of the economy expressed in terms of simultaneous equations.

We shall not attempt in this book to cover the highly technical mathematical discussion of methods which have been developed to measure structural coefficients. Instead, we give a very brief quotation from Marschak indicating the general nature of the problem.—*Ed.*

2.7.5 Marschak, Jacob, *Statistical Inference in Dynamic Economic Models*, edited by Koopmans, T. C., John Wiley & Sons, Inc., New York, 1950. Pp. 3–4.

The role of simultaneous equations is familiar to economic theorists. But it has often been forgotten by economic statisticians who tried to estimate a single stochastic relation as if no other such relations had taken part in determining the observed values of the variables. On the other hand, economic theorists are apt to forget that the observed economic variables are, in general, stochastic. To be susceptible of empirical tests an economic hypothesis must be formulated as a statistical one, i.e., be specified in terms of probability distributions.

The statistical problem of the economist is complicated by the fact that many an economic relationship connects current and past values of the same or other variables involved. The economic structure determines, accordingly, not a set of constant values, one for each variable, but a set of probable paths, one for each variable, provided certain initial values are given. This dynamic character of economic structure creates, in the absence of experiments, further statistical difficulties: many economic data have the form of time series in which successive items are not independent. Statistical inference from time series of this kind involves further new problems.

Thus, economic data are generated by systems of relations that are, in general, stochastic, dynamic, and simultaneous. Occurring jointly, these three properties give rise to unsolved problems of statistical inference from the observed data to the relations. Yet these very relations constitute economic theory and knowledge of them is needed for economic practice.

There may be many different approaches to demand analysis. An ingenious new approach is described below.—*Ed.*

2.7.6 Tolley, George. "Short Run Demand and Supply in the Hog Market," *Jour. Farm Econ.*, Vol. XXXII, No. 4, Pt. 1, Nov., 1950. Pp. 624–25.

The purpose of this paper is to suggest a simple method that may sometimes be useful for obtaining information about economic variables from unusual circumstances which occur in the economy and to present some results obtained by applying this method in a study of the economic effects of the 1948 Packinghouse Workers' strike. . . .

If price and quantity in a market are considered to represent the point of intersection of the market supply and demand curves during the time period for which they are computed, estimation of elasticities of the curves becomes a problem in inferring their shapes from the price-quantity observations which they generate as they shift through time. A familiar way to go about this is to set up a complete econometric model and then to apply modern statistical techniques in solving for the parameters which describe the curves. If, however, there is a disturbance — such as a strike — which causes a shift in only one of the curves, it may be possible to estimate the slope of the other one directly. For when the values that the price and quantity would have taken in the absence of the disturbance are known, two points are given — price and quantity in the absence of the disturbance, and observed price

and quantity during the period of the disturbance — which lie on the curve which was not affected. From these two points the slope of this curve may be computed.

The 1948 strike of Packinghouse Workers lasted from March 16 to June 9, although a number of plants had resumed operations by the latter part of May. The strike was nationwide, and about 150 packing plants were shut down at the outset of the strike. Although the retail price of meat did not appear to rise as a consequence of the strike, the price of livestock dropped markedly. Unstruck packers expanded output, and farmers held over some of their hogs until June, when the strike was over and livestock prices rose to approximately their previous level. Farmers were responding to a fall in price during the strike by curtailing marketings, and unstruck packers were responding to an increased margin by expanding slaughter.

These were the facts that suggested that it should be possible to estimate short run elasticities of supply and demand in the hog market. The strike was a disturbance which caused a shift in the packers' demand for hogs. By isolating the price and quantity change attributable to the strike, the elasticity of supply of hogs by farmers can be measured, for the price and quantity change must have been along this supply curve. . . .

The following excerpts from a recent paper by Staehle are included here for two reasons: first, his comments on the treatment of trend; and second, his comments on the current neglect of prices because of the fashion for the Keynsean analysis of aggregates.—*Ed.*

2.7.7 Staehle, Hans. "Relative Prices and Postwar Markets for Animal Food Products," *Quar. Jour. Econ.*, Vol. LIX, Nov., 1944. Pp. 258, 277.

. . . no attempt has been made to eliminate the trends from the time series, although both consumption and price show a marked tendency, the former to fall, and the latter to rise. It used to be the practice, with much less provocation than this, to begin every sort of statistical investigation by eliminating the influence of "time." (The Department of Commerce, in its work discussed above, still cherishes it.) To this, the writer has never ceased to object on the ground that "time" has no economic meaning. Though its inclusion as an independent variable may in many cases improve the statistical fit of a regression equation, the improvement thus obtained is totally empty of meaning as long as the factors which gave rise to the trend-like development are not identified. And if they have been identified, they may as well be

taken into consideration directly. Moreover, the trend device completely destroys the value of predictions based on interpolations that have been "improved" with its assistance. No trends have therefore been eliminated anywhere in this paper. The fact that, in the case here under study, the historical path of the observed points in Figure III does not follow only one direction eliminates, or at least reduces, the danger of "trend correlation." The long-run decline of meat consumption occurred *as if* it were in response to a long-run price increase. All inference based on historical observations is necessarily of this nature.

* * *

The point to be made here, however, is quite different. The above results should serve as a warning to all those who believe that prices have lost all their significance, and are indeed by their variation a mere nuisance, impairing "security," causing "pockets of unemployment," and so forth. Consumers, up to 1939 at least, still seem to have reacted to price changes with quite obstinate consistency. And planners might as well realize that, to have a world in which they can work with impunity and in perfect infallibility, they must do away with free markets.

The analysis of marketing problems can benefit greatly from techniques and approaches developed outside the field of economics. Engineers, including those working with time and motion studies, accountants, nutritionists, and psychologists are some of the specialists who have much to contribute to marketing research. A recent book by Katona suggests a number of phases of economics to which the psychologist can contribute. Some of his comments regarding the theory of demand and market equilibrium follow.—*Ed.*

2.7.8 Katona, George. *Psychological Analysis of Economic Behavior.* McGraw-Hill, New York, 1951. Pp. 6, 224, 225, 237–38. Reprinted by permission.

Although economic analysis in the main continues to disregard empirical psychological studies, it is not devoid of psychological assumptions. Most commonly it proceeds on the premise that human beings behave mechanistically. If it were true that human beings could be counted on to show invariably the same reactions to the same developments in the economic environment, the human factor could rightfully be excluded from economic studies. If human beings were automatons, so that if the same stimuli prevailed the response would necessarily be the same, psychology could, indeed, be thrown overboard. It is this "mechanistic psychology" — the assumption that under given external condi-

tions, human reactions are entirely determined by those conditions — which has led economic analysis to what may be called the reification of economic data. Supply, demand, income, and capital are then viewed as the things themselves with which economics is concerned. The "behavior of money" and the "behavior of prices" are studied as if money and prices themselves were the actors influencing developments, and not the human beings who have the money or set the prices.

* * *

It was argued before that businessmen have reason to consider increasing their prices a risky matter. Similar considerations apply with greater force to a reduction of prices. Many businessmen think, so it appears in the light of answers received in some recent surveys, that their customers' reaction to lowering prices cannot be foreseen. It is uncertain how customers will respond because they may respond in many ways, including the two extreme and opposite ways, namely, by increasing their purchases or by reducing them to the point of ceasing to buy. . . .

In studying these and many other less extreme instances, it appears that the major difference between them may not be found in the type of product, in the type of customer (whether the product is purchased by consumers or by other businessmen), or in the size of the price reduction. The buyers' frame of reference and their expectations appear to account for the difference. A price reduction may be considered as leading to further price reductions; buyers may believe that the market has broken and a trend toward lower and lower prices has begun. Then price reductions may become a signal for abstaining from buying and for waiting for still lower prices. On the other hand, it is possible that a price reduction may be looked upon as temporary and therefore as providing a unique opportunity to purchase. Or buyers may assume that, with the reduction, prices have reached a new, attractive level at which they will stay. Again the buyers' reaction will be generally favorable.

Far too little is known about the underlying factors which determine the one or the other attitude. In some instances, the attitude may originate in the circumstances of the price reduction. Regular clearance sales or seasonal rebates may be cited as examples. But in other instances, it is the general economic outlook which seems to determine the perception and the meaning of the price reduction. The perception of a part of the field — for

instance, the reduction of the price of lead — is dependent on its whole, perhaps on the belief that a general deflationary trend prevails. We shall come back to the discussion of cumulative as against noncumulative expectations in later chapters. At this point it suffices to note that businessmen often have ample reason to consider the reactions of their customers to price reductions as uncertain.

* * *

Neither our description of genuine decision making nor the emphasis placed on habitual behavior is necessarily opposed to traditional economic analysis. As argued in Chapter 4, it is probable that rules of thumb and habitual standards are carried over from earlier genuine decisions, and those may have been intended to increase profits. But the present analysis differs from certain underlying assumptions of traditional theory. First of all, tenets of mechanistic psychology have no place in the analysis of business decisions. Only if it were true that there is necessarily a one-to-one correlation between a given stimulus and a given response can such "laws" as "the lower the price the larger the quantity demanded" be generally valid. Business firms are, however, not machines that react in a uniform manner to the same changes in their environment. Therefore, an analytical framework that considers a few factors only, and always the same few factors, can hardly be sufficient. Furthermore, in studying business decisions, it is necessary, and possible, to take uncertainty into account. Uncertainty means not only absence of knowledge about prevailing and expected conditions, or lack of experimentation with different possibilities, but also awareness of the possibility that the same action may have different results. For instance, some businessmen's decisions were found to be influenced by their opinion that their consumers and competitors might react in any of several ways to changes in prices. It is probable that when businessmen believe they know what the reactions to their actions will be, they will change their course of action more radically than when they are uncertain about those reactions. This conclusion again must be taken as a hypothesis that may be useful in future studies of business behavior as well as of economic policy.

SECTION 3

Place, Time, Form, and Ownership Aspects of Marketing

There are two essential features of marketing: production and exchange.

The process of hog production does not end when hogs leave the farm. The hogs must be transported and slaughtered; the carcass must be cut up and parts of it cured and stored; and the meat must be distributed. These are a part of the process of production, just as much as is the feeding of hogs on a farm in Iowa.

Parallel to this process of production is the process of exchange. At the beginning of the process a farmer owns a hog; at the end of the process a hundred different consumers own the pork made from the hog; and between the farmer and the consumer there are many changes of ownership.

Not all economists agree upon including all of these activities as part of marketing. Some insist that the production activities are the concern of the production economists — that the field of the marketing economist is properly limited to exchange activities alone. Others compromise the issue, including within marketing those activities — transportation and storage — productive of place *and* time *utilities, but excluding processing and related activities productive of* form *utility. Still others reverse the approach and classify exchange itself as a part of production. They speak of* ownership, *or* possession, *utility as a concept ranking by the side of place, time, and form utilities.*—EDITOR

3.1 The Four (or Three) Kinds of Utility 111

3.1.1 Dummeier, Edwin F. and Heflebower, Richard B. *Economics With Applications to Agriculture.*

3.2 Location as a Factor in Agricultural Marketing . . . 114

3.2.1 Cummings, Richard Osborn. *The American and His Food.*
3.2.2 United States Agricultural Research Administration. Marketing Research Notes From National Workshop.
3.2.3 Fetter, Frank A. "The Economic Law of Market Areas."
3.2.4 Von Thünen, Johann Heinrich. *Der isolietre Staat.*
3.2.5 Cassels, John M. *A Study of Fluid Milk Prices.*
3.2.6 Hoover, Edgar M. *The Location of Economic Activity.*
3.2.7 Black, John D. *The Dairy Industry and the AAA.*
3.2.8 Nelson, Saul and Keim, Walter G. "Price Behavior and Business Policy."
3.2.9 Shepherd, Geoffrey S. *Agricultural Price Analysis.*
3.2.10 United States Department of Agriculture. "The Direct Marketing of Hogs."
3.2.11 Melder, Frederick Eugene. "State and Local Barriers to Interstate Commerce in the United States."
3.2.12 Taylor, George R., Burtis, Edgar L., and Waugh, Frederick V. *Barriers to Internal Trade in Farm Products.*
3.2.13 Pendleton, William C. "American Sugar — 1948 Version."

3.3 The Timing of Marketing 142

3.3.1 Larson, Adlowe L. *Agricultural Marketing.*
3.3.2 Irwin, H. S. "Middlemen's Accumulations and Expectations in Marketing Farm Products."
3.3.3 Clark, Fred E. and Weld, L. D. H. *Marketing Agricultural Products in the United States.*
3.3.4 Rollefson, A. M., Agnew, D. B., and Keirstead, C. H. "Improving Soybean Marketing Through Farm Storage."
3.3.5 Foytik, Jerry. "Characteristics of Demand for California Plums."
3.3.6 Shepherd, Geoffrey. "Objectives, Effects, and Costs of Feed Grain Storage."
3.3.7 Ezekiel, Mordecai. "A Statistical Examination of the Problem of Handling Annual Surpluses of Non-Perishable Farm Products."
3.3.8 Southworth, Herman M. "Determining Goals for Production, Procurement, and Reserves of Food."

3.4 Changes in Form 159

3.4.1 Thomsen, Frederick Lundy. *Agricultural Marketing.*
3.4.2 Beard, Charles A. and Beard, Mary R. *The Rise of American Civilization.*
3.4.3 "Association Survey Discloses Food, Labor, and Transportation Savings Made by Prepackaging Industry," *Pre-Pack-Age.*
3.4.4 Hoos, Sidney and Seltzer, R. E. "Lemons and Lemon Products: Changing Economic Relationships, 1951–52."

3.5 Transfer of Ownership 165

3.5.1 Black, John D. and Houston, Neil T. "Resource-Use Efficiency in the Marketing of Farm Products."
3.5.2 Commons, John R. *Institutional Economics.*
3.5.3 Baer, J. B. and Saxon, O. G. *Commodity Exchanges and Futures Trading.*
3.5.4 Weld, L. D. H. *The Marketing of Farm Products.*
3.5.5 Lyon, Leverett Samuel. *Hand-To-Mouth Buying.*
3.5.6 United States Department of Agriculture. Livestock Market News. *Range Sales Reports.*

3.5.7 Beveridge, E. A. "How To Hedge Commodities."
3.5.8 Mehl, J. M. "Hedging in Grain Futures."
3.5.9 United States Department of Agriculture. *Trading in Commodity Futures.*
3.5.10 Howell, L. D. "Analysis of Hedging and Other Operations in Grain Futures."
3.5.11 Working, Holbrook. "Theory of the Inverse Carrying Charge in Future Markets."
3.5.12 Huebner, S. S. "The Insurance Service of Commodity Exchanges."
3.5.13 Consumers' Union. "What's Wrong With Speculation?"
3.5.14 Blau, Gerda. "Some Aspects of the Theory of Futures Trading."
3.5.15 Emery, Henry Crosby. "Speculation on the Stock and Produce Exchanges of the United States."
3.5.16 Schultz, Theodore W. "Spot and Future Prices as Production Guides."
3.5.17 Irwin, H. S. "Seasonal Cycles in Aggregates of Wheat-Futures Contracts."
3.5.18 Stewart, Blair. "An Analysis of Speculative Trading in Grain Futures."
3.5.19 Irwin, H. S. "Middlemen's Accumulations and Expectations in Marketing Farm Products."

3.1 The Four (or Three) Kinds of Utility

Many fine-spun arguments have been written regarding the kinds of utility. We shall not repeat them here. Rather, we include only a single, well-tempered presentation of this conceptual framework for the classification of marketing activities.—*Ed.*

3.1.1 Dummeier, Edwin F. and Heflebower, Richard B. *Economics With Applications to Agriculture.* McGraw-Hill, New York, 1934. Pp. 74–76. Reprinted by permission.

The Nature of Production. — Human effort or ingenuity cannot create matter. Production of tangible goods is not creation in the sense that something new is made out of nothing but is the process of so changing or controlling goods and services that they will have increased power to satisfy human wants. Production is the creation of utility. From the statement that utility is created, it should not be inferred that utility arises from the productive effort, for utility must come ultimately from human desire. But production is the process of so changing or controlling goods or services that they will better fit the desires of consumers, and therefore the utility of the goods is increased. The producer does not know whether his efforts have resulted in increased power to satisfy wants until he has sold his goods, as purchase by

the consumer in general reflects the consumer's approval of the productive process.

In 1848 John Stuart Mill pointed out that, in general, man's part in the production of commodities merely consisted in moving things about. More recent writers have attempted to distinguish the creations of four different kinds of utility, viz., *form utility, time utility, place utility,* and *possession utility.* When the farmer sows wheat and produces a crop, he has produced nothing new but only brought together seed, soil, moisture, plant food, and climate and supervised the change of form of these various factors so that wheat results. The miller takes the wheat and so changes its form that flour results. All activities which change the physical form of goods so that they have increased power to satisfy human wants are said to have created form utility. Most of the farmer's effort is spent in producing *form utility.*

The transportation company moves the flour from the mill to the baker, wholesale grocer, or chain-store warehouse. The flour now has increased capacity to satisfy human wants because it is nearer where consumers want it. The delivery truck which delivers processed farm products to the city consumer's door completes the work of producing place utility. All transportation agencies are said to produce *place utility.*

The warehouse operator and the merchant store the flour until it is to be made into bread or sold to the housewife. The flour is stored until the time that the consumer wants it, which gives the flour increased capacity to satisfy human wants. Consumers are willing to pay a higher price for canned peaches in April than in October. Many consumers are willing to pay higher prices for goods to merchants who carry a wide variety of goods and hence have a particular good at the time the consumer wants it. Those who provide storage services create *time utility.*

Possession utility is a fourth type of utility recognized by some writers, though not by all who recognize the other three kinds. Possession utility is said to result from an increase in capacity of goods to satisfy wants from a mere change in ownership. Since production is defined as the *creation of utility,* the real estate broker who brings into contact with each other the owner of a house and the prospective buyer to whom this house has greater utility than it had to the previous owner is said to create possession utility and thus performs a productive function, even though he changes neither the form, place, nor time of the goods; in fact, he may never see or handle them physically.

This classification of kinds of utility is helpful in understanding the nature of production but should not be carried too far. The retailer, for example, has been said to create possession utility by placing goods in the hands of consumers. In fact, he creates utilities of all the four kinds named. He changes the form of some commodities, he creates utilities resulting from changes in the place of commodities, and also creates utilities from changes in time and in possession. Furthermore, it is often difficult to classify under any of these four classes certain services which unquestionably create utilities. The important thing is that productive effort creates or adds to utility for the consumer.

Actually, the production and exchange aspects of marketing are closely related. Most marketing firms are concerned at one time or another with distribution of commodities in various forms, to different places, and at different times. The same firms are almost always concerned with buying, selling, and pricing. Price patterns established in the process of exchange are major influences upon the pattern of distribution.

Nevertheless, the four kinds of utility mentioned above do give a convenient classification of marketing activities. We shall use it as a framework for the present chapter.

Distribution through space, time, and form and the exchange activities through which this distribution is facilitated may be approached from various standpoints. First, we may study the principles that determine the "normal" pattern of distribution in a freely competitive economy and the deviations from this pattern that result from institutional arrangements and the limitations to competition imposed by custom, law, or technology. Second, we may inquire what pattern of distribution would be most profitable to the farmer, processor, or distributor. This will commonly be quite different from the "normal" pattern under pure and perfect competition. The competitive distribution in space, time, and form would return the seller the same *net price* for each unit sold in different areas at different times and in different forms. The most profitable distribution would equalize the *marginal net return* for each unit. Only in very special cases would these distribution patterns be the same.

Both these approaches will be illustrated in the selections that follow. A third approach would be to inquire what distribution would be of greatest benefit to the public as a whole. It is often argued that the competitive pattern best meets this criterion. This question will be discussed at various places in this book, especially in subsection 4.5. —*Ed.*

3.2 Location as a Factor in Agricultural Marketing

We first consider the economics of location as a factor in agricultural marketing.

In a primitive, localized economy, the physical distribution of products is of minor importance. In our own highly organized and highly specialized society it is very important indeed. Farm products commonly must be assembled at country points, shipped to central points, distributed to many centers of consumption, delivered to individual retailers, and then delivered to the doorsteps of individual families.

Thus the adequacy and cost of transportation have profound effects. They influence the boundaries of markets of specialized production areas and the boundaries of supply areas for large consuming centers. They exert a powerful influence on the movement of farm products and upon the methods of processing and distribution. The structure of freight rates may encourage or discourage processing at country points; it may favor areas near the market or far away; it may encourage centralized or decentralized marketing.—*Ed.*

3.2.1 Cummings, Richard Osborn. *The American and His Food.* Univ. of Chicago, Chicago, 1940. Pp. 53–54.

Most New Yorkers in 1840 had to drink swill milk which came from cows fed with distillery mash and stabled within the city limits. The situation was changed by the construction of the Erie Railroad, which during the year 1842–43 carried more than three million quarts of milk to the city. Three years later it carried more than twice this amount, and in 1848–49 more than nine million quarts were delivered.

Swill-milk dealers who found their business threatened by the flood of country milk charged that the milk could not have been brought from the country unless some harmful chemical had been added to keep it fresh. The Orange County dairymen explained to the press that nothing had been added to the milk but that refrigeration had been used. Before the cans were loaded on the train their contents had been stirred by a tin tube filled with ice. The milk was again refrigerated when it arrived at a city depot maintained by the Orange County Milk Association. This association, a stock company formed by the dairymen, also ran a delivery service in the city.

The price of milk dropped and consumption increased markedly following the building of the Erie and other roads. It was estimated in 1845 that the annual saving to each New York family using a quart of milk a day was equivalent to "more

than the interest" on a share of stock of the Erie Railroad. A writer in 1851 set the annual per capita consumption of milk in the city at 204 quarts, almost four times the figure of ten years earlier. . . .

Extension of steam lines into the great natural hothouse of the South enabled city dwellers to enjoy fresh fruits and vegetables for weeks to months longer. In the forties and fifties New York drew heavily on Norfolk and a great truck-gardening industry grew up in its vicinity. Farther southward the growers of the Carolinas and Georgia responded to urban demands, and early fruit shipments were begun from points in the interior by railroad to the seaports, whence steamboat lines ran to the north.

A National Workshop on Marketing Research stated three conditions necessary to the movement of goods in a competitive situation.—*Ed.*

3.2.2 United States Agricultural Research Administration. *Marketing Research Notes From National Workshop,* Sept., 1949. P. 110.

Three conditions are essential to movements of goods and services between areas:

1. Price at one point must differ from price at another by at least as much as the transfer cost between the two points.

2. There must be some system for reciprocal demand between trading areas — some basis for paying for goods and services received.

3. Actual transfer must be physically and politically possible and feasible, although this condition may be subsumed under the above two items.

Fetter outlines a theory of the effect of transportation rates upon the boundaries of market areas.—*Ed.*

3.2.3 Fetter, Frank A. "The Economic Law of Market Areas," *Quar. Jour. Econ.,* Vol. XXXVIII, No. 3, May, 1924. Pp. 524–25, 528.

Obviously the location of a point of indifference in delivered costs to any buyer between two markets is determined by the combination of base prices and freight rates. This has been shown to be true of the point on a direct line between the two markets, and the same reasoning applies to any other point on the plane on either side of the axis formed by this direct line. For the freight rate from one market may exceed that from the other to any location only by the amount of the difference in base prices at the two markets. The location is on the boundary, or point of indifference, in respect to two markets when the sum of base prices and freights is exactly equal. On either side of

such a point, in the direction of the two markets respectively, as the freight rates are higher or lower, the delivered cost from one market must be greater or smaller than that from the other. This is a numerical relationship of just the same kind as that in the formula of a hyperbolic curve, which is such that the difference of the distances from any point of it to two fixed points, called *foci,* is the same. Railroad freights are paid to overcome distance and vary more or less proportionally to distance. A succession of such points of indifference in delivered cost would take graphically the form of a hyperbolic curve in just the measure that freight rates did vary in exact proportion to distance, and that goods could be shipped on a perfectly straight route from each market to every point in the territories considered, assuming likewise that the two base prices were alike to all buyers at the same time, as they would be under full competitive demand and supply conditions. On these conditions we get the following formulation of the general law of market areas:

The boundary line between the territories tributary to two geographically competing markets for like goods is a hyperbolic curve. At each point on this line the difference between freights from the two markets is just equal to the difference between the market prices, whereas on either side of this line the freight difference and the price difference are unequal. The relation of prices in the two markets determines the location of the boundary line: the lower the relative price the larger the tributary area.

* * *

The assumptions made and the abstract nature of the formula must not be forgotten or misunderstood. It is merely in the nature of a first approximation to the solution of the various practical problems that may arise. If freight rates are not plain mileage rates, but are tapering by any fixed rule, the limiting curves between markets may still be symmetrical, tho differing in location from those resulting from rates on the mileage principle. Inasmuch as the actual structure of freight rates departs from the principle of strict proportionality to distance, the boundary lines will be shifted; likewise, according to other irregularities in freight, whatever be the cause, such as water transportation or topographical obstacles, making longer routes necessary. In peculiar cases geographical relations may be quite inverted.

European economists have given more attention to location theory than have American economists. The pioneer

in this important field was von Thünen. The following excerpt, taken from the first few pages of von Thünen, still is a good statement of fundamental principles. Students can find much interesting material in other German writings; especially those of Weber, Lösch, and Palander.—*Ed.*

3.2.4 Von Thünen, Johann Heinrich, *Der isolierte Staat,* Verlag von Wiegandt, Hempel & Parey, Berlin, 1875. Pp. 1, 2.*

Man denke sich eine sehr grosse Stadt in der Mitte einer fruchtbaren Ebene gelegen, die von keinem schiffbaren Flusse oder Kanale durchströmt wird. Die Ebene selbst bestehe aus einem durchaus gleichen Boden, der überall der Kultur fähig ist. In grosser Entfernung von der Stadt endige sich die Ebene in eine unkultivierte Wildniss, wodurch dieser Staat von der übrigen Welt gänzlich getrennt wird.

* * *

Es entsteht nun die Frage: wie wird sich unter diesen Verhältnissen der Ackerbau gestalten, und wie wird die grössere oder geringere Entfernung von der Stadt auf den Landbau einwirken, wenn dieser mit der höchsten Konsequenz betrieben wird.

Es ist im Allgemeinen klar, dass in der Nähe der Stadt solche Produkte gebaut werden müssen, die im Verhältniss zu ihrem Wert ein grosses Gewicht haben, oder einen grossen Raum einnehmen, und deren Transportkosten nach der Stadt so bedeutend sind, dass sie aus entfernten Gegenden nicht mehr geliefert werden können; so wie auch solche Produkte, die dem Verderben leicht unterworfen sind und frisch verbraucht werden müssen. Mit der grössern Entfernung von der Stadt wird aber das Land immer mehr und mehr auf die Erzeugung derjenigen Produkte verwiesen, die in Verhältniss zu ihren Wert mindere Transportkosten erfordren.

Aus diesem Grunde allein werden sich um die Stadt ziemlich scharf geschiedene konzentrische Kreise bilden, in welche diese oder jene Gewächse das Hauptzeugniss ausmachen.

Mit dem Anbau eines andern Gewächses, als Hauptzweck betrachtet, ändert sich aber die ganze Form der Wirtschaft, und wir werden in den verschiedenen Kreisen ganz verschiedene Wirtschaftssysteme erblicken.

Cassels discusses the economic forces which determine the boundaries between competing production or supply areas — in this case for fluid milk, cream, and butter.—*Ed.*

---

* Ed. To facilitate reading, the spelling in this selection has been modernized.

3.2.5 Cassels, John M. *A Study of Fluid Milk Prices.* Harvard Economic Studies, Vol. LIV, Harvard Univ., Cambridge, Mass., 1937. Pp. 20–23, 31–32, 38–40.

The cost of shipping a given quantity of milk in fluid form being greater than the cost of shipping its equivalent in the form of cream, it will naturally be shipped from points nearer to the market than those from which cream is shipped. Similarly, since the cost of shipping cream is greater than the cost of shipping its equivalent in the form of butter (or some other manufactured product), it will tend to come from a zone nearer the market than that from which the butter comes. Suppose that the cost per mile of shipping 100 pounds of milk is one cent and the cost of shipping its equivalent in the form of cream is 1/10 of a cent and its equivalent in the form of butter is 1/40 of a cent. Then as distances from the market increased the prices which producers could get for milk to be shipped in fluid form would decrease at the rate of one cent per mile while the prices for milk to be shipped as cream would decrease only at the rate of 1/10 of a cent, and the prices for milk to be shipped as butter only at the rate of 1/40 of a cent. The actual prices obtainable for milk for these different purposes at various distances from the market would depend on the f.o.b. prices prevailing there for milk, cream, and butter. In order to facilitate a direct comparison of their magnitudes, the prices will be stated here as returns obtainable from 100 pounds of whole milk sold in these different forms, and in order to simplify the following analysis it will be assumed that all the other advantages and disadvantages to the farmers of the different methods of disposal exactly offset each other. If the prices for the three commodities (in this sense) f.o.b. city were the same, then at all points in the surrounding territory the farmers would obtain their best returns from milk used in the manufacture of butter and none would be available for shipment as either fluid milk or cream. In order that cream may be obtained, its city price must be higher than that being paid for butter, and in order that fluid milk may be obtained, its price must be higher than the price being paid for cream. The differences in the transportation rates will determine the distances from the market at which it will become more profitable to ship cream than milk and at which it will become more profitable to ship butter than cream. The dividing line between the milk and cream zones in this case will be at that distance where the freight charges on milk

are equal to 10/9 of the difference between their prices (freight on cream being equal to 1/9 of the difference), and the dividing line between the cream and butter zones will be at that distance where the freight charges on cream amount to 4/3 of the difference between their prices (freight on butter being equal to ⅓ of the difference). For example, if the city price of milk were $3.00 and the price of cream $2.10 the dividing line would be 100 miles from the market, i.e., 10/9 of (300 – 210). At this distance the price payable to the farmers for either milk or cream would be $2.00. At any point less than 100 miles from the market the price of milk would be higher than the price of cream and at any point farther from the market it would be lower. If at the same time the city price of butter were $1.98 the dividing line between the cream and butter zones would be 160 miles from the market, i.e., 10 (4/3 of [210 – 198]). The outside limit of the butter zone will depend in a somewhat similar way on the competition of other enterprises for the use of the land, labor, and capital of the farmers. The responses concerned in this case would be production responses.

The relation of price to distance from the market under these conditions could be represented graphically as in the diagram below (Fig. 3).

The city prices themselves depend, of course, on the conditions of supply and demand for each of the commodities; and the conditions of supply, in their turn, depend in part on the boundaries that are established for these different zones. We are concerned here with a complicated system of equilibrium relations in which many of the factors mutually govern one another. The city price of butter must be such that, when proper deductions have been made for transportation costs, it will be just worth while to produce butter on the outside rim of the area, just worth while to produce butter rather than cream at the inside edge of the zone, and just worth while for all the farmers within the zone to produce the particular quantity required to balance the demand in the city at that price. The city price of cream must be such as to make it just worth while to produce cream rather than butter at the outside edge of the zone and cream rather than milk at the inside edge, and just worth while for all those within the zone to produce the total quantity necessary to satisfy the demand for cream at that price. And the city price of milk must be such as to make it just worth while to

produce milk rather than cream at the outside edge of the zone and just worth while to produce within the zone the exact equilibrium amount.

A change in any one of the factors concerned in the establishment of this equilibrium would result in a readjustment of all the others and the establishment of a new set of equilibrium conditions. Suppose, for example, that the demand for fluid milk

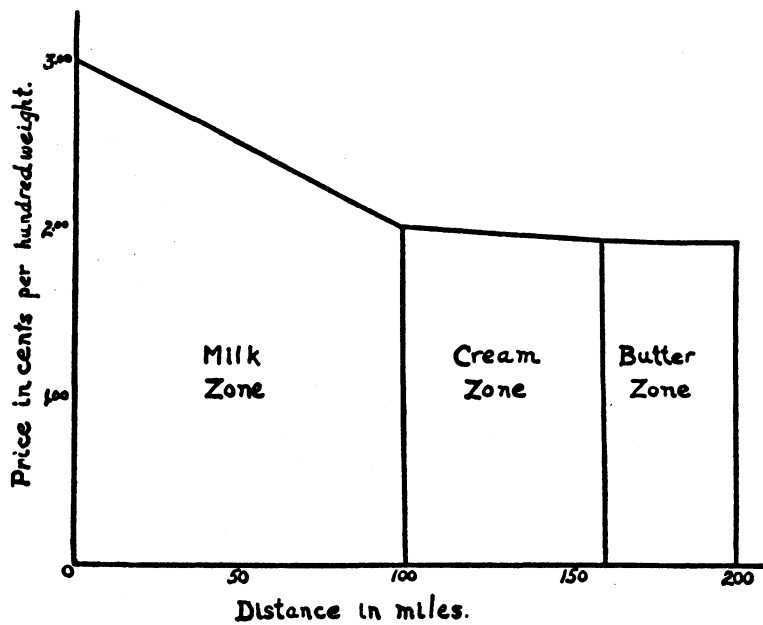


Fig. 3. The relation of the price of milk to distance from market in different product zones.

increased as a result of a change in the dietary habits of the consumers. This would result in a rise in the city price which would make it worth while to ship milk from the inner edge of the cream zone and would also call forth a greater output from the producers in the original milk zone. The diversion of cream supplies into the fluid milk channels by reducing the amount put on the market while the demand remained unchanged would tend to raise the city price of cream, which, in turn, would result in the shipment of cream from marginal points in the butter zone and in an increase of production in the cream zone itself. The diversion of butter supplies would have a similar effect on prices, production, and territorial expansion in the butter zone.

In the end, when all the balancing adjustments had been made, the equilibrium city prices for all the commodities would be higher than before; the differences between them would be greater; the boundaries of the different zones would all be farther out than before; and production in all zones would be somewhat more intensive.

* * *

In the first case it is assumed that the markets are 200 miles apart and that the prices for milk, cream, and butter at A are $4.00, $2.20 and $1.99 respectively, while at B they are $3.00, $2.10 and $1.965. The boundary lines of the zones around A

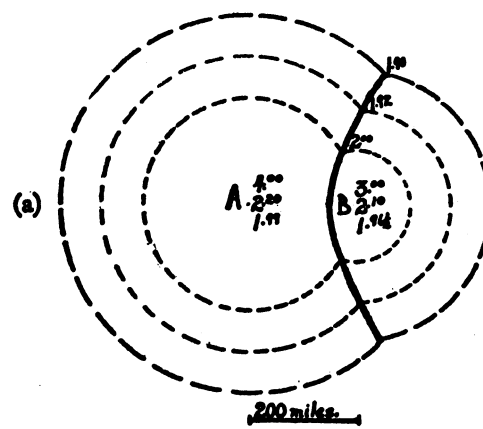


Fig. 5(a). Theoretical product zones and market divides for two adjacent markets when city prices are not the same in both.

would be at distances of 200 miles, 280 miles, and 360 miles, while around B the distances would be 100 miles, 180 miles, and 260 miles. It is evident, since the price of milk at A is $1.00 higher than it is at B and the freight rate on milk is one cent per mile, that along the direct line between the two markets A will be able to draw milk from a point which is 100 miles nearer to B than to itself, i.e., from a point 150 miles from A and 50 miles from B. Wherever the two markets are competing for milk A will be able to reach 100 miles farther than B can. Under such conditions, as F. A. Fetter has pointed out, the dividing line would be a hyperbolic curve concave towards B. In this case, described geometrically in units representing miles, it is the locus of a point P which moves so that PA = PB + 100. It

happens that this curve would pass through the point where the outside boundaries of the milk zones of A and B intersect at a distance of 200 miles from A and 100 miles from B. Beyond this point the markets are competing for cream and not for milk and the character of the dividing line between the markets will depend on a different set of factors. In the present instance, since the price of cream at A is 10 cents higher than at B and the freight rate on cream is 1/10 of a cent per mile, A will again be able to reach 100 miles farther than B and a continuation of the same hyperbola will separate the cream territories of the two markets. It happens here also that this curve passes through the point where the outer boundaries of the cream zones intersect, at a distance of 280 miles from A and 180 miles from B. Beyond this point the markets are competing for butter, but with the particular prices here assumed the dividing line would still be a continuation of the same hyperbola. The results in this case are comparatively simple, because the cream zones of the two markets are the same in width and so also are the butter zones. In the following cases this exceptional correspondence of the outer zones will not be assumed to exist.

* * *

In drawing this part of our analysis to a conclusion, we must recognize that the assumptions made with respect to the ease and accuracy with which economic arrangements could be adjusted are hardly in accord with the known facts of everyday business experience. It is obvious, of course, that the land surface of the United States is not a perfect plane over which goods can move directly to their destinations. The geometric illustrations used above must be modified in practice to take account of the distances of farms from shipping points, the nature of the roads over which their milk must be hauled, the railroad mileages to the different markets, the train schedules, the refrigeration facilities available, trucking routes, competitive rates, and other conditions affecting the actual transportation of the various types of dairy products. It is also evident that economic adjustments are often very slowly made and that disparities may consequently persist for considerable periods of time before they are corrected.

A book by Hoover presents a detailed analysis of the economics of location. Many parts of the book would be of interest to students of agricultural marketing. We have selected a few passages which discuss market areas, with particular attention to factors causing an overlapping of

areas. Hoover's discussion of price discrimination and basing-point pricing is of especial interest.—*Ed.*

3.2.6 Hoover, Edgar M. *The Location of Economic Activity*. McGraw-Hill, New York, 1948. Pp. 54–55, 57, 58–61. Reprinted by permission.

Overlap of Market Areas: Anyone attempting to trace out actual market-area boundaries will be struck by the fact that such boundaries are usually blurred. Instead of a sharp line, one finds a zone of transition or indifference, in which part of the trade goes to sellers at one location and part to sellers at another location. *The overlapping of market areas implies an "absorption" of distribution cost by one of three parties: the transfer agency, the seller, or the buyer.* There are thus three distinct bases for overlap.

Transfer agencies absorb the added distribution cost when they engage in the universal practice of bracketing their rates by "mileage blocks." As noted in Section 2.7, this gives transfer-cost gradients a steplike rather than a continuous rise with increased distance. Where rates are bracketed, there may be a considerable zone in which the distribution costs from two or more different production points are equal.

Further overlapping of market areas is involved in sellers' absorption of freight costs. Still a third basis of overlap is the imperfect interchangeability of the goods of rival production centers. These last two causes are somewhat complex and will be examined in greater detail in the sections that follow.

Geographical Price Discrimination and Market-area Overlap: It was noted in Section 3.1 that the extra costs of longer distance distribution are not always reflected in the price of the commodity at its destination. Just as a transfer agency may find it desirable to charge rates that fail to progress regularly with distance, so the seller of a commodity in separated markets may profit by geographical price discrimination, i.e., by taking control of the delivered prices of his product and arranging these in a pattern not in accord with that of transfer rates. The guiding principle in such cases is naturally that of shading the delivered price downward at markets where intense competition makes the demand for the seller's individual product particularly elastic and shading the delivered price upward at markets where competition is relatively less intense and the demand is particularly inelastic.

Geographical price discrimination may show a spotty and fluctuating pattern in some lines where market conditions are

very unstable and competition is "cutthroat," but commonly there is some evidence of a systematic discrimination against either the more remote or the nearer buyers. Discrimination against the nearer buyers (known as "freight absorption") is by far the more usual, and the reason is not far to seek. Evidently it will frequently happen that a seller has more intense competition in some remote market than he does at home, for he will have to compete in the remote market not only with the other producers in his own location — who can ship there just as well as he can — but also with other producers in locations closer to the market in question. Thus freight absorption is common and occasionally is carried as far as the quoting of a lower delivered price in the remote market than in the home market.

* * *

An important reason for the establishment and persistence of uniform, zoned, or basing-point price systems is that they provide a simple and easily policed price structure. The interest of the sellers as a group is in curbing price competition, while the individual seller might feel tempted (especially when trade is slack) to grab a larger share of the business by quietly making price concessions. The simpler the price formula the more conspicuous and difficult do such deviations become.

* * *

"Crosshauling" represents a special case of market-area overlap in which the same kind of goods travels in both directions over the same route. This, too, is common under discriminatory pricing. Where the goods are really interchangeable, it makes distinctly less sense than the simple sharing of markets. Even crosshauling, however, can be explained and justified in some industries on the basis of geographical instability of demand. Producers of building materials, for example, may find a dearth of business in their vicinity at some times, while at other times, when several large construction projects happen to be under way there at the same time, they may be unable to supply the demand and their competitors elsewhere may have capacity to spare. Under these conditions it would be absurd to expect each seller to confine himself to the fluctuating demand of a fixed market territory, and crosshauling appears not only natural but desirable.

Variations in Consumer Preference and Market-area Overlap:

Another basic cause of market-area overlap is the fact that two production centers sometimes cater to the same want by supplying different though substitutable products. Thus, coal of various kinds competes with oil, wood, or natural gas as a fuel; brick and stone compete with wood as a building material; fresh meat and vegetables compete with the preserved forms; and last but not least, different styles or brands of the "same" product compete with each other.

If all the customers agreed on the relative merits of the alternatives, there would be no special reason here for overlap of market areas — an inferior product would simply find its market area restricted. But in actual fact, the customers are not agreed on how large a price premium they should pay on fresh tomatoes as against canned tomatoes or Milwaukee beer as against hometown beer. This produces an overlap of market areas; in the case of some high-value branded goods, where distribution costs are small and price differentials small or nil, the market areas of different production points may overlap to the point of coinciding.

Coalescence of Market Areas: The Special Case of "Shopping Goods": Ordinarily we think of a seller as avoiding a location where there are many competitors. In some market situations, however, the reverse is more nearly true.

A woman intending to buy a hat engages first in an arduous and complex operation known as "shopping," in the course of which she may inspect and compare a vast number of different styles. The various kinds of hats displayed before her are certainly in market competition, since if she buys one, she is less likely to buy some other. Yet each different style contributes to the variety of the offering that led her to seek out that market in which to make the selection. Marketing specialists apply the term "shopping goods" to products of this character, in which the customer likes to look at several different varieties before making his selection.

The locational effect is a concentration of marketing outlets. In the final retail stage the buyers are unwilling to come very far to make their comparisons and purchases because these are on a small scale; so the concentration is local. Shopping goods are sold in the centers of towns and particularly in larger shopping centers to a greater extent than other consumers' commodities. Rival shops cluster in the same small district or even

side by side on the same street. Thus there are in most cities particular neighborhoods devoted to the selling of specific kinds of shopping goods.

At the earlier stages of production and distribution, there is room for concentration on a grander scale, since more money is involved in any one transaction. Thus the buyers of millinery at wholesale find it worth their while to make long trips, if necessary, to a center where a particularly varied offering is on display; consequently the wholesale "market" tends to concentrate in one or at most a few leading cities. This bottleneck through which most of the goods pass then becomes a point of attraction for both buyers and producers. Each additional producer sending his goods to such a shopping market increases the attractiveness of the market to the buyers and thus indirectly increases its attraction for other sellers.

The problem of market boundaries encounters additional complications when we introduce problems of seasonal variation in supply, as in the case of fluid milk. The following excerpt by Dr. Black discusses this problem and the difficulties it imposes for operating an administered price structure within the market.—*Ed.*

3.2.7 Black, John D. *The Dairy Industry and the AAA.* Brookings Institution, Washington, D. C., 1935. Pp. 212–16, 219, 221.

. . . the nearby dairymen were generally able to sell all their milk at fluid milk prices the year round even though their production was somewhat irregular, and the dealers went outside only for the extra milk which they needed when the nearby supply was running low. Thus there tended to be a group of nearby producers in Zone I-a in the diagram on page 127 who sold all their milk at all seasons at fluid milk prices; and another group farther out, in Zone I-b in the diagram, who sold their milk at fluid milk prices only part of the year. The nearer to markets these latter lived, the more of the time they shipped fluid milk to the city. Dealers did not buy in Zone I-b except when necessary because of the higher cost of transporting milk from a greater distance. . . . Under the conditions described, the boundaries of milksheds tended to expand and contract in much this way. They still do in a considerable measure in many markets, especially in the smaller ones. In some rather large markets west of the Alleghanies, certain processing plants still supply fluid milk for nearby cities only part of the year.

The imposition of additional sanitation requirements, mak-

ing it necessary for producers in Zone I-b as well as Zone I-a to meet inspection requirements, affects this situation fundamentally only in one way; namely, that it makes the dealers pay enough more for the milk bought in Zone I-b to compensate these producers for maintaining herds and equipment that meet inspection. This changes somewhat the differentials between the two zones since producers in both must meet the same inspection, and since the fixed costs involved are distributed over a shorter period in Zone I-b. In effect, it brings within Zone I-a a fringe of producers from just outside, these being the producers who can lower their sanitation costs per hundred weight by shipping twelve months instead of less, by more than enough to offset the transportation costs. In practice, however, many of the producers in I-b who have equipped their farms to meet

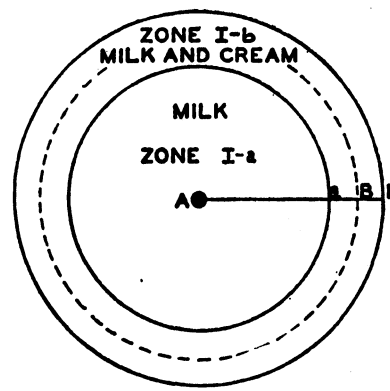


Fig. 1. Milk supply zones as affected by seasonal variations in milk flow.

inspection and have learned the habit of producing good milk, have wanted to ship milk the year round and have been inclined to ignore the special day-to-day costs involved, and the dealers have been always ready to take advantage of such opportunities. As a result the imposition of sanitation requirements has in effect furnished an additional incentive to the nearby producers to organize a co-operative.

The co-operative which is set up in such a situation needs merely as a matter of good management to work out a plan of payment for milk that restores, in large measure if not altogether, the price relationships that existed before the dealers began using outside milk as a temporary club to beat down prices of nearby milk. . . .

In allocating returns to producers in a milkshed, it now appears that three principles of differentiation are involved which must in some way be reconciled in application. One is the zoning or distance principle just discussed, which gives first position in the fluid milk market to the nearby producers, and position to others in proportion to distance and according to the varying needs of the market for their milk. The second is the seasonal differential principle discussed in the last chapter, which gives higher average returns to the producer with the more regular milk supply, since he is furnishing a higher proportion of his milk in the seasons when prices are normally higher. The third principle recognizes the fixed nature of part of the costs involved in producing acceptable fluid milk, and the need for compensating a producer for this factor, even though his milk may not be needed at all seasons.

The base-rating plan can be made to fit all three of these principles. An extreme form of meeting the first principle would consist of leaving the producers in Zone I-a out of the rating plan, accepting all their milk at Class I prices except that needed for daily reserves, and giving bases in Zone I-b in the form of percentages of average production declining outward from the market. This would, however, fail to recognize adequately that seasonal regularity has economic value in the market within I-a as well as within I-b. Some compromise of this fact with the seasonal principle therefore seems necessary and is surely feasible. This may take the form of decreasing the percentages of the base period production outward beginning at the market, or perhaps 10 or 15 miles out, in determining the individual producer ratings. At the outer boundary of I-b these percentages need to be just high enough to induce a sufficient number of producers to meet the sanitation standards — in a period of expanding consumption to bring them into the market; in a stationary period, to keep them in but to attract no new ones.

* * *

Obviously a price policy which underpays the near-in producer and overpays the outlying producer has the effect of thinning out production near the market and hence of spreading out the milkshed, when concentration of production near the market is highly to be desired from all points of view. Accordingly, a shift toward more equitable ratings is certain to be followed by

expansion of near-in production, which in turn will call for further enlargement of the bases in this territory.

* * *

Transportation Problems: The evil effects of the system of pooling transportation costs followed in many smaller milksheds should now be apparent. Nothing could be devised better calculated to draw additional milk from outlying producers, to increase the excess over Class I sales, and to lower the blended price to producers. The same general effect is achieved in many larger markets by a system of hauling charges that favors the outlying producers. If private operators do the trucking, they are interested in getting a full load without traveling too far for it. They tend in general to contract additional milk from farther out at about the same rates as milk near to the market. To any one of them, it is a matter of indifference whether he travels 60 miles radially outward from a market and back, or the same distance circumferentially in large measure. Thus producers 30 miles out may get as good rates as those 15 miles out. When the trucking is done by the distributors, or controlled by them, the system of charges tends to approximate the same re-results. . . .

While the geographic price structure in fluid milk markets appears complicated, it is no more so than for most agricultural products. The wide diversity of production patterns and distribution channels for many farm products as well as of institutional arrangements leads to highly complicated and variable geographic price structures. This diversity and the factors contributing to it are brought out in the discussion that follows.—*Ed.*

3.2.8 Nelson, Saul and Keim, Walter G. *Price Behavior and Business Policy, Temporary National Economic Committee, Monograph No. 1*, U. S. Government Printing Office, Washington, D. C., 1940. Pp. 287–88, 293–94.

Agricultural Commodities: The geographic price structures of agricultural commodities are rarely as well defined as those for the products of industry. The reasons for this are obvious. The number of sellers in any market is usually so great that no one of them can exert any appreciable influence upon the prices which he receives for his crops. Since the price itself is largely beyond his control, there is little opportunity for the development of any rigid conventional practices regarding collateral terms of sale, such as the payment of freight charges. At the same time there are many different kinds of buyers in the market,

purchasing under different conditions and for different ultimate uses and destinations.

Nevertheless there are certain broad price relationships and certain customs with regard to the payment of freight costs which have displayed a degree of persistence and which apply to substantial sectors of the market.

In contrast with the geographic price structures which prevail for manufactured commodities, however, these relationships usually represent inevitable adjustments to characteristics inherent in the market, rather than business policy decisions, although the influence of the latter may be revealed in some minor details.

In general, the pattern of geographic variation of the prices received by producers of agricultural commodities is governed in the first instance by the location of major terminal markets. In some cases, as for fresh fruits and vegetables, such markets exist at most important centers of consumption, which also serve as points of distribution for the surrounding territory. For staple commodities, and particularly those traded in organized exchanges or in futures markets, these terminal markets are more narrowly concentrated and represent primarily points at which the product is collected for distribution throughout the United States.

In surplus producing areas, that is in those sections which raise more of the product than can be used locally, the price received by growers tends to be determined by the price prevailing at the terminal market, less the cost of transportation to that market. In deficit areas which raise less than they consume, the reverse relationship will be encountered and growers may receive a price limited by the terminal market price, plus the cost of transportation. For export commodities, such as wheat, the controlling element will be not only the domestic requirements of any area but also export demand.

In both surplus and deficit areas the price relationships just described are limiting relationships which may not actually conform with the existing pattern of variation at any time. Thus in a surplus area the prices are not likely to fall below the terminal market price less freight and in deficit areas they will not rise above terminal market price plus freight, because in either event it would become profitable to ship to or from the terminal market. However, there may be many conditions which would cause variation within these limits, such as the availability of

advantageous freight rates for direct shipment from a surplus to a deficit area without passing through recognized terminal markets. For some commodities, such as wheat, there may also be "milling-in-transit" freight rates which combine the cost of shipping the wheat to the flour mill and the flour to its ultimate destination into a single charge, thereby permitting a further narrowing of the differential between the terminal market price of wheat and the amount received by the grower. A somewhat similar situation applies through "storage-in-transit" rates for such products as potatoes which make it possible to store the product en route from farm to market without any equivalent increase in the cost of shipping.

* * *

The geographic price structures of food products reflect a very wide diversity in market characteristics such as perishability, degree of processing, extent of standardization, importance of trade-marks and brand names, relative importance of freight as an item in cost, etc. Accordingly they exhibit almost every recognized pattern of variation including basing-point systems, zone systems, f.o.b. plant pricing, freight equalization, and uniform delivered prices, as well as completely unsystematic price variation between markets. In general, there is some relationship between the degree of processing and the character of the geographic price structure; slightly processed commodities, such as meats, tend to vary in as irregular a fashion as agricultural products, while foods which have undergone a greater degree of fabrication and particularly those which are branded or trademarked commonly display the more conventional types of structure usually associated with the products of industry. There are often differences in the geographic price structure for a single product, depending upon whether it is sold under a national brand, under a distributor's brand, or in bulk; advertised brands are more commonly sold on a delivered or freight allowed basis than are private brands or bulk products.

We have commented upon the interrelations between patterns of movement to markets and patterns of prices. Shepherd has examined some of the existing geographical price differentials for farm products.—*Ed.*

3.2.9 Shepherd, Geoffrey S. *Agricultural Price Analysis.* 3rd ed. The Iowa State College Press, Ames, Iowa, 1950. Pp. 194–97, 200, 202.

Examination of the price data by crop reporting districts (about ten counties per district) shows the nature of the price

surface in some detail. Figure 53 shows the average farm prices of corn over the 16 years from 1924 to 1939 (the data go back only to 1924) by crop-reporting districts over the commercial corn area. "Iso-price" lines, connecting approximately equal prices, like contour lines on a topographical map, help to bring out the character of the "price surface" over the area.

Figure 53 shows that the corn-price surface is not flat like the

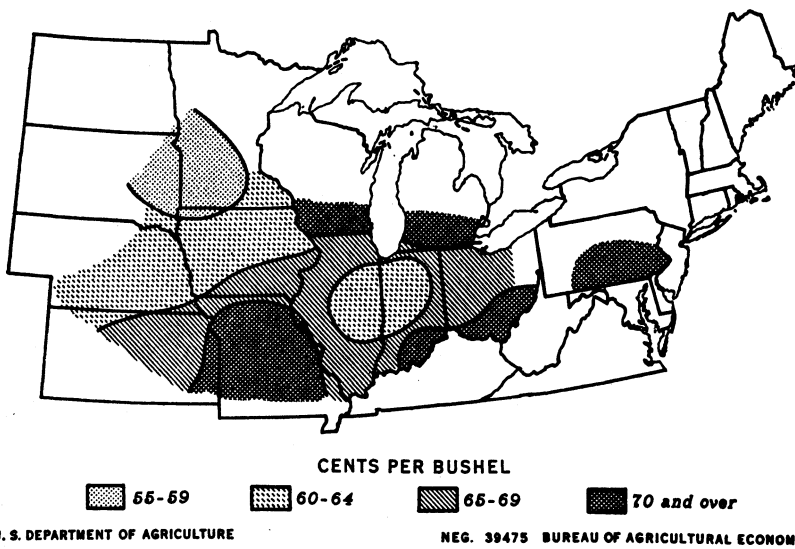


Fig. 53. The price surface for corn has a general slope upward from west to east, except for a depression in eastern Illinois and western Indiana, where large quantities of corn in excess of local needs are produced. The lowest prices are found in the northwest corner of the Corn Belt. (Average farm price, by crop-reporting districts in the commercial corn area.)

ocean, nor is it uniformly sloped in any single direction. The rough general tendency is for the price surface to slope downward from the east to the west, and from the south to the north; but the slope is not uniform. Valleys and ridges, plateaus and even basins, occur in the price surface. In central and eastern Illinois and western and central Indiana there is a basin of 63-cent prices surrounded by rings of higher prices on all sides. Going west from that area, prices at first do not decline; they rise. It is necessary to surmount a ridge of 64- and 65-cent prices in western Illinois and southeastern Iowa before reaching the low-price valley that runs northwest from central Iowa, deepening as it goes.

The actual differences in prices shown in Figure 53 are in most cases less than the transportation costs between the different points. It is evident from these price relations, as well as from data regarding corn shipments and destinations, that the corn produced in the surplus-producing areas does not move from the western and central part of the Corn Belt clear over to the eastern states, unless it be in a few exceptional years, and in comparatively small quantities. Corn from western and central Iowa ordinarily goes to eastern Iowa and as far east as Chicago but very little of it seems to go east of Illinois. Less is known about shipments from eastern central Illinois, but it appears from the price charts that corn does not move regularly, year after year, from Illinois to Indiana and Ohio, for prices in Indiana average about the same as in Illinois, and in Ohio they average only 4 or 5 cents higher.

Apparently, what happens is this: The price surface changes greatly from year to year, and in any one year the differentials from certain areas to certain others may be great enough to cover transportation costs between these areas. In another year these price differentials change, perhaps even reverse, and corn flows differently. The average figures show very small average-price differentials, but in any one year the price differentials may be large. Investigation of the years separately is required.

* * *

The price surface varies greatly from month to month, as well as from year to year. . . .

The chief reason for the variations in corn price differentials from year to year among the different states apparently is variations in corn production. . . .

The references cited in Footnote 1 of the present chapter show that a considerable amount of variability exists among hog prices at different markets. The same thing is true of wholesale meat prices. . . .

If these were daily price data, the relative price variations could be explained as the result of relative gluts and scarcities at New York that lasted until smaller and larger shipments could be made from Chicago to wipe them out. It takes a day or two to get pork from Chicago to New York. But these are weekly average price data. It is not easy to explain why packers at Chicago would continue to ship fresh pork loins to New York for a week or two at a time to sell for $2.00 to $3.00 per 100 pounds less than they would bring in Chicago, or why they would

let substantial differentials in excess of the freight rate persist for several weeks at a time. The same sort of situation exists for other wholesale cuts of pork and of beef as well. There must be good reasons for it. A study of the causes and effects of this situation would constitute a good marketing research project.

Transportation facilities, freight rates, and especially transit privileges not only affect the geography of marketing; they often may affect marketing methods. A case in point is the development of direct methods for the marketing of many farm products and the resulting decline in the importance of central markets as price-making institutions. —*Ed.*

3.2.10 United States Department of Agriculture. "The Direct Marketing of Hogs," *Miscellaneous Publication 222*, Washington, D. C., March, 1935. Pp. 5–7.

Reasons for Increased Direct Marketing in Recent Years: The principal reasons for the rapid increase in direct marketing of hogs in recent years may be found in the competitive situation as between local or interior packers on the one hand and public-market packers on the other, associated with the expansion of corn and hog production in the western Corn Belt. The chief reasons for this competitive situation are found in the transportation developments, both rail and motor truck, as they affect convenience and costs of moving livestock direct and through public markets and of transporting live animals as compared with livestock products; in comparative labor costs among packers in different areas; in differences between direct and public-market channels with respect to costs of marketing including shrinkage, commission charges, yardage fees, and other marketing costs; and in producer preferences, which play a part in the farmer's choice of market outlet.

* * *

Transportation and Direct Marketing: Direct marketing has been facilitated by certain conditions in the transportation situation, especially with respect to truck transportation, railroad concentration privileges, and comparative freight charges on hogs and hog products.

Truck transportation. — The development of motor-truck transportation has contributed to the growth of direct marketing by making interior packing plants and concentration yards conveniently available to a much larger number of producers than would be the case if hogs were transported by rail. Truck transportation appears to be best adapted to comparatively short hauls, and this is relatively more advantageous to concentration

yards and local packing plants, which are usually nearer the source of supply than to the public markets and public-market packers. The information at hand indicates that in recent years more than 50 per cent of the hogs received at interior packing plants and concentration yards were moved by truck. Since trucks are more economical and convenient for short distances than for longer hauls, their increased use has encouraged the development of concentration points and stimulated movement of hogs direct from farms to concentration yards and interior packing plants, most of which are located closer to producers than are the public markets.

Railroad concentration privileges. Transit privileges, especially concentration privileges, have enabled public-market packers to buy hogs at local points for shipment direct to their plants at public-market points more advantageously than if these transit privileges were not available. Under existing market practices, this tends to aid public-market packers in their competition with interior packers through direct purchases of hogs. These privileges are likewise available to persons operating through the public markets, but thus far apparently they have not been in a position to make much use of these concentration privileges.

* * *

Comparative freight charges on hogs and hog products. The relationship of freight rates among regions and between hogs and hog products has become an important factor in the growth of direct marketing in that the relationship has been and is relatively favorable for packers whose plants are in the western Corn Belt. Interior packers in this area usually purchase most of their hogs direct. In the entire period since 1910, freight charges on shipments from the western Corn Belt eastward have been greater for a given weight of live hogs than for the products derived therefrom. Also the margin between the freight charge on hogs and that on hog products widened somewhat after the pre-war period. For example, in the years from 1925 to 1929, the freight charge on 100 pounds of live hog from Des Moines to New York was about 25 cents greater than the freight charge on the hog products obtained from 100 pounds of hog, whereas in the years from 1910 to 1914 it was about 19 cents higher.

Partly because freight rates in this country generally do not increase proportionately with distance, and partly because of

relatively low rates on hog products from the northwestern Corn Belt, particularly interior Iowa points, to the Mississippi River, the freight charge per ton-mile on eastern movements of hog products from the western Corn Belt is lower than the freight charge per ton-mile on similar movements from the region east of the Mississippi River. As a result of these lower freight charges per ton-mile and the proximity of the packers in the western Corn Belt to the surplus hog supply, these packers have certain competitive advantages in supplying eastern markets with hog products, as compared with packers who are located in the east or intermediate between the western Corn Belt and the east and who buy hogs from the western surplus areas. Such advantages contributed to the increase in hog slaughter in certain areas west of the Mississippi River.

* * *

Freight charges, however, are only one of the cost factors involved in the processing and distribution of hogs and hog products. Several factors in addition to transportation charges, such as the growth of hog production in the western Corn Belt, which itself may have been influenced in part by the freight-rate structure, have been favorable for the expansion of the packing industry in that area.

The final three readings on geographic distribution are concerned with efforts to prevent the economic adjustments which would occur under perfect competition. In the period between World War I and World War II, many states and cities adopted various forms of trade barriers applying to domestic farm products. Such barriers make it difficult or expensive for distant producers to compete in local markets. The present extent of interstate trade barriers is not known. —*Ed.*

3.2.11 Melder, Frederick Eugene. "State and Local Barriers to Interstate Commerce in the United States," *The Maine Bull.*, Vol. XL, No. 4, Nov., 1937. Pp. 166–67, 168, 169–71.

From the evidence reviewed, however, the conclusion is inevitable that, despite the Constitution and the zealous care of the Supreme Court, the internal market of the United States is not "free" whether we interpret the term "free trade" either narrowly or broadly. Several state taxes, for example, have been shown to bear remarkable similarities to protective tariffs, both in form and spirit. Such taxes include the excise and license taxes levied by dairy states on all oleomargarine sold within their borders, similar taxes levied by many of the cotton, beef,

and peanut producing states on margarine containing cocoanut oil, and the state and municipal graduated taxes directed against the chain store. The states and their political subdivisions, moreover, employ not only their taxing powers to retard the growth of certain forms of marketing organization and the free movement of commodities across political boundaries, but they also make liberal use of their police and corporate powers to achieve the same ends. Examples of such utilization of the police powers are state border quarantines against the agricultural products of sister states, municipal and state limitations of city milk sheds by inspection practices and discriminatory sanitary rules, state restrictions on the free movement of laborers across political boundaries, conflicting regulations on highway motor carriers passing between states, and embargoes on the interstate transmission of hydro-electric energy. The state corporate powers have been used further to protect home economic groups through the preferential expenditure of public funds. Indeed, if all tax laws which discriminate in any way against goods and services crossing internal political boundaries were removed, the more serious burdens on such commerce would still exist. Persons and concerns having transactions in several communities or states must obey the police and corporate regulations of each political unit, and the mere trouble of avoiding transgression of these regulations is a burden on the free movement of economic values.

* * *

From the evidence presented in the previous chapters, however, "scarcity consciousness" seems to be a dominant motivating force for every social and economic group in a world of shrinking economic opportunities such as that of the past six or seven years. There has been evident a rapidly rising tide of sentiment favoring the preservation of the opportunities in the home town or state for local merchants, manufacturers, farmers, and laborers.

* * *

Probably a more important effect of trade barrier legislation is the increased sectionalism it inspires. Of course such laws are the expression of the wants of the protected economic groups. Yet many times the excluded persons and concerns have sufficient influence to initiate campaigns of reprisal and retaliation. The propaganda which emanates from both sides in the ensuing controversies undoubtedly increases the spirit of localism within the

country. Such influences, being intangible, are not susceptible to measurement, but it is probably true that the ill will thus engendered has had and will have considerable sociological and political significance in retarding reforms in government structure long since overdue.

3.2.12 Taylor, George R., Burtis, Edgar L., and Waugh, Frederick V. *Barriers to Internal Trade in Farm Products.* U. S. Dept. Agr., Washington, D. C., March, 1939. Pp. 5–6, 7, 19–20, 42, 79, 91.

In a number of Eastern States (including Massachusettes, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Virginia, and Florida) all fluid milk (and in some cases cream) must come from farms that are licensed or inspected by the officials of the State into which the milk is shipped. All of these States produce milk and cream, but they also bring in a part of their supply from outside their own boundaries. It is obvious, therefore, that should any of them wish to use their health- and sanitary-inspection requirements for the purpose of retaining a larger part of the State market for State producers, they could do so through limiting outside inspection and thus protecting home producers. Only a very thorough investigation would show the extent to which this has been either the purpose or the result of such legislation. The survey of the situation attempted here shows some of the existing tendencies toward market restriction.

* * *

Market restriction through inspection requirements is promoted by cities and towns as well as by States. In fact, the regulations of certain large cities have been of equal importance with those of the States. Since 1906, New York City has maintained farm inspection of its sources of milk and cream supply, and since 1926 has definitely limited this inspection area. Thus it is practically impossible to ship fluid milk or cream to the New York City markets from points west of the New York or Pennsylvania State lines. So far as fluid milk is concerned the restriction is not very important at present, for probably very little milk would move into New York City from beyond the inspected areas in any case. But cream, which as compared with milk combines greater value with less bulk, can be shipped for long distances. The effect, therefore, of the New York inspection requirements is to bar western cream and to raise the price of cream in the New York City market.

Although elimination of fraud was undoubtedly an impor-

tant basis for much of the early margarine legislation, this is obviously not the object of the recent movement for high margarine sales taxes and license fees. The practice of passing off margarine as butter has practically disappeared in recent years.

Generally those favoring margarine legislation have been frank to say that their object is to "protect" the dairy industry. When the Washington tax of 15 cents per pound was carried to the Supreme Court the sponsors of the act candidly stated that their purpose was to help the butter industry and they made their arguments on that basis. . . .

The recent wave of margarine excise laws exempting from taxation margarine made from "domestic" ingredients illustrates a new development of the protective principle in State margarine legislation. Until the close of the World War oleo oil, a beef product, was the chief constituent of margarine. Gradually, however, the use of vegetable oils was perfected and cottonseed oil in particular became increasingly important as a margarine constituent. By 1915, cottonseed oil made up 30 per cent of the fats and oils used in the manufacture of margarine in this country. About that time the use of coconut oil began to increase rapidly, and, by 1933, 75 per cent of all fats and oils used in the manufacture of margarine came from this source.

The results of this technological change were reflected before long in Federal and State legislation. Not only did the Federal Government (1934) place an excise tax of 3 cents per pound on coconut oil from the Philippines or other United States possessions, but a curious new form of State margarine legislation flowered, especially in the cotton- and cattle-producing States. In the 3 years 1933–35, 14 States passed legislation providing in effect for an excise of from 10 to 15 cents per pound on margarine containing certain foreign ingredients. Typical of these laws is that of Texas which provides for a 10-cents tax on margarine containing any fat or oil other than oleo oil, oleo stock, oleo stearine, neutral lard, corn oil, cottonseed oil, peanut oil, soybean oil, or milk fat.

More restrictive are the laws of certain important cattle-producing States outside the Cotton Belt. Thus, Minnesota, Nebraska, and Wyoming penalize cottonseed along with coconut and other foreign oils by providing for an excise tax on all margarine not containing a substantial percentage of animal fats.

* * *

For various purposes, but primarily to promote safety on the

highways and to prevent damage to roads and bridges, State legislatures have been extremely active in passing laws and authorizing administrative regulations having to do with the weight, size, equipment, and insurance of motor vehicles. The nonuniformity of these laws has constituted an appreciable hindrance to interstate commerce. Moreover, the limits set, as for example those on the size and weight of motor vehicles, may be so low as to prevent such long-distance hauling.

* * *

Choice of labeling requirements. — North Carolina, South Carolina, and Florida all require eggs brought in the State to be labeled "Shipped" (unless they are cold-storage eggs, in which case they must be so labeled). Questions have been raised about the fairness of this requirement. For instance, eggs produced in southern Georgia or southern Alabama and sold in the markets of western Florida may not have been shipped as far as competing eggs from the heavy-producing sections of Florida, which are around Jacksonville and Orlando.

* * *

Quarantines are sometimes enforced against areas that never were infested or diseased or which have become free of the pest or disease since the quarantine was promulgated.

This book will not deal in any detail with problems of international trade. Obviously tariffs, quotas, currency restrictions, and many other regulations distort world trade from the "natural" pattern which we would expect on purely economic grounds. The most thorough import controls are those applying to sugar. The following excerpt states one point of view concerning import quotas. Whether this view be right or wrong, it is clear that the pattern of sugar production and consumption is affected.—*Ed.*

3.2.13 Pendleton, William C. "American Sugar — 1948 Version," *Jour. Farm Econ.*, Vol. XXX, No. 2, May, 1948. Pp. 228–29, 232, 233.

The Sugar Act of 1948: The present legislation, which is to run for five years, marks a return to the policy of 1934–42, differing only technically from the program of those years. . . .

The Secretary is to determine at the end of each year the consumption requirements of the continental United States for the next year. Of this total, approximately four and a quarter million tons is to be apportioned among the five domestic producing areas, U. S. beet, U. S. cane, Hawaii, Puerto Rico, and the Virgin Islands, on the basis of fixed tonnage allotments; such

allotments in each case being in the neighborhood of maximum pre-war production. Nearly a million tons is allotted to the Philippine Islands, and of the remainder, Cuba is assigned 98.6 per cent, and other foreign countries are permitted to supply 1.4 per cent. This procedure is a departure from the earlier Acts which prorated total consumption requirements entirely on a percentage basis. The final restriction on imports is a tonnage limitation on the amount of direct consumption sugar that can be included in the quotas of the offshore areas.

The quota provisions are buttressed by subsidy payments for the domestic producers . . .

Relation to Stated Objectives: . . . The sugar tariff while not an integral part of the Act is still in effect, and the rate of one-half of a cent on imports from Cuba causes a direct price increase. The tariff, however, is much less important as a price determinant than the overall consumption quota set by the Secretary. Quotas, theoretically at least, could be determined in the best interests of consumers, but past experience and the technique of quota determination prescribed in the Act indicate that a "fair" price for producers is considered more important than an equilibrium price for consumers.

A possible second interpretation of the consumer welfare objective is providing an adequate supply of sugar during future national emergencies. Disregarding the political implications of this view, experience during both world wars indicates that it is highly questionable. Labor and supplies were diverted from sugar to other lines of production during World War II, nearly halving domestic beet output, and imports from Cuba were greatly expanded. . . .

. . . Economically it represents a striving for self-sufficiency which can only be achieved at the expense of efficiency. It is generally recognized that Cuba can produce and deliver sugar to the United States more cheaply than any of the five major domestic areas. The trade policy partially set forth in the quotations above dictates continued expansion of imports from Cuba and a downward adjustment of domestic production. That Cuba has the capacity to supply a much greater share of American consumption is evidenced by the 6½ million ton crop in 1947. Yet the Sugar Act encourages expansion of production at home while leaving purchases from Cuba at the mercy of the Secretary's quota determination.

* * *

The policy conflict with announced international trade objectives is immediately apparent. "The restrictive sugar bill was one more evidence that the United States was all in favor of freeing world trade — as long as it did not disturb any Congressman's constituents." It points up a fundamental inconsistency which must be faced and solved if basic trade objectives are to be achieved.

3.3 The Timing of Marketing

Marketing distributes goods over time as well as over space. The farmer asks, "When should I sell?" as well as, "Where should I sell?" Potato dealers and cooperative associations determine how many carloads of Maine potatoes are shipped in the fall and how many are held over for sale in the spring months. Dealers and government agencies determine how many bales of cotton are held over from one crop year to another. The timing of marketing often has a decisive effect upon the incomes received by farmers, the profits of processors, distributors, and speculators, and upon the welfare of the general public.

There is a distinct parallel between the economics of location and the economics of timing. Effective marketing helps to concentrate production in those locations which have a comparative advantage. It also helps to concentrate production in time periods which have a comparative advantage. For example, wheat is consumed the year around but its production is concentrated in the favorable season of the year. The annual supply becomes available in a relatively short harvest period, and marketing spreads the supply through the year. Even the output of such continuously produced foods as milk, eggs, and meat is ordinarily concentrated at certain favorable periods of the year, resulting in surpluses at seasons of heavy production. The management of such surpluses is an important aspect of marketing.

But the parallel carries further. A product can be moved from one place to another by transportation; it can be shifted from one time to another through storage. Storage, as well as transportation, is a kind of production. If done according to sound economic principles, it can contribute substantially to the general welfare.

In discussing storage, it is well to recognize that a large part of the stocks carried are primarily working inventories at the various stages in trade channels.—*Ed.*

3.3.1 Larson, Adlowe L. *Agricultural Marketing*. Prentice-Hall, New York, 1951. Pp. 132–33. Reprinted by permission.

Working Stocks: The needs for storage may be classified into

three general types. The first of these is to care for working stocks. Even though production and consumption are carried on at a uniform rate with respect to time, there must be some working stocks, unless the consumption of the good occurs at the identical time the good is produced. It is necessary, for example, for working stocks of millions of bushels of wheat [to] exist, so the operations of elevators, millers, bakers, and selling agencies can continue. The retailer of a loaf of bread cannot expect to get that loaf of bread from the bakery the moment he sells it to a consumer. Working stocks are relatively uniform from time to time except as changes in production or consumption patterns occur. They vary in size with the degree of roundabout production and marketing resulting from specialization. Working stocks for the individual housewife who grinds flour and bakes it into bread are probably not so large on a per capita basis as for the grain, milling, and baking industries.

Irwin has indicated that business operating considerations, rather than speculation, are also the primary motive in much seasonal storage.—*Ed.*

3.3.2 Irwin, H. S. "Middlemen's Accumulations and Expectations in Marketing Farm Products," *Jour. Farm Econ.*, Vol. XXIX, No. 4, Pt. 1, Nov., 1947. Pp. 848–49, 851–52.

By middlemen's accumulations of farm products is meant the amounts of each commodity (including products and by-products) purchased by middlemen following harvest or during periods of seasonally heavy production in excess of immediate merchandising or processing needs. An example of such stocks is the quantities of butter withdrawn from consumption during the period of flush production and placed under refrigeration. Ordinarily the accumulations are built up to seasonal peaks during the periods of heavy farm marketings and then are drawn down to zero or to low levels by the end of the respective seasons. Frequently there is no definite separation between the accumulations of a commodity and the administrative stocks required in its processing or merchandising, but the administrative stocks are characterized by much smaller fluctuations in volume.

The marketing problems posed by middlemen's accumulations of farm products are complicated to a considerable extent by the tendency toward concentration. Commonly a large proportion of the accumulation of each commodity is held by a comparatively small number of concerns, usually at the wholesale level, and indications are that frequently the amount is so burdensome as to

require relief. Such problems are peculiar to large-scale accumulations, but are very real to the middlemen involved. The advantages of the concentration, however, appear to have overbalanced the difficulties.

Analysis of the accumulations reveals that the following elements of marketing are involved in them:

1. Influencing market prices, especially during accumulation.
2. Making a market when farm offerings are large.
3. Equalizing the flow of commodities to consumers.
4. Regulating, in part, the seasonal pattern of consumption.
5. Storing the stocks accumulated.
6. Financing the accumulation.
7. Assuming the risks of ownership (principally price changes).

* * *

Accumulations are Governed Mainly by Business Considerations: Contrary to popular notions, the reservoirs of farm products built up by middlemen appear to be influenced principally by the business positions of the concerns involved. Commonly the amounts accumulated by many concerns are much larger than those which the concerns would desire solely in the hope of an advance in prices, as witness the extent of hedging in those commodities in which hedging is available.

The business considerations which result in increased accumulations take a variety of forms, all intended to improve the business positions of the respective concerns. A common form is the desire to retain suppliers and customers as well as to obtain new ones. During the period of heavy farm marketings of a given commodity, a concern which accumulates stocks will desire to purchase all the offerings of its regular suppliers lest they develop other outlets and, if practicable, to increase its volume by accepting offers from other suppliers. During the period of seasonal scarcity a concern desires to control a stock adequate to provide its regular customers with their full requirements and also to be able to offer supplies as inducements to potential new customers.

Another form is the desire on the part of processors to assure an adequate supply of seasonally scarce commodities or of certain qualities of a given commodity. For example, a flour mill located in an area of high protein wheat and specializing in flour of high gluten content may find it desirable to accumulate a relatively large supply of high protein wheat following harvest lest such wheat should be difficult to obtain later in the season.

It is recognized that middlemen's accumulations are speculative in the sense that they are subject to the uncertainties of future price behavior. Thus they may result in unusual profits or in severe losses. Certainly the accumulations and the prices at which they are acquired are influenced by the expectations of seasonal price advances in most years, even though it is generally recognized that any year may vary widely from the usual and may even be negative. Doubtless, also, there are some middlemen whose principal motive in accumulating a supply is to obtain a profit from the hoped-for advance in prices but it appears that as a commodity market becomes relatively mature the business considerations increase in importance and become the dominant factor governing the accumulations. It appears also that the competition of the concerns which accumulate stocks for business reasons tends to reduce seasonal spreads and render speculation relatively unprofitable.

Irwin mentions hedging as one of the devices by which marketing firms seek to avoid the risks of holding inventories. This and other aspects of futures trading are discussed in Subsection 3.5.

Some farmers also engage in hedging, but the discussions of how farmers may protect themselves from seasonal price fluctuations more often turn around the phrase *orderly marketing*. We present first a short definition of this term by Clark and Weld, followed by an analysis showing profits to farmers from storing their soybeans instead of dumping them on the market at harvest time.—*Ed.*

3.3.3 Clark, Fred E. and Weld, L. D. H. *Marketing Agricultural Products in The United States.* Macmillan, New York, 1932. P. 562.

A third activity is the attempt to control the seasonal flow of a product to all markets. It is this which is commonly called "orderly marketing." Some products are used with a considerable degree of uniformity throughout the year and the aim of these efforts is to put on the market each day, week, or month, just the amount which the market will absorb — with a view to obtaining the largest possible, and presumably a fairly uniform price throughout the year. . . .

3.3.4 Rollefson, A. M., Agnew, D. B., and Keirstead, C. H. "Improving Soybean Marketing Through Farm Storage," U. S. Dept. Agr., Production and Marketing Admin., *Agr. Inf. Bull. No. 57,* June, 1951. Pp. 3, 6.

. . . Prices of soybeans and soybean products swing through a wide seasonal cycle nearly every year, and a major part of the soybeans are marketed by farmers near the low point of the season. About two-thirds of the crop is marketed in October and

November. This heavy volume of harvesttime selling contributes to a high seasonal demand for freight cars and results in congestion at country elevators, terminal markets, and processing plants every autumn.

In marketing, soybeans move typically from farms to country elevators and on to processing plants; but as storage space at these locations is filled, large quantities are shipped to terminal elevators. For many months, commercial marketing facilities are used for storage of a rather large part of the soybean crop. The rates of soybean crushing and of soybean product consumption are much more nearly uniform from month to month than the rate of farm marketings of soybeans.

* * *

Depressed soybean prices at harvesttime reflect the excess of soybeans offered for sale relative to amounts buyers wish to purchase; this involves both crushers' inventory risk, and, by midharvest, the inability of country elevators to ship or to store the soybeans as rapidly as they are delivered from farms. As products of soybeans and cottonseed compete for many uses, soybean prices reflect also seasonally low prices for cottonseed; the same factors are involved. Farmers can avoid both price-depressing influences by storing their soybeans rather than selling at harvest. . . .

Farmers' direct interest in more orderly soybean marketing lies in the varying net profits obtainable from different marketing schedules. Because changes in the pattern of their sales depend on storage, analysis of the costs and returns of storage is important. . . .

Soybean storage paid well in 3 of the 4 postwar years, 1946–47 to 1949–50 (Figure 2). In 1948–49, despite falling general prices, soybean prices covered storage costs for 1 and 2 months, and were at profitable levels 10 months, after harvest. During the 11-year prewar period (1930–31 to 1940–41) storage was profitable each crop year except depression or recession years (1930, 1931, and 1937 crops). Although storage cost ordinarily remains fairly stable from year to year, both the level and the seasonal movement of soybean prices varied greatly from one year to another. During these years, the seasonal price pattern, the month of peak price, and the spread between low and high prices all varied considerably. Seasonal peak prices averaged about 40 per cent higher than harvest prices for the prewar 10-

year period and 20 per cent higher than at harvest time for the postwar 4-year period. Soybean storage was of doubtful profitability or resulted in a loss only in those years when the general price level declined.

Of the farmers who stored 1500 bushels in each crop year 1946–47 through 1949–50, those who sold the beans at the average December-January price earned $1800 more than they would have at harvest time; those who sold at the average March-April-May-June price earned $2300 extra; and those who anticipated the market well enough to sell within 25 cents a bushel of the seasonal peak price earned $3000 or more. These figures are net profit for holding soybeans in each of the 4 years, after paying storage costs. . . .

Although a uniform rate of soybean sales by farmers could be expected to reduce seasonal price fluctuation, it is unlikely that the variation would be eliminated entirely. Soybean prices reflect the value of their oil and meal equivalents less processing costs, and are influenced by fluctuations in prices of competing products. Soybeans and some of their important competing products probably will continue to be marketed seasonally. Even though the marketing rates for soybeans eventually were to become uniform throughout the year — which is unlikely — soybean prices could still be expected to rise enough seasonally to cover storage costs in most years.

Orderly marketing is usually taken to mean seasonal shipments that are so regulated that the same net price (i.e., price less carrying charges) can be obtained throughout the year. In general, this is not the most profitable program of shipments.

In reviewing the shipments of California plums under a marketing agreement, Jerry Foytik reached some interesting conclusions concerning policies to maximize grower incomes.—*Ed.*

3.3.5 Foytik, Jerry. "Characteristics of Demand for California Plums," *Hilgardia*, Vol. 20, No. 20, Univ. of Calif., April, 1951. Pp. 443, 479, 487, 471, 473, 476.

. . . intraseasonal shifts, if they exist, are of importance to all shippers. They assume particular significance when centralized direction over marketings is undertaken in an endeavor to increase total returns by modifying directly or indirectly, the temporal distribution of sales . . .

* * *

. . . the analyses establish the existence of an interrelation of temporal markets but do not definitely indicate just how that

relation changes from week to week. It appears that on the average: (1) sales of early plums are positively related with prices of midseason varieties, (2) sales of midseason varieties are negatively related with prices of late varieties, and (3) weekly sales are negatively related . . . with prices for the following week . . .

* * *

It has been shown that demands in the various temporal markets are interdependent and that the level of demand generally shifts downward in a parallel fashion as the season advances. If these results approximate the actual situation, any action which postpones a portion of the total supply for sale during later weeks of the season will reduce growers' returns since the marginal returns foregone during early weeks exceed the increase in returns for subsequent weeks. . . . It is well to bear in mind, at the same time, that the marketing of plums cannot actually be hastened appreciably in comparison to the rate of movement that would naturally result when plums are sold as soon as possible after harvest. Thus attempts at regulating the rate of weekly shipments, imposing picking and shipping holidays, and establishing surplus control and reserve pools are not effective means of improving grower returns. In fact, during most seasons such controls are likely to decrease net returns for the season as a whole.

To maximize net returns from the sale of a given quantity distributed among temporally interdependent markets, the appropriate allocation of supplies must be determined. . . .

* * *

The optimum allocation of supplies among related temporal markets appears to be affected to only a limited extent by changes, of even substantial magnitude, in the values of the net regressions of price on current and lagged sales . . . On the other hand, the configuration of this optimum sales pattern changes considerably as the income level varies. . . .

. . . there is a substantial discrepancy between the actual weekly distribution of sales and that required to maximize total net returns. . . .

This relation between the temporal distribution of sales and total net returns is of considerable practical consequence to the industry. Effort should be directed toward increasing the proportion of the total supply marketed early in the season. Sales

immediately thereafter . . . should be curtailed rather than expanded. Maintenance of a uniform rate of sales appears desirable only when the level of consumer purchasing power is low. However, a constant price throughout the season is not indicated even in this case. The results suggest a lower price at the beginning of the season and a more gradual decline during subsequent weeks than is the case with the present temporal distribution of sales.

* * *

A control program designed to regulate weekly shipments could increase net returns substantially. . . . Every effort should be made to insure that the restrictions do not cause a less favorable sales pattern than would prevail without any controls — since a movement in this direction, even when of not too great magnitude, may decrease total net returns appreciably.

Staple commodities like grain and cotton are stored from year to year as well as seasonally within the crop year. For many such commodities the demand is inelastic so that prices fluctuate considerably from year to year and farmers get a smaller return from a bumper crop than from a short crop.

To deal with this problem Henry A. Wallace, as Secretary of Agriculture, proposed an "Ever-normal Granary." Similar programs have been proposed from time to time for international operation under the name of *buffer stocks.*

Shepherd in the excerpt below reviews some of the stated objectives of the ever-normal granary.—*Ed.*

3.3.6 Shepherd, Geoffrey. "Objectives, Effects, and Costs of Feed Grain Storage," *Jour. Farm Econ.*, Vol. XXXI, No. 4, Nov., 1949. Pp. 998–99, 1001–2, 1004.

Objectives of Feed Grain Storage: The original objectives of the CCC storage program were set forth in a brief statement by Henry A. Wallace, then Secretary of Agriculture, in 1936. In his view, the chief purpose of the "ever-normal granary" was to stabilize supplies against variations in production due to good and bad weather. The first Annual Report of the CCC, published in 1940, took in more territory. It listed "three fundamental functions of the Corporation's loan program: Namely, to protect and increase farm prices, to stabilize farm prices, and to assure adequate supplies of farm products."

Were these valid objectives for a storage program?

A storage program can't raise long-time price levels. It is obvious that the first objective is not valid. A storage program clearly cannot "increase farm prices" over a period of years.

What goes into storage must eventually come out; and when it comes out, it will depress prices about as much as it raised them when it went in (if the demand curve is a straight line on arithmetic paper). A program to reduce production, or to destroy some of the production, can raise the level of prices over a period of years, but a storage program cannot.

A storage program shouldn't stabilize prices against variations in demand. It is not an appropriate means for evening out the effects of variations in general demand. These variations in general demand, due to wars, depressions, booms, etc., do not last merely for a year at a time, to be followed by a new situation the next year, like variations in production. They may persist through most of a decade, like the depression of the 1930's or they may be very brief. It is difficult to forecast when they will come and how long they will last. Nobody can tell in advance, therefore, how much to store nor how long to store it.

Furthermore, a storage program to stabilize prices against variations in general demand would have bad effects on low income and unemployed groups during a depression. It would accentuate the paradox of want in the midst of plenty. The government would be withholding food and raising food prices, against the interests of its consumers, many of whom would not be getting enough to eat.

A storage program however can stabilize prices against variations in supply. It can stabilize the farm prices of durable products against unpredictable variations in production due to weather. It can do this by putting the excess over average production into storage in big crop years, and taking it out in small crop years. That is the proper function of a storage program.

The question is whether we need a storage program of this sort for feed grains.

* * *

Effects of Stabilizing Feed Grain Supplies: The objective of a feed grain storage program should be to smooth out the variations in feeds production by storage operations, and thus smooth out the variations in livestock production.

This smoothing out would have two effects. It would affect the income of feed grain and hog producers, and it would affect the cost of producing hogs.

The demand curve for corn is a straight line on arithmetic paper, with an average elasticity of about —0.65. Simple arithme-

tic shows that a storage program for corn, in effect converting large and small crops to average crops, would increase growers' incomes between two and three per cent. (Details omitted here.)

Most of the corn crop, of course, is fed to livestock, not sold as cash grain. The demand curve for hogs, which are the principal consumers of corn, happens to have about the same elasticity and curvature as the demand for corn. A corn storage program that stabilized hog production would increase hog producers' incomes in the same way that it would increase corn producers' incomes if they sold their corn as cash grain.

A feed grain storage program would also affect hog production, processing, and distribution costs. Hog and pork production varies fully as much as corn production. Variations in production increase production and distribution costs. Equipment adequate to handle the peak load stands partly idle when production is low, and idle equipment increases per unit costs.

A full quantitative study of how much the variations in hog production raise costs is a farm management and distribution problem beyond the space limits of this paper. But earlier studies indicate that stabilization, especially stabilization that was assured in advance, would reduce hog production costs perhaps two or three per cent. It would also reduce the costs of distribution.

* * *

We saw in the preceding sections that a feed grain stabilization program would increase corn producers' incomes from two to three per cent, and reduce hog production costs by a less exactly determinable amount, perhaps also two or three per cent. These amounts would add up to about five per cent. The storage program would cost about two per cent of the value of the corn crop. The total value of hog production in the United States averages about two-thirds of the total value of the corn crop. Some reductions also would be made in distribution costs. Ignoring several other qualifications and complications, we can conclude that a feed grain storage program would be worth (to producers in the short run, and to consumers in the long run) several times as much as it would cost.

Several years before an ever-normal granary was proposed, Ezekiel presented an interesting analysis of the expected profits or losses from year-to-year storage operations. His analysis showed that such operations would stabilize prices but that they probably would have very little effect on the average level of prices and incomes.—*Ed.*

3.3.7 Ezekiel, Mordecai. "A Statistical Examination of the Problem of Handling Annual Surpluses of Non-Perishable Farm Products," *Jour. Farm Econ.*, Vol. XI, No. 2, Pt. 1, April, 1929. Pp. 198–200, 207, 210, 203, 205–7.

Storing Wheat: The possible results of storing wheat from one crop year to another will be considered first. In estimating the effect of withdrawing part of the supply from the market, two assumptions were made: (1) that the resulting increase in price would reduce our consumption and export of wheat just as much as would a corresponding increase in price due to a short supply; and (2) that the action of the agency in storing wheat would cause those who buy wheat for storing until another year to reduce their purchases to the minimum amount needed for mill operation and usual reserves.

The point should be emphasized that there can be no "psychological effect" of storing on prices unless someone is induced to buy the supply that is left for sale at the price that is established. The consumer is certainly likely to continue to respond to price as he has done previously, and the storer-for-a-profit is more likely to be intimidated than encouraged by the fact that the agency is also storing.

. . . let us take a single operation and follow it all the way through.

In 1906, for example, the price of wheat averaged 71 cents. This was considerably below the trend of prices in previous years, so that it might have seemed reasonable to expect higher prices for the subsequent crop. Let us assume that at the start of the season the storing agency had decided to go into the market and buy enough wheat to hold the domestic price for the 1906 crop ten cents higher, at 81 cents. The higher price would tend to reduce consumption. Our studies indicate that with the price increase from 71 cents to 81 cents, domestic consumption of wheat as flour and feed, and exports of wheat and flour from the United States, would be reduced by about 55 million bushels. In addition, we may assume that because of the action of the agency in storing, speculative storing would be reduced from 95 to 75 million bushels, further reducing the demand by 20 millions. Adding the reduction in storage takings to the reduction in consumption and exports gives 75 million bushels as the estimated quantity the agency would have had to purchase and store in 1906, to advance the price by 10 cents per bushel. (As our knowledge of the relation of wheat supplies to prices is not exact, this quantity is only a rough estimate. It is possible that

it would have been necessary to store as much as 140 million bushels in order to raise prices 10 cents.)

The next year (1907) the price was 91½ cents. With no special storage operations in 1906, the carry-over in this country at the beginning of the 1907 season would have been 95 million bushels. But, with the agency storing, carry-over in the hands of others would be reduced to the minimum requirements, 75 million bushels. The agency itself would also have 75 million bushels to be sold. The carry-over into the 1907 season would then be 150 million bushels, 55 million bushels more than the 95 which would otherwise have been stored. Such an increase in supply would probably have reduced the average price for the 1907 crop from the 91½ cents which actually prevailed to 82⅕ cents. The stored wheat would have been bought at 81 cents in 1906 and sold at 82 cents in 1907. After deducting the costs of storing, the stored grain would not sell for quite what it had cost. Instead there would be a loss of about 6 million dollars.

Turning to the farmers' end of the transaction: As a result of the storage operations, they would have sold the 1906 crop at 10 cents more per bushel than they actually did, and the 1907 crop at 9.3 cents less. The 1906 crop was 757 million bushels; its value would have been increased from 537 million dollars to 613 millions. The 1907 crop was 730 million bushels; the reduction in price in 1907 would have reduced its value from 584 millions to 524 millions. . . . The storage operation would thus have increased the value of the 1906 crop by 76 million dollars, but reduced the value of the 1907 crop by 60 million dollars, leaving farmers a net gain of 16 million dollars. If the 6 million dollars lost by the storing agency were deducted from this, there would still be a net gain of 10 million dollars on the transaction.

The result of the storage operations in the other years when prices were low has been figured out in exactly the same way, except that in one case it has been assumed that wheat would be purchased and stored in two consecutive years, in 1912 and 1913, and then sold the third year, in 1914. I will not go into the other operations in similar detail, but will present the conclusions instead.

* * *

Combining the changes in the values of the crop with the

gains or losses on the stored grain for each operation, and deducting 4 per cent interest on the funds employed in storing, the average value of the two crops would be increased by 0.6 cents per bushel in 1906 and 1907, and by 0.2 cents in 1923 and 1924; but the average value of the three crops of 1912, 1913, and 1914 would be reduced by 1.8 cents per bushel. These estimates indicate that there is sometimes a gain to be made by storing wheat for one year, but that there is likely to be a loss if storage operations are attempted for two years in succession.

* * *

Storing, with effects on subsequent production: So far we have been considering the possible gains from storing, assuming that the changes in price to farmers did not affect subsequent production. In the case of some crops, noticeably cotton, it is well known that prices do affect subsequent acreages, so this relation can not logically be ignored. Taking cotton, one of the most extreme cases, as our example, we may therefore ask how storage operations would work out, if we included in our estimates the probable effects of storage operations on subsequent acreages as well. . . .

* * *

. . . prices would have been less variable over the period examined, varying between 15 cents and 26 cents, instead of between 14 cents and 31 cents. Production would also have been more stable, rising less rapidly in the period 1923 to 1925, and declining less in 1927. Farmers' income from cotton would have been more stable, not falling so low in 1921 and 1926, and not rising so high in 1922, 1923, and 1924. This greater stability may be a desirable end in itself; if so, the storage operations would have been satisfactory. But if total income or average price during the entire period be taken as a criterion, the operations would not have been so successful. For the period as a whole, while total income remained about the same, production with storing would have been slightly larger; the weighted average price of cotton to farmers would have been 4/10 of a cent lower per pound with the storage operations; and if the losses on the stored cotton were deducted, prices would have been 5/10 of a cent per pound below the actual average. If smaller amounts had been stored, so that losses on stored cotton were not incurred, or if storage operations had been begun in 1921,

with only one year's operation, the estimated net results might have been more satisfactory.

* * *

Storing hog products: There are but two sources of advan-

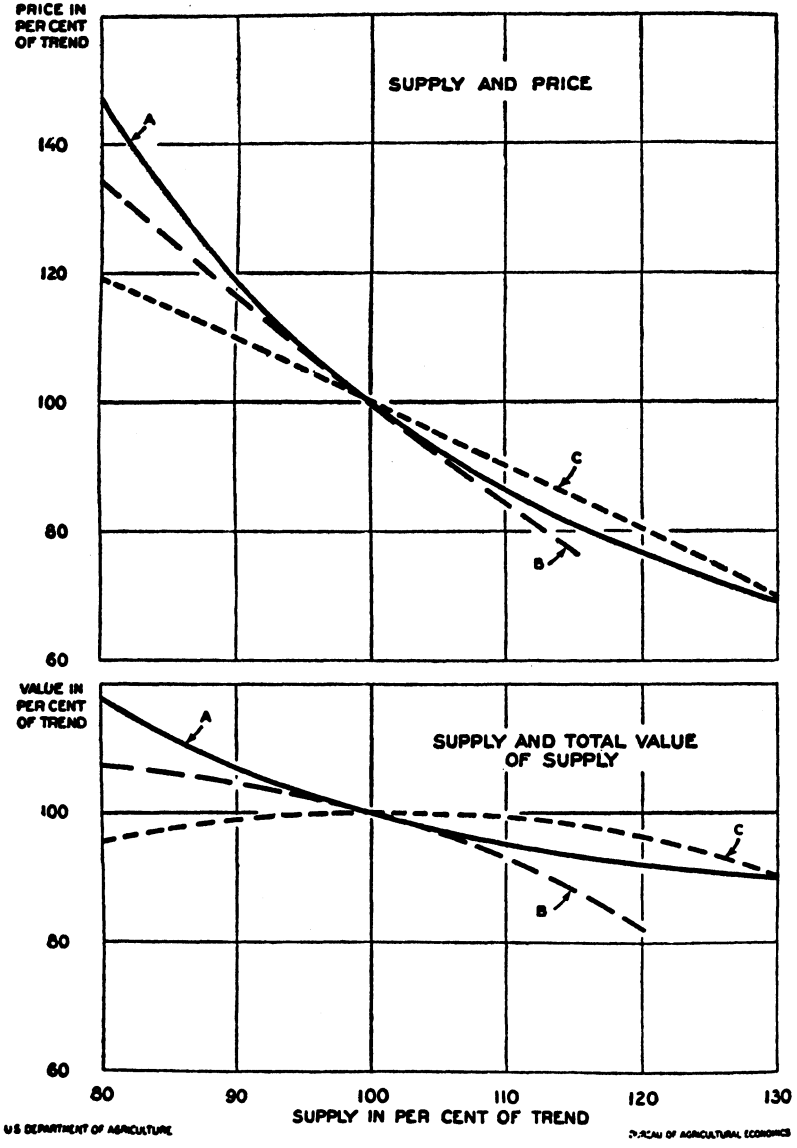


Fig. 4. Three types of supply-price curves.

tage in storing. If the product stored can be sold for more than it cost, and if that profit is secured by the storing agency instead of by others who were previously in the field, then profits may be secured without consumers paying more than they otherwise would have. But there is a second possibility of profit, if the demand by consumers is such that they will pay more for two average crops than they will pay for one large crop and one small one. In that case it is not necessary to displace previous storers in order for the new storage operations to pay profits, as the increased average price would be paid by the consumers.

* * *

The point as to the effect of the shape of the supply-and-total-value curve on the profits from storing has a significant bearing on the accuracy of statistical estimates as to probable gains or losses. Figure 4 shows three hypothetical supply-and-price curves in the upper portion, and three corresponding supply-and-total-value curves in the lower portion. Considering these latter curves first, it is evident that curve A is concave; and hence it would not pay to store that commodity; curve B is somewhat convex, so there might be some profit from storing; while curve C is so convex that a medium supply is worth more than either a large supply or a small supply, and hence storing might pay handsomely. Yet when we turn to the corresponding curves on the upper chart, we see that there is so little difference between A and B that ordinarily we would expect both to give equivalent results; while even curve C is quite similar through its central portions. Not unless our data and technique are sufficiently exact so that we can tell definitely whether or not the relation of supply to price for the commodity with which we are working is similar to curve A on the one hand, or to B and C on the other, can we be confident that our estimates as to profits or losses from storing are correct. The probable error of our curves in many cases is greater than the differences between curves A and B. It is for that reason that I am trying to be so modest in claiming veracity for the estimates presented in this paper; until more complete and reliable basic facts are available, the accuracy of other estimates will be equally limited.

Wartime food supply programs presented special problems of planning storage against future needs. The excerpt that follows gives some simple and useful techniques that can be used in the analysis of such problems.—*Ed.*

3.3.8 Southworth, Herman M. "Determining Goals for Production, Procurement, and Reserves of Food," Unpublished report, U. S. Food Distribution Admin., 1943. Pp. 4–5.

A program to meet alternative possibilities. In summary, if the war should end by the close of this year, even what we have called the maximum possible output of soya flour would be wholly inadequate for meeting relief feeding requirements. Such an early victory in Europe, while generally regarded as over-optimistic, is certainly not beyond the realm of possibility. This is strong justification for going ahead to expand production capacity as rapidly as possible.

If we were to undertake such a program, and if the war did not end so soon, would this mean later back-tracking to avoid producing more soya flour than could be put to good use? Chart IV is an attempt to analyze this problem, and also to illustrate how this method of analysis can be applied in following through a flexible program. It takes account of the wide range of uncertainty in our expectations.

The left-hand diagram represents the situation as it faces us today. What are called maximum and minimum requirements curves are the estimated requirements under assumptions A and C in the previous charts. (All curves in Chart IV are cumulated.) Since even the maximum possible output, as previously described, would not suffice to meet the maximum requirements that may be anticipated, it is proposed that this be adopted at once as the production plan in order that we may be as well prepared as we can for the heavy requirements that we may face. If the maximum requirements materialize, we would expect to accumulate and use up reserves as indicated by the cross-hatched area, running short about March of next year.

If, instead, actual requirements follow the minimum requirements curve, much greater reserves would, of course, be accumulated, and the question arises whether they would not exceed the quantity that could be safely stored without deterioration. Assuming that soya flour and its products can be stored for as long as 12 months, this limit can be indicated simply by shifting the requirements curve ahead 12 months. This gives curve R; so long as output does not rise above this curve reserves that are accumulated can be turned over within the 12 months' period of storability. Since the output curve does not cross above R until the end of January 1944, we may say that this is a "safe" program up to somewhere near that date. The program will need to be reexamined

far enough in advance of that date to permit planning readjustments if necessary.

The center diagram on Chart IV represents such a re-appraisal of the program, on August 1, 1943. It assumes that requirements

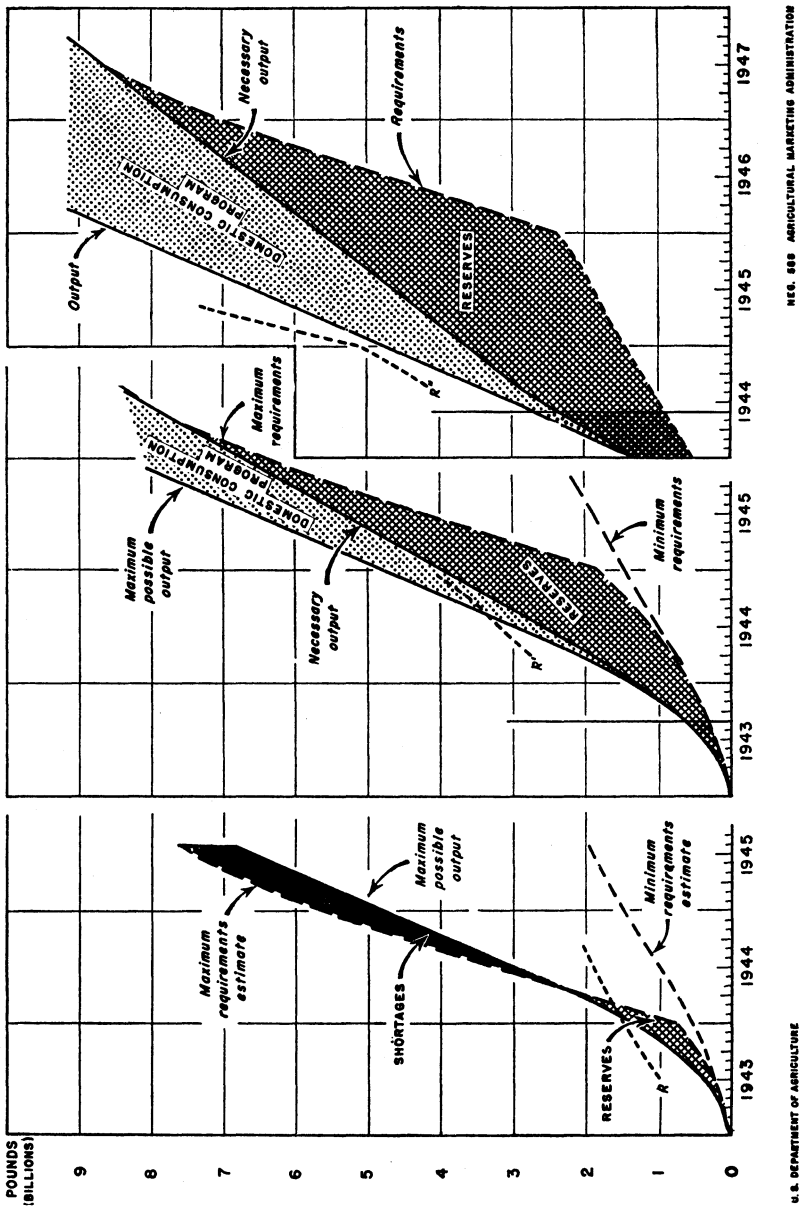


Chart IV. Soya flour — successive stages of program.

up to that time have stayed at the lower level, so that reserves have accumulated as indicated by the heavily cross-hatched area and there is some danger of over-expansion. New maximum and minimum requirements estimates are drawn, and for illustration we have used the figures for assumptions B and C on the preceding charts. (Actually, of course, our increased knowledge by that time should enable us to make new estimates that would improve on these curves.) The program of output now exceeds even the maximum estimate of requirements. A production curve like that labeled "necessary output," drawn tangent to the maximum-estimate-of-requirements curve, would suffice to meet these needs.

This sets the limits within which the program must be revised. Output expansion may be held down to this level (2.75 billion pounds per year) or a domestic consumption program may be initiated to use up some or all of the excess supplies of 850 million pounds per year that would be produced under the original plan. For purposes of simplicity in presenting this illustration, it is assumed that a full-scale domestic consumption program is decided upon. The new plan as illustrated by the diagram then becomes as follows: Production to continue along the maximum output curve, that portion of supplies indicated by the dotted area to be moved into domestic consumption, and that portion indicated by the cross-hatched area to go into reserves.

The question again arises whether this involves storage stocks greater than can be turned over within limits of storability in case requirements should again develop only at the minimum level. To test this a new curve, R′, is drawn representing the combined domestic and overseas requirements moved ahead 12 months. This shows that the new program can be considered "safe" up to about July 1944.

The right-hand diagram on Chart IV indicates a second reappraisal of the program on, say, May 1, 1944. It assumes that requirements again have continued at the minimum level and that military developments justify giving up any hopes that the war will be over by the end of that year. . . .

3.4 Changes in Form

We turn now to the third kind of utility provided in marketing.—*Ed.*

3.4.1 Thomsen, Frederick Lundy. *Agricultural Marketing.* McGraw-Hill, 1951. Pp. 70–71, 75–76. Reprinted by permission.

The processor of agricultural raw materials, such as cotton, wheat, milk, and hogs, transforms the materials into finished

products: cloth, bread, cheese, and meat. In doing so, he adds *form utility*. Although the addition of form utility frequently involves a radical change in the appearance and other characteristics of the product, it may consist merely in subtracting a part of the original product, as when celery is trimmed. Such operations as washing a vegetable, pasteurizing (heating) milk to kill the bacteria in it, or aging beef in the cooler may be considered as processing which adds form utility.

* * *

Processing. Very few agricultural products are ready for final consumption when they leave the farm. The marketing system must convert them into suitable form before they can be disposed of to consumers. Livestock must be converted into meat, cotton into cloth, wheat into flour and bread, flaxseed into oil and paint, and so on. At least 90 per cent of all farm goods produced in the United States, on a farm value basis, require some form of processing after leaving the farm.

Processing is essential before some commodities, such as wheat and livestock, can be used at all. For others, such as fruits and vegetables, it helps to conserve the surplus production of one season for use in another and to prevent the waste of low-grade, overripe products unfit for shipping or consumption in the raw state.

Some of the processing operations seem far removed from farming and of little interest to farmers. For example, there are several layers of cotton-goods processors, including mills which produce yarn and some types of fabrics, weavers, converters, finishers, dyers, clothing manufacturers, etc. One marketing economist recently said, "One can hardly think of this shirt I have on as being an agricultural product, any more than an automobile can be considered as a product of coal, although much coal is used in making the steel consumed in fabricating an automobile and cotton is used as raw material for the shirt."

Yet whether or not men prefer a cotton shirt to a nylon shirt is extremely important to cotton farmers, and this depends in no small measure on what happens in the processing plants which contribute to the shirt's production. . . .

> Most discussions of processing assume that its primary purpose is to adapt products to different end-uses of consumers. Actually, a great many changes in form of farm products are partly an adjunct of other marketing operations, such as transportation or storage. Canning, freezing,

and other methods of preserving perishables make storage of them possible. Evaporation and dehydration of milk not only make storage possible but also greatly reduce transportation costs. Conversely, the availability of transportation or storage facilities may greatly affect the form in which a commodity is marketed. This was a major factor in a spectacular event in the early history of the American republic.—*Ed.*

3.4.2 Beard, Charles A. and Beard, Mary R. *The Rise of American Civilization.* Macmillan, New York, 1934. Pp. 357–58.

. . . To aid in meeting the increased charges caused by the assumption of state debts, Congress in 1791 after a savage debate passed an excise law laying, among other things, a tax on spirits distilled from grain — an act especially irritating to farmers in the interior already marshaling under opposition banners. Largely owing to the bad roads, which made it hard for them to carry bulky crops to markets, they had adopted the practice of turning their corn and rye into whiskey — a concentrated product that could be taken to town on horseback over the worst trails and through the deepest mud. So extensive was the practice in the western regions of Pennsylvania, Virginia, and North Carolina, that nearly every farmer was manufacturing liquor on a small scale; the first of these states alone according to the reckoning had five thousand distilleries. The excise law, therefore, provided in effect that government officers should enter private homes, measure the produce of the stills, and take taxes for it directly from the pockets of the farmers.

As soon as the news of this excise bill reached the interior, an uprising followed — an outbreak of such proportions that Congress, frightened by the extent of popular dissatisfaction, removed the tax from the smallest stills and quieted the farmers of Virginia and North Carolina. In Pennsylvania, however, the resistance stiffened. Some of the distillers in that state positively refused to pay the tax; while rioters sacked and burned the houses of the collectors just as Revolutionists thirty years earlier had vented their wrath upon King George's agents for trying to sell stamps. When at length a United States marshal attempted to arrest certain offenders in the summer of 1794, a revolt known as the Whiskey Rebellion flared up, resulting in wounds and death.

Packaging is another marketing operation that, while it does not change the physical or chemical constituency of the product itself, nevertheless changes the form in which it passes through marketing channels or reaches the con-

sumer. Packaging, like processing, is for most products a necessary adjunct of transportation or storage.

"Prepackaging" or packing in consumer-size containers has been a subject of great interest in recent years. Much of the discussion has centered on packaging for sales-promotion—a subject discussed in Section 8. Prepackaging is a necessary counterpart of self-service retailing through super-markets. The best methods and materials for consumer packaging of green groceries is still a very active research problem.—*Ed.*

3.4.3 "Association Survey Discloses Food, Labor, and Transportation Savings Made by Prepackaging Industry," *Pre-Pack-Age*, Feb., 1951. P. 11.

Nature of the Industry: (a) Conception of Prepackaging; Produce prepackaging is a direct outgrowth of the trend toward self-service retailing, and self-service is an outgrowth of the demand by retailers for cheaper, better methods of merchandising. This reason for the original conception of prepackaging often obscures the economic reasons for its existence today as an organized industry.

Produce prepackaging would not exist today in any recognizable industry form if it were not true that the costs of packaging are more than made up through the savings effected in waste, labor and transportation. Unitizing of produce prior to retail sale is justified solely on these grounds. And as a result of the savings achieved through prepackaging it is possible for consumers to get better, fresher produce at no increase in price, and for the country to enjoy a more complete utilization of its food production facilities with savings in critical manpower, food and transportation.

To appreciate the function of prepackaging it is necessary clearly to understand that the prepackager employs the efficient use of labor to perform essential services that would otherwise have to be performed inefficiently at the retail store; and that in the performance of these services, which save labor, he also makes vastly important savings in waste and in transportation.

(b) *What Prepackaging Does*: Prepackaging makes fresh perishables less perishable; retains fresh quality for a longer period of time; and performs a servicing job for grower, retailer and consumer that effects a saving in waste, labor and transportation. Prepackaging is not a processing operation like freezing and canning, but accomplishes an extension of shelf life through the act of packaging itself. In many cases prepackaging effects a more complete utilization of farm products—notably in the cases of salad mixes, mixed vegetables, celery hearts, etc. Farm

products are utilized here which would not normally get into the channels of distribution, but which are high in quality and freshness.

Prepackaging Protects: What prepackaging does varies according to the farm product involved. In the case of soft fruits its function is principally protective — to protect against damage in transportation from farm to market; and from excessive handling and damage in distribution and retail sale. In the case of some vegetables, such as sweet corn, carrots, cauliflower, broccoli, etc., prepackaging at the source makes great savings in transportation. In the case of practically all vegetable products prepackaging helps prevent excessive retail wastes through elimination of retail handling and extension of shelf life.

Grading, especially as it involves sorting and culling or other standardizing operations, also affects the form utility of commodities. The whole subject of grades, grade standards, and inspection is discussed in Section 6.

Before World War II we had surpluses of many farm products. Some were dumped on the market, some were destroyed, and some were "diverted." Diversion operations included many things: for example, export subsidies, the food stamp program, and the cotton mattress plan.

When a product goes into different uses, the price it will bring in a competitive market is determined by the lowest priced use that is made of it. In seasons of large supply, wheat sells at feed-grain prices, potatoes at the price paid by starch factories that normally buy only culls. If a basis can be found for price discrimination between different forms or uses, returns to farmers can often be greatly increased. This is an objective of the class pricing of milk discussed in an earlier section.

In such a case an important economic decision is how much to sell in each form. To maximize producers' income, the amounts sold in the various forms should be so adjusted as to equalize marginal net returns to the farmers. Hoos and Seltzer made a very interesting statistical analysis to determine what proportion of the California lemon crop would be sold in fresh form, and what proportion processed, in order to return the greatest possible income to lemon growers.—*Ed.*

3.4.4 Hoos, Sidney and Seltzer, R. E. "Lemons and Lemon Products: Changing Economic Relationships, 1951–52," *Univ. of Calif. Bull. 729.* Pp. 54, 55, 56, 58, 59.

Allocation of the Crop to Fresh Market and to Processing. The preceding analyses of supply allocation have been oriented to and pertain directly to the distribution of fresh shipments be-

tween the winter and summer season. Allocation to processed lemon products outlets was considered only indirectly, and only in the sense that the supply not shipped to the fresh markets would be available for processed utilization. There appears to be the suggestion, in the available evidence, that in most years the marketing of the lemon crop has followed such a pattern. There does exist, however, a question concerning the "optimum" allocation of the lemon crop between the fresh and processed markets. Yet, such a question is not very meaningful unless the "optimum" is specified in reasonably precise terms.

* * *

Rather than viewing price-equalization or returns-equalization as the objective of allocating a given lemon crop between the fresh and processed markets, another objective may be selected which from many viewpoints may be considered as more rational. This third allocation policy may be termed as revenue maximization; it involves distributing the crop among the two outlets in such a manner that the money revenue derived from both outlets together sums to the largest amount possible or a larger amount than could be obtained by using any other allocation.[1]

There may be practical or administrative reasons why an allocation policy yielding maximum revenue cannot or should not be followed, but from the view of objective standards or alternative policies to be considered, it is of considerable significance.

* * *

From the view of maximizing on-tree total returns, the evidence so far suggests — but does not show conclusively — that the industry has tended somewhat to overship to the fresh market and channel correspondingly lower quantities to the processed market outlets.

* * *

Therefore, rather than insisting that the optimum percentage allocation of the lemon crop between the fresh and processed outlets for the next several years is about 55 per cent for the fresh and about 45 per cent for the processed, a less firm projection is

[1] The revenue-maximizing distribution may be indicated as follows, where: $p_1 = a_1 - b_1q_1 + c_1q_2$, and $p_2 = a_2 - b_2q_2 + c_2q_1$ are demand functions; p and q are price and quantity, respectively; subscripts 1 and 2 are fresh and processed, respectively; and $q_1 + q_2 = Q$, a given value such as the total crop to be distributed. The revenue-maximizing distribution is such that

$$q_1 = \frac{a_1 - a_2 + (2b_2 + c_1 + c_2)\,Q}{2\,(b_1 + b_2 + c_1 + c_2)}, \text{ and } q_2 = Q - q_1$$

advisable. It might be expressed as follows: During the next several years, consideration might well be given to gradually decreasing the percentage of the crop allocated to the fresh outlet and correspondingly increasing the percentage of the crop going to the processed outlet. Such a change in crop allocation, though, merits consideration only if industry policy and objective are oriented in the direction of increasing the industry's total returns, on-tree basis, from the lemon crop.

3.5 Transfer of Ownership

Since the days of Adam Smith, economists have generally recognized that exchange was necessary to specialization and, thus, to high productivity. Wherever trade is difficult, risky, or expensive, standards of living are low. Anything which makes trading easier, safer, or cheaper, helps to make specialization possible — permitting greater benefits in place, time, and form utility.

This is not to say that we can be prosperous by taking in one another's washing. Trade is not necessarily beneficial in all cases. If I trade my dollar for your dollar, we have carried out a "zero-sum activity" from which neither of us benefits. In a sense, the same could be said if I pay you a dollar for a dollar's worth of beans. Neither of us has added to the national income.

In the United States, where modern marketing operations are highly specialized, farm products are usually bought and sold many times before they are finally consumed. Some say they are "turned over seven times" (i.e., bought and sold seven times), and conclude that each dollar of farm income becomes seven dollars of national income. The editor does not subscribe to this view. He believes that most trade is useful primarily because it makes specialization possible.

We do not want to be dogmatic about this view. In a sense, at least, exchange often is not a "zero-sum activity" but an activity which benefits both the buyer and seller. Black and Houston state the case in our next reading.—*Ed.*

3.5.1 Black, John D. and Houston, Neil T. "Resource-Use Efficiency in the Marketing of Farm Products," *Harvard Studies in Marketing Farm Products*, No. 1-H, Cambridge, Mass., June, 1950. P. 3.

. . . The can of peas that finally reaches a consumer in Philadelphia may be the identical can that left a canning factory in Wisconsin six months earlier. But it has been transported, stored, labelled and wrapped in a paper cover, and finally placed in the hands of a person really ready to consume it. Commonly a certain amount of sorting, processing and packaging accompanies the foregoing. The most pertinent of all the operations have been the

buying and selling. It is these that have taken the goods out of the hands of those who produced them only to sell them and distribute them among those who have the largest use for them. A large fraction of the utility created in the distribution process is pure possession utility — often more than half of it; and it is this part of it that is peculiar to marketing and especially to be analyzed in marketing research.

There are no reasons to expect, of course, that these buying and selling and other distributive services are the same per unit for all farm products, nor proportional to value, cost of inputs, or any other similar common denominator. Any strictly accurate determination of output must measure the utility added to each separate lot of goods moving through the channels of trade, possession utility along with place, time, and form utility.

Whether or not we accept Black and Houston's view of pure possession utility, changes of ownership are important in agricultural marketing simply because they are numerous and expensive.

One of the motives of vertical integration has been to eliminate some of the transfers of ownership which would otherwise be necessary. All of us are familiar with the old slogan "Kalamazoo — direct to you" typifying the claim of price reductions based on such savings. A similar motive is one of the forces behind direct marketing of farm products, previously discussed in the case of livestock, and exemplified also in the publicly operated farmers' markets in many cities and the rise of roadside stands along rural highways. That non-integrated marketing channels continue a healthy existence in competition with direct selling indicates, however, that they provide services for which many farmers and consumers are willing to pay, or achieve efficiencies in operation that offset the costs of added transfers of ownership. Actually, the trend in our increasingly specialized economy has been in the opposite direction — toward more and more complex transfers of ownership in the marketing process. This has been facilitated by the growth of the legal instrument of contract, through which ownership is divorced from the actual physical transfer and possession of goods. The evolution of contract law in modern history is described by Commons.—*Ed.*

3.5.2 Commons, John R. *Institutional Economics.* Macmillan, New York, 1934. Pp. 391–93.

Prior to the Sixteenth Century there was comparatively little buying and selling. It was limited to fairs and commercial boroughs. Only landlords and wealthy people could make contracts which the common-law courts would enforce. These people

were distinguished above all others in that each had a seal which he could stamp in the wax on a lengthy document, as evidence of his promise to pay. It was named a "specialty." The transaction required time and solemn formality. It remains today in the sale and mortgage of real estate, though, under the Torrens system originating in Australia, even these formalities are done away with by a simple system of registration similar to the registration of ownership of automobiles.

But the merchants, who bought and sold commodities, did not have leisure, wealth, or political power. Their "parol" contracts could not always be enforced in court. But during the Sixteenth Century they became necessary and influential. The courts must now devise a way to enforce their hundreds and thousands of contracts. After several years of experiment the ingenuity of lawyers invented a simple assumption, which they read into the minds of the parties to a transaction. It was the assumption that merchants did not intend to rob, or steal, or misrepresent, but they intended to do what was right. This meant that if a merchant physically delivered a commodity to another person with the intention of making him the owner of it, then the other person intended to pay for it. Even if the price was not mentioned he intended to pay what was right. He assumed the duty to pay.

This is the "parol" contract, or rather, the behavior contract. Since the Statute of Frauds it is limited to contracts of small amounts. Yet it remains in the rules of the stock exchange where millions of dollars' worth of property is transferred in a few minutes by mere signs between frenzied brokers, the contracts to be enforced by the Stock Exchange itself, although they do not become enforceable in court until written. When a foreman accepts the product of a laborer, or the materials from a supplier, the corporation intends to pay for it. We take this intent for granted *now,* as a law of nature; but it was the invention of lawyers four hundred years ago. Mere acceptance of commodities creates a lawful debt, even though, psychologically, there may have been no intention to pay.

But this was not enough for the merchants. They needed also the legal power to buy and sell debts. It required the entire Seventeenth Century for lawyers to complete the invention of the negotiability of debts. What the merchants wanted was to convert their debts into money . . .

* * *

. . . Here another difficulty stood in the way. A promise had

been considered a duty to fulfill the promise only to the person to whom the promise was made. It was a personal matter. A promise to work,[1] a promise to marry, cannot even yet be sold to a third party. It would be slavery, peonage, or concubinage, under the guise of freedom of contract. But why should not a promise to pay legal tender money, in specified amounts at specified dates, be sold to third parties in exchange for goods, even though the money is not yet in existence? It required not only the Seventeenth Century but all of the centuries following to invent ways of making this kind of promise negotiable. In the end, the law of "negotiable instruments" became a body of legal arrangements that converted the mere expectations of money into money itself.

By contracting, a buyer in one part of the world can obtain ownership of a good in another part of the world that he will never see. Or he can buy certain rights of ownership without purchasing all, as in leasing a property for a limited period. Similarly, a seller can retain the right to employ a good for a particular use while disposing of all further ownership rights, as in the case of the miller who sells the flour to be made from wheat in his bin. Moreover, a seller can sell an item he does not have or which is not yet in existence by contracting a debt. Some examples of the role of contracting in agricultural marketing follow.—*Ed.*

3.5.3 Baer, J. B. and Saxon, O. G. *Commodity Exchanges and Futures Trading.* Harper, New York, 1949. Pp. 11, 127.

In many quarters it is customary to speak of exchange markets as the only organized markets. This practice ignores the specialized physical markets for particular staples and the slow, tedious, and evolutionary processes through which, over the years, operators in these physical markets gradually, by trial and error and by patient cooperative efforts of all elements in each trade, developed highly organized centers and efficient trading techniques before the idea of the exchange was conceived. In fact, the commodity exchange is merely the newest addition, the latest development in this evolutionary process.

* * *

. . . To call the exchange market the futures market (as is the common practice) is to imply that the physical market does not deal in contracts for forward delivery, when in fact the great

[1] Exception has been made in cases of *irreplaceable* labor, such as actors and baseball players.

majority of the contracts of the physical market call for delivery in future months. . . .

3.5.4 Weld, L. D. H. *The Marketing of Farm Products.* Macmillan, New York, 1924. Pp. 51–53.

Sales by Contract. Sale by contract means that the seller agrees to deliver goods in the future, often at a stipulated price, but sometimes merely as an assurance that he will turn over all or a certain part of his output to a dealer or commission man who agrees to market the goods to the best advantage. The actual terms of sale may therefore involve any of the methods described above, and, in fact, the contract is used in a great variety of ways. Canning factories and beet sugar factories often enter into contracts with growers in the neighborhood to take the product grown upon a certain number of acres. Large creameries enter into short-time contracts with dealers to deliver a certain number of pounds of butter per week during the storage season. The growers of cantaloupes in California in return for money advanced to grow crops enter into contracts with large distributing firms to turn over their output to them. Under similar circumstances Florida tomato growers enter into contracts with brokers or dealers to turn over their output to them to be marketed.

One of the commonest instances of selling under contract is practiced by wheat growers, who contract to deliver their wheat to local elevators at stipulated prices sometimes before the wheat is harvested. During the spring of 1915, for example, Kansas farmers were contracting to sell their crops to local elevators for one dollar per bushel. The difficulty with this method is that when the price rises to a point above the contract price, farmers are inclined to haul only a part of their wheat to the elevator with which they have contracted, and to haul the rest to some other shipping point to be sold at the current price. On the other hand, if the price falls below the contract price, the farmers always haul in every bushel — in fact it is intimated that they sometimes deliver grain belonging to neighbors who are not under contract. During 1914 many farmers in Kansas had contracted to deliver their wheat at sixty-five cents per bushel, not anticipating the phenomenal rise in price which occurred after the outbreak of the war in Europe, and the local elevators encountered considerable difficulty in securing the fulfillment of these contracts. Although there are advantages to both seller and buyer in the contract method, it is not certain that it is best for farmers to use it in the grain business.

3.5.5 Lyon, Leverett Samuel. *Hand-To-Mouth Buying.* The Brookings Institution, Washington, D. C., 1929. Pp. 16–17.

Agriculture furnishes a most striking case of a gigantic industry with comparatively small amount of order-placing in advance. The great bulk of the nation's crop of corn, wheat, livestock, and cotton are produced at the risk of the farmer without the hedge of advance orders, with, indeed, comparatively no commitments on the part of anyone to buy at a satisfactory price, or even to buy at all. Even in agriculture, however, the advance order is by no means unknown. Wool is bought "on the sheep's back" months before the sheep has grown it. At times calves are contracted for before they are born. Crops of vegetables for canners are frequently produced "under contract." Wheat and cotton are often bought before harvest.

3.5.6 United States Department of Agriculture Livestock Market News. *Range Sales Report.* Reports dated as indicated.

Feb. 24, 1951. West Texas. 400 yearlings $35.00–36.00 for June delivery, 600 yearlings $30.00–31.00, October delivery. 800 choice Angus steer and heifer calves $40.00 for November delivery. 560 two-year old steers at $32.50 for September delivery to average around 1,100 lbs. 700 mixed calves at $35.00 for October delivery. . . .

Feb. 24, 1951. San Francisco. Around 15,000 head of cattle are now under contract in the Oakdale, Ladino clover, region of California. . . .

The bands of California spring lambs, totaling 4,600 head, were contracted this week in the Northern San Joaquin Valley about half for late March delivery at $36.00 fat basis with the balance later at grower's option at $35.00. . . .

Mar. 31, 1951. Billings. . . . In the Jackson Area, 500 head of Choice yearling Hereford steers were contracted at $35.00 for January, 1952 delivery when it is estimated they will weigh around 825 lbs. . . .

Mar. 31, 1951. Spokane. . . . it was estimated that 85 per cent of the Oregon new crop lambs were under contract, but very few Washingtons or Idahos.

April 7, 1951. San Francisco. California Spring lambs are now moving to slaughter in substantial volume. Practically all of these were contracted early, but sizable numbers have been resold to packers. . . .

June 16, 1951. Denver. . . . One Colorado man sold two cars of yearling heifers in Texas at $34.00 which he had under earlier

contract at $39.00 and also disposed of two cars of yearling steers at $34.75 which he had under contract at $40.50. These cattle went to Colorado buyers for immediate delivery. . . .

July 28, 1951. San Francisco. . . . Among contracts on yearling steers for September, October and early November delivery were close to 1000 head in various sections of Western Wyoming at $32.50 and a string of around 400 head of high Choice at $33.50, while a few Medium and Good yearlings went at $31.25; around the Northern section of Utah a few hundred head of yearling steers went at $32.50 and a few loads of 2-year olds at $31.25; likewise, a few hundred head of yearling steers were contracted in Northwestern Nevada at $32.50 and a scattering in other sections of the state at the same price. In the Texas Panhandle several hundred head of Choice 2-year old steers attracted bids of $32.00, but asking prices were mostly around $33.00.

Deals on calves for October and November delivery to California included close to 300 head in Idaho at $36.75 on steers and $35.75 on heifers, close to 100 head of steer calves in Utah at $36.25 and a few hundred in Montana at $34.75 on heifers and $36.50 on steers. . . .

Clover pastured fat lambs were offered freely in California early in the week at $28.00, but buyers lacked any display of interest. Packers already have large numbers under contract which are ready for slaughter. . . .

July 28, 1951. Spokane. . . Two cars Northeastern Washington lambs averaging around 100 lbs., contracted in June at $30.00, were delivered this week to Western Washington packers. . . .

Sept. 1, 1951. San Francisco. . . . Demonstrating faith in the future, to say the least, were deals whereby Inter-Mountain yearlings not yet delivered into California, were put under contract for May to August 1952 delivery as fats off range grass or clover pasture at $34.00. These were cattle of "Good Brands" in the hands of experienced pasturers.

Sept. 29, 1951. San Francisco. Trade members indicate that the bulk of the cattle, calves and lambs in Utah, Idaho and Eastern Oregon are now held under contract. . . .

Oct. 6, 1951. San Francisco. Generally speaking, most of the large strings of cattle are held under contract with only small scattered lots still being offered. . . .

Oct. 20, 1951. Billings. Indications were this week that the majority of the livestock available for marketing this fall at country points in this region have been committed on contracts

closed earlier in the season, and a large proportion of them are being currently delivered. . . .

November 24, 1951. Spokane. . . . Bulk of the stocker and feeder cattle and calves are already under contract or delivered and those changing hands currently were mainly at market points.

The preceding three excerpts illustrate the varied uses made of contracts for future delivery of farm products. Yet none of the types of sales described was on the organized commodity exchanges. Such unorganized advance contracting has been given relatively little systematic attention by marketing economists.

"Futures trading" on the organized markets, by contrast, is the subject of a voluminous literature. The specialized types of contracts dealt in on these markets represent a further stage of evolution. As organized markets developed, they provided facilities and services for executing purchase and sales contracts, and established rules to govern trading. The terms of sale in many contracts for future delivery tended to become standardized, and for some commodities uniform types of contracts developed with standard settlement dates. These *futures* have come to be traded in large volume, with most of the buyers and sellers intending not the actual delivery of commodities in fulfillment of the contracts, but the settlement of them at maturity through offsetting one against another in a clearing-house operation. Very elaborate institutional arrangements have developed for dealing in these futures contracts on organized exchanges.

The large and continuous volume of trading on these markets, the ready availability of standardized price data from them, and the strongly controversial public attitudes that have developed regarding futures trading have both attracted the economist's attention and furnished him data for analysis. In the economics literature, particular attention has been given to the use of futures contracts for *hedging,* through which business firms dealing in commodities offset their operating positions by taking an opposite position in futures. This practice is treated chiefly as a means for shifting the risk of adverse price change to those who retain open positions in futures. Such parties are known as *speculators,* frequently defined as specialists in risk bearing. The effects of speculation, especially its influence upon prices and price stability, have furnished subjects for much controversy.

Most of the remaining excerpts in this subsection are concerned with this aspect of futures trading. First we present four statements on the general nature and purpose of futures trading in farm products.—*Ed.*

3.5.7 Beveridge, E. A. "How To Hedge Commodities," *Commodity Year Book, 1949.* Commodity Research Bur., New York, 1949. P. 16.

At the outset it is well to note there are two types of commodity markets, (1) those that have rules covering transactions in "spot" or "cash" commodities, sometimes conveniently referred to as "actuals" or commodities on the spot, i.e. immediately available, including specific lots at times and (2) those that have rules covering transactions for the delivery of a commodity during a stated month in the future, generally known as "futures." The nomenclature used to distinguish the two is not very scientific for under the first classification it is also possible to have transactions for deferred delivery which would tend to place them in the second classification. Moreover, it will be seen that a "futures" contract itself involves the delivery of the spot or actual commodity and is therefore merely a special form of spot contract.

The real distinction between the two, i.e. between so-called spots and so-called futures, is that the spot transaction is between the buyer and the seller for the sale and delivery of goods, now or later, under terms specifically agreed to by the two, with each looking to the other and to no one else for the due fulfillment of the agreement. On the other hand, a futures contract is one between a buyer and a seller for the delivery of the spot commodity under standardized terms, with the right of transfer of the rights and obligations of the contract to another party by either of them, through the instrumentability of the Exchange's affiliate, the Clearing House. In other words, in futures trading there must be a standardized contract and a clearing system. In spot trading, there is privity of contract.

One thing to be noted is that most exchanges, in grain for example, are of the "spot" or "cash" variety, where actual grain is bought and sold, such as the Omaha Grain Exchange, whereas futures markets in grain are few in number. . . .

3.5.8 Mehl, J. M. "Hedging in Grain Futures," *U. S. Dept. Agr. Cir. No. 151,* Washington, D. C., June, 1931. P. 5.

Much misunderstanding will be avoided if one bears constantly in mind that a sale of May wheat is not really a sale of wheat, but is the establishment merely of certain contract rights that involve wheat. Unless superseded by other agreements in the meantime, these contract rights normally culminate in an actual sale of wheat. Until completed by the delivery of wheat, however, they exist only as contract rights. It is through the

convenient means provided for making and passing from one person to another these contract rights that future trading on a large scale is made possible in an organized and orderly manner.

Considered from the viewpoint of the hedger, the futures market would be of little value if agreements to buy and agreements to sell could not be transferred quickly and freely from one owner to another and settlements made on the basis of existing price differences. Generally speaking, the hedger is not interested either in making delivery or in taking delivery but wants merely to hold temporarily certain contract rights in order to be protected against possible adverse changes in price. Unless he can rely upon an instantly available opportunity to either buy or sell futures in amounts to balance his cash-grain risks the futures market ceases to be for him a practical medium of protection.

3.5.9 United States Department of Agriculture. "Trading in Commodity Futures," Commodity Exchange Admin. No. 14, Washington, D. C., 1938. Pp. 2, 29.

. . . Nevertheless since they [futures contracts] can be converted into the actual commodity this possibility holds their prices in continual alignment with spot prices. It is for this reason that futures trading and futures prices assume public importance. The trade in futures contracts is of sufficient magnitude to exercise at all times a directing influence upon spot prices in central as well as local markets. This price-directing function of futures trading is regarded by many as the principal function of organized commodity exchanges.

A second important function of these markets is that of hedging or price insurance. The futures trading system is utilized by merchants, processors, and distributors, as a means of eliminating the risks of price fluctuations. They are interested only in their expected profits from processing, handling, or distributing the actual physical commodity. Through the use of futures transactions they transfer the risk of price change to the shoulders of speculators who desire to asume such risks in the hope of securing a profit from price changes.

These services are performed through the operation of commodity exchanges which furnish broad and continuous markets upon which contracts for future delivery are executed. Through their elaborate quotation and news facilities they also serve as clearing centers of trade information. And because the quota-

tions and news are followed and acted upon by many traders, both buyers and sellers, these exchanges produce a highly competitive as well as highly sensitive price structure.

* * *

If traders accurately weigh the fundamental factors which determine prices, the prices will truly reflect basic conditions, but if trading judgment is incompetent or untimely, prices will not accurately reflect fundamental conditions. It is equally important that a futures market should be free of manipulation or arbitrary influences if it is to serve as a barometer or indicator of the prevailing world prices of a commodity.

3.5.10 Howell, L. D. "Analysis of Hedging and Other Operations in Grain Futures," *U. S. Dept. Agr. Tech. Bull. No. 971,* Washington, D. C., Aug., 1948. Pp. 61, 13, 62.

The usefulness of futures contracts as hedges depends mostly upon the extent to which changes in cash prices are associated with similar changes in prices of futures contracts. Data for recent years show that the large swings in cash prices of wheat, corn, and oats usually are associated with more or less similar changes in prices of futures contracts, particularly those maturing before the new crop is available in the market. But cash prices and prices of futures contracts do not always change to the same extent or in the same direction, and the spread between prices of the cash commodity and those for futures contracts varies considerably.

* * *

A supply of grain, made available in a market, that is abnormally large in relation to the demand for it, when relatively smaller supplies are anticipated, may depress cash prices in relation to prices of futures contracts, particularly those for the more distant months. But the extent to which prices of futures contracts may remain above cash prices at delivery points under such conditions would appear to be limited fairly definitely to an amount equal to the costs of carrying grain to the date of maturity of the futures contracts plus the costs of making delivery on futures contracts.

A relative shortage of grain immediately available in the market along with the anticipation of relatively larger supplies tends to raise cash prices of grain in relation to prices of futures contracts for the more distant months. But the extent to which

prices of futures contracts may go below cash prices of grain cannot be so definitely indicated as that for the reverse relationship.

* * *

Risks from changes in the spread between cash prices and prices of futures contracts, usually referred to as changes in basis, are not offset by the normal hedging procedure; and they may be responsible for substantial losses on the part of elevators, shippers, exporters, and millers, who may hedge invariably, but who fail to anticipate correctly the changes in basis. Then in evaluating the usefulness of futures contracts as hedges against losses from changes in cash prices, it is important to learn how the risks from changes in cash prices compare with the risks from changes in basis.

* * *

Data for the 17 years 1924–25 to 1940–41, show that changes in cash prices at Chicago over 8-week periods averaged 8.8 cents per bushel for wheat, 7.3 cents for corn, and 3.9 cents for oats, whereas the corresponding changes in basis calculated from near-month Chicago futures contracts averaged 3.2, 4.1, and 2.0 cents per bushel, respectively. Changes in basis averaged about 36 per cent for wheat, 56 per cent for corn, and 51 per cent for oats, of the corresponding changes in cash prices.

One might expect prices of grain and other storables to be lowest at harvesttime and to rise enough during the following year to cover storage costs. Futures prices might be expected to exceed spot prices by a corresponding amount, but actually the reverse situation, an *inverted market,* is quite common. Several British writers have proposed theories to explain this phenomenon. Holbrook Working has brought forward an interesting theory.—*Ed.*

3.5.11 Working, Holbrook. "Theory of the Inverse Carrying Charge in Future Markets," *Jour. Farm Econ.*, Vol. XXX, No. 1, Feb., 1948. Pp. 8, 19–21.

Keynes' explanation of "normal" inverse carrying charges, commonly referred to as his "theory of normal backwardation," ran as follows:

If supply and demand are balanced, the spot price must exceed the forward price by the amount which the producer is ready to sacrifice in order to "hedge" himself, i.e. to avoid the risk of price fluctuations during his production period. Thus in normal conditions the spot price exceeds the forward price, i.e. there is backwardation. In other words, the normal supply

price on the spot includes remuneration for the risk of price fluctuation during the period of production, whilst the forward price excludes this. The statistics of organized markets show that 10 per cent per annum is a modest estimate of the amount of this backwardation in the case of seasonal crops which have a production period approaching a year in length and are exposed to all the chances of the weather. In less organized markets the cost is much higher. . . .

* * *

There is nothing obvious in the behavior of market carrying charges to indicate that they take on a different character when they shift from positive to negative or from negative to positive. Market transactions that are directly related to the carrying charge — purchase and storage of the commodity against sales in the futures markets — tend to be on a large scale when the carrying charge is positive and large, and on a smaller scale when the carrying charge is negative and large, but the transition between these extremes is a continuous one; no sharp change in hedging practice occurs when the carrying charge changes sign.

Carrying charges behave like prices of storage as regards their relation to the quantity of stocks held in storage. Graphically represented, the relation should be that of a supply curve, showing small amounts of storage service rendered when the price of storage is low, and increasing amounts as the price of storage advances. The general form of the curves seems to be like that in Chart 2.

Statistical analysis, treating carrying charge as a price, has shown such relationships to exist, and to be capable in some instances of fairly precise statistical determination. Correlations between stocks and carrying charge tend to be highest for relationships involving carrying charges that often take on large negative values, like that for wheat between May and July in the Chicago market. Clearly, therefore, the supply-curve relationship between amount of storage and price of storage does not break down when the "price" becomes negative.

The statistical results indicate also that the market carrying charge, viewed as a price of storage, is broadly representative. The correlations with the carrying charge in the Chicago market are higher for statistics of all stocks of wheat in the United States than for statistics covering only stocks likely to be hedged, or covering only stocks likely to be hedged in the Chicago

market. Carrying charges recorded in the Liverpool wheat market show similar evidence of representativeness.

The treatment of inverse carrying charges as prices of storage raises some problems of theory. First is a difficulty arising from the logical presumption that no substantial volume of stocks will be carried without assurance or expectation of at least a small return for carrying it. The presumption is not open to question, but it does not necessarily require that the price of storage be positive. For example, people "store" rented works of art in their homes, paying for the privilege. Storage of goods

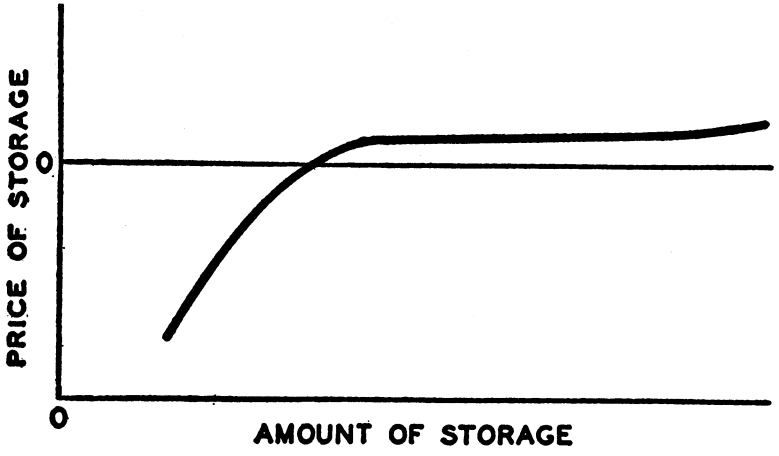


Chart 2. Typical storage supply curve.

without direct remuneration and without expectation of price appreciation is to be observed in every retail store. A merchant might adopt the practice of buying today only what he could be sure of selling before tomorrow, or before the next delivery day, but if he did so he would be unlikely to remain long in business; he must carry stocks beyond known immediate needs and take his return in general customer satisfaction. Merchants who deal in goods that are subject to whims of fashion, or to sudden obsolescence for other reasons, must lay in stocks and carry them in expectation that some part of the stocks will have to be sold at a heavy loss.

These observations illustrate a fact which Nicholas Kaldor has expressed in general terms by saying that "stocks of all goods possess a yield . . . and this yield which is a compensation to the

holder of stocks, must be deducted from carrying costs proper in calculating net carrying cost. The latter can, therefore, be negative or positive."

There have been many arguments about the effect of futures trading upon the prices received by farmers and the prices paid by consumers. This is a difficult subject at best. It is easy to express opinions, to theorize in either direction, or to generalize from extreme examples. But it is not easy to prove conclusively that futures trading either raises or lowers the price of cotton or wheat significantly.

The excerpts that follow express some extreme and some intermediate points of view on both sides of the issue.—*Ed.*

3.5.12 Huebner, S. S. "The Insurance Service of Commodity Exchanges," *Annals, Am. Acad. of Pol. and Soc. Sci.*, Vol. 155, May, 1931. Pp. 1–2, 3–4, 5, 6.

Availability of a Continuous Market: Because of the presence of a large group of speculators, many of them always ready to buy or sell at any particular time, our leading commodity exchanges furnish a continuous market to producers, distributors, creditors, and ultimate buyers. Such a market may be defined as one which enables buyers or sellers to obtain or to dispose of the commodity, even in large quantities, at any time during business hours, and at a price varying but slightly from the last previous quotation. Under normal conditions (and panic conditions are comparatively rare), the daily price range on commodity exchanges is surprisingly small, and all interests in the market may count upon either obtaining or disposing of the commodity at a very small sacrifice as compared with the last recorded quotation.

Because of the existence of such a continuous market, the commodity is given the quality of liquidity. . . .

Moreover, because of the two-sided nature of all organized exchange markets — the "bull" or "long" and the "bear" or "short" sides — there is assurance of a much greater degree of stabilization of prices than would be the case if these two contending speculative forces were absent. . . .

* * *

. . . the owner of $50,000 worth of cotton goes to the speculative exchange market (the insurance institution which is made possible through the existence of four necessary factors: namely, a large body of speculators, a continuous market, a future contract, and short selling) to hedge that value against loss through

a price decline, with a short sale for the same amount. Thereafter he is financially secure, just like the owner of a life value or of a building, since any shrinkage in the value of the cotton is offset by the gain derived from the short sale, which serves the same purpose as an insurance policy.

* * *

Being reasonably assured of their regular trade profit, middlemen are in position to operate on the basis of a smaller margin of profit per unit of commodity than would be possible in the absence of insurance against speculative loss, with the result that the difference between the price received by the producer and that paid by the consumer is materially reduced.

* * *

Prompt and Efficient Financing: Because of the existence of a continuous market and the practice of hedging, our commodity exchanges afford the service of insurance for creditors. Enormous amounts of credit are necessary to the movement of the nation's basic commodities through the various stages from producer to consumer. Bankers are willing to enlarge greatly the volume of credit on commodities dealt in on exchanges (i.e., they are willing to accept a much smaller margin as between market value and size of loan), since they know that the collateral can be sold on a moment's notice in a continuous market which fluctuates but slightly in the course of an hour or a day.

. . . They can afford to be much more liberal by way of volume of credit and interest rates charged with firms who are known to insure their holdings regularly against price declines. . . .

* * *

. . . Uninformed buyers, or those in the trade unable to acquire information regularly from the widely scattered sources, are therefore protected in their purchases or sales of future contracts by a large group of experts whose interpretation of news into current prices furnishes a degree of accuracy much greater than would be the case under a nonexchange system.

* * *

Continuous Price Registration: Without organized exchanges, the individual purchaser or manufacturer would be unable to ascertain the fair price of the commodity. . . .

The Arbitraging Service: With respect to distribution and price, commodity markets are vitally concerned with the just determination of differentials between localities, monthly de-

livery periods, different grades of the commodity, and in some instances (as for example various kinds of grain) different kinds of products of an analogous nature so far as substitution for similar consumption purposes is concerned. . . .

* * *

. . . One of the outstanding services of exchanges is the maintenance of just and equitable principles of trade. . . .

Exchanges represent the organized competitive system as contrasted with the monopolistic. Open cutthroat competition is impossible in large markets, and we must choose between organized competition and monopoly. It would be well for critics of exchanges to understand this. Put an end to our grain, cotton, and other organized exchange markets, and it would inevitably follow that the marketing of the commodity under consideration would soon be under the auspices of some monopolistic system. The risk element would be the principal motivating force, since capital is always unwilling to assume avoidable risk. Monopolies have their method of protecting capital against the hazard of price fluctuations, just as competitive exchange markets have theirs. It is necessary to choose between "risk bearing" and "risk elimination" under a system of centralized ownership of the machinery of marketing, and risk bearing and risk elimination under an organized competitive system which controls the problem for its component competing interests through the various practices discussed in this paper.

3.5.13 Consumers' Union. "What's Wrong With Speculation?" *Consumer Reports*, Vol. 13, No. 3, March, 1948. Pp. 128–31.

Even to consumers inured to unstable prices in an unstable world, the variations in the prices of foodstuffs and textile fibers traded on the major futures exchanges come as a shock. Here are some examples:

Commodity	*1932 Low*	*1947 High*	*Range* (Percentage)
Wheat, per bushel	$0.44	$3.38	767
Corn, per bushel	0.22	2.88	1309
Oats, per bushel	0.15	1.48	986
Rye, per bushel	0.30	4.08	1360
Cotton, per pound	0.05	0.40	800

If other prices had varied since 1932 with the price of corn and rye futures, we would be paying today some $8000 for a *Ford,* and 66 cents for a nickel *Hershey* bar.

* * *

. . . Futures speculation exaggerates price swings. . . .

In addition, futures speculation makes possible price "rigging" in a variety of forms. . . .

1. *Price Toboggans*. . . . Can it be that such disastrous plummetings of price are the result of natural causes? CEA investigations indicate that such is not the case. For example, the official report on the decline of grain prices in the summer of 1933, "the most sensational collapse in futures prices in the history of the Chicago Board of Trade," states: "It was found that the debacle resulted largely from the activities of not more than ten traders, who controlled 15 large speculative accounts . . ."

* * *

It is true that exchange regulations now limit the amount by which prices may fluctuate in a single day; but this merely means that a catastrophic fall in prices will take a few days longer. It is also true that federal regulations now limit the amount of futures which can be held by any one speculator. But speculators can get around this regulation either by placing the accounts in various names, or by acquiring actual commodities as well as futures. Moreover, the same effects achieved in 1933 by eleven large speculators can now be accomplished by the large number of small speculators attracted to the commodity markets since World War II.

2. *Price Inflations*: Equally significant is the liability of futures markets to fantastic price increases.

Traditionally, these extreme increases have been associated with the activities of very large speculators. Thus the July 1931 corner in corn, which drove prices up substantially, was found to have been the work of one speculator, Thomas M. Howell. Howell purchased Chicago corn and corn futures in such quantity that by the end of July he held 85% of all the July corn futures contracts, and in addition owned 100% of all the actual corn deliverable on those contracts. Similarly in 1937, the corner in September corn was found to have been engineered by one grain firm, the world's largest, Cargill, Inc., which purchased some nine million bushels of corn futures as well as all the available cash corn which might otherwise have been used by "shorts" in settlement of their futures contracts. . . .

The 1947 rise in commodity prices, so far as is known, did not result from similar activities on the part of one or a few tremendous speculators. Rather, it was a very large number of comparatively small traders — some of whose names have been

featured in the newspapers — whose speculative purchases, added to the high domestic demand and large exports, helped to force most commodity prices to all-time record levels.

* * *

Attracted in part by word-of-mouth stories of "killings" made overnight by other commodity speculators, in part by low margin requirements as compared with high stock market margins, and in part by the promotion of brokerage firms seeking to make up in commodity commissions the volume of business lost through the decline in stock market trading, commodity futures were bought by small traders who had never done so before. Their speculative purchases, piled on top of a booming domestic demand and government purchases for export, zoomed commodity prices to all-time highs.

* * *

In the light of the actual record of futures price fluctuations, from day to day, from year to year, and from boom to depression, the frequent claim that speculation "smooths out prices" or "stabilizes the market" seems obviously unfounded. It is unreasonable to believe that without speculation rye would have fallen even lower than 30 cents a bushel in 1932 or have risen even higher than $4.08 in 1947. The most that can be said is that futures speculation *may* relieve the market somewhat of seasonal fluctuations, but at the price of making non-seasonal fluctuations even more severe.

Nor can much weight be given the other major defense offered for futures speculation, that it enables merchants to hedge their inventories against price changes. A much sounder way to prevent inventory losses would be to stabilize prices. Short shrift would be given an incendiary who alleged in defense of his arson that he also sold fire insurance; and a system which encourages price fluctuations should not be licensed on the ground that it protects some middlemen against the effects of those fluctuations.

3.5.14 Blau, Gerda. "Some Aspects of the Theory of Futures Trading," *Review of Econ. Studies*, Vol. XII (1) No. 31, 1944–45. Pp. 23, 24, 25–26.

IV. *Has Futures Trading a Stabilising Effect on Prices?*

The advantages of futures trading for different sections of an industry and for the economic system as a whole depend largely on the answers to the following two main questions:

(A) Does futures trading tend to diminish price fluctuations?

(B) Is futures trading an effective instrument for diminishing risks given the price fluctuations?

Clearly, the answer to question B will be the more relevant, the less positive the answer to question A; for, if speculative activity in the futures market were to succeed in minimising risks due to price fluctuations, the importance of getting rid of such risks by hedging would be greatly diminished. . . .

The traditional theory of speculation maintains that professional speculation tends to even out price fluctuations by making "prices advance (or decline) now in anticipation of a later change checking (or stimulating) current consumption with the result that prices later would not need to rise (or fall) to the extent they otherwise would."

It has been pointed out by Keynes, however, that the price steadying effect of speculation cannot be assumed if the market organisation is such as to induce professional speculators to use their superior judgment for forecasting the reactions of other speculators rather than the trend of non-speculative forces in the market. In discussing these possibilities of de-stabilising speculation in the "General Theory," Keynes says, "We have reached the third degree (in the share market) where we devote our intelligence to anticipating what average opinion expects average opinion to be."

* * *

Given an efficient Exchange organisation which can minimise the dangers of corners, squeezes and various other forms of manipulation away from the non-speculative trend, there is reason to assume that the high degree of perfection and market transparence developed by a properly functioning produce exchange will bring forward a certain amount of sound speculation which, to a limited degree, will exercise the steadying influence attributed to it by the classical theory; i.e., due to the discounting of future price changes, the extreme high and low points will be narrowed and reached by easier stages even though the frequency of minor oscillations may be increased.

At the same time, the assumption of a very strong price-stabilising effect of speculation in the futures market is not only not confirmed by statistical evidence but even theoretically impossible; for if this effect were so strong as to lead to a considerable evening out of fluctuations, the inducement to speculate

by transacting in the futures market would be diminished and the falling off in the volume of trading would again diminish the steadying influence on prices. Comparisons of variations in the volume of trading and of the degree of price variability in futures markets reveal a distinct correlation between these two factors. Nor is it surprising that this should be so because expectations of strong price fluctuations are the very motive of all futures trading. Hence there can at best be an "Equilibrium Degree of Price Variability" which induces an amount of speculation the stabilising effect of which is not so marked as to lead to a falling off in the volume of transactions.

The conclusion that the price steadying influence of futures trading is necessarily limited, enhances the importance of the other function of futures trading — i.e. the offering of facilities for getting rid of risks given the price fluctuations.

3.5.15 Emery, Henry Crosby. "Speculation on the Stock and Produce Exchanges of the United States," *Studies in History, Economics, and Public Law,* Vol. VII, No. 2, Columbia Univ., New York, 1896. Pp. 176, 190–91.

It may be said that, if big manipulations are seldom successful, there is a countless succession of small movements up or down due solely to speculative conditions. This is true enough. In a sense all speculation is manipulation. There is always more or less effort to affect prices by purchases or sales, but the equilibrium of all these forces registers the opinion of the market as a whole.

* * *

More than this, the speculation of the big operators depends upon the speculation of the public. Those hopes for reform are chimerical which look to a system in which only large speculators, of wide experience and knowledge, shall carefully investigate all price-determining factors, and fight out the battle of prices among themselves, while the public refrains from speculation altogether. Such a condition of things is highly desirable, but the big speculators are not prepared to maintain a market of this nature. If it be said that the price-making benefits of speculation come, not from the number of outsiders, but from the activity of those best qualified for speculation, it may be answered that the activity of this latter class depends upon the participation of the former. Furthermore, the opportunity of the trader and the manufacturer for advantageous hedging is greatly curtailed in a narrow market. Profitable trade depends largely upon active speculation. Indeed, the opinion is ex-

pressed among grain merchants that their difficulties in recent years have been partly due to the absence of the public from the market; that for their purposes, there has been not too much but too little speculation.

3.5.16 Schultz, Theodore W. "Spot and Future Prices as Production Guides," *Amer. Econ. Review*, Vol. XXXIX, No. 3, May, 1949. Pp. 146–49.

The facts appear to be that over the years the prices of the more perishable farm products in general fluctuated less than have the prices of the more durable farm products. There is a strong presumption in favor of the view that the storability of a product in many instances has been a major source of price variability and of the resulting price uncertainty under discussion. The second observation pertains to the meaningfulness of a future price compared to a spot price to farmers in making their forward production plans. Purely as an indicator, the future price would not differ from the spot price except when there were insufficient stocks to maintain the usual linkage between spot and future prices.

We turn now to a second type of situation in examining the price effects of stocks. If the underlying conditions with respect to the distant future were essentially inconsistent with stability, it can be demonstrated that stocks will increase rather than reduce the fluctuations of farm prices. When circumstances are such that those who deal in farm products are motivated into becoming sellers as a consequence of falling prices and conversely as a result of rising prices, the storability of a product acts as a cause contributing to price variations. Again, for purposes of illustration, let us take a perishable and a durable farm product with the same elasticities against price and income and with the same production and (normal) consumption variations. Let us suppose that rising prices have induced dealers to become predominately buyers. In the case of a perishable product, like fluid milk, it is not possible to withhold stocks from the market by accumulating them; and accordingly, the supply variations inherent in the technical conditions of producing milk continue to determine the supply of milk made available. It cannot be disturbed by the actions of individuals and firms who want to increase their long position in commodities. Therefore only the variations in demands for current consumption can be altered. Compare these price effects of stocks with those of a durable product like cotton. The supply of cotton is easily dis-

turbed because buyers can readily accumulate stocks and thus withhold a part of the crop from cotton mills and from consumers.

This set of conditions and the consequences that they indicate in terms of price variations would support our guiding hypothesis. Given these conditions, it follows that markets for the more durable farm products are subject to more price variation than are the less durable products. Since future price contracts are available only for the more durable products, we would expect to find these products to be among those showing the larger variations and thus transmitting more price uncertainty to farmers as a result. Here, too, several observations may be made.

First, there are convincing reasons for believing that the reoccurring circumstances that give rise to the kind of price motivations that characterize the second of these two types of situations are very comprehensive and general in their scope. They pervade the economic climate of the whole economy; they are not specific to agriculture or to any other major sector of the economy. They obviously are not more specific to some farm products than to others. What we observe is simply that the durable farm products are much more vulnerable to this over-all shifting of positions than are the perishable products.

A second remark pertains to the fact that, as our economy has developed, the opportunities open to individuals and firms for going long or short, with a view of "hedging" on short notice against a marked change in the value of money, have been progressively reduced. As this has occurred, it seems reasonable to suppose that those markets which still afford this opportunity have been put under additional strain. This is an aspect of the oft-repeated observation that inflexibility at one point forces more variations at those points where flexibility continues to exist. The inference is that the commodity exchanges may well have become burdened by some of this additional buying and selling motivated by conditions far removed from the specific supply and demand circumstances of the product per se.

It may be useful in closing to compare the position of the future price to that of the spot price to farmers. These inferences may be drawn from the argument advanced in this paper.

The spot price dominates the pricing of farm products. The future price is of minor importance, simply because it does not

exist for most farm products. The output of agriculture in the United States consists predominantly of perishable products, and these do not have future price quotations.

For those farm products for which future prices are available the spot price is fully as reliable as a guide for production as is the future price because the future price and the spot price are not independent of each other; instead, they are highly integrated and therefore reflect the same market forces, with the one exception when current stocks are insufficient to provide the linkage that normally exists between spot and future transactions.

In the case of the exception noted above, the future price could be a better guide than the spot price for farmers in making their production plans. This suggests that if future transactions were developed for perishable farm products covering a time span sufficiently long to preclude the carrying forward of stocks, the future price under these circumstances would of necessity be essentially independent from the spot price. A development of farm product markets in this direction, it appears, could make the future price decidedly more meaningful to farmers in making production plans.

There remains, however, the disturbances that affect farm prices adversely that originate out of the instability of the economy as a whole. These disturbances can and do express themselves more fully in markets with future prices than in markets with spot prices.

Big operators may often follow policies quite different from those of the little fellow. These differences in trading policies may have important effects on the market as indicated in the two excerpts which follow.—*Ed.*

3.5.17 Irwin, H. S. "Seasonal Cycles in Aggregates of Wheat-Futures Contracts," *Jour. Pol. Econ.*, Vol. LXIII, No. 1, Feb., 1935. P. 49.

All the indications of the data, however, are definitely opposed to the notion, which has been entertained in many quarters, that the large professional operators commonly take the other side of the hedges and furnish support to the price level at the time of the heaviest marketings of wheat. On the contrary, it is apparent that it is mainly the small traders from the country districts who support the market at this time and who help to carry the commercial stocks of wheat forward from the time of harvest until they are required by consumers. A substantial proportion of this support is furnished by farmers.

In this connection it should be borne in mind that the support afforded to prices by farmers through the futures market is in addition to the substantial degree of influence which is exerted upon wheat prices by farmers through the proportion of the surplus which is not marketed immediately after harvest and through the rate at which the remaining surplus is released during the remainder of the crop year. Approximately half of the wheat marketed is still in farmers' hands at the end of September on the average, according to the figures on monthly marketings compiled by the United States Department of Agriculture, and about 30 per cent remains to be marketed after the visible supply of wheat begins to decrease. Obviously both the surplus which is withheld from market for a time and the rate at which it is marketed have a considerable bearing upon the extent of the services which market intermediaries render in the movement of the wheat to the consumer.

Now it is apparent that farmers, perhaps largely those who sell their surplus at once, also furnish support to the level of wheat prices through the futures market during the period of heavy marketings. The question of how wisely this support is handled is outside the scope of the present paper; but it is evident that farmers have assumed a greater responsibility in this matter than has been generally recognized.

3.5.18 Stewart, Blair. "An Analysis of Speculative Trading in Grain Futures," *U. S. Dept. Agr. Tech. Bull. No. 1001,* Oct., 1949. Pp. 129–31.

This study is concerned primarily with the trading behavior of small speculators in grain futures, and the results of their trading. Statistics were analyzed on the futures operations of nearly 9,000 traders, extending over a 9-year period (1924-32) and involving more than 400,000 individual futures transactions. . . .

The first obvious conclusion from the analysis is that the great majority of small speculators lost money in the grain futures market. There were 6,598 speculators in the sample with net losses, compared with 2,184 with net profits, or three times as many loss traders as profit traders. Net losses of speculators were approximately six times net profits, or nearly $12,000,000 of losses, compared with about $2,000,000 of profits. Speculative traders in the sample lost money in each of the four grains traded — wheat, corn, oats, and rye.

Primarily responsible for the high ratio of losses was the small speculator's characteristic hesitation in closing out loss positions.

An often-quoted maxim for speculative trading is "Cut your losses and let your profits run." Contrary to this advice, speculators in the sample showed a clear tendency to cut their profits and let their losses run. . . .

* * *

The study confirms the commonly held impression that the amateur speculator is more likely to be long than short in the futures market. About half of the speculators in wheat and corn had positions only on one side of the market, and of this group, those on the long side only greatly exceeded the number with short positions only. However, the one-side-only traders did only a minor proportion of the total trading. . . .

Analysis of the data shows that a great majority of speculators in the sample had relatively small profits and losses. The profits of 84 per cent of the profit traders were less than $1,000 each, and the profits of 39 per cent less than $100 each. The losses of 68 per cent of the loss traders were less than $1,000 each, and 16 per cent had losses of less than $100 each. Obviously, a very large percentage of the traders in the sample operated on a small scale, and many of them discontinued trading before realizing large profits or suffering large losses.

* * *

The representation of large-scale traders in the sample was not broad enough to warrant positive conclusions as to the success of large speculators in grain futures, as compared with the profits and losses of small traders. There was no evidence, however, that the largest size classes included a higher proportion of successful traders than the groups with smaller average positions. Generally speaking, the large and small traders alike were unsuccessful in their trading.

Among all the major occupational groups losses from speculative trading in grain futures greatly exceeded profits. Among managers of business concerns, for example, there were 840 profit traders, compared with 2,563 loss traders. The aggregate profits of this occupational group amounted to $1,076,300, against losses of $6,210,200. Persons with occupations "unknown" had the greatest proportion of profit traders — 32.3 per cent. Farmers had the lowest proportion of profit traders — 21.2 per cent. "Retired" persons made up the only group having a better-than-average proportion of profit traders in each of the four grains covered by the survey.

From the standpoint of aggregate profits and losses for occupational groups, managers in the grain business were somewhat more successful in speculative trading than other groups. But even with this class aggregate profits in dollars were only 28 per cent of aggregate losses. Semiprofessional workers showed the lowest profit ratio in aggregate dollar amount — 11 per cent. The profit ratio for farmers on this basis was 13 per cent. In general, the chances for success in grain futures trading did not differ greatly from one occupation to another. Special knowledge of the commodity traded seemed to have little effect on the outcome of speculative trading during the period studied.

* * *

The tendency of longs to buy on price declines and for shorts to sell on price rises indicates that traders in the sample were predominantly price-level traders. Longs tended to buy when prices fell below levels which they considered proper, and shorts sold when prices advanced above levels which they believed justified. The inclination to trade according to predetermined price opinions apparently was not disturbed by the long period of declining prices from 1929 to 1932. However perverse it may seem, this period of declining prices stimulated speculative buying by small speculators, although the activity of short sellers was dampened slightly.

It has not been possible in this study to explore all the aspects of speculative trading on grain futures markets, nor to answer all the questions which have been raised. A final comment should be made involving a most important question. As already indicated, the losses of traders in the sample were much greater than their profits. If these results are representative of trading by small speculators generally, there must be other groups — large speculators, scalpers, spreaders, or hedgers — which make very large profits.

There is no known empirical study, however, which reveals other groups of traders with net profits sufficient to balance such large losses as those suffered by small speculators in the sample. Yet the nature of futures trading is such that all losses are balanced by profits. This raises the most important question left unanswered by this study. Was the sample in this respect not typical of small speculative traders? There is no apparent reason for pronounced bias in the direction of losses. If the sample is representative, is there another group of traders who consistently

make profits large enough to balance the losses of small speculators? There is no convincing evidence that such large profits are made by any class of traders. These are questions which can be answered only by further studies of the results of futures trading.

The reader should by now have become impressed with the complexity of the subject of futures trading and with the failure, despite the availability of data and the variety of analyses that have been made, to settle the main controversies. The arguments have remained arguments, convincing to their proponents but not strongly enough founded to overwhelm the opposition.

Such a situation suggests the need for a broader approach to the problem. Perhaps the attempt to explain futures trading as a device for shifting specific risks between hedgers and speculators, and the concentration upon details of specific price movements and interrelationships, have made us lose sight of the broader role of contracts for future delivery as an integral part of the whole network of transactions through which present-day specialized business is carried on. For example, futures trading and, in fact, the very existence of the highly liquid markets for such trading have important implications for the financing of working-capital requirements of marketing enterprises. The whole subject of finance in agricultural marketing seems to have been largely taken for granted by economists without adequate analysis of the types of financing arrangements commonly used and their comparative advantages and disadvantages for marketing operations. No work has been done in this field that compares with the intensive study of problems of farm finance.

The literature that we have examined does not develop the broader approach that seems to be needed for an adequate understanding of futures trading. In closing this subsection, however, we reproduce some paragraphs from a paper by H. S. Irwin that suggest some aspects of the subject that might well be explored. He proposes the study of "middlemen's accumulations," through which supplies from the period of seasonally heavy production are carried forward through the year. His comments point to the role of futures trading in connection with the financing of large-volume holdings, and to the alternative roles of futures trading and vertical integration as means of relieving the burden of concentration of such holdings. They lead our discussion back both to the general role of ownership discussed at the beginning of this subsection and to the discussion of timing of marketing in Subsection 3.3.—*Ed.*

3.5.19 Irwin, H. S. "Middlemen's Accumulations and Expectations in Marketing Farm Products," *Jour. Farm Econ.*, Vol. XXIX, No. 4, Pt. 1, Nov., 1947. Pp. 854, 856, 857, 858, 864.

Further, the capital required in the accumulation of farm

products competes sharply with that engaged in the current handling of those products. That required in current operations commonly reaches its peak during the period of heavy farm marketings which is also the time when accumulations are undertaken. A concern having only sufficient capital for the peak of current operations is not in a position to accumulate stocks.

* * *

Time contracts were employed extensively in grain marketing at Chicago and in cotton marketing in New York as early as the 1850's. They had been employed in the purchase of hogs in the vicinity of Cincinnati before 1850. In grain at Chicago the first instances found resulted from the tremendous increase in the accumulations of corn by corn dealers along the Illinois and Michigan Canal and the Illinois River which followed the opening of that canal. Much ear corn was hauled to dealers' cribs in the winter when the roads were not bottomless at least, but for fear of damage in shipment much of it had to be held until the late spring or summer before shelling and shipment. Evidently the resources of the dealers were strained to the utmost in providing additional facilities and in holding the rapidly increasing amounts of corn. Time contracts provided one means of relief from the concentration of accumulations. Such contracts also came to be employed in wheat, in part because the wheat which accumulated there after the close of lake navigation in the fall had to be held until the spring.

* * *

. . . The development of hedging permits a material increase in the concentration of commercial speculation in the commodities hedged. At the same time it favors increased competition in carrying stocks forward because it reduces the importance of large financial resources in this function and thus allows efficient merchandisers to compete more vigorously.[1]

Vertical integration also relieves the concentration of middlemen's accumulations although in a different way. It commonly combines functions featured by a high degree of accumulations with other functions having smaller accumulations and, in effect, spreads the risks of the accumulations proportionately over all the functions included in the corporation. Tobacco is conspicu-

[1] The attempted explanation of the advantages of hedging on the basis of "transfer of risks to specialists" which are contained in a number of texts on marketing and economics are shown to be invalid by the studies of the Commodity Exchange Administration. On the whole, the other side of the hedges is taken by numerous small traders drawn from a wide variety of occupations. . . .

ous among the farm products marketed principally through vertically integrated concerns; livestock products, cheese, and canned milk are prominent among the other products.

Obviously, the relief afforded from burdensome concentration of accumulations by vertical integration depends upon the extent to which low concentration functions are combined with those featured by a high degree of concentration. In cigarettes nearly all the marketing functions are performed by the vertically integrated concerns, from the purchase of the tobacco from the farmers at auctions to the sale of cartons of cigarettes to retailers through wholesalers whose activities are supervised. In livestock products the marketing services rendered by the leading meat packers extend from the purchase of animals at stockyards or even at country concentration points to the sale and delivery of meat to retailers.

* * *

One or the other of the ways of dealing with the concentration of middlemen's accumulations — organized or unorganized futures trading or vertical integration — features the marketing of nearly all farm products. Both are found in some commodity markets. For example, in canned fruits and vegetables forward (futures) contracts are employed by independent canners while other portions of the canning field are occupied by vertically integrated concerns. In lard and provisions which are produced by vertically integrated concerns there was organized trading on a limited scale up to World War II. There is some reason to believe, however, that successful vertical integration tends to displace organized trading in commodity futures.

* * *

With respect to organized trading in commodity futures, the analysis of middlemen's accumulations opens the way to positive as well as negative methods of improvement. Formerly the study of this trading has looked mainly to improvement through bringing undesirable practices under control; further research should strive also to ascertain how the forces of this trading may be geared most effectively to efficient marketing of the products traded.

SECTION 4

Efficiency

An unsophisticated student might make two false assumptions: first, that it is easy to define (and to measure) the efficiency of agricultural marketing; and second, that almost everyone is in favor of efficiency. Actually, the concept of efficiency is very difficult when applied to a complex problem such as the marketing of farm products. And actually the public may prefer to keep some known inefficiencies, rather than to adopt new methods — especially if the prospective improvements in efficiency might reduce employment, decrease price competition, or lead to greater concentration of economic power.

Efficiency is not the only aim of marketing, but it is a very important aim. Much of the research in agricultural marketing is for the purpose of improving efficiency. This is true of research by industry as well as by colleges and governmental agencies. This chapter will sample some of the recent work on efficiency.

The following readings start with problems of micro-efficiency (i.e., detailed studies of single operations or work elements). They end with problems of macro-efficiency. They cover the efficiency of firms, markets, and marketing functions. There are opportunities to improve efficiency at all levels.—EDITOR

4.1 Processes, Operations, Work Elements, and "Therbligs" . 197

4.1.1 Brunk, Max E. "An Economic Study of Celery Marketing."
4.1.2 Zuroske, C. H. "$3000 to $6000 Payroll Saving Possible for Egg Coop."
4.1.3 Harwell, E. M. and Shaffer, Paul F. "The Check-out Operation in Self-Service Retail Food Stores."

4.1.4 Sammet, L. L. and Hassler, J. B. "Use of the Ratio-Delay Method in Processing Plant Operations."
4.1.5 Brunk, Max E. "Marketing Research in Operational Efficiency."

4.2 An Efficient Business Unit 211

4.2.1 Henry, W. F., Bressler, R. G., Jr., and Frick, G. E. "Efficiency of Milk Marketing in Connecticut, 11. Economies of Scale in Specialized Pasteurizing and Bottling Plants."
4.2.2 Howell, L. D. "Costs of Manufacturing Carded Cotton Yarn and Means of Improvement."

4.3 An Efficient Wholesale Market 218

4.3.1 Crow, William C. "Wholesale Markets for Fruits and Vegetables in 40 Cities."
4.3.2 Crow, William C., Calhoun, W. T., and Park, J. W. "Wholesale Fruit and Vegetable Markets of New York City."

4.4 Efficient Assembly and Distribution 225

4.4.1 Quintus, Paul E. and Robotka, Frank. "Butterfat Procurement by Creameries in Butler County, Iowa."
4.4.2 Hammerberg, D. O., Parker L. W., and Bressler, R. G., Jr. "Efficiency of Milk Marketing in Connecticut."
4.4.3 United States Department of Agriculture. "A Survey of Milk Marketing in Milwaukee."
4.4.4 Bressler, R. G., Jr. "Efficiency of Milk Marketing in Connecticut, 10. Consumer Demands and Preferences in Milk Delivery."

4.5 Efficiency of the Marketing System 235

4.5.1 Hoffman, A. C. and Waugh, F. V. "Reducing the Costs of Food Distribution."
4.5.2 Bressler, R. G., Jr. "Efficiency in the Production of Marketing Services."
4.5.3 Marketing Research Workshop. "Input-Output Relationships in Agricultural Marketing."

4.1 Processes, Operations, Work Elements, and "Therbligs"

We first consider problems of micro-efficiency. The marketing process includes thousands of specific operations each of which needs analysis. *Work simplification* is as practical in a creamery or a retail store as it is on the farm.—*Ed.*

4.1.1 Brunk, Max E. "An Economic Study of Celery Marketing," *Univ. of Florida Agr. Exper. Sta. Bull. 445*, July, 1948. Pp. 170–71, 173–74, 81–83, 91, 93–96, 97–98.

Definition of Terms

Process is a work routine usually performed by a number of individuals, each doing specific jobs to contribute to the end product of the process or one person doing a series of different jobs, all of which contribute to an end product. A flow-process chart shows the flow of a product through the various jobs in assembly, together with any side or contributory assembly.

Operation is a work routine usually performed by one person or teams of persons contributing to the completion of some segment of a process. Operations usually consist of a series of hand or hand and machine movements.

Work element is a work routine consisting of one segment of an operation. One person usually performs a number of work elements in completing an individual operation.

Therbligs are the fundamental elements of performing any work routine and may be defined as the basic divisions of accomplishment. Therbligs may involve either physical or mental activity.

* * *

. . . Another example might be the process of preparing celery for market. This process consists of a series of jobs, one of which is packing the celery in crates. It requires two operations to perform this job. One worker picks out a given size of celery while another worker places the sized celery in the crate. The operation of sizing, however, is made up of several work elements: (1) select stalk, (2) place on table. In turn, the stalk was placed on the table by a series of therbligs such as: (1) transport empty hand to stalk, (2) position hand, (3) grasp, (4) transport load, (5) inspect, (6) position, (7) release load.

* * *

After the celery emerges from the washer it is ready for sizing and packing. Most washhouses have from nine to 12 packing tables on each side of each chain. A sizer and packer work as a

team at each table, the sizer working next to the chain. The table nearest the washer is used for the largest size celery and the smallest size celery (usually size XX) is packed on the last table along the chain.

The job of the sizer is to select a particular size of celery from the chain and to place those stalks on the packing table. Using the stalks selected by the sizer, the packer fills the packing crates following a standard packing pattern which has been adopted for the various sizes.

Of the nine firms studied in detail, seven used the system described above. The labor required per 10,000 stalks ranged

TABLE 32

COMPARISON OF TIME REQUIRED TO SORT AND PACK 10,000 STALKS OF CELERY BY NINE DIFFERENT FIRMS, FLORIDA, 1944 SEASON

Area	Firm	Hours of Labor per 10,000 Stalks	
		Sorting and Packing	Total Field and Washhouse Root Trimming and Stripping Time
Sanford	C	21.2	32.2
	F	11.5	38.4
	D	24.1	40.0
Sarasota	P	21.0	47.2
	N	21.4	35.4
	O	22.9	38.7
Belle Glade	I	23.1	26.9
	M	17.0	43.1
	J	26.0	29.7

from 21 to 26 hours for the seven firms. Firm M, which spent 17 hours of sorting and packing labor per 10,000 stalks, . . . followed the practice of having one sorter and one packer work on two sizes, particularly the 2's 2½'s, 8's 10's and XX's. The volume of any one of these individual sizes was not large enough to keep one sorter and packer occupied over 50 per cent of the time. Because firm M took advantage of an opportunity to adjust working conditions to the job to be done, only 17 hours of labor were used per 10,000 stalks.

* * *

Firm F made a large saving of labor by combining the jobs of the sorter and packer. Each worker was both sorter and

packer. As stalks were selected from the chain they were placed directly in the crate. When the crate was filled it was pushed aside and an empty crate was taken from the crate chute. . . . With a little training the workers soon learned to place a new crate with one hand and at the same time sort from the chain with the other.

Managers of many firms refused to try this faster method . . . [because they thought] that a worker could not sort out the proper size, concentrate on packing and at the same time get the correct number of stalks in each crate. The managers would not consider the possibility of slowing down the packing chain to give the workers more time to sort out the proper sizes and place the stalks directly in crates.

. . . a detailed study was made of the packs put up by 15 firms. Two of the firms packed directly from the sorting chain. Results indicate that there is little need for slowing down the sorting chain to obtain a good, accurate pack by packing directly into the crate from the chain.

* * *

After the crate is filled a paper liner is drawn over the top of the stalks and the lid of the crate is pulled up into position for closing. The size is then marked on the crate with a crayon or rubber stamp and the crate is set on a conveyor.

In many houses a special employee stamps the crates, pulls the lid into position for closing and sets the crate on the conveyor. The crate moves to the end of the conveyor where it passes over a trip-switch, which stops the conveyor. As soon as the crate is pulled on the closing table, the switch is released and another crate moves down on the conveyor, while the first one is being closed.

Practically all crates used in the Florida celery business are the wire-bound (Howard) crates. These crates have four wires running around the crate for reinforcement. These same wires serve as hinges on the back of the lid and as clasps on the front of the lid. A number of operation analyses were made of crate closing. The procedure in all cases was essentially the same. After the crate was pulled on the closing table the right hand straightened the paper liner while the left hand worked the lid into place. A closing tool, called a "rocker," was palmed in the right hand. This tool has a large wooden handle. While the left hand held the lid in position the right hand pounded the

left end of the crate with the handle of the rocker until the end of the crate fitted under the lid. The rocker was then fitted into the wire loop, which was tightened and fastened. The same procedure was followed on the right end of the crate, after which the two center wires were tightened and closed.

The most difficult part of the procedure is pounding the heads of the crates into position so that the lid will close over them. The packed celery in the crate causes the heads to bulge outwards. Pounding on the heads not only bruises some of the celery in the crate but also frequently splinters some of the veneer wood and materially weakens the crate. The operation chart of this procedure revealed that the left hand was engaged primarily in holding the crate. This suggested a holding device. The right hand did most of the work, which consisted of pounding the heads into position. This suggested a clamp which would also serve as a holding device. The problem was taken to the University of Florida Engineering Experiment Station. An engineer constructed a model which was taken into the field for trial. In testing the device it was discovered that the clamps which held the sides of the crate would, with a minor adjustment, also automatically position the crate on the closing device. A second model was built which was adjustable for minor variations in the sizes of crates. This model was tried out successfully in a number of washhouses and the specifications for constructing the device were then released.

The operation of closing crates is greatly simplified by using this device. The crate is pulled on the table by hand.[1] Depressing the foot pedal of the device places the crate in position, draws the heads into place and holds the crate while the wires are fastened from the left to right. The foot pedal is then released and the crate set off the table.

It was noted, in making the original operation charts for crate closing, that practically all the workers closed first the left end and then the right end, leaving the two wires around the center of the crate until last. The workers could give no reason why they closed the wires in this particular order. It was found that the crate would close easier by closing the wires from one end to the other in order. By so doing, less of a bulge was left

[1] Consideration was given to extending the conveyor over the device so that the crate would automatically stop in position, but this idea was abandoned because it prevented the next crate from being moved into position while the first crate was being closed and thus caused unnecessary delay.

in the center of the crate. Consequently, the last end was easier to fit over the head of the crate and fasten.

* * *

Need of Improvements in Washhouse Arrangement. The arrangement of present-day washhouses is not conducive to the efficient use of labor. The efficiency with which many operations can be performed depends not on the ability and skill of the individual operator concerned but rather upon the output of some previous operation. This is true of most assembly-line processes.

In the case of celery washhouses each side of a stripping and packing chain constitutes an assembly-line process, within which there is only a limited amount of flexibility for balancing the amount of work among the various workers. The method was first established by small firms using only one chain. In recent years many houses have expanded by adding a second, third or fourth chain. A firm using four chains, therefore, has eight separate assembly-line processes, each with only a limited flexibility for balancing the amount of work each individual in the line has to perform and, in addition, allows for no flexibility between chains.

Packers and sorters constitute the great bulk of washhouse labor and, as explained previously, the accomplishment of all the sorters and packers depends on the team of sorters and packers which has the largest volume to handle. Likewise, the accomplishment of the team is automatically limited by the output of either the sorter or the packer, depending on which is the faster.

The individual who closes the crates can close only as many as the packers on one side of a chain pack. A four-chain house employs eight crate closers, each of whom is engaged in productive work for only part of the time.

The present system of sorting out sizes on the packing chain, placing the packed crate on a conveyor to be mixed up with other sizes, only again to be resorted by size in a huge sorting room, constitutes a paradox. The sorting rooms of many washhouses are as large as the space occupied by the balance of the plant.

The lack of flexibility between individual chains could be overcome by handling all celery on one rather than on many assembly lines. One possible way this might be done would be to have all the celery deposited on a common stripping and

sorting chain. The individual sizes sorted from this chain would be placed on cross conveyors so that all of one size would pass to a common point for packing. Such a system would allow for a maximum of flexibility between the number of sorters and packers, would help overcome the difficulty of the first packer packing heavier crates, and would result in the automatic sorting of packed crates of a common size and thus eliminate the need of a sorting room.

On many occasions during this study 16 workers were observed in a four-chain house sorting and packing sizes 10's and XX's, when the total number of stalks of these sizes on all chains combined was not large enough to keep over two persons fully occupied had they been on a common chain.

Much experimentation is needed before plans for such a revised arrangement could be completed. A "pilot" plant would have to be constructed, experimented with, and probably rebuilt many times before such plans could be considered complete. It goes without saying that such a project carries beyond the scope of this study, other than that the findings of this study indicate the problem.

An example of work simplification is given in this discussion of the handling of eggs.—*Ed.*

4.1.2 Zuroske, C. H. "$3000 to $6000 Payroll Saving Possible for Egg Coop," *Work Simplification News Letter*, No. 21, Purdue Work Simplification Lab., Nov., 1950. Pp. 6–7.

The objectives of a recent egg handling methods study were to reduce cost and to test the applicability of selected techniques of scientific management to egg marketing processes. This was a pilot study to serve as a guide to methodology for the more extensive study of egg marketing which is anticipated.

In egg marketing, an important area of work is assembly, handling, grading, and cartoning. A large cooperative plant was selected for the pilot study. The research procedure was to observe each major job and to describe it as completely as possible. Expenditure of non-productive effort was identified by checking each job for its contents and comparing the manner of accomplishing the job with established criteria for effective work.

Results. The usual number of workers in this plant at the time of observation was 40. This was made up of 29 candlers and 11 materials handlers. Almost without exception each worker was expending energy equal to that which would ordinarily be expected with standard work rates. Expenditure of this energy, however, did not always result in an optimum output rate.

In general the work methods developed in this plant were commendable. Significant potential cost reductions coming from this study appeared to be in the following areas:

1. Supplying candlers with eggs. This job, currently done by two men, could perhaps be accomplished by one or one and one-half workers.
2. Sealing and segregating cases of eggs. This is currently a two-worker job. This might be done by one or one and one-half workers. The jobs of supplying eggs and sealing and segregating might be combined into a three-worker combination saving one worker.
3. If the candling booths can be improved for a small increase in output, say, 5%, likely the present staff in other operations could take care of the increased output without adding help. This implies that each operation involved would be simplified some.

With changes involving a minimum investment it is estimated that an annual payroll saving, or equivalent economy in terms of increased output per worker, amounting to $3000 to $6000 could be made.

In the report to the cooperator a detailed description and appraisal was made of each job. Wherever a principle of effective work was in question a possibility for improvement was indicated. These suggestions were only tentative as management and workers concerned could, no doubt, offer more and better possibilities for improvement.

> Much more attention has been given to the simplification of operations in farming than in marketing. In the field of marketing more work has been done on processing than on distribution. But it is well to remember that some of the largest costs are in city distribution — especially in retailing. These operations can be simplified too.—*Ed.*

4.1.3 Harwell, E. M. and Shaffer, Paul F. "The Check-out Operation in Self-Service Retail Food Stores," U. S. Dept. Agr., *Agr. Inf. Bull. No. 31*, Jan., 1951, Pp. 1, iii–iv.

The check-out operation plays an important part in retail self-service food stores. In all stores studied in this project, the check-out function accounted for more than 20 per cent of the total man-hour requirements. Its importance is further emphasized by its accepted position as the common bottleneck in the store during peak periods of the week. It is not uncommon for self-service food stores to handle from 60 to 70 per cent of their weekly volume on Friday and Saturday. Peak periods within

these high volume days place an immense load on check-out operating personnel and equipment. It is an accepted fact in the industry that store sales volume is directly affected by the rapidity with which customers are accurately processed through the check-out operation. In stores where automobile parking facilities are limited, increased service at the check-out operation during peak periods may lead to increased volume through a larger turn-over in the parking areas. With the advent of self-service meat and produce merchandising, the cashiers at the checkstand often become the only personal contact with the customer. This further increases the need for a pleasant reaction by the customer to check-out personnel and equipment.

The purpose of the study was to evaluate the check-out operation to determine the advantages and disadvantages of the more common methods and types of equipment now in use, as well as to develop and evaluate improved methods and equipment which might enable the industry to give improved customer service at the same cost or at a lower cost.

Detailed studies were made on several types of equipment and were carried on in nine stores in two retail food store chains. Observations were made of the check-out operation in stores located in various sections of the country. The scope of the study consisted of an analysis of all work associated with the movement of the merchandise from the time it was brought to the check-out location until the complete order was checked and bagged (or boxed), ready to leave the store.

* * *

Summary. A new type grocery check-out counter has been developed which increases by 38 per cent the number of orders checked out per hour, as compared with the usual methods. Cost per order decreased by 26 per cent. The new counter, called the Redi-chek, gave the highest production of the 5 types of equipment that were analyzed and time-studied during the project. Forty-four orders per hour were handled at a labor cost of 2.3 cents per order with 1 person operating the equipment; 61 with 2 persons, and 67 with 3 persons. More than 20 per cent of total labor in all stores studied was used in the check-out operation, indicating a potential for considerable saving.

The Redi-chek was designed to reduce the number of times the cashier handled each item. The following features were incorporated in the equipment: (1) The sorting of merchandise was eliminated; (2) the order was rung up and bagged simul-

taneously (the bag was placed in a specially constructed well which held the mouth of the bag open); (3) a 7-foot conveyor belt was used to move the merchandise to the cashier's position; (4) an automatic coin changer was incorporated in the equipment to simplify change-making; (5) two additional bagging wells were added, so that when a bagger was added to the equipment, he could bag items with both hands simultaneously; and (6) a bag rack was installed behind the counter to hold completed orders. The Redi-chek was operated by one, two, and three persons.

Another system, called the Simplex, was developed and tested. It likewise processed 44 orders per hour. It was particularly adaptable for stores which do not have definite week-end sales peaks. The cashier removed the items from the baskart and placed them in a bag — recessed in a well — simultaneously with the ring-up. An automatic coin changer was used. This counter was limited in operation to 1 person.

A single operator, using conventional equipment with merchandise presorter, produced 32 orders per hour at a labor cost of 3.1 cents per order. This was the lowest rate of production and highest cost of any type of equipment studied. This performance can be explained by the physical handlings involved in the operation: (1) As the order was sorted; (2) when the items were rung up on the register; and (3) when the merchandise was bagged. Other handlings were necessary when the cashier unloaded the baskart or when she used the presorter.

When an additional person was used on the conventional equipment, production was increased by 52 per cent. This contradicts the belief, frequently encountered during the study, that a cashier and bagger working together would produce more than two cashiers working alone. Labor cost for the two-man operation was 4.1 cents per order.

A continuous belt conveyor check-out was also studied. It contained an 18-inch-wide rubber belt, running the entire length of the equipment (14 feet). The unit was operated in much the same way as the conventional equipment, with the belt conveyor replacing the merchandise presorter for the one-man operation. The unit provided for operation by as many as four persons. A crew of this size produced 62 orders per hour, but at a high cost per order (6.4 cents). These rates compare with the three-man operation of the Redi-chek which handled 67 orders per hour at a cost of 4.5 cents per order.

For the one-man operation, a disc-type counter, which uses a revolving disc to move merchandise to the cashier, was 11 per cent more productive than the conventional equipment. With a three-man crew, the disc-type check-out counter almost equaled the production of the four-man operation on the continuous belt conveyor unit.

The automatic coin changer contributed to increased check-out production and improved accuracy in making change.

Motorized departmental keys on the cash register improved performance of the ring-up part of the operation by 4 per cent and facilitated elimination of the sorting of merchandise.

Of considerable importance is the fact that a change in equipment to the Simplex or the Redi-chek unit is not necessary in order to obtain improved performance in the check-out operation. Most other types of check-out counters now in use can be altered, at small cost, to eliminate the sorting of merchandise and to improve the bagging operation. Several types of equipment now in use, such as the disc-type unit, can easily incorporate the cashier's bagging-well to make possible the simultaneous ringing up and bagging of merchandise.

Work simplification research often involves the timing of particular operations. An interesting technique in this field is the *ratio-delay* method.—*Ed.*

4.1.4 Sammet, L. L. and Hassler, J. B. "Use of the Ratio-Delay Method in Processing Plant Operations," *Agr. Econ. Res.*, Vol. III, No. 4, Oct., 1951. Pp. 125–27, 133.

In a particular plant the operations often involve many different job classifications and many workers. To analyze the operations it may be necessary to obtain data as to the labor and equipment requirements in each job category. This may require an estimate of the time expended per work unit and of the proportion of time spent in productive work, in a delay or idle status, on work of another category, etc. It also may be essential to obtain the pattern of movement for materials transported by hand truck or fork truck — that is, the transport route for each type of material, the number of units moved per trip, and the number of times the material was moved. The most logical way to obtain this pattern is by observation of the workers involved.

For many jobs, the time requirements per work unit are most easily obtained by time study, but this method is not well adapted to tasks in which the job elements are not well defined — for example, checking packed boxes in a fruit-packing plant to ascer-

tain the size and number of fruits per box. Moreover, the use of the time-study method to obtain data such as the proportion of delay time is unduly expensive if many jobs are to be studied. In fact, if the plant operations are seasonal, as is often the case for marketing facilities, there may be insufficient field time for obtaining these data by time study. Similar handicaps apply to the production-study method.

Thus, under suitable conditions, the ratio-delay method is useful in economizing on field time required for estimating delay proportions and in establishing unit-time requirements for the less well-defined jobs. A modification of the ratio-delay method also is applicable to the problem of defining the pattern of flow in materials handling.

Procedures in Ratio-Delay Studies. The ratio-delay method is essentially a sampling process which involves: (1) a machine or worker whose activity is divided into several categories, (2) a large number of instantaneous and, for practical purposes, random and independent observations of the work, and (3) the theory that the ratio of the *number of observations* in any one category to the total number of observations will yield a reliable estimate of the ratio of *time expended* in that category to the total time. The process can be visualized more easily, perhaps, by first considering how observations are made in the field.

As a preliminary step, the work performed at each work station is studied and a written summary or job description of the operations is prepared. The observer thus familiarizes himself with the details of each job and is prepared to classify properly the events to be noted in the ratio-delay study. A schematic plant lay-out may be drawn to record the locations of the work stations to be observed and for use in planning the route to be followed by the observer. Tours of the plant may be made over this route and on each tour the activity of the worker at each station may be classified.

To avoid bias in classifying the observations, they should be made on an instantaneous basis, with care to eliminate any tendency to anticipate what the work status should be or unconsciously to exercise a preference for recording the work status in one way or another. For example, a kindhearted observer might unconsciously prefer to record a worker as "working" rather than "idle." The kind of observation desired may be described as that resulting if the observer were to wear special goggles equipped with a camera shutter. If the shutter were operated

the instant the work station was visible, an instantaneous observation of the work status would be obtained.

* * *

Applications in a Packing-House Study. To indicate how the ratio-delay method may be used in plant studies, several illustrations are given of its application in a current study of deciduous fruit-packing houses in California. This work has included an intensive study of operations in 22 plants in which the number of job classifications varied from about 12 to 45 and the total number of workers per plant ranged from 25 to 180. The ratio-delay method was employed to obtain three types of data: (1) The proportion of "delay" (nonproductive time) in relation to total working time. (2) Time requirements per work unit for specific jobs. (3) The flow pattern in materials handling.

The Proportion of Delay Time. — In the simplest case, this involves a classification of the observations into only two categories. The data given in Figure 2, for example, would be grouped into two classes, "working" — 57 observations — and "not working" — 21 observations — and the delay proportion computed as the ratio of delay observations to total observations. If the estimated delay proportion is represented by p, this ratio in the example is:

$$p = 21/78 = 0.269$$

As it may prove desirable to have information regarding the causes underlying the total delays observed, subgroups of delay observations might be obtained. Thus, in the data in Figure 2, 18 observations were recorded under "break for lots" and the proportion of observations in this category is:

$$p = 18/78 = 0.231$$

The foregoing ratios of instantaneous observations are estimates of the proportions in which the total time was divided. Thus, we estimate that of the total time about 73 per cent was actual working or productive time and 27 per cent was total-delay time. Delay due to break for lots is estimated as 23 per cent of the total time.

* * *

In ascertaining delay proportions, the ratio-delay method usually will be less costly to apply than either the production-study or time-study method. In the plant studies here cited, for example, the field time required in the ratio-delay study is estimated to have required 80 per cent less time than would have

been necessary to obtain a one-day production study of each job. This estimate is greater than has been reported in other studies; estimated savings of 33 to 70 per cent have been noted in other reports.

The ratio-delay sample may be more representative than a time study or a production study, for it may easily be composed of an aggregation of observations taken over a period of days or weeks (assuming no essential changes in the plant organization or working conditions during the period of observation) and thus may reflect typical conditions more accurately than would isolated time studies or a production study confined to one day.

If made on a department or plant-wide basis, the ratio delay study can provide, in a sense, a simultaneous measure of delay at all points and so is an excellent device for indicating how effectively plant operations are integrated, and at what points improvements in work methods to eliminate delays would be most beneficial. These relationships would not be so clearly revealed by a succession of isolated production or time studies.

The ratio-delay data may be less biased than the production– or time–study data from the standpoint of the worker's reaction to observation, since the worker is under observation in the ratio-delay study for very short periods. Even so, in the particular study referred to in this paper, some worker reaction was noted in a few instances. The reaction usually was in the nature of a make-work tendency. An experienced observer, however, can offset abnormal worker reaction: For example, he can obtain a "flash" observation on entering the work place; he can make his observation after having passed the work place; or he can observe from across the plant.

The ratio-delay method shares a common handicap with the production-and time-study techniques — that is, the bias introduced by the rate at which a particular individual works. It is conceivable, and not unlikely, that delay time is observed for some individuals whose output is governed by a production line only because they work at an abnormally rapid rate and thus work themselves out of a job. Conversely, the bias for a slow worker would be in the other direction. Owing to the nature of the ratio-delay study, any such bias appears difficult to eliminate. But if observations on several workers are aggregated to obtain the ratio-delay proportion, the effect of rate-of-working by an individual would tend to average out.

There is still room for a great deal of research dealing

with operational efficiencies in processing, transporting, storing, and distributing farm products. The economist must work closely with the engineer in this field.—*Ed.*

4.1.5 Brunk, Max E. "Marketing Research in Operational Efficiency," *Marketing Margins and Efficiency,* A Report of the Marketing Research Workshop, U. S. Dept. Agr., July 9 to 19, 1950. Pp. 37, 38–39, 42–43.

It is safe to say that most of the systematic application of methods engineering techniques to marketing problems has been confined to a relatively few isolated instances where individual marketing agencies have maintained their own methods-study departments or where they have called on industrial engineers to do special jobs. Sometimes the work has not been fruitful because the engineer has not had a full appreciation of either the economics of the marketing job or of the heterogeneous characteristics of agricultural products. Experience indicates that in agricultural marketing the engineer's know-how can be effectively combined with the conventional methods of the economist in determining such things as the relationship of inputs and outputs; more effective means of materials handling; desirable plant and market location, layout and design; economics of scale and integration; and more effective work routines and equipment design.

* * *

From the standpoint of both the work itself and the techniques used to analyze the work, motion and time study can be divided into two broad classes: (1) work involving the movement of workers or materials from place to place; (2) work in one place. The former involves time and travel or plant-layout studies and the technique of study is known as "process analysis." The latter, work in one place, involves the study of body and/or machine motions. Macro-movements are studied by means of "operation analysis" and micro-movements by means of "micro-motion analysis." The mental processes in making operation and micro-motion analyses are the same. The tools used for measuring and recording the movements are different.

My assignment here was to make an appraisal of marketing research in operational efficiency. Thus far I have made this appraisal in a positive sense. Actually it is a criticism of marketing research to the extent that the approaches described have not been used on the many opportunities that do exist. But I should not leave the subject without listing a few critical comments about the techniques of motion and time study as they have been applied.

1. In general I would say that there has not been enough coordination of the efforts of economists, engineers and production specialists in attacking a common problem. Effective work in operational efficiency requires the combined efforts of all three.

2. There has been a tendency to study small detailed jobs before examining over-all processes. This frequently results in wasted effort because a change in the process frequently eliminates the small detailed job. In general, the procedure in making operational studies should be from the over-all method down to the detailed work elements rather than the reverse.

3. There has been a tendency to ignore the quality of the product produced when changes in method are recommended. It is practically impossible to change the method of work without influencing the quality of the product. Measuring a quality change is sometimes more difficult than making the methods study. It may even involve consumption studies.

4. In drawing inferences between methods of work there has been a tendency to ignore differences in rates of worker activity. There are many ways of "leveling." More research is needed to determine better ways but it should also be recognized that almost any method of leveling is better than none. The same thing can be said about adjusting for plant capacity. Professor R. G. Bressler at California has done some excellent work on this subject and all researchers should be familiar with it.

5. There has been a tendency to do too much "efficiency experting." Management and the workers themselves should participate in the development of improved methods. The "Work Simplification" approach offers great possibilities. H. B. Hood and Sons, milk distributors in Boston, maintain a large motion and time department and have effectively employed the "Work Simplification" approach.

6. There is need for improved research techniques in methods analysis. Little new has been advanced since the principles were first established by Taylor and the Gilbreths.

4.2 An Efficient Business Unit

Consider next the efficiency of an individual processing plant, warehouse, retail store, or any other business unit. How big should it be? What equipment and machinery are required? How should it be operated?

Surveys of agricultural processing plants have generally shown high inverse correlations between volume of business and average cost. This in itself does not mean that all

plants should be big. A big plant would be very inefficient if it could not get the raw materials to enable it to operate at a reasonable percentage of its capacity. But assuming adequate supplies and adequate market outlets, the size of a plant is an important factor in its success.

The following excerpt is concerned with economies of scale.—*Ed.*

4.2.1 Henry, W. F., Bressler, R. G., Jr., and Frick, G. E. "Efficiency of Milk Marketing in Connecticut, 11. Economies of Scale in Specialized Pasteurizing and Bottling Plants," *Storrs Agr. Exper. Sta. Bull. 259,* Univ. of Conn., June, 1948. Pp. 8, 10–13.

(*a.*) *Cost Curves for Individual Plants.* In any milk plant there are particular technical conditions that control and determine the relationship between inputs of productive factors and outputs of products. These conditions include the construction and arrangement of the plant and equipment, the efficiency of various pieces of equipment and the integration of operations, and the skill of both laborers and managers. Given these conditions, it will be possible to describe inputs in two general categories: first, those that are primarily a function of time and independent of the volume handled; and second, those that vary with the volume handled. This description may be called the physical *production function* for the plant in question.

Such production functions are basic to the determination of cost relationships, for costs are obtained by applying suitable prices and cost rates to the physical inputs. Plant and equipment will thus be reflected in fixed capital investments, and these in turn will be converted into *fixed* costs through the application of suitable rates for interest, depreciation, insurance, and taxes. Inputs of fuel, labor, electricity, and other variable items will appear as *variable* costs when they are multiplied by appropriate unit prices and wage rates. Together, these will give a relationship or curve describing the effects of volume changes on plant costs.

* * *

Since cost curves are derived from input-output relationships by applying suitable prices and cost rates to the inputs, it follows that any physical production function will give rise to a whole family of cost curves, each differing because of the particular prices and rates used in calculating fixed and variable costs. . . . If changes are limited to the rates applicable to fixed costs, the effects will be to raise or lower the level of the total cost curve. On the other hand, if the changes are in the prices of variable

factors, the effects will be to change the general slope of the curve, with steeper curves resulting from higher prices. Finally, there are all of the possibilities involving both fixed and variable elements, or both the level and the general slope of the cost curve.

Mention of the multiplicity of cost curves raises a very important point with respect to production functions and to cost curves. To be meaningful, these curves and functions for a particular plant must refer to the *greatest* possible output from a given input and to the *lowest* cost for that output. It goes without saying that there would be a host of less efficient organizations for this plant, and that each would be reflected in higher cost curves, but these would be "nonsense" combinations. A given plant output that could be obtained by using three men could also be obtained with six if the three added men merely reported for work and sat around the plant. In a like manner, it would be possible to use much more fuel by careless firing and by running the boiler at full capacity even when it was not required, and so to increase the level of the cost curve. But these are obvious inefficiencies that do not represent the production possibilities of the given plant under the stated conditions.

(*b.*) *The Curve Showing Economies of Scale.* The foregoing discussion has focused on the operation of a given plant, where many of the factors of production are fixed. In many situations, however, it will be desirable to consider all factors as variable, and to determine the costs for a series of plants similar in type but differing in size or capacity. Cost curves of this type are illustrated by the broken lines in Figure 2. . . . If average costs at the most efficient volumes are lower for large than for small plants, then it is apparent that there are savings or economies of large scale operation. Eventually these economies may be dissipated or more than offset by diseconomies. This is the situation indicated in the diagrams.

Under most conditions, it will be possible to have plants of many different sizes. If cost curves were obtained for a number of these, envelope curves could then be drawn tangent to these individual plant curves as shown in the diagram. These will show the levels of cost that could be obtained for any volume with the plants designed to handle that volume. The individual plant curves show the changes in costs that accompany variations in volume within a given plant; the *envelope* or *economies of scale* curves show the cost changes that will accompany changes in the size of plant, when plants are operated efficiently and without

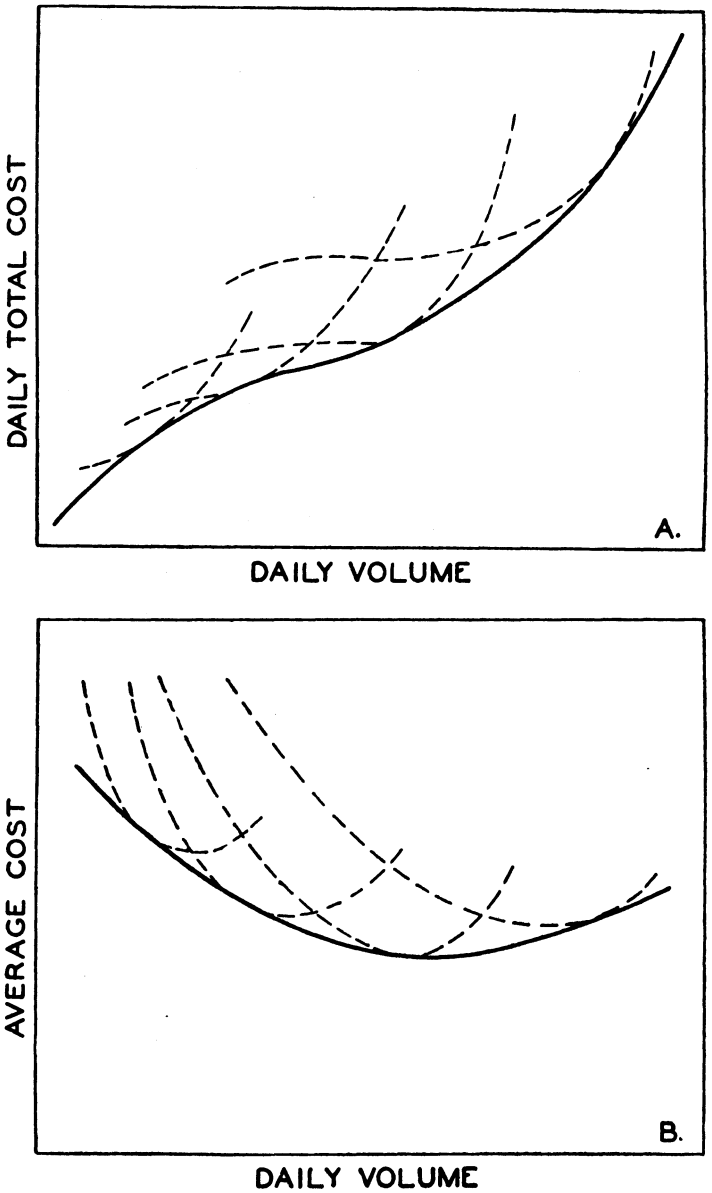


Fig. 2. The relationship between short- and long-run plant cost curves; A — in terms of total cost; B — in terms of average costs. The broken lines represent short-run costs, while the solid lines represent long-run costs — the curves showing economies of scale.

excess capacity. Because such curves show the costs that may be achieved under optimum organizations and not those that may characterize an actual but inefficient system, they have sometimes been called planning curves. The following pages attempt to derive cost curves for a group of city milk plants with relatively wide variations in capacity, and from these to construct a curve showing economies of scale.

3. *Research Procedures.* Several methods have been used by research workers in attempting to approximate the economies of scale curves. Perhaps the most common approach has been to determine average costs and volumes for each of a group of sample plants. These cost-volume data are then summarized in a table or diagram to show the average regression between plant volume and costs. Unfortunately, such average regressions combine and confuse cost changes that result from the more complete utilization of a plant of given scale with the cost changes that accompany changes in scale. As a consequence, it is a correct representation of neither.

This difficulty may be avoided by selecting a sample of plants that are well designed and operating approximately at capacity. In view of the prevalence of excess capacity, however, such a direct approach may not be as practical as might first appear. Maladjustments within the sample plants, both with respect to the integration of the several processes and items of equipment and to the adjustment of volume to capacity, will usually make some modifications necessary. These will take the form of budgetary or synthetic adjustments to actual plants in order to approach hypothetical organizations meeting the required conditions.

In the present study, the research has been based almost entirely on such syntheses. Plant designs and equipment lists have been obtained from dairy plant experts. These have been used to estimate investments and fixed costs. Job analyses have been used to indicate the amount of labor needed. Other variable costs have been projected on the basis of known cost data and on the principles of physics and engineering. These elements finally have been combined to indicate the relationships between costs and volume for each of a group of plants with capacities ranging up to 4,800 quarts daily, and the plant or short-run curves then have been used to determine the long-run relationship showing the economies of scale.

It will become apparent in the following pages that the major job of estimating cost relationships is the determination of the

basic physical relationships. Most of the work is technical rather than economic but, as explained in the preceding section, these technical relationships must be known before the appropriate cost relationships can be developed. Theoretically, the economist takes these technical functions as a part of his given data; practically, it is frequently true that appropriate functions are not available and must be developed as a part of the job of economic analysis. This is the case in milk distribution, although many phases of the following syntheses have been possible only because of a satisfactory background of technical knowledge.

Size of plant is only one factor. Several other factors were covered in a recent study of cotton manufacturing.—*Ed.*

4.2.2 Howell, L. D. "Costs of Manufacturing Carded Cotton Yarn and Means of Improvement," *U. S. Dept. Agr. Tech. Bull. No. 1033*, Aug., 1951. Pp. 7, 2, 3, 4, 5.

Purposes of Study. The main purpose of this study was to show what appears to be the most feasible means of increasing the efficiency and of reducing the costs of manufacturing carded cotton yarns. Intermediate purposes were: (1) to prepare detailed specifications and to indicate operating results for Model low-cost mills designed to manufacture specified kinds of carded cotton yarns for use as a standard or basis of comparison; and (2) to assemble and analyze detailed cost data for a representative sample of 15 carded cotton-yarn mills to show the influence of the several factors on efficiency and unit costs at each stage or process of manufacturing specified kinds of carded cotton yarns under actual operating conditions. The specifications and operating results for Model mills and the results of the analysis of cost data for representative mills under actual operating conditions are intended for use in indicating the adjustments needed to increase efficiency and to reduce costs. The results of this research are given for the direct use of manufacturers of carded cotton yarns and indirectly for the benefit of the cotton industry as a whole, including farm producers and consumers of cotton products.

Detailed specifications were prepared for so-called Model low-cost mills for manufacturing typical kinds of carded cotton yarns. They show the most desirable buildings, machinery and equipment, floor plans, labor requirements, draft programs, and production data for such mills. The grade and staple length of the cotton to be used are specified and detailed costs for the processes

and operations are developed. The specifications are based on modern buildings and machinery throughout, and they apply to establishments of about 10,000-spindle units operating 2 shifts per day or 80 hours per week. They are also based on prevailing wage rates in the area of the mills surveyed and apply to known machinery that has proved itself to be practicable.

Detailed cost data for a representative sample of 15 carded cotton-yarn mills were assembled and analyzed to show the influence of the various factors on costs of labor, overhead, and other items, at each stage or process of the manufacture of specified kinds of carded cotton yarn under actual operating conditions. Wide variations were found in kinds and conditions of buildings and equipment used and in organization and operation of the plants, but, taking the plants as a whole, none of the 15 mills surveyed equals the Model mills in buildings, machinery, or layout, or in simplicity of operations, although some of them approximate the Model mills in some particulars. The mills surveyed ranged widely in size and in number of counts of yarn spun, whereas the specifications for Model mills apply to plants of about 10,000 spindles, each mill to concentrate on the manufacture of only one count of yarn.

Total costs of yarns for the 15 mills surveyed, adjusted to 2 shifts per day or 80 hours per week, are substantially higher, in most instances, than those indicated for Model mills. These costs for 10s hosiery yarn, exclusive of selling expenses, ranged from 52.03 cents per pound to 55.75 cents, and averaged 53.28 cents for the mills surveyed, compared with 50.06 cents for the Model mill. In the case of 20s hosiery yarn, these costs ranged from 57.30 cents to 62.46 cents and averaged 58.74 cents, for the mills surveyed, compared with 55.97 cents for the Model mill. Differences in these costs for other yarns ranged from about the same as, to somewhat less than, those for 10s and 20s hosiery yarns.

* * *

Differences in labor and overhead costs by departments for the mills surveyed indicate possibilities for improvement at each stage of processing. For 10s hosiery yarn, for example, total labor and overhead costs for the highest cost mills surveyed exceeded the corresponding costs indicated for the Model mill by amounts ranging from about 81 per cent for spinning to more than 200 per cent for handling and storage and for fly frames. . . .

The possibilities of bringing about reductions in labor and

overhead costs for carded cotton yarns by amounts approximating the differences shown between actual costs for the mills surveyed and those indicated for Model mills appear to depend upon whether the costs indicated for Model mills are attainable under actual operating conditions. Data on labor and overhead costs by departments show that costs for the individual mills surveyed in many instances approached closely enough those for the Model mills to indicate that the costs shown for Model mills are at attainable levels under the conditions specified.

* * *

The principal factors contributing to maximum production per man-hour include the use of suitable kinds of cotton, the maintenance of good working conditions, a steady flow of work, the right type and quantity of modern machinery well maintained, a lay-out or arrangement of plant that makes for efficient operations and flow of materials, and an equalization of reasonable workloads as determined by competent specialists. Simplicity of operations with little changing of stocks, rovings, and counts of yarn, are also important to any mill that is trying to get maximum production per man-hour.

* * *

Adjustments in size of mills and in number of counts spun offer possibilities for reductions in costs. The relationships between size of the mills and manufacturing costs indicate that some carded-yarn manufacturing establishments may be too small for the most efficient operations, particularly in the manufacture of several counts of yarn. The mills generally spin too large a range of yarn counts to permit minimum unit costs of operations. In most mills a reduction in the number of counts spun would simplify the operations and make it possible to more nearly approach the costs indicated for Model mills, which contemplate producing only one count of yarn. With such simplified operations each mill could adopt the machinery, drafts, speeds, and work loads necessary to produce higher degrees of efficiency and lower unit costs. But such simplified operations would necessitate considerable cooperation on the part of persons or organizations responsible for the sales and merchandizing of yarn and of the mill's customers or users of carded yarns.

4.3 An Efficient Wholesale Market

Next consider a group of business units making up the wholesale market for perishables in some city. Is the market

as efficient as possible, or could the business be done with less manpower and expense?—*Ed.*

4.3.1 Crow, William C. "Wholesale Markets for Fruits and Vegetables in 40 Cities," *U. S. Dept. Agr. Cir. No. 463*, Feb., 1938. Pp. 24, 29, 31, 34.

Importance of These Problems. Antiquated, improperly designed and equipped markets, too many markets within a city, inadequate facilities for handling truck receipts, markets without rail connections, unregulated hours, lack of information on supplies, and unethical practices are among the most important problems in the wholesale fruit and vegetable markets of the large cities of the country. The solution of these problems offers one of the most fertile fields for reducing marketing costs with consequent benefits to growers, consumers, and produce dealers. The failure to solve these problems will tend to (1) prevent reduction in the cost of handling fruits and vegetables through the regular (wholesaler-jobber-retailer) channel, (2) encourage further expansion of distribution from growers through large-scale retailers (chain stores, voluntary chains, etc.) to consumers with the produce not moving through the regular markets in the large cities, (3) cause produce to move in increasing quantities directly from producers and shippers to smaller cities without going through the large city wholesale markets, and (4) foster the growth of many small markets with duplicating facilities and inadequate supplies.

* * *

How Can These Markets Be Improved? In addition to the more common problems, the markets in each city have peculiarities of their own. Therefore before drawing any satisfactory conclusions for improving the markets of any individual city it is first necessary to make considerable study of local conditions. There is no one panacea for the evils in all markets even though there may be some general principles which need to be considered in all cases. In effecting improvements in the organization, facilities, and practices of the wholesale fruit and vegetable markets of any city three steps are necessary: (1) Research to determine needs, (2) construction or reorganization, and (3) operation.

* * *

Construction or Reorganization. After a good plan has been developed for improving the markets in a given city, the next question which arises is that of putting it into effect. Reorganization or construction of markets is a matter which concerns a

large number of growers, wholesalers, jobbers, and retailers, as well as railroads, trucking companies, banks, property owners, real estate promoters, and industries allied with the distribution of fruits and vegetables. With so many varied interests involved and often a large expenditure of funds required, most individuals regardless of their convictions as to the need for improvements must take the marketing system as they find it. Changes call for group action. Group action is difficult to achieve.

* * *

In some cities no new wholesale fruit and vegetable market is necessary, and the problem is one of reorganization to make several existing markets into a unified marketing system. This reorganization is frequently one of the most difficult problems to solve. Even when a plan of reorganization has been worked out, and when a large majority of the interests of the produce industry are agreed upon the plan, it is difficult to get action. Such reorganization, if it is to be of any value, will reduce the costs of marketing, and such reductions must of necessity result in a loss of income by certain people or interests. Another reason why reorganization of markets is difficult is that many people prefer high costs each month to the much larger immediate outlay that might be necessary to correct a bad situation. And it should be reemphasized that a large outlay of funds will not necessarily cure a situation and that extreme care should be used in making sure that expenditures for improvements are of real economic value.

Perhaps it is not going too far to suggest that there are a few persons whose interest in increased market efficiency and lower distribution cost is diminished somewhat by the fact that many of these high costs are deducted from the remittance to the shipper or added to the bill of the consumer rather than being paid by the persons actually operating in the markets.

4.3.2 Crow, William C., Calhoun, W. T., and Park, J. W. "Wholesale Fruit and Vegetable Markets of New York City," U. S. Dept. Agr., Bur. of Agr. Econ., April, 1940. Pp. 49, 50, 52–53, 84, 102–3.

It is evident that the present methods of handling fruits and vegetables in New York City would be vastly improved if some way were found by which supplies would be unloaded directly on the floor where they are to be displayed and sold, regardless of their method of transportation. This would result in savings in cartage, deterioration, and time that would run into millions

of dollars annually. It would also promote a more general and widespread knowledge of available supplies, which is necessary for proper establishment of prices, and would make easier the marketing tasks of buyers and sellers.

Traffic Congestion. . . . By actual count it was found that throughout most of one night from 1,200 to 1,350 trucks were in this market area at one time. . . . Under these conditions not more than 400 trucks can park at the stores at one time, and they can get there only through heavy traffic congestion. The other hundreds of trucks and wagons must park some distance away and have their loads moved to or from the stores by hand or on hand trucks at a porterage cost of around $1,340,000 a year. The traffic problem in the market is further complicated by the fact that the market is located in an area through which must pass considerable other traffic that has no connection with the activities of the market itself.

* * *

Inadequate Buildings. . . . When a buyer visits the store of any particular operator he may purchase supplies that are in the store, on the sidewalk in front of the store, on a truck standing somewhere in the traffic jam, still on the railroad piers, or in a team-track yard, or perhaps still on a car float out in the river.

Facilities like these make it impossible for the dealers to develop sound merchandising programs for displaying and selling their products to the best advantage. They make it equally difficut for the buyers to perform their function of assembling supplies for consumers. The chief problems in the market can be summed up in the statement that because of inadequate equipment an unnecessary amount of labor is required. In other words, there is not a proper relationship between physical facilities and labor.

. . . Such greatly needed improvements in facilities, which the trade must have if it is to operate efficiently, could be provided not only without any increase in rental charges but with an actual reduction in rents over that being paid at the present time, to say nothing of other savings that would be made possible by them.

Improper Location. There is probably no reason why the principal wholesale fruit and vegetable market of New York City is in its present location, except that it was started there more than a hundred years ago when the products of Manhattan's farm lands were brought down to the growing city at the tip of the island. . . . It is located in a part of New York where the traffic is heaviest and

where movement by motortruck is difficult. Instead of being located near the center of the area that it serves, it is situated at the edge of the city, several miles away from the center of distribution of products moving from it. It is located in the very shadow of the skyscrapers of New York's financial district, where land is of such high value that it would be impossible to get space for expansion at any reasonable cost. . . .

* * *

Price-Making Difficulties. . . . In the Lower Manhattan market, supplies are received at many widely scattered places and cannot be concentrated within any one sale area. It is difficult for either sellers or buyers to gain definite information regarding the quantity and quality of perishables available in these several locations. Furthermore, the hours of arrival and delivery of motortruck receipts are unregulated and unpredictable. . . .

The Lower Manhattan market is handicapped in its function of price determination by this lack of market information due in large part to the scattering of both supplies and demand. This results in wide variations in price during a single trading period, leading to difficulties and dissatisfaction for shippers, dealers, and buyers.

* * *

Lack of Proper Regulation and Management. . . . Perhaps it would be well to note here that there is a distinct element of monopoly in most city markets. This monopolistic feature does not consist, as some people assume, of collusive practices of dealers, for ordinarily there is very substantial competition among the dealers who handle each kind of produce. Owners of the market property, however, have a monopoly over location. This is very important in New York as well as in most other large markets for it is difficult for dealers to do business anywhere except in the established market.

An organized market should be operated under unified management that will take into consideration the interests of the entire industry that does business in it, as well as the general interests of the public. . . . The present primary market in New York City cannot be so operated, for it is made up of many divergent interests with no definite area of jurisdiction. In it, rules and regulations are difficult, if not impossible, to enforce.

* * *

Advantages and Disadvantages of Each Location Summarized. . . . A site on the western end of Long Island is near the center

of consumption, which represents the shortest average time-distance to buyers. It is accessible to incoming and outgoing truck transportation. It is accessible to incoming rail shipments by means of the usual methods of harbor car-float deliveries, with a possibility of some alternative methods at least in emergencies; for diversions of rail movement, direct connections could be established to the north and east, and the usual car-float interchange would be available to the west and south. In this location a sufficient area probably could be obtained at a reasonable cost.

* * *

Summary of Conclusions. In view of the facts and analysis presented in this report, it is recommended that a new, complete, modern wholesale fruit and vegetable market be constructed. Several sites have been discussed in detail, including a New Jersey location and a modernization of the present Lower Manhattan market. After analyzing the advantages and disadvantages of each, it is recommended that the new market be built at the western end of Long Island on some site between the Williamsburg Bridge and the Queensboro Bridge. In this market dealers should be permitted to make sales of any number of packages they wish. Other uses should be found for the present Washington Street market area and the produce piers, so that dealers can dispose of their property in this location on some equitable basis and move into the new market.

The new market should consist of modern store units complete with offices and basements, additional offices for members of the industry who do not operate stores, platform space for unloading, display, and sale of goods not handled through stores, auction sales rooms, team-track yards, streets at least 100 feet wide, parking area for trucks, space for a cold-storage plant, and probably a farmers' market, all enclosed with a fence. The initial construction should be held to the minimum of actual needs, with plans and provisions for expansion when, and if, it is proved to be necessary.

The market should be a union terminal, open to all means of transportation, where supplies can be unloaded directly on the sales floors, thereby reducing cartage to a minimum. The railroad operations in the market should be conducted either by a common operating company representing all rail lines or by some type of organization similar to the private terminals in the harbor area. This operating company would handle switching from float bridges or rail connections to the market, and perform ter-

minal handling operations such as are now performed by the railroads at their own produce piers. This company should receive an allowance from the carriers in payment for the performance of this terminal service, this allowance to cover not only the actual terminal handling operations but also a part of the maintenance and amortization charges for sale platforms. Such charges should be so adjusted that total cost of operations to the railroads would be no more than the present costs, which include maintenance and rent of the produce piers. Rail operations to and from the market should include provision for diversion of carlot shipments on all connecting lines, both to other terminals or warehouses within the city, and to points beyond.

It is believed that a centralized market in this area, if built and regulated along the lines recommended in this report, would make annual savings in distribution costs of about $8,500,000, after allowance has been made for maintenance of the market and amortization of the investment over a period of 25 years. This estimate is based on the following expected savings on particular items: Cartage within the market, $2,500,000; porterage within the market, $600,000; time lost, because of congestion within the market, by trucks moving supplies to and from the market, $1,200,000; cartage between the market and retail outlets $800,000; rent on market facilities, $500,000; pier maintenance and cost of unloading, $400,000; margins of dealers (primarily in secondary markets), more than $600,000; and unnecessary deterioration and spoilage, about $1,900,000.

At the time the survey was made, it was estimated that such a new market could be built at a total cost of about $14,000,000, including the purchase of a suitable site on Long Island.

The market might be constructed either by a private corporation with public-utility status and properly regulated, or by a public corporation or market authority. Since it is not known that any private corporation is interested in building a market under these conditions, probably the most feasible and practicable approach would be the establishment of a market authority by the city of New York and the States of New York and New Jersey, with some Federal participation representing the interests of people who live outside these two States. This market authority should be governed by a nonpolitical board, empowered to consider proposals made by the trade and others, develop a comprehensive program for market improvement, and put such a program into operation.

4.4 Efficient Assembly and Distribution

Numerous studies have shown the existence of cross-hauling, overlapping, and duplication in the assembly and distribution of farm products. Some of it is explainable by differences in the seasonality of supplies, or by differences in quality from one producing area to another. But some of it is doubtless inefficient and distorts the pattern of marketing.

The following two excerpts discuss problems of assembly. —*Ed.*

4.4.1 Quintus, Paul E. and Robotka, Frank. "Butterfat Procurement by Creameries in Butler County, Iowa," *Iowa Agr. Exper. Sta. Res. Bull. 265,* Iowa State College, Ames, 1939. Pp. 255–56.

The real problem is to determine what the minimum cost of procurement and processing would be under a reorganization of the trade area. The areas served by individual creameries are characterized by excessive overlapping; the combined area of the trade territories being more than three times the area of the county. Nine creameries were serving the patrons in a single township, as many as five creameries being represented in a single section. One creamery trade area studied served only 14 per cent of the producers within an 8-mile radius.

Not only is the procurement system inefficient, but many of the creameries have too small a volume of business to operate most economically. Maximizing returns to producers involves optimum plant operations, that is, at the point where increased procurement costs would no longer be offset by the economies of a larger volume at the plant. It is probable that fewer and larger plants in the Butler County area, each serving the producers in a minimum area, could save at least 2 cents per pound of butterfat. This would amount to about $50,000 annually on the basis of Butler County volume.

Two major approaches to the problem are suggested. One is to bring competition among creameries to a sharper focus on the basis of relative efficiency by improving the producers' ability to choose the most advantageous outlet, by increasing the efficiency of manufacturing and of cream route organization and operation and by legislative control of undesirable competitive practices. Control of cream routes and creamery ownership of trucks appears to be essential for the most economical gathering of butterfat by the route method. The second major approach suggested contemplates achieving more quickly and at less cost the readjustment that would be brought about ultimately by present

competitive methods. It is believed much saving would result if the problem of reducing the number of creameries were approached directly by a rationally planned program of readjustment undertaken jointly by producers and the industry.

4.4.2 Hammerberg, D. O., Parker, L. W., and Bressler, R. G., Jr. "Efficiency of Milk Marketing in Connecticut, 1. Supply and Price Interrelationships for Fluid Milk Markets," *Storrs Agr. Exper. Sta. Bull. 237*, Univ. of Conn., Feb., 1942. Pp. 18–20, 31–33.

The Criteria for Milkshed Reorganization. From the foregoing discussion, it may be seen that a number of factors and relationships are basic to the allocation of milk to markets. The most important of these are: (1) the amount of milk required by the several markets and the effects of price changes on these amounts; (2) the location of milk production relative to the markets and the effects of price changes on production; and, (3) the nature of the relationship between distance and transportation costs and the effects of density of production on this relationship. These elements are discussed briefly in the following paragraphs.

The amounts of wholesale milk produced on Connecticut farms and delivered to 14 markets in 1937 have been indicated in Section 2. These amounts have been accepted as representative of the basic requirements for the markets. It is recognized that changes in population and changes in demand would modify these amounts, but the impossibility of making any accurate future estimates of these factors for the several markets led to their exclusion from the present analysis. The elasticity of demand in these markets should be considered, however, since the reallocation of supplies is inherently associated with an adjustment in market prices. Studies of the demand for fluid milk, while subject to important limitations, have invariably indicated that changes of a cent or two in the retail price per quart result in relatively minor changes in the amounts of milk consumed. As will be explained later, the price adjustments involved in the present analysis are quite small, as the maximum change for any market amounted to approximately one-fourth of a cent per quart of milk. Furthermore, these price adjustments would be independent of the general level of prices and concerned only with the differences in the prices in the several markets. The combination of these two circumstances makes it apparent that, for the purposes of the present analysis, it may be assumed that

the market demands would be perfectly inelastic without significantly violating actual conditions.

In Section 3 it was indicated that the density of milk production varied greatly throughout the state. In allocating production to the markets the 1937 pattern of farm sizes and locations has been used to represent the production situation. For the reasons explained above, namely, that price adjustments would be small and that the general level of prices would not be affected, it has been deemed unnecessary to consider any modifications in production that might result from the price adjustments inherent in this analysis. Empirical studies of the response of production to price changes have given widely varying and unstable results, but the general conclusion would seem to be that a relatively large price change is associated with a relatively small change in production.

One of the most obvious shortcomings of the proposed methods of allocating milk to markets would seem to be the discrepancy between airline and road distances. While discrepancies exist and are magnified by such natural barriers as mountains and rivers, there is actually a very close association between these two measures. Investigation has revealed that the correlation between the distance from Connecticut dairy farms to markets by improved roads and the airline distance to those markets is nearly perfect.

Since most wholesale milk would be transported to market by commercial truck routes, the relationship between airline distance and trucking costs is of primary importance. In a companion study of milk transportation, it was found that milk collection could be carried on most efficiently by relatively large trucks and that average collection costs tended to be a linear function of distance. The total distance traveled by a truck route under average density conditions was found to be approximately equal to 20 miles plus 2.5 times the average airline distance from the producers to the market. Efficient collection costs per hundredweight under these conditions could be represented very accurately by 10.2 cents plus 0.4 cents for each airline mile. In other words, the transportation cost-distance relationship under Connecticut conditions and with efficiently organized collection routes may be taken as a linear function with an added cost of 0.4 cents per hundredweight of milk for each additional airline mile from market.

Production density has a very important effect on collection costs since decreases in density would make it necessary for the trucks to travel greater distances and, therefore, incur higher costs in collecting milk. This has particular significance to a study of milkshed reorganization, as the duplication and overlapping of milksheds would be eliminated, and the effective density of production for each of the markets thereby increased. Basically, the cost modifications involved are functions of the production per mile of collection road, but for convenience in application the relationship has been generalized in terms of production per square mile of area. In terms of production per mile of road and using six-ton trucks, the cost adjustments may be approximately represented by: $c = \$0.125/D - \$0.005$, where "c" represents the modification in costs per hundredweight or the deviation from the costs indicated by the previously described airline-distance relationship and "D" represents production in hundred pounds per mile of collection road. . . .

* * *

Savings from Milkshed Reorganization. The most important result of the reallocation of milksheds along the lines indicated would be the minimization of the costs of assembling milk for all the markets. The cost reduction is the result of two elements: first, the distance factor, since the reorganization of milksheds would minimize the distance from producer to market for all markets taken together; and second, the density factor, as the consolidation of areas and the elimination of milkshed overlapping and duplication would make it possible to assemble milk at a lower cost as a result of the reduction in the distance that must be traveled to pick up or collect a load of milk. For individual markets, of course, the reallocated areas may result in increased costs since present milksheds may be fairly efficient for a particular market but at the same time be responsible for increased costs in adjoining markets.

As is indicated in Table 12, the reallocation of milksheds would result in a saving of more than two cents per hundredweight for the wholesale milk delivered to the 14 markets under consideration. This saving may be divided into a reduction of costs of 0.5 cents as the result of the distance factor and of 1.6 cents as the result of the density factor. In half of the markets the distance factor would actually result in an increase in costs, but the savings in the other markets, especially in Stamford, New Haven, and New London would be large enough to more than

offset such increases. The density factor would reduce costs in all markets, although the magnitude of the reduction would vary from less than one to six cents per hundredweight. The combined effect of distance and density would be to reduce costs in all of the major markets except Waterbury. The greatest reduction would be found in the Stamford market, while the largest markets — Hartford, New Haven, and Bridgeport — would have

TABLE 12

ESTIMATED SAVINGS IN MILK ASSEMBLY COSTS THAT WOULD RESULT FROM MILKSHED REORGANIZATION *

(In Cents per Hundredweight)

Market	Change in Costs That Result From		
	Distance Factor	Density Factor	Total
1. Ansonia	+0.2	−6.0	−5.8
2. Bridgeport	+0.1	−1.3	−1.2
3. Bristol	+0.4	−2.6	−2.2
4. Hartford	−0.0	−0.9	−0.9
5. Meriden	+0.5	−4.0	−3.5
6. Middletown	−1.6	−2.2	−0.6
7. New Britain	−0.5	−4.0	−4.5
8. New Haven	−1.4	−1.7	−3.1
9. New London	−1.4	−2.8	−4.2
10. Norwich	−0.0	−5.1	−5.1
11. Stamford	−6.4	−1.7	−8.1
12. Torrington	+1.6	−2.5	−0.9
13. Waterbury	+2.1	−1.4	+0.7†
14. Providence	−0.7	−1.3	−2.0
All Markets	−0.5	−1.6	−2.1

* Does not include any savings that would result from reorganization of truck routes. The indicated savings are the differences between the costs of collecting milk from present areas and from reorganized areas when the collection is performed efficiently in both instances. See EFFICIENCY OF MILK MARKETING IN CONNECTICUT. 3. *Economics of the Assembly of Milk*, for details of these computations.

† There would be a net increase in costs for the Waterbury market.

savings of 0.9, 3.1, and 1.2 cents per hundredweight respectively.

In terms of the charges made for transportation and the estimated costs of the efficient transportation from present areas, the savings from area reorganization would amount to from 8 to 11 per cent for the 14 markets considered. There appears to be a definite difference between the major markets and the minor markets with respect to the relative importance of these savings, the per cent reduction over the efficient costs of collections from present areas amounting to an average of approximately nine per cent for the three major markets — Hartford, New Haven, and

Bridgeport — and approximately 33 per cent for the three minor markets — Meriden, New Britain, and Ansonia. As the area maps in Section 7 and the data in Table 12 indicate, this difference is largely the result of the density factor, since the milksheds for the smaller markets are almost entirely overlapped by the milksheds of one or more other markets.

Overlapping and duplication are important in distribution as well as in assembly. Several studies have been made of possible savings in milk distribution. The following two excerpts discuss some of the problems which would have to be met in reducing overlapping and duplication whether in assembly or in distribution. Some inefficiencies could be abolished by setting up a private or public monopoly. But, in general, the American public has a strong preference for individual, private, competitive, free enterprise. Theoretically, free enterprise and competition *should* result in maximum efficiency. Where it does not do so, we search for a compromise. —*Ed.*

4.4.3 United States Department of Agriculture. "A Survey of Milk Marketing in Milwaukee," Marketing Information Series, DM-1, Agr. Adj. Admin., May, 1937. Pp. 112–13.

The foregoing has set forth the description, estimated capital expenditures, and costs of operation of the proposed unified handling system for Milwaukee. Costs of operation and the like are based upon the assumption that an efficient management could be set up. Depending upon the efficiency of management and the degree of freedom given such management in operating the central system, the foregoing figures may be taken as a fair appraisal of the operations of the system under efficient management.

Certain questions arise as to the feasibility of the proposed system in view of its relationships with producers and consumers. It would appear that unification of distribution facilities would tend to affect producers principally in the disruption of their relationships with distributors. That the effectiveness in bargaining power of producers would be impaired cannot be denied. Their associations undoubtedly would continue to represent them in negotiations with the marketing agency, with prices determined in the customary manner in light of existing supply and demand conditions, modified by local or State regulations, as the case may be. At the same time, the replacement of a number of marketing agencies by one organization would mean that bargaining power probably would be effective only insofar as influenced by competition between buyers for other markets, as

for instance, Chicago, and competition for alternative uses. Hence in the absence of regulatory measures, a discriminatory price policy might force a reduction in producers' price temporarily, notwithstanding the differentiation in quality which exists and would exist between milk delivered into the market and that used strictly for manufacturing purposes. Additional support is given to this statement when it is recognized that a large volume of milk over and above fluid requirements would be handled daily by the proposed marketing agency. However, it seems reasonable to assume that an efficient management would be careful not to jeopardize the position of producers.

It would appear that, in the absence of restraint in conduct of management, the interests of consumers under a monopolized system of milk handling could be as easily jeopardized as those of producers. Sound judgment probably would dictate policies fair to the public, but it must be remembered that the bargaining power of consumers is largely nullified when alternative sources of supply are eliminated.

It would follow as a logical presumption that, as far as producers and consumers might be concerned, successful operation of the proposed system would hinge closely upon the degree to which these groups were permitted to participate in the formulation and execution of policy. Public opinion probably does not crystallize with sufficient celerity over short periods of time to warrant dependence upon it as a sole protective device.

4.4.4 Bressler, R. G., Jr. "Efficiency of Milk Marketing in Connecticut, 10. Consumer Demands and Preferences in Milk Delivery," *Storrs Agr. Exper. Sta., Bull. 257,* Univ. of Conn., April, 1948. Pp. 5, 6, 7, 8, 19, 31–32.

1. *Introduction.* Four of the preceding reports in this series have dealt with actual and proposed reorganizations in milk delivery methods. These covered such programs as alternate-day delivery, zoned or exclusive delivery territories, and complete public utility or public ownership. Reviewing the findings of these studies very briefly, it is estimated that alternate-day operations reduced delivery truck mileages about 40 per cent throughout Connecticut. Daily deliveries under a system of exclusive territories for each dealer, on the other hand, would permit reductions averaging 74 per cent below the prewar daily delivery mileages, while a combination of alternate-day and exclusive territories would result in over-all savings of some 83 per cent. In general, mileage reductions from alternate-day delivery were slightly higher in rural and suburban areas than in the major

markets, but the potential savings from exclusive territories are greatest in the heavily populated areas. Complete monopoly under a public utility or publicly owned and operated system would give mileage savings comparable with those under exclu-

TABLE 1
ESTIMATES OF THE COST REDUCTIONS THAT WOULD RESULT FROM VARIOUS PROPOSALS TO REORGANIZE CITY MILK DISTRIBUTION*

Reorganization Program	Estimated Savings Cents per Quart†
Present system	
Daily delivery	
Alternate-day	1.1–1.4
Exclusive territories	
Small loads:	
Daily delivery	0.6–0.7
Alternate-day	1.3–1.6
Large loads‡	
Daily delivery	1.3–1.6
Alternate-day	1.9–2.4
Semi-exclusive areas	
Daily delivery	0.6–0.7
Alternate-day	1.2–1.6
Central plant	
Small loads:	
Daily delivery	2.1–2.4
Alternate-day	2.9–3.4
Large loads‡	
Daily delivery	2.8–3.3
Alternate-day	3.4–4.2
Store sales only	
Unrestricted routes§	1.5–2.0

* For details, see Appendix A.

† Using daily delivery as it existed prior to the war as the base from which to measure savings. The range in the estimates results primarily from the use of both prewar and postwar levels of weekly earnings for route men.

‡ Based on maximum loads of 450 quarts with daily delivery and 600 quarts with alternate-day delivery. Other computations are based on limits of 350 and 450 quarts, but these are being exceeded in many cases at present.

§ Permitting wholesale routes and deliveries to duplicate at will.

sive territories, and in addition would permit a better utilization of plant and delivery equipment.

Estimates of the net effects of such programs on milk delivery costs are given in Table 1. These show the potential cost reductions that would result from the several reorganization schemes *if such cost rates as weekly earnings of deliverymen were*

held constant; they should not be interpreted as estimates of the cost changes experienced by any dealers in past periods. Savings from any program of marketing reorganization may be passed on to the consumer, back to the producer, or be retained by dealers, routemen, and others in the marketing process. Any one or any combination of these may be justified, depending on the particular circumstances.

* * *

With these qualifications in mind, the table shows savings from proposed reorganizations ranging from 0.6 to 4.2 cents per quart. Now, if minimum cost were the sole consideration it would be a simple matter to conclude that some form of public utility or public monopoly is the most desirable type of milk delivery. But this is not the case.

* * *

The objectives of this study, then, are: (1) to survey consumers in several Connecticut milk markets in order to determine their expressed preferences and demands for marketing services; and (2) to compare these demands with the potential cost reductions in an attempt to give some indication of the desirability of proposed marketing schemes.

* * *

TABLE 8
SAVINGS NECESSARY TO INDUCE CONSUMERS TO GIVE UP THEIR CHOICE OF MILK DEALER, CONNECTICUT AND NEW YORK MARKETS

Price Differential Cents per Quart	Cumulative Per Cent of Households*		
	Connecticut Markets†	Ithaca, New York‡	Jamestown, New York§
0.0	38	.....	3
−0.5	46	29	40
−1.0	52	45	51
−2.0	62	52	61
−3.0	68	60	75
−4.0 or more‖	100	100	100

* Not including consumers who were uncertain or unable to give specific answers.
† Simple average of the two Connecticut surveys.
‡ Wartime Changes in Milk Distribution and in the Consumption of Milk, Cream, Butter, and Oleomargarine in Vermont, Thurston, M., Adams, Univ. of Vermont, Agr. Exper. Sta. Bull. 527, Burlington, Vermont (Oct., 1945).
§ "Consumers' Attitudes Toward Unified Delivery of Milk and the Proposal for a Municipal Milk Plant in Jamestown, New York," Leland Spencer and H. Alan Luke, New York State Coll. of Agr., Mimeograph A. E. 404 (Sept., 1942).
‖ Including those who were unwilling to accept the proposal regardless of savings.

* * *

Conclusions. From the foregoing material, it is apparent that most Connecticut consumers would be interested in programs to reorganize milk distribution with the intent of lowering milk prices. The vast majority of householders interviewed are not willing to pay higher milk prices in order to have their milk delivered every day. About two-thirds of the families would be willing to accept a program involving exclusive delivery territories if consumer savings amounted to 1.9 to 2.4 cents per quart, and slightly more than half would favor some form of municipal distribution with savings ranging from 3.4 to 4.2 cents per quart. While considerable amounts of milk are sold through stores in Connecticut markets, much of this supplements regular home delivery and less than one quarter of the consumers surveyed indicated a willingness to give up home delivery completely in order to save 2.0 cents or less per quart.

While these proportions have been based on careful estimates of the potential savings that would result from milk distribution reorganization, there is no assurance that savings of this magnitude would be passed on to consumers. Certainly producers and middlemen would want to retain some of the savings in the form of higher producer milk prices, higher wages, and wider margins. As a result, it may be argued that these estimates are too optimistic, even though it is admitted that most of the savings would normally be passed on to consumers through lower prices over a long-run period.

On the other hand, there is evidence that consumers as a group are overconservative in forecasting their reactions to new and changed conditions. This was illustrated by the reported reluctance of consumers in Ithaca, New York, to consider alternate-day delivery in 1940 and the almost universal satisfaction with the program that characterizes consumer reactions in markets where the program has been in effect for some time.

Aside from the reaction to any specific proposal for reorganization, the survey results suggest that most consumers are favorably disposed towards milk marketing reorganization. It is frequently implied that consumers are perfectly content with the existing system of distribution. The results reported in this bulletin give very little support to this contention or little cause for satisfaction on the part of those who have advanced it. Excluding the alternate-day delivery program that already is in effect, more than 40 per cent of Connecticut consumers appear willing to have some fairly drastic form of milk delivery re-

organization *without any promise of price reductions* while 60 per cent would be interested with savings of one cent or less (Table 13). In contrast, only 22 per cent are so satisfied with the present system or so distrustful of new proposals that they would be either completely unwilling to change or would require price reductions of five cents or more per quart. Such factors as brand names and personal relationships with handlers are important, in this field as in others, but not so important as to prevent most consumers from giving favorable consideration to new forms of milk distribution.

It must be admitted quite frankly that there is no way to evaluate objectively all of the pros and cons of marketing reorganization except through actual experience. The present

TABLE 13
EFFECT OF POTENTIAL SAVINGS ON THE WILLINGNESS OF CONNECTICUT CONSUMERS TO CONSIDER SOME FORM OF REORGANIZATION OF THE MILK INDUSTRY

Potential Savings Cents per Quart	Cumulative Per Cent of Households*
0	42
1.0	60
2.0	69
3.0	74
4.0	77
5.0 or more	99
Uncertain	100

* Simple average of Connecticut surveys. This combines consumer replies on exclusive delivery territories, municipal distribution, and the elimination of home delivery, tabulating the lowest savings required to induce the customer to accept any of the three proposals.

study and those that have preceded it in this series have attempted to provide information as specific as possible on certain aspects of the problem — aspects that more often have been the subject of speculation than of real knowledge. Other aspects are unanswered and some will remain so until actual experience is available to serve as a guide. The present findings are promising enough, certainly, to encourage experimentation in selected markets.

4.5 Efficiency of the Marketing System

The concept of efficiency is fairly clear when studying detailed processes such as that of putting celery into a crate. But macro-efficiency is a difficult concept. What do we mean by the efficiency of the whole marketing system? What standards have we for measuring it?

The plain fact is that the concept of macro-efficiency is rather vague and cannot be measured accurately by statistics. The economist cannot determine the "optimum use of resources" in any absolute sense. Nor can he devise a marketing structure which will at the same time reach such conflicting goals as maximum farm income, minimum cost to the consumer, and minimum expense for transportation and marketing. This does not excuse the economist from his duty to seek improvements in efficiency. It means only that this is a job requiring a great deal of judgment. In the final analysis, the citizens determine what use of resources they think is best. The economist can supply information, and can help the public understand the probable results of alternative actions.

The following three readings illustrate some approaches to this problem.—*Ed.*

4.5.1 Hoffman, A. C. and Waugh, F. V. "Reducing the Costs of Food Distribution," *Farmers in a Changing World, Yearbook of Agriculture — 1940.* U. S. Dept. Agr., Washington, D.C., 1941. Pp. 630–32.

Marketing Efficiency and Increase in Marketing Services. The charge most commonly made against the marketing system is that it is inefficient and becoming more so. The increase in absolute marketing spreads, together with the fact that the farmer's share of the consumer's dollar has tended to decrease, is often cited as evidence of this. Taken by themselves, however, neither of these things gives any direct measure of efficiency as that term is properly used.

If the farmer were to process his own products, transport them to market, and sell them direct to the consumer, there would of course be no margin between him and the consumer and he would get 100 per cent of the latter's dollar. Obviously this would not be an efficient way to market most farm products, and for some of them it would be patently impossible. The proportion of the consumer's dollar received by the farmer, then, is not a measure of efficiency but rather of the degree to which farmers concentrate on the business of production rather than on marketing. Some farm products — for example, eggs that are produced near the point of consumption — do not require expensive processing or transportation. The farmer selling such products will normally receive a much larger share of the consumer's dollar than one producing peas for canning, for instance, even though both products are marketed with equal efficiency.

It is generally agreed that consumers receive more in the way of marketing services today than they once did. Examples of

this are better grading and standardization, more convenient packages, and added processing. It is impossible even to estimate how much has thus been added to marketing costs. But so long as these things add to consumer satisfaction, it is self-evident that any resulting increase in the spread between farmer and consumer does not mean that the marketing system has to that extent become less efficient.

From the social standpoint, efficiency ought to be measured in terms of the amount of labor and capital required for the performance of any given marketing operation. The amount of labor required should be clearly distinguished from the wage rate or the compensation paid to labor for its services. Thus the marketing spread might increase either because more labor and capital are used for a given operation or because labor and capital are better paid. The first would be evidence of growing inefficiency but not the second. As we have seen, the increase in marketing spreads during the last 25 years is to be explained largely by the increase in hourly wage rates. But it does not follow that the marketing system is less efficient in terms of the amount of productive resources used per unit of marketing services rendered.

As a matter of fact, there is some evidence to indicate that food distribution is becoming more, rather than less, efficient. One thing which points in this direction is that food margins have not increased in proportion to the increase in hourly wage rates despite the fact that consumers are receiving as much in the way of marketing service as they ever did.

Still another thing should be kept in mind when considering marketing efficiency — the distinction between those marketing costs or expenditures made for the purpose of satisfying demand and those made for the purpose of influencing it in favor of a particular firm's product. Most costs incurred in connection with the physical handling of the commodity such as assembling, processing, transporting, and storing are of the former sort. So also are part of those for selling and transferring ownership of commodities at various stages in the marketing process. But it is also true that many — though not all — of the expenditures for salesmen's salaries, brokerage fees, and brand advertising are made for the purpose of influencing the buyer to patronize a particular firm or to use a particular brand or type of commodity. Insofar as expenditures of this kind contribute to the creation of new wants, larger total sales, and reduced produc-

tion costs, they serve a socially necessary and useful purpose. But if the effect is merely to take business from one firm and give it to another, then clearly there is no net social gain but only a transfer of advantage between individual firms. We should, therefore, take care to distinguish between the over-all efficiency of the marketing system and that of individual firms, since the two are not necessarily synonymous.

4.5.2 Bressler, R. G., Jr. "Efficiency in the Production of Marketing Services," *Economic Efficiency Series*, Paper No. 6, Social Science Res. Council Proj. in Agr. Econ., Univ. of Chicago, Summer, 1950. Pp. 3–4.

No attempt is made to identify efficiency as defined with the concept of general welfare, although the writer has personal convictions that (1) efficiency has an important bearing on general welfare, and (2) improved efficiency will *usually* be consistent with generally accepted welfare goals. It can be demonstrated that an increase in efficiency will mean an increase in the total output of goods and services from given resources, and so would permit an increase in real income. This means that it would be *possible* for everyone to have more of every economic good (leisure included), and thus strongly suggests that efficiency will be in line with welfare. Where achieving efficiency would require marked changes in social and economic institutions or would impose on values outside the market mechanism, however, society may well choose less efficient organizations. If maximum efficiency requires strict control over many economic activities or the socialization of certain sectors of the economy, for example, we may choose more freedom and less efficiency. To repeat, efficiency is only one aspect of general welfare and cannot be used to define a unique set of goals and policies for society.

It may be worth stressing that the possibilities for discrepancies between efficiency and welfare increase as we consider higher and higher levels of economic organization. Thus there appear to be only limited departures between individual and social objectives in achieving efficiency within a particular plant. The combination of plant and transportation functions involve greater disturbances to institutional arrangements and more interpersonal comparisons, while the efficient organization or reorganization of an industry may bring the conflict between efficiency and social welfare into sharp focus. Changes in the allocation of resources among major sectors of the economy further multiply these difficulties. In view of this, we present the concept of efficiency as only one — albeit an important —

consideration in social welfare. When presented to society, the descriptions of alternative organizations in terms of their efficiencies and the social and economic changes required to achieve efficiency will not *define* the social choice but will permit the choice to be made in an informed and intelligent manner. This also defines our concept of the role of the research economist — to select areas where he believes society is interested in efficiency and to describe possible alternatives so that society will have a better basis on which to make decisions.

4.5.3 "Input-Output Relationships in Agricultural Marketing," *Marketing Margins and Efficiency, Report of Marketing Research Workshop*, July 9–19, 1950, Purdue Univ. U. S. Dept. Agr., Agr. Res. Admin. Pp. 183–84, 185–87, 188–89.

The Problem Area: Operational Efficiency in Agricultural Marketing. The marketing system for farm products serves two broad purposes: (1) through assembly, processing, transporting, storing, distributing, and similar operations, to add form, time, and place utilities to the raw farm products in moving them from farm to consumer; (2) through the various mechanisms of exchange, to allocate these commodities among buyers, and the returns for them among sellers, and thereby to give expression to consumer preferences as guides to the use of productive resources in both primary production and marketing itself. The "efficiency" of the marketing system — and of it segments — must ultimately be evaluated in terms of effectiveness with which these purposes are served: the relationship between the consumption utility created and the resources used in its creation.

* * *

This Workshop is concerned directly with the first of the two broad purposes of agricultural marketing — with the problem of operational efficiency (as distinct from pricing efficiency) and the study of costs and margins as they bear upon this problem. This essentially technological phase of the problem can in principle be isolated for separate study. We can inquire, given the existing structure of prices and price-making mechanisms, what is the efficiency of the marketing system, or of segments of it, in terms of the form, time, and place utility created in relation to resource input; and how can this efficiency be increased? We must recognize, however, the limitations of the answers arrived at in such a restricted study: That "improvements" in operational efficiency cannot be finally evaluated without consideration of their effects upon pricing efficiency;

and that changes in price-making may invalidate the findings of an operational efficiency study, since they alter the assumptions that underlie it.

* * *

The central difficulty of definition and measurement in this problem turns upon the concept of consumption utility as the ultimate criterion of output. We have no direct measures of consumption utility. However, if we can assume "that the unmeasurable utility produced is correlated with some measurable quantity," we may have at least a basis for comparing the efficiencies of different operations. One such quantity suggested by Black and Houston is the "value added by marketing" as measured by "the difference between the prices received by the primary producers and the prices paid by the final consumers," or, more generally, by the price margin covering the operations analyzed. Conceptually, of course, such a measure begs questions as to the validity of the prices as reflectors of consumer choices, and hence is subject to the shortcomings previously referred to, inherent in the attempt to isolate operational from pricing efficiency.

On the input side, individual resources used in the operation can in many instances be measured directly in physical terms: e.g. labor in man-hours. Where the use of capital equipment is involved, charges can be assigned for depreciation and interest. In this way a set of "partial indexes of efficiency" can be built up, in terms, e.g., of "output per man-hour of labor" or per unit of other resource.

Some partial indexes can be compared as between two operations, e.g., the marketing of meat and of milk, and this comparison may be revealing in a number of ways. If the partial indexes for all resources turn out to be higher for one operation than for another, it would appear valid to conclude that the one operation is the more efficient. Where the comparisons lack such fortunate unanimity, they may still be suggestive of problems needing exploration: Why, for example, is output per man-hour greater or smaller in meat marketing than in milk marketing? No definitive conclusions as to over-all efficiency can be drawn in such cases, however, since the explanation may lie in justifiable differences in the structure of inputs. Such comparisons have greatest validity where the structure of inputs is similar in the two markets.

What is needed for over-all comparisons is obviously an aggre-

gative measure of inputs — an index combining man-hours of labor, services of capital assets, and quantities of other resources used. The attempt to apply price weights in constructing such an index, however, causes the whole analysis to break down. For aggregate input then comes to consist of the cost expenditures going to make up the margin that has been used as the measure of output. If all expenditures are included, input becomes identical with output and all operations appear to have 100 per cent efficiency. Certain expenditures may be omitted as not corresponding to "real" resource inputs: for example, profits in excess of some "normal" entrepreneurial return. But then "efficiency" turns out to have been measured by the size of this omission from the denominator of the output-input fraction: The more efficient operation is that with the relatively larger "abnormal" profits, reflecting imperfections and rigidities in the market. Here again the difficulty of isolating operational from pricing efficiency intrudes itself to vitiate our attempts at measurement.

Single commodity comparisons. The cause of this unhappy result is, of course, our lack of independent measures of aggregate input and output. It may be gotten around if methods can be devised for measuring either input or output independently of the pricing system.

One situation in which this appears possible is in comparison between similar operations with a single commodity: e.g., in comparing the efficiency of milk marketing in two different cities. Here if we are willing to make the bold assumption that a unit of the commodity has the same average utility in both markets, the total volume of the commodity marketed may be taken as a measure of output. Calculating the index of aggregate input as described above, we can obtain comparative estimates of efficiency in terms of, e.g., quarts of milk per dollar's worth of resource input.

This device avoids the methodological impasse described above, arising from the identity of the measures of inputs and outputs. It does not avoid the problem of the validity of prices, since the index of inputs is price-weighted. For inter-market comparisons the same weights must, of course, be used in both markets, and some basis is required for the selection of these weights. This selection should be specific to the question asked. If, for example, city A wishes to determine whether it would gain in operational efficiency by adopting the milk marketing system of city B, the analysis should use as weights the prices of factors

that prevail in A. Or, at the risk of confusing questions of operational as versus pricing efficiency, arbitrary price weights may be assigned that are assumed to represent a "truer" evaluation of inputs than prices actually prevailing in the "problem" market.

Comparisons may similarly be made of a single marketing system at different times. Here, again, weighting should be by prices prevailing, or assumed appropriate for evaluating resources, in the time period on which the primary attention is focused. Is milk marketing in city A today, in terms of the present valuation of inputs, more efficient than it was 5 years ago? In comparisons over time, of course, changes in quality of the commodity, in the services associated with its distribution, or in consumer tastes themselves may invalidate physical volume as the standardized measure of output. Such comparisons are most valid for short-time periods in which there have been no radical changes in treatment of the commodity. In spite of these limitations, the development of time series showing trends in efficiency for a number of commodities should provide highly suggestive data.

Comparisons may likewise be made of an actual system with a hypothetical system designed for maximum operational efficiency. Here again it must be kept in mind that analysis in terms of *operational efficiency* rules out of consideration the effects of price changes that might result from a proposed change in operation, or even that might be used as a means of inducing such a change. Substituting capital for labor, for example, may cause compensating adjustments in wage rates relative to charges for capital inputs.

* * *

Summary and Conclusions. The possibility has been explored of adapting input-output analysis for measuring the operational efficiencies of whole marketing systems or segments of them. The method faces a basic conceptual difficulty in devising measures of consumption utility as the criterion of output. Price margins may provide a practical, rough measure. Combination of this measure with physical inputs of individual resources permits the calculating of partial indexes of efficiency that may have suggestive value in indicating problems worth further investigation. Combination of it with a price-weighted index of total input of all resources breaks down, however, because the measures of output and input are no longer independent.

This problem may be overcome in comparing the efficiency

of similar marketing operations for a single commodity by using physical volume of the commodity as the measure of output. The method may be extended to a group of commodities with a common raw material by constructing a price-weighted index of combined output. For example, we may compare the efficiency of different markets for fluid milk, and may take account of differences, e.g., in the service rendered in home delivery versus store sale.

Uses and limitations of the method. Such a measure of comparative operational efficiency should be useful:

1. For indicating "problem" markets, where existing inefficiency suggests the desirability of concentrating remedial efforts.
2. For suggesting (by the "partial indexes") the factors being used inefficiently, and hence the possible direction of needed adjustments.
3. For indicating changes in efficiency in a single market over time, and especially for testing the results of actions undertaken to increase efficiency.
4. For comparing actual with hypothetical or synthetic marketing systems.

In making the applications listed above, the following limitations should be borne in mind:

1. The measure is rough, at best, because of the difficulty of precise measurement either of consumption utility or of input aggregates.
2. It helps only to locate the problem area; it does not solve the problem.
3. Comparisons must be qualified in the light of inherent differences between the markets, e.g., in market density, that may make differences in efficiency as here measured unavoidable.
4. The conclusions derivable refer only to operational, as distinguished from pricing, efficiency, and they assume the need for price-weighting as an invariable condition of a problem.

SECTION 5

Competition in Agricultural Markets

Until about 1930, agricultural markets were usually considered the very prototype of perfect competition. But times and theoretical concepts change. Economic theory was revolutionized by the development of theories of monopolistic and imperfect competition associated with the names of Chamberlin and Robinson. These new theories emphasized the pervasive nature of monopoly elements and the view that, in most actual market situations, monopoly and competition are likely to be alloyed, rather than either one existing in its pure form.

Agricultural economists began to point to significant departures from perfect competition. They found that imperfections of knowledge, foresight, and mobility — the importance of which agricultural marketing specialists had long recognized — were not the only barriers to the achievement of conditions of perfect competition. Rather, they now saw that even the complete elimination of these imperfections — while creating the prerequisites for a perfect market *— might still not insure* perfect competition *for other reasons. First, either buyers or sellers might be dominated by a few large business organizations. Second, even small business organizations — if engaged in local assembly in country markets or local distribution at retail — might find it possible to differentiate their services or exploit a locational advantage. These developments have brought a much better understanding of the functioning of agricultural markets, while more closely integrat-*

ing research in agricultural markets and prices with the concepts and tools of general economic theory.

In this section we review the trends toward concentration in the assembly, processing, and distribution of farm products. We present some analyses of the causes of these trends and conclude with readings that provide useful concepts of imperfect competition and apply them to the appraisal of actual agricultural markets.—EDITOR

5.1 Trends in Size of Business 246

5.1.1 Nicholls, Willam H. *Imperfect Competition Within Agricultural Industries.*
5.1.2 Froker, R. K., Colebank, A. W., and Hoffman, A. C. "Large-scale Organization in the Dairy Industry."
5.1.3 Hoffman, A. C. "Changing Organization of Agricultural Markets."
5.1.4 Paul, Allen B. "Some Economic Changes in Food Manufacturing."
5.1.5 Nicholls, William H. *Imperfect Competition Within Agricultural Industries.*

5.2 Causes of Concentration 254

5.2.1 Black, John D. and Guthrie, Edward S. "Economic Aspects of Creamery Organization."
5.2.2 Koller, E. Fred and Jesness, O. D. "Organization and Operation of Minnesota Cooperative Creameries."
5.2.3 Henry, W. F., Bressler, R. G., Jr., and Frick, G. E. "Efficiency of Milk Marketing in Connecticut."
5.2.4 Hoffman, A. C. "Large-scale Organization in the Food Industries."
5.2.5 Nicholls, William H. "Post-War Developments in the Marketing of Butter."
5.2.6 Nicholls, William H. "Post-war Concentration in the Cheese Industry."
5.2.7 Nicholls, William H. *Price Policies in the Cigarette Industry.*
5.2.8 Hoffman, A. C. "Large-scale Organization in the Food Industries."
5.2.9 Artman, Charles E. "Expense Factors in City Distribution of Perishables."

5.3 Imperfections of Competition and Their Consequences . 273

5.3.1 Steinbeck, John. *The Pearl.*
5.3.2 Nicholls, William H. "Imperfect Competition in Agricultural Processing and Distributing Industries."
5.3.3 Hoffman, A. C. "Large-scale Organization in the Food Industries."
5.3.4 Dupuit, Jules. *De l'Utilité et de sa Mesure,* (A collection of Dupuit's writings).
5.3.5 Nicholls, William H. *Imperfect Competition Within Agricultural Industries.*
5.3.6 Nicholls, William H. "Post-war Concentration in the Cheese Industry."
5.3.7 Nicholls, William H. "Price Flexibility and Concentration in the Agricultural Processing Industries."

5.3.8 Hoffman, A. C. "Large-scale Organization in the Food Industries."
5.3.9 Nicholls, William H. *Price Polices in the Cigarette Industry.*

✓ ✓ ✓

5.1 Trends in Size of Business

The typical pattern in the processing and distribution of farm products has become that of a few large firms handling a major share of the total business, with a relatively large number of small firms handling the remainder. We present four summaries of this development. The first three discuss the structure that had emerged prior to World War II in a number of industries, drawing primarily upon data from the Federal Trade Commission's *Agricultural Income Inquiry,* published in 1938. The fourth, dealing with sizes of plants rather than firms, discusses changes during the war.—*Ed.*

5.1.1 Nicholls, William H. *Imperfect Competition Within Agricultural Industries.* The Iowa State College Press, Ames, Iowa, 1941. Pp. 68–70.

A ranking of the nation's largest industrial corporations (excluding railroads, utilities, and financials) for 1935, on the basis of assets, shows that fourteen of the first 100 were corporations engaged in the processing or distribution of agricultural products. Among these fourteen firms were four meat packers (of which the two largest ranked first of the fourteen), three tobacco companies, two dairy corporations, one food chain organization, and one firm each in fruit distribution, bakery products, corn products, and sugar refining. The range of assets among the fourteen firms was from 76 million dollars for the smallest to 321 million dollars for the largest. Had corporations been ranked on the basis of dollar sales, such processing-distributing firms (because of their relatively high turnover) would undoubtedly have shown an even more important relative position in the national economy. What is the comparable position of dominance of such firms within their own respective industries?

In Table 9 we have summarized the extent of concentration of control in the assembling, processing, and wholesale distribution of the principal classes of farm products and their primary derivatives. Concentration in the hands of the three largest firms in each given processing-distributing industry was greatest for

livestock (57 per cent), followed by tobacco leaf (46), wheat (38), canned vegetables (30), and milk (21).

In terms of concentration as measured by the size of the largest single processor-distributor in each industry, the order of

TABLE 9

EXTENT OF CONCENTRATION OF CONTROL OF THE ASSEMBLY, PROCESSING, AND WHOLESALE DISTRIBUTION OF THE PRINCIPAL CLASSES OF FARM PRODUCTS AND THEIR PRIMARY DERIVATIVES, 1934*

	Percentage of Total Volume of Domestic Business (1934) Handled by		
	Processor-Distributors		Non-processing Assembling Middlemen
Farm Product	Three Largest	Single Largest	Three Largest
Livestock	57.5	28.4	.....
Cattle and calves	62.4	29.3	6.8
Hogs	48.0	24.0	1.6
Sheep and lambs	79.2	39.7	.....
Milk (all uses)	21.1	9.4	.....
Butter	20.8	8.1	.....
Cheese	62.9	32.2	.....
Canned milk	44.3	18.7	.....
Tobacco leaf	46.2	22.2	24.6 (export)
Cigarettes	80.1	27.3	.....
Smoking tobacco	64.8	23.2	.....
Chewing tobacco	68.7	26.4	.....
Cigars	27.7	.....	.....
Snuff	95.3	42.0	.....
Wheat	38.4	23.3	13.1
Wheat flour	29.0	15.7	.....
Wheat bread	19.4	.....	.....
Cotton (lint)	3.2	1.2	20.1
Canned fruits	13.0	5.0	.....
Canned vegetables	30.0	15.0	.....
Grocery retailing	22.1	13.7	.....

* ED. Sources: Packers and Stockyards Administration, and Federal Trade Commission: *Agricultural Income Inquiry* (1938).

rank of these broad classes of farm products was livestock (28 per cent), wheat, (23), tobacco leaf (22), and canned vegetables (15). The three largest non-processing, assembling agencies handled 25 per cent of the tobacco leaf (mostly for export), 20 per cent of the cotton lint, 13 per cent of the wheat, and 7 per

cent of the cattle and calves and 2 per cent of the hogs slaughtered under federal inspection.

5.1.2 Froker, R. K., Colebank, A. W., and Hoffman, A. C. "Large-scale Organization in the Dairy Industry," *U. S. Dept. Agr. Cir. No. 527*, July, 1939. P. 3.

Dollar sales of the four leading dairy corporations . . . showed a tremendous growth during the decade of the 1920's. In the interval from 1925 to 1930, sales of the National Dairy Products Corporation increased from about $105,000,000 to $375,000,000; sales of The Borden Company from about $123,000,000 to $345,000,000; and of the four reporting companies combined, from about $299,455,000 to $854,378,000. During this period the estimated total sales value of all dairy products increased from about $1,965,000,000 to around $2,200,000,000. Dollar sales of the four leading dairy companies thus nearly trebled during a period in which the total sales value of all dairy products increased only about 12 per cent.

5.1.3 Hoffman, A. C. "Changing Organization of Agricultural Markets," *Jour. Farm Econ.*, Vol. XXII, No. 1, Feb., 1940. Pp. 162–64, 169–70, 165.

It is probably correct to say that the organization of agricultural markets has changed more in the last 25 years than during the preceding century. What has happened is the application of large-scale methods to food distribution. From a system comprised almost wholly of small, functionally-specialized business enterprises there has been a transition to vertically-integrated concerns operating on a regional and even a national basis. Examples of this development are the large corporate chains, the big dairy companies, the flour-milling and baking concerns and organizations such as Standard Brands and the General Foods Corporation, to name only a few of the outstanding ones. The rise of such concerns is the more remarkable because it has occurred in a field of enterprise not hitherto thought well adapted to the application of large-scale methods.

* * *

The most interesting and, in many ways, the most significant development in the food industries has been the growth of mass retailing. I shall devote a considerable part of my paper to this because it best illustrates some of the principles and problems of large-scale marketing. Mass retailing has taken several forms chief of which is the corporate grocery chain. It has also expressed itself in the organization of independent retailers into voluntary and cooperative groups. There are points of resem-

blance in these two developments, but also important points of difference.

The origin of the corporate grocery chain in this country dates back to the founding of the Great Atlantic and Pacific Tea Company in 1857. But not until the 20th century did any of the chains achieve sizable proportions and only since the World War have they risen to their present position. The decade of the 1920's was the period of most rapid expansion for the grocery chains, as well as for most other types of large-scale food concerns. In this short period the combined annual sales of the five leading systems increased from around 400 million dollars to nearly 3 billion dollars. The largest single system, the A. & P., has annual sales approximating a billion dollars, or approximately 10 per cent of all food sales made through grocery and combination stores. The onset of the depression in 1930 brought expansion of chain stores temporarily to a halt, their position with respect to that of the independents having remained relatively unchanged since that time. There are those willing to venture the prediction that further chain store growth is more or less permanently at an end; but I am not so sure about this, assuming, of course, that legislative measures do not intervene.

The organization of independent retailers into voluntary and cooperative chains is a more recent development. The American Institute of Food Distribution estimated that in 1936 about 100,000 independent grocers, or one-third of the total number, were affiliated with organizations of this kind. However, it would be incorrect to infer from these figures that mass retailing methods similar to those of the corporate chains are being applied by one-third of all independent retailers. Some of the cooperative groups do centralized buying and provide their members with services similar to those of the corporate chains, whereas others do little more than provide a common name. The important difference between the cooperative and the corporate chain turns on the degree to which the management of the retail store is centralized. Obviously the corporate chains have more of whatever advantages or disadvantages lie in centralized store control.

Another important and recent development in food retailing is the so-called super market, a retail food unit doing an annual business of at least $250,000, with emphasis on self service and low cost store operation. The super market idea was developed early in the depression by a new set of mass merchandizers, but

some of the older corporate chains were quick to take it up and since have been rapidly converting many of their regular stores into markets of this type. In a sense the super market represents a change in the type of retail store rather than a change in ownership structure. But it probably has done more to change the mechanics of retailing than anything since the emergence of the corporate chains themselves.

The grocery chains are commonly thought of only in connection with the retailing of food products. Their enterprises, however, reach back into nearly all phases of food processing and distribution; and, in many cases, they span the gap between producer and consumer.

Nearly all the chains, including most of the smaller ones, have integrated the function of wholesaling with that of retailing. The big chains have gone much farther than this. Several of them, for example, have subsidiaries for providing their retail units with fruits and vegetables, an increasing proportion of which they are buying direct from growers and shippers at country points rather than from handlers in the terminal wholesale markets. Especially noteworthy has been the entrance of the chains into the field of dairy manufacturing and distribution. A number of the leading systems operate plants in producing sections for the manufacture of condensed and evaporated milk, and purchase a considerable part of their butter and cheese direct from local creameries and cheese factories. Other chain store enterprises include the operation of bakeries, canneries, meat warehouses, and miscellaneous food processing establishments. The trend toward vertical integration on the part of the chains was temporarily arrested by the depression, but this trend seems to be a natural concomitant of mass retailing and we shall probably see more rather than less of it in the future.

* * *

In thinking about the problem of monopolistic control in agricultural marketing we often tend to focus our attention on the size of the leading firms and the percentage of the national supply which they control. But the problem of local competition is fully as important, and in some instances may be even more so because it is here that the number of buyers is more likely to be limited with respect to the market area involved. In the case of canning crops, for example, the grower commonly has only one or two local plants with which he can deal. For certain

crops grown in specialized areas of production, it not infrequently happens that one or two buyers are the dominant factor in the local situation, so that sharp price repercussions are likely to occur if their buying support is temporarily withdrawn. The introduction of the motor truck has tended to prevent abuses in situations of this kind by increasing the number of local outlets available to the individual producer. Further protection along this line can perhaps best be given through the cooperative marketing movement.

* * *

The nearest thing to a retail monopoly we ever had in this country was the village grocery store. It is not always recognized as such because we commonly think of monopoly only in connection with big business. But the village store nevertheless had monopoly elements, and for the simple reason that the shopping choices of its customers were limited by the cruising radius of a horse and buggy or by the legs of little boys whose job it was to fetch the groceries. If we think of retail competition in terms of the number of stores available to the average consumer, then we have far more of competition today than we have ever had in the past simply because of the automobile.

5.1.4 Paul, Allen B. "Some Economic Changes in Food Manufacturing," *Jour. Farm Econ.*, Vol. XXXII, No. 4, Pt. 1, Nov., 1950. Pp. 584–86.

Numbers of plants. The total number of food plants decreased 10 per cent from 1939 to 1947, an experience contrary to that of other manufacturing sectors of the economy. Plant numbers in total manufacturing increased 39 per cent, with increases in individual sectors ranging from 13 per cent in petroleum and coal products to 102 per cent in machinery products.

However, the over-all change in the food sector hides divergent experiences of individual food industries. Plant numbers decreased in 15 food industries and increased in 22 others. Reductions of 100 plants or more occurred in the manufacture of bread, butter, flour, natural cheese, ice cream, dressed poultry, malt liquors, cottonseed oil, and macaroni products. Increases of 100 plants or more occurred in the manufacture of soft drinks, meat, processed cheese, candy, canned fruits and vegetables, pickled fruits and vegetables, frozen foods, and flavorings.

Changes in plant numbers mirror the operation of underlying technical and economic forces. An increase in plants may result from an expansion of relevant markets; but within limits

existing plants might meet such needs. There are environmental factors, independent of general market expansion, that induce new plants to enter; e.g., population shifts, alterations in sources of materials, transportation changes, improved production machinery, governmental regulations, etc. The withdrawal of older or less fortunately situated plants tends to lag. On the other hand, a decrease in plant numbers may result from a contraction of the market. However, in the period studied most markets for manufactured foods expanded. The explanation for the decrease in plant numbers lies in other directions, probably in the triumph of large-scale over small-scale operations. The food industries are quite sensitive to changes in the economic environment through factors such as product bulk and perishability, in-transit privileges, weight loss and weight gain in processing, etc. It would be of interest, for example, to trace the impact of the recent westward migration of population on the location of food manufactures.

Average size of plants. The average size of plant increased about 60 per cent. Behind this average lies a great range: from a decrease of two thirds in processed cheese to a three-fold increase in natural cheese. A large influx of new plants, apparently due to patent expiration, lowered the average size of processed cheese plants. On the other hand, a large number of plants withdrew from natural cheese manufacture, while the output of the industry doubled. This points to favorable conditions in augmenting the milk supplies available to surviving plants.

Both butter and canned milk plants increased in size some 60 to 70 per cent, but for opposite reasons. The butter experience reflects almost solely the withdrawal of plants, whereas canned milk reflects solely the expansion of production.

The preceding excerpts have described the trend toward "big business" in agricultural marketing. Typically, this has led toward some degree of monopoly (more precisely, "oligopoly," since there are usually several, rather than only one, large sellers) on the selling side, or of "monopsony" (or "oligopsony") on the buying side. But large firms may have quite limited monopolistic powers, and small ones may be able to exercise considerable control, depending upon the size and character of the market. Some of the factors that determine this are discussed below.—*Ed.*

5.1.5 Nicholls, William H. *Imperfect Competition Within Agricultural Industries.* The Iowa State College Press, Ames, Iowa, 1941. Pp. 79–81.

Conclusions. We may conclude that many processing-distributing industries exhibit a situation, at one or more stages in

the marketing process, which is akin to oligopoly, oligopsony, or the two in combination. This may be true as a result of the fact that a few firms hold a position of dominance, whether due to large size in a nation-wide market or to the confining nature of the local market. Therefore, each dominant firm will probably have to recognize the circular interdependence between his own price and production policies and those of his principal competitors. Such a firm cannot be analyzed according to the presuppositions of pure competition.

At this point, however, we wish to distinguish carefully between the dominance of a central market and that of a local country market. We can do this very well by pointing out why the extent of control of the nation's product, measured in percentage terms such as we have presented, is in no sense a direct key to the degree of monopoly or monopsony power enjoyed by any firm in a given industry. In fact, we saw in the previous chapter, that such power depends upon the elasticity of the individual firm's sales or purchase curve, respectively.

This is clear if we imagine the extreme case of a firm which purchases 100 per cent of the national supply of a given farm product and sells 100 per cent of the resulting supply of its derivative. Now, if the firm's purchase curve is perfectly elastic because of an equally remunerative and ever-present alternative use of the farm product or of the resources used in its production, complete control of the purchase of the given farm product is absolutely unimportant and has no economic significance. Thus, the question as to whether monopsony profits would be possible, with cheese processing and distribution concentrated in the hands of a single firm, would depend upon the elasticity of supply as determined by the competition of alternative uses to which the raw milk could be put. Frictions of various sorts and a tendency toward concentration of the processing of all dairy products in the same firm would tend to make the supply of milk for cheese less than perfectly elastic and make monopsony profits possible. Analogous arguments would apply if the firm's sales curve were perfectly elastic, in which case there could be not one whit of monopoly power in spite of 100 per cent control of the sale of any given product. It should be noted that, in the central market, oligopoly and oligopsony are usually found in combination, and, since we shall concentrate our attention on the central market in the next five chapters, we shall consider this combination, oligopoly-oligopsony, as our principal case.

Turning to the local country market, on the other hand, it

is easy to see that a firm, while taking a relatively small percentage of the national supply, might be dominant relative to the local market. In such a situation, such a firm might be faced with a somewhat inelastic purchase curve, so that it could lower its buying price by reducing its volume of purchases. This is clearly a more significant case than the first. It may at first appear paradoxical that each firm should purchase only a very small proportion of a farm product and yet have a significant degree of monopsony power. Yet the element of location certainly affords any firm some protection from the competition of other buyers by the additional cost to farmers of transporting the supply of the farm product in his local area to the markets of his competitors. Under these conditions the cost of processing or assembling services to the farmer will be different in different places. The best way of dealing with this is to declare that facilities having the same physical characteristics do not offer the same services if they are in different places. Location is an essential and distinguishing characteristic of economic services, and the only relationship between the costs to the farmer of similar services in different places is that which results from the possibilities of transforming the one service into the other by transporting the farm product from the one place to the other.

The imperfect nature of the substitute services to a particular buyer's local clientele (due to his greater convenience of location) and the increasing cost of transport as he expands the area from which he draws his supply will tend to make his purchase curve less than perfectly elastic, thereby giving him a certain degree of monopsony power. . . .

5.2 Causes of Concentration

The trends toward concentration in agricultural markets appear to be due to a variety of factors which may be grouped under two major headings, economies of scale and monopoly elements. There is little doubt that the possibility of realizing economies of large-scale production and distribution has been an important cause of concentration in some agricultural processing industries, while favoring the development of chain-store distribution and super-markets. On the other hand, certain agricultural processing firms have probably grown beyond the size associated with minimum costs of production and distribution because of their desire to obtain greater control over markets and prices. The latter cause of concentration is essentially monopolistic in nature, being associated with such factors as patents and large-scale advertising of branded products.

Furthermore, the two causes are interrelated. First, concentration resulting from the drive for achieving economies of scale has sometimes resulted in firms too large to conform any longer to a pattern of competitive pricing. Second, beyond some point, the economies of large-scale advertising may become wholly private rather than social in their benefits, simply protecting existing dominant firms against the entry of new competitors. As a result, the two causes are apt to be closely associated and difficult to separate.

In the following three selections we have grouped several studies of essentially technological economies associated with the scale of the individual plant.—*Ed.*

5.2.1 Black, John D. and Guthrie, Edward S. "Economic Aspects of Creamery Organization," Tech. Bull. 26, Univ. of Minn., Dec., 1924. P. 94.

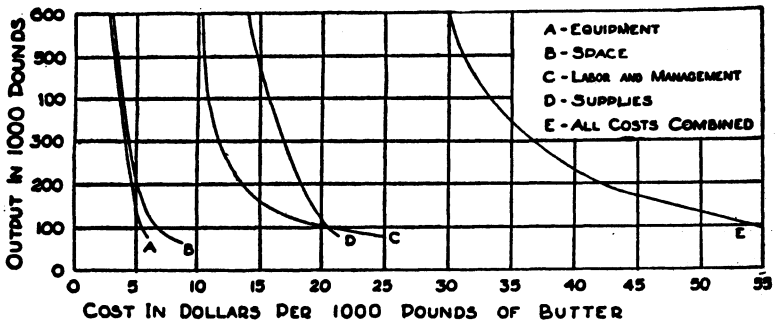


Fig. 24. Relation of output to creamery cost of butter.

Figure 24 shows that creamery costs per unit of output decrease as output increases as far as 600,000 pounds, at least. It is likely that they would continue to decrease above this point, although at a decreasing rate.

5.2.2 Koller, E. Fred and Jesness, O. B. "Organization and Operation of Minnesota Cooperative Creameries," Bull. 333, Univ. of Minn., Aug., 1938. Pp. 78, 79.

Summary and Conclusions. This study is based on data obtained from 175 cooperative creameries located in all parts of the state except the 13 northern counties and the Twin City area. These creameries manufactured an average of 353,000 pounds of butter annually, the output ranging from 45,000 to 1,668,000 pounds.

* * *

The most satisfactory measure of creamery manufacturing efficiency is the cost of manufacture per unit of product. Total costs in 173 creameries varied from 1.209 to 4.796 cents per pound of butter made. Increases in volume up to 500,000 pounds

are accompanied by relatively large decreases in cost. The fact that the largest creamery with an annual output of 1,668,241 pounds had the lowest per unit costs illustrates that highly efficient operations can be attained in plants approaching a 2,000,000-pound production.

5.2.3 Henry, W. F., Bressler, R. G., Jr., and Frick, G. E. "Efficiency of Milk Marketing in Connecticut," *Storrs Agr. Exper. Sta. Bull. 259*, Univ. of Conn., June, 1948. Pp. 51–52.

Conclusions. The results presented in this bulletin indicate that there are important cost advantages for large pasteurizing plants, but that these economies of scale are most pronounced in the capacity ranges below 1,000 quarts per day. Under post war conditions and with an average of five per cent unavoidable excess capacity, plant operating costs including laboratory and bookkeeping expenses would drop from $0.0523 per quart for plants with volumes averaging 228 quarts per day, to $0.0326 per quart for plants with average volumes of 760 quarts. Beyond that volume costs would continue to decrease but at a more gradual rate reaching $0.0218 with volumes averaging 4,560 quarts per day. Evidence from other sources suggests that this decline in costs continues in the volume ranges beyond those covered in this study, but it is impossible to project the economy-of-scale curve into these higher ranges without more detailed study.

The results also serve to emphasize the importance of excess plant capacity as a factor causing high plant costs per quart, especially in the smaller plants. In Plant D, for example, cost per quart would average about $0.105 per quart with volumes of only 200 quarts per day, but these would drop rapidly with increases in volume and fall to $0.029 per quart with volumes in excess of 1,500 quarts per day.

As shown in the preceding three excerpts, economies are often associated with the size of an individual processing plant. But this is not all. Large firms may be able to make economies by operating several plants or by handling several commodities. They may also make economies in distribution. Efficient use of some processes requires large plants, integrated firms, or extensive financing. Such economies may, or may not, be associated with a degree of market control.—*Ed.*

5.2.4 Hoffman, A. C. "Large-scale Organization in the Food Industries," Temporary National Economic Committee, Mono. No. 35, Washington, D.C., 1940. Pp. 2–4, 15, 23.

In the Food Industries. The food industries are among the last fields of enterprise to which corporate mass methods have

been applied. There are several reasons for this, chief of which is the fact that the technological processes necessary for the preparation and marketing of food products have been until recently comparatively simple. With few exceptions these processes did not lend themselves to, or at least did not particularly invite, the application of large-scale methods.

Within the past 25 years, however, new processes and new techniques have been perfected which do so lend themselves. For instance, the canning and preserving of fruits and vegetables, once a household function, is now done mainly in factories on a corporate scale. New methods and new types of machinery for milling wheat, baking bread, manufacturing milk products, and handling fresh fruits and vegetables, have tended to increase the size of the business units in these fields. Often these newer processing techniques have been developed by big corporations, so that it may appear at first glance that the line of causation runs from the size of the business enterprise to the mode of manufacture. In a more fundamental sense, however, these techniques are evolved from the existing social fund of knowledge and scientific discovery, the use and application of which can be made more easily by large enterprises than by small ones.

Technological innovation also has been an important factor in the changes which have taken place in the distribution and retailing of food products. The automobile, for example, has extended the shopping radius of consumers and lessened their need for credit and delivery service, thereby contributing to the growth of cash and carry chain-store systems. Even more important has been the greater ease and facility of communication, which has made it possible to extend the supervision of business enterprise over a wider scope and range of activities.

Largely as a result of this latter factor, the whole concept of business management is being revised from that laid down by most of the older economists. They recognized the principle of the division of labor as applied to the mechanical processes of production, but they did not always see that this principle can be made to apply to the function of management as well. One of the most interesting and important aspects of modern big business is its subdivision of duties associated with the managerial function. It is this specialization of tasks in coordinating and controlling business enterprises which has permitted them to grow beyond what Marshall described as the biological limits to their size.

The greater range of activities over which efficient manage-

ment can now be extended in the field of marketing is due in no small part to the instruments and conveniences provided by modern science and invention. Without the telephone and the telegraph it would obviously be impossible to conduct enterprises as ramified and fast moving as a large chain-store system. Less obvious in their influence but not less important have been the numerous devices — the typewriter, the cash register, the computing machine, etc. — for standardizing and mechanizing the tasks of business management. Without seeking to exaggerate the role of these mechanical aids, it should be emphasized that without them the division of labor and delegation of responsibility which are necessary for the management and control of large-scale enterprise would be difficult, if not impossible.

The Central Thesis. This brief review of commercial history and of the forces back of it leads to the thesis that business patterns are largely determined by material factors such as the prevailing mode of production, the facilities for transportation and communication, and the size of the trade area (itself largely resultive). If this is true, there is at least a strong presumption that recent corporate developments in the food industries as well as elsewhere represent the natural and inevitable adjustment of economic institutions to the basic factors which condition them. It would be an oversimplification to insist that technological forces are all that is involved. In some instances corporate mergers and combinations have been engineered for purposes of financial manipulation and extortive gain and have had no real basis in operating advantages or economic efficiency. The greater error, however, is not to recognize that large-scale organization may have a more fundamental impulse than is sometimes thought to be the case.

* * *

Meat packing probably illustrates better than any other food industry the effect of technological developments on the size of the business unit. The keystone of modern meat packing is artificial refrigeration. This process was introduced in the late 1870's. Before that time, meat animals had to be slaughtered close to the point of ultimate consumption because of the impossibility of shipping fresh meat for any considerable distance. Under these conditions, centralization of the packing industry was clearly out of question. The slaughter of livestock and the processing of meats quite naturally was done by individual butchers and small companies operating on a local basis.

The introduction of artificial refrigeration about 1875 literally revolutionized the packing industry. It now became possible to centralize livestock slaughter in midwestern cities like Chicago where the economies of transportation dictated that it should be located. With geographical centralization came the opportunity to establish large plants and to apply methods of mass production to the slaughtering process itself. Large-scale plant operations not only made possible the greater mechanization and division of labor which are the bases of mass production, but also permitted the development of animal by-products which today are of considerable importance in the industry. The modern technology of meat packing is too well known to require description here. Suffice it to say that the process is such that it never can be decentralized and carried on by small enterprises comparable in size to a local creamery or cheese factory.

* * *

Many of the mergers and consolidations made by the packers were clearly for the purpose of reducing costs of slaughter and distribution. Without such consolidations the unnecessary duplication of packing-house facilities unquestionably would have been much greater than it was, with higher plant costs as the inevitable consequence. An even greater incentive to mergers lay in the reduction of selling and distribution costs. The wholesale distribution of meats requires the operation of district cold-storage warehouses from which deliveries of meat can be made to nearby retail stores. Each packer distributing in any particular city must operate such a district branch and maintain a staff of salesmen to canvass among the retail outlets of the vicinity. It is evident that the consolidation of such branch facilities would result in substantially lower costs for distributing meats. In many instances, if not in most, it was the prospect of such savings rather than the desire for monopoly gains that led the packers into their consolidation programs.

Many observers have never understood why the packers handle products other than meats and have tried persistently to extend their operations into fields seemingly unrelated to meat packing. The common notion is that they hoped in this way to gain certain competitive advantages based on unfair and extortive trade practices. Undoubtedly this was a factor, but not the only one.

The costs of operating branch warehouses and selling meats to the retailer represent a considerable part of the packers' gross

margin. These costs are mainly in the nature of an overhead which can be reduced by the handling of additional products. Dairy and poultry products require refrigeration and must be handled in much the same way as meats. Since little extra expense was involved, the packers naturally began to distribute dairy products through their branch warehouses in an effort to reduce the warehouse overhead.

The desire to reduce overhead costs also led them to extend their business in other ways. It is obvious that the costs of selling meats to the small retailer will be substantially reduced if the packer salesman is in position to sell the retailer additional lines of goods. It was primarily to get such lines that the packers began the handling of dairy products, canned goods, coffee, and eventually a large variety of grocery items. To carry this another step — as the packers tried to do through the operation of retail markets — such selling costs might be still further reduced if the functions of retailing and wholesaling were integrated in such a way that sales solicitation of the retail outlet were no longer necessary.

All of this is not to imply that there may not have been a considerable element of financial manipulation and extortive gain involved in the development of large-scale organization in the packing industry. It would be a mistake, however, to look at this development only from this standpoint. Many of the principles of mass distribution and functional integration which the packers were criticized for trying to effectuate 30 or 40 years ago are now being applied by the corporate grocery chains and are generally accepted as being in the interest of more efficient food distribution.

5.2.5 Nicholls, William H. "Post-War Developments in the Marketing of Butter," *Iowa State College Res. Bull. No. 250*, Feb., 1939. Pp. 370–71, 372–73.

While the chief marketing channel for butter in 1918 included a wholesaler and a jobber, the pressure toward more direct marketing in the '20's frequently brought the consolidation of the wholesaler and jobber into the same organization and the elimination of a considerable number of wholesale houses, either by merger or failure. The merchandising programs of cooperative marketing associations and large centralized companies (including packers) diverted part of the butter formerly sent to terminal markets direct to smaller markets. Many of these organizations established in terminal markets their own

branches for selling direct to retailers. Direct-buying in the country by chain-store organizations which formerly depended upon terminal market wholesalers for their supplies was another important factor. Mergers and consolidations of local concerns resulted in a number of large organizations with highly developed distribution systems within which butter and other products passed direct to the retailer. All these forces have worked to make the direct marketing of butter, through integration from manufacturer to retailer, the dominant channel of distribution today. In spite of the elimination of one link in the more roundabout channel by combination of wholesaler and jobber, the wholesaler-jobber has been relegated to a position of secondary importance, handling only 36 per cent of butter sales in 1935. In the same year about 55 per cent moved direct to retailer or large-scale user, and the remaining 9 per cent was integrated all the way to the ultimate household consumer.

* * *

. . . The general trend toward large-scale production, with its resultant demand for large markets and with relatively keen competition in those markets, began many years ago to force manufacturers to exercise a more direct control over their product. As companies grew in size and financial power, their management turned more and more to market control. Increasing importance of product differentiation and branding brought more and more dissatisfaction with prevailing methods and channels of distribution as carried on by independent jobbers, who were often unable or unwilling — because they handled many different products or brands, including, perhaps, some of their own — to promote the sale of the manufacturers' product in sufficient volume. As a result the function of demand creation was taken over by many large manufacturers. As chain-store organizations developed, offering very large outlets, direct selling became more feasible, such selling having developed earliest in those industries where the unit of sale was large. Direct selling was expected to give better control over quality of service, general policy and prices than could be obtained through the jobber. Once demand creation was taken over, only the work of physical distribution and some phases of risk-bearing and financing were left for the wholesaler. But even these were gradually encroached upon as manufacturers' financial resources grew large and they sought to relieve themselves of dependence

on middlemen for financial assistance, either direct or indirect, by duplicating the jobber's facilities through the establishment of branch houses, sales agencies and the like, thereby assuming responsibility for the other functions previously performed by the jobber, in the hope of either better promotion and service or lower cost.

* * *

. . . The expansion of some of the butter centralizers and other dairy concerns into large dairy corporations was partly, at least, a result of the need of making fuller use of integrated marketing facilities by selling not only increasing volumes of butter but also considerable numbers of related articles. In this way the relatively small units of sale were somewhat offset.

The centralizers were now performing every important marketing function (including financing and even storage) but transportation. The many supplementary and complementary relationships among dairy and poultry products in the use of these distributive facilities were an important factor leading to the rise of these great companies. Apart from this and the promotional urge — about which nothing definite can be said — the factor of increased stability and earning power was probably most important.

5.2.6 Nicholls, William H. "Post-war Concentration in the Cheese Industry," *Jour. Pol. Econ.*, Vol. XLVII, No. 6, Dec., 1939. Pp. 842–44.

The great post-war increase in direct marketing of cheese was largely brought about by the development of still other organizations of size, financial strength, and standardization comparable with those industries in which direct marketing had made early headway. The most important contributing factor was the development of processed cheese. For the first time cheese became a standardized product, easily adaptable to packaging, branding, and advertising, instead of a bulk product notoriously variable in grade, flavor, color, and texture. The result was that the need for the wholesalers' once-vital functions of grading, standardization, and selection was eliminated, in so far as cheese was processed. Large volume made possible scientific laboratory control over processing, which enables processors to use an important amount of off-grade raw material and still turn out a palatable, standardized product. The increasingly large volume of the processors also favored the establishment of their own assembling and buying subsidiaries at the expense of

independent country dealers. The processors continued to use wholesale channels to sell their product for a few years after certain of the wholesalers' functions were no longer needed. Then they began to supplement the sales efforts of their wholesale distributors; and with still larger gains in volume, made possible by acquisitions and mergers and with growing financial strength, they took over the sales promotion functions completely.

The existence and further development of such extensive distributing facilities for cheese during the late twenties made diversification economically desirable. The many supplementary and complementary relationships among dairy and poultry products in production, assembly, and distribution were doubtless one important factor in the growth of the large dairy corporations.

Post-war concentration in the cheese industry, however, was to a large degree due to monopolistic elements, especially to patents, which prevented greater integration by chain stores and producers' co-operatives. Even economies of scale alone — without patent rights — tend to lead to monopoly. The limit to decreasing costs resulting from economics of large-scale marketing is remote. Robinson has said:

"There is good reason for thinking that in many industries, where by the nature of the product a firm must market its own produce through a sales organization which extends far towards the final consumer, that organization will continue to yield economies with further expansion after all the technical economies have been secured, and after the limits of efficient management are approached."

Here we run into the dilemma which brought on the famous "cost controversy" of the twenties: "The persistence of decreasing costs for the individual firm over a wide range of output is . . . one of the forces tending to oligopoly or monopoly when the demand is not large enough to retain a large number of firms in competition at optimum output." The existence of large-scale economies has tended persistently to result in firms in all industries so large that ultimately market control, rather than low cost, becomes the major consideration. In an industry as concentrated as the cheese industry the movement toward integration and more direct marketing did not necessarily come as a result of lower distribution costs. It was only necessary that these costs be not increased by integration so much as to cancel

the advantages from greater control of resale prices and sales promotion. If costs were lowered, so much the better. The standardization of cheese through processing, by eliminating the need for the most important services of the cheese wholesalers, made possible lower costs of integration than if processed cheese had never been introduced. But the monopoly element of price-control increasingly held the center of the stage rather than competitive cost.

While the economies of large-scale distribution probably would have led, over a period of years, to a greater concentration in processed cheese than existed in the period of the early twenties, such concentration was certainly greatly hastened and enhanced by the legal monopolies bestowed upon a few select processors. These patents made high margins possible without fear of the entry of meat-packers, chain stores, co-operatives, or other organizations into processing. The several processors favored by patents could not long be expected to compete. Combination — unless it had been prevented by government action — was inevitable. Kraft and Phenix each was able to acquire a large number of companies who were actual or potential competitors before the courts established the validity of their patents. Then these two large companies combined and formed a "monopoly of monopolies," at least for a decade or more. A decade of extensive advertising and product differentiation — unimpeded by effective competition — can build "good-will" until it becomes a great barrier to the entry and growth of other firms, even after the expiration of the original patents makes such entry legally possible. By 1930 the basic patents were held by the nation's two largest dairy corporations — National Dairy Products and Borden. The marked tendency toward combination in many industries during the twenties — even where patent rights were not involved — was, to an important extent, monopolistic in character. In the cheese industry patent rights assured monopolistic combinations the strength of their positions.

5.2.7 Nicholls, William H. *Price Policies in the Cigarette Industry.* Vanderbilt University, Nashville, 1951. Pp. 199–201.

Advertising and Economies of Scale. In the previous section, we were willing to assume that advertising in the cigarette industry may have made possible the achievement of certain economies of scale. Even so, however, we must now raise the question as to the extent to which such economies are social or private. Apparently, since each of the three major cigarette firms has 3–4

plants, no one of them considers it economical to concentrate all of its huge volume of production in a single large plant. For this reason, even though there are important technical economies in concentrating large volumes of cigarette production in a single plant, the social economies of large-scale production would not appear to require single plants larger than any one of those of the three major firms. What, then, are the economies which a multiple-plant firm in the industry might enjoy which a single-plant firm could not achieve?

Certainly not the social economies of scale in performing necessary selling functions. The major manufacturers have been quite content to let independent wholesalers and retailers perform these functions without any one of them attempting to integrate manufacturing and distribution, presumably because the manufacturer could not perform these functions itself at a lower cost. Furthermore, it is doubtful that these independent distributors' costs would be much higher if their present volumes included a considerably larger number of brands, especially if variations in the relative turnover of individual brands were not so strongly influenced by large differences in scales of advertising. Presumably, social economies of scale in management or research (J. M. Clark's "intellectual overhead") have been of relatively small significance. The principal managerial skill needed in the cigarette industry has been the ability to originate and direct advertising campaigns and to adjust to dynamic changes in tastes, demand, and costs. If the scale of the major firms has enabled them to have a greater division of labor within management and to hire more able and costly executives, the principal advantages gained thereby have been on the side of advertising and salesmanship. Furthermore, cigarettes have been so relatively simple and standardized a product that the opportunities for research directed at new and better products and more efficient technology have probably been very small. Finally, the greater size of the major firms has probably resulted in certain economies of financing, which are of considerable importance because of the necessity of large leaf inventories and the payment of very large excise taxes in advance of sale. Again, however, these economies have probably resulted largely from the relatively low risk assured by their monopolistic position in the cigarette market (primarily the product of large-scale advertising) and the very great risk which new and existing smaller firms face in such a market.

It would therefore appear likely that the principal economies of scale which the major firms have achieved, beyond technical plant economies, have been the private rather than social economies of market control. The function of demand creation, which is the most costly aspect of the cigarette business, has been almost wholly performed by the manufacturers themselves, and has made integration for this purpose unnecessary. Thus, large-scale advertising — at least beyond that required to attain an optimum size of plant — has principally served as a means of achieving control over prices and monopoly profits, while in turn protecting these prices and profits against serious inroads from new firms. Hence, it appears almost certain that any social economies of scale made possible by multiple-plant operations have been more than offset by the private economies of market control — i.e., by non-aggressive price policies resulting from their larger scales of output. We may conclude that the key to the monopoly problem in the cigarette industry is advertising. Therefore, any public policy aimed at improving the social performance of the industry can hardly succeed if it fails to take advertising into account.

Economies associated with size of individual plants are most obvious in processing. They are also important in retail distribution. But they would not in themselves account for the growth of chain systems in retail distribution. Some of the advantages which chains have, both because of possible efficiencies and greater bargaining power, are discussed in the following excerpts.—*Ed.*

5.2.8 Hoffman, A. C. "Large-scale Organization in the Food Industries," Temporary National Economic Committee, Mono. No. 35, Washington, D.C., 1940. Pp. 62, 65–69.

Margins and operating expenses of chains and independents. Other indications of the relative efficiency of chains and independents are to be found in their gross margins and operating expenses. Comparisons of these for the two systems of distribution are not altogether satisfactory, but such studies as have been made show a clear advantage for the chains.

Studies conducted by the Harvard Bureau of Business Research during the 1920's indicated that chain systems typically took a gross margin equal to about 20 per cent of their selling price. Since the chains usually perform the wholesaling function for their stores, their margin must be compared with the combined margins of the average independent and the whole-

saler. The Harvard studies showed these combined margins to be 28.9 per cent of the retail price, the independent retailer taking 19.8 per cent, and the wholesaler, 9.1 per cent. When the average margins taken by the chains were expressed as a percentage of the higher prices at which the independents sold, they averaged only 18 per cent, which indicated a still greater advantage for the chains.

Part of the reduction in margins made by the chains is due to the fact that they do not render credit and delivery service. If it is assumed that the cost of these services is about 4.5 per cent of sale, the advantage of the chains due to lower operating costs is still more than 6 per cent of the retail price.

Numerous factors account for the greater efficiency in retailing which the chains indubitably have. Probably the main one is that their retail units are much larger, which permits them to use labor more efficiently.

* * *

Management as a factor in retailing efficiency. One of the anachronisms still prevailing in the minds of many people is the notion that the management of independent stores is likely to be superior to that of chains because the managers of chain units lack the incentive of ownership. The belief is traditional that to own an enterprise is to know best how to run it. Even economists have been loath to apply to the function of management the principle of specialization and division of labor.

The main elements of successful management in retailing are skill in buying, advertising, and merchandising, together with careful attention to all cost factors. One of the characteristics of mass retailing is that all these elements are centrally planned and carried out in the retail unit on a more or less standardized basis. The purchase of all goods is attended to by buyers located either at the chain headquarters or at the district warehouse. Window displays, advertising copy, store arrangements, etc., are designed by specialists in these matters, their ideas being transmitted to the store managers via the store superintendent. All the larger chains instruct their employees in selling techniques and give their store managers rigid training in store operation. Most important of all, the systems of records and cost accounts kept by the chains enable them to detect and rectify the sources of loss and inefficiency.

Many independent retailers can and do match the chains in

the skill with which they conduct their store enterprises. But it goes without saying that most of them do not. The business of the independent retailer is not large, and his earnings are necessarily small. He is nevertheless confronted with most of the problems of stock selection, merchandising, and expense control confronting the corporate chains. It is inconceivable that any very large percentage of the 300,000 independent grocers should have all the requisite qualities possessed by the chain experts for meeting these problems.

The corporate chains are of course not without their own problems of management and personnel. Among these are lack of incentive on the part of employees, absentee ownership, and corporate bureaucracy. Much progress has been made by the chains in alleviating some of these difficulties, although the causes lie in deep-rooted and inherent characteristics of large-scale organization.

The development of cooperative and voluntary chains undoubtedly has had a great influence in improving the management practices of independent retailers. Many of these cooperatives have gone actively about it to assist their members with store displays, accounting practices, and merchandising methods. There is, however, nothing compulsory about the adoption of practices recommended by the cooperative chains. A member retailer is free to take or not to take these suggestions. An increasing number of retailers are taking them, but human inertia is such that many will not.

There is, after all, a vast difference between a corporate chain which compels its employees to follow certain retail methods and a cooperative chain which only suggests such methods. It may be that when all things are considered, the freedom of choice left to the independent enterpriser is preferable to the economic advantages resulting from centralized management. The best features of the two systems of distribution, however, cannot be combined in either the one or the other. The capabilities of most persons are not such that they can be expected to show much proficiency even in the management of small enterprises. We must therefore either accept the ineptitude of the average person in order to preserve for him some measure of what is called economic individualism, or we must accept the change from enterpriser to employee status in order to achieve the advantages of centralized management.

The Integration of Grocery Wholesaling and Retailing.

Another important aspect of mass distribution from the standpoint of marketing efficiency is the fact that mass distributors have tended to integrate successive marketing functions within a single organization. The number of bargaining transactions and ownership transfers necessary to move goods from producer to consumer is thus greatly reduced as compared with the regular channels.

The importance of this is commonly overlooked. No inconsiderable part of the total cost of distributing food products is incurred for the purpose of bringing about ownership transfers at various stages in the marketing process. Brokers' fees, wholesalers' commissions, salesmen's salaries, advertising expenditures — all are partially chargeable to the efforts of sellers and manufacturers to find retail outlets for their goods. Obviously the greater the number of such buyers and sellers and the more functionally specialized they are, the greater the number of ownership transfers necessary to move the commodity forward toward the consumer.

The purpose served by these ownership transfers is that of apportioning the supply properly with respect to the ultimate demand. Clearly this is a function which must be performed by any type of distributive system, even a completely unified, noncompetitive one. The mechanics by which it is done, however, will be greatly different, depending on the number, size, and character of the marketing agencies. In the regular channels, comprised as they are of many small, specialized handlers, the product moves forward chiefly by means of numerous buying and selling transactions. In contrast, the mass distributor moves it forward on an intracompany basis, with the orders and requirements of its various parts largely supplanting the bargaining transactions of the regular system.

This is the key to much, if not most, of the advantage which the grocery chains have over the independent retailer-wholesaler system. When the function of wholesaling is integrated with that of retailing, it is no longer necessary to "sell" the retail store. The average independent retailer is visited daily by at least a half-dozen salesmen, each trying to sell him a small bill of merchandise which he may or may not need. Those who seek the retailer's business cannot permit him simply to order his merchandise as he needs it; the competition between them is such that they constantly must persuade, cajole, and coax him.

The cost of this sort of thing in time and money is nothing

short of stupendous. Yet it is seldom mentioned when methods for reducing the costs of food distribution are being considered because most people, including a fair share of the economists, are more concerned with the preservation of competition under old institutional forms than with economic efficiency as we have defined the term.

Labor efficiency of chains versus that of the regular channels. The advantages of combining wholesaling and retailing within the same firm are self-evident, but it is not easy to provide a precise measurement of them. One of the few studies made of this is one by the writer, relative to the distribution of fruits and vegetables in the city of Philadelphia. This study compares the labor efficiency of a large chain system of that city in putting fruits and vegetables into its retail stores with that of the regular jobbers and wholesalers who serve the independent retail trade. Admittedly the comparison is not an exact one, and it may not be illustrative of conditions generally, but it constitutes the only study of its kind which has come to the attention of the writer.

The distribution of fresh fruits and vegetables in Philadelphia provides a particularly good place to compare the efficiency of the two systems of distribution because in that city they are largely separate and distinct from each other. The Great Atlantic & Pacific Tea Co. (the chain used in the comparison) operates a produce warehouse which handles all fruits and vegetables sold through its 950 retail stores in the district. The operations performed at this warehouse correspond in a general way to the functions of the produce wholesalers and jobbers in serving the independent grocer, except that the chain delivers all produce to the retail store, whereas the independent grocer usually visits the wholesale market in person and takes home his purchases in his own vehicle.

The relative efficiency of the two systems of distribution so far as the use of labor is concerned is shown in Table 25. With a total working force of 223 people, the chain system bought, assembled, and delivered 5,350 cars of fresh fruits and vegetables for its 950 retail units in 1936. This is an average of, roughly, 24 cars per person per year. Compared with this, the regular channels handled about 40,755 cars of produce with the equivalent of 4,150 full-time employees, or an average of only 10 cars per person per year. The chain system thus required less than half as many labor hours to put a given volume of produce into its stores as were required in the regular channels.

TABLE 25

LABOR EFFICIENCY OF A NATIONAL CHAIN-STORE SYSTEM COMPARED WITH THAT OF THE REGULAR MARKETING CHANNELS IN HANDLING FRUITS AND VEGETABLES UP TO THE RETAIL STORE, PHILADELPHIA, 1936

Dock and Callowhill St. Markets (Estimated Volume Handled, 40,755 Cars)		Cars Handled Per* Person	National Chain-Store System (Estimated Volume Handled, 5,350 Cars)		Cars Handled Per* Person
		No.			*No.*
1. Estimated number of proprietors of wholesale and jobbing stores	275	148	1. Number of buyers for chain system	5	1,070
2. Estimated number of people employed by above stores (not including proprietors)†	1,375	30	2. Number of warehouse employees for handling fruits and vegetables	106	50
3. Estimated time spent by retailers and other buyers in procuring supplies, in terms of equivalent full-time people employed‡	2,500	16	3. Number of men employed to truck produce from warehouse to retail units	112	48
4. Total number full-time people engaged in wholesaling and jobbing operations	4,150	10	4. Total number employed	223	24

* Computed by dividing the number of persons employed in each operation into the total volume handled.

† Assuming an average of 5 employees per firm, which is the average indicated by the 1936 census of business for fruit and vegetable wholesalers in Philadelphia.

‡ Based on interviews with 100 retailers.

(*From* A. C. Hoffman and L. A. Bevan. Chain-Store Distribution of Fruits and Vegetables in the Northeastern States, Bureau of Agricultural Economics, 1937. P. 47.)

Closer examination of Table 25 will indicate the source of the chain's advantage. In the first place, each of its 5 buyers bought an average of over 1,070 cars of produce per year, whereas the average wholesaler handled less than 150. Particularly striking is the tremendous amount of time spent by independent retailers in visiting the market to procure their daily supplies as compared with the chain-store practice of delivering the produce to the store, thereby relieving its store managers of this time-consuming task. (See item 3 of Table 25.) Interviews with 100 independent grocers in Philadelphia revealed that most of them visited the produce market every business day of the year and spent an average of 3 hours per trip.

The elimination of this sort of thing through the integration of the wholesaling and retailing functions represents one of the chief advantages possessed by the mass distributor. Conceivably, the independents might achieve for themselves some of these advantages by means of cooperative organization, but as yet have not done so in the case of fruits and vegetables.

5.2.9 **Artman, Charles E. "Expense Factors in City Distribution of Perishables," *U. S. Dept. Agr. Bull. No. 1411,* Aug., 1926. P. 22.**

TABLE 12

PRICE SPREAD PER CAR FOR EACH COMMODITY IN FIVE STORE TYPES, NEW YORK METROPOLITAN AREA, FEBRUARY, 1923, TO MAY, 1924.

Commodity	Chain Stores	All Unit Stores	Cash-carry Stores	Cash-delivery Stores	Credit-delivery Stores
Northern potatoes.....	$ 210	$ 615	$ 600	$ 580	$ 645
California oranges.....	870	1,465	985	1,260	1,635
Sweet potatoes.....	330	880	470	815	990
Boxed apples.....	1,010	1,575	1,340	1,445	1,685
Barreled apples.....	570	960	830	880	1,045
Eastern lettuce.....	695	940	885	845	990
Yellow onions.....	675	905	745	870	970
Weighted mean.....	$ 570	$ 995	$ 825	$ 905	$1,075

* * *

TABLE 10

ORIGINAL (UNADJUSTED) WHOLESALE AND RETAIL PRICES, AND PRICE SPREAD PER CAR IN FIVE STORE TYPES, SEVEN COMMODITY WEIGHTED AVERAGES, NEW YORK METROPOLITAN AREA, FEBRUARY, 1923, TO MAY, 1924.

Store Type	Wholesale	Retail	Spread
Chain	$1,130	$1,700	$ 570
All unit	1,185	2,180	995
Cash-carry	1,135	1,960	825
Cash-delivery	1,190	2,095	905
Credit-delivery	1,200	2,275	1,075

5.3 Imperfections of Competition and Their Consequences

Concentration in the processing and distribution of farm products has undoubtedly introduced many forms of imperfect competition. This is not to say that the consequences have necessarily been harmful to the farmer or to the consuming public. In some instances, the gains from economies of scale resulting from concentration have probably outweighed any losses attributable to less competitive price policies; in other cases, the opposite may have been true. An appraisal of the social consequences of imperfections of competition is at best difficult and, in any case, will differ considerably from one specific market situation to another. Quite apart from the problem of appraisal of consequences, however, there is little doubt that the development of theoretical models for various concrete types of imperfect competition has gone far in improving our understanding of the nature of the price-making process in agricultural markets.

First, a simple picture of a single seller confronted with a monopolistic market is presented.—*Ed.*

5.3.1 Steinbeck, John. *The Pearl.* Viking Press, New York, 1947. Pp. 58–59.

It was supposed that the pearl buyers were individuals acting alone, bidding against one another for the pearls the fishermen brought in. And once it had been so. But this was a wasteful method, for often, in the excitement of bidding for a fine pearl, too great a price had been paid to the fishermen. This was extravagant and not to be countenanced. Now there was only one pearl buyer with many hands, and the men who sat in their offices and waited for Kino knew what price they would offer,

how high they would bid, and what method each one would use. And although these men would not profit beyond their salaries, there was excitement among the pearl buyers, for there was excitement in the hunt, and if it be a man's function to break down a price, then he must take joy and satisfaction in breaking it as far down as possible. For every man in the world functions to the best of his ability, and no one does less than his best, no matter what he may think about it. Quite apart from any reward they might get, from any word of praise, from any promotion, a pearl buyer was a pearl buyer, and the best and happiest pearl buyer was he who bought for the lowest prices.

The effect of monopoly upon Kino was simple, direct, and easily understood. In agricultural markets there are few, if any, cases of outright monopoly. Rather, there are many cases of substantial departures from competition. The consequences are far-reaching, and difficult to appraise.

Semi-monopolistic situations in agricultural marketing have been analyzed by a number of writers. We present here some of the main observations and conclusions of Nicholls and Hoffman, both of whom made broad surveys of the problem.—*Ed.*

5.3.2 Nicholls, William H. "Imperfect Competition in Agricultural Processing and Distributing Industries," *Canadian Jour. Econ. and Pol. Sci.*, Vol. 10, No. 2, May, 1944. Pp. 150–51, 152–54, 160–63.

Among persons unfamiliar with agricultural markets, it is not uncommonly assumed that here, if in no other area of economic activity, prices are established through the free play of competitive forces in an environment at least approaching the perfect market. To be sure, agricultural production is carried on by atomistic units and, at least prior to the inauguration of government crop-control programmes, there have been few limitations upon competition among farmers for the use of productive resources. And, in the processing and distribution of farm products, the illusion of pure competition has been strengthened by the relatively large number of firms and the fact that they frequently do not have direct control of the short-run supply of their raw material.

But those who are familiar with actual conditions in these markets know how unrealistic it may be to proceed on the assumption of pure competition. It has become increasingly evident to the agricultural economist, for example, that typically — even where the number of processing firms is large — a few firms

dominate a given industry, often aided and abetted by active trade associations. Again, in the local market, where assembling and processing is done by a relatively large number of small independent agencies, differentiation of services — including that of location — may lead to non-aggressive buying policies. Finally, the fact that processor-distributors do not control the short-run supply of farm products does not preclude monopoly elements. For imperfect competition in a processing-distributing industry implies control of the supply of processing-distributing services, hence the price of these services (the margin or spread).

A farm product is rarely sold by the farmer direct to the household consumer. Except for the most perishable farm products, perhaps the most typical marketing channel is farmer-local assembler-central wholesaler-retailer-consumer. Of these middlemen, it is the independent retailer who has been most adequately covered by the general theory of imperfect competition. For, while it is reasonable to assume that the retailer sells under conditions of imperfect competition, he probably buys under conditions approaching pure competition. On the other hand, the central wholesaler, located at the bottleneck of the marketing process, is most likely both to buy and sell under conditions of imperfect competition. A few dominant wholesalers may be, in technical terms, at once oligopolists and oligopsonists. Finally, the country assembling agency, if it is not integrated with later stages of the marketing process, may sell under pure competition but buy under imperfectly competitive conditions because of locational factors or local producers' preferences.

* * *

Let us first examine the behaviour of the few dominant firms among themselves. One would expect that, because of the circular interdependence between their price policies, the dominant firms would come to recognize the value of non-aggressive price policies in both selling and buying. One of the most important market patterns of a non-aggressive nature is that of market-sharing.

Market-sharing: For thirty or forty years, the four largest American meat packers appear to have exhibited a decided market-sharing tendency in buying live-stock. The constancy of their relative shares of hog purchases at selected markets is indicated in Tables III and IV. The large packers have always stoutly maintained that these constant purchase percentages re-

TABLE III

PERCENTAGES OF TOTAL "BIG FOUR" HOG PURCHASES TAKEN BY EACH OF THE FOUR FIRMS BUYING AT SELECTED TERMINAL MARKETS, UNITED STATES, 1931–37, 1913–17, AND 1906-11

Market and Firm	Average Percentage Taken		
	1931–37	1913–17	1906–11
Omaha			
Armour-Morris	44.6	46.6	45
Swift	24.8	24.2	25
Cudahy	30.6	29.2	30
Total "Big Four"	100.0	100.0	100
Sioux City			
Armour	38.8 (50)	(50.3)	.....
Cudahy	38.8 (50)	(49.7)	.....
Swift	22.4 (..)	no plant	.....
Total "Big Four"	100.0 (100)	(100.0)	.....
Oklahoma City			
Armour-Morris	50.4	50.6	.....
Wilson	49.6	49.4	.....
Total "Big Four"	100.0	100.0	.....

TABLE IV

PERCENTAGE OF TOTAL HOG RECEIPTS PURCHASED BY "BIG FOUR" MEAT PACKERS AND OTHER BUYERS, ST. JOSEPH AND OKLAHOMA CITY, 1931–40

Year	St. Joseph			Oklahoma City		
	Armour	Swift	Others	Armour	Wilson	Others
1931	33.82	33.86	32.32	.....	.....	.....
1932	35.65	35.65	28.70	44.53	44.48	10.99
1933	41.03	41.03	17.94	45.01	45.00	9.99
1934	43.21	43.21	13.58	41.34	41.38	17.28
1935	40.44	40.47	19.09	42.83	42.83	14.34
1936	38.99	38.98	22.03	42.73	42.72	14.55
1937	39.76	40.07	20.17	39.33	39.31	21.36
1938	38.46	39.30	22.24	34.13	34.16	35.71
1939	38.54	38.77	22.69	32.11	32.07	35.82
1940	42.36	42.36	15.28	33.61	33.64	32.75

sult from the intense nature of their competition. To quote one of them: "Each company is constantly endeavouring to increase its percentage, but is met at every step by the competition of

other packers. On the other hand, no one of them intends to see any other packer gain on it if it can help it. The result is that with everybody keeping close account of everybody else in an open market place, no single packer can increase his percentage substantially."

This competitive explanation would presumably hold, however, only if each dominant packer ignored its own influence upon the market price of live-stock. Several other packer statements indicate that each does recognize its influence upon price. Thus, a representative of Swift and Company once stated that "A small packer can go out in the market, and if he is killing a hundred hogs a day he can double his killing without affecting the market at all. . . . If we tried to increase our [purchases] one-half of one per cent, immediately we would feel the effect of it." This statement clearly shows that, while its small competitor is faced with a perfectly elastic supply curve of hogs, Swift and Company's supply curve is relatively inelastic.

What are the results when each large packer recognizes that it can influence the market price by its own actions? Apparently there results the phenomenon of market-sharing, whereby each dominant buyer is "entitled to" a certain percentage which it is under no circumstances to exceed. Thus, the chief economist for Swift and Company once testified that "If we try to exceed our customary purchases in any market, we could not get away with it, that is all. To do that, we would have to raise the bid over the market price, and Morris, Armour and Wilson would not stand for that. They would meet our prices and there would be cutthroat competition." Another Swift economist put it as follows: "The general practice among intelligent competitors of respecting one another's position need not be a matter of 'tacit understanding.' In the case of Swift and Company *it is an individual, commonsense policy, arrived at independently, not to invite retaliation and trade wars by using over-aggressive tactics.*"

* * *

A second related problem is that of bilateral oligopoly, where a few dominant buyers face a few dominant sellers — for example, the large packers or condensed milk concerns *versus* the large grocery chains. According to my limited observation, however, there is a tendency for such large buyers and sellers not to deal with each other. As an alternative, they tend either to integrate

backward or forward, as the case may be, or to deal with the smaller independent competitors on the opposite side of the market. Thus, the large chain-store organizations chose to establish their own processing facilities for evaporated milk rather than submit to dictation of price policies from the large manufacturers of the nationally advertised brands. A similar trend toward integration by the chains took place in butter, and doubtless in many other farm products. The chains are probably in a strong bargaining position against large processors, however, for it is probably easier for them to integrate backward than for the processors to take over retailing, since the chains already have a well-established outlet for any products they may choose to process themselves. The very threat of such a step by the chains is doubtless a powerful bargaining weapon. The major meat packers have continued to find a more than proportionate outlet for meat and produce among independent retailers rather than chains. This has been forced upon the packers by chain-store integration in handling produce. For meats, on the other hand, the chains still do relatively little slaughtering, but choose to buy a major proportion of their meats from the medium-sized packers rather than from the dominant firms.

Price Discrimination. In the sale of manufactured agricultural products to consumers, there is undoubtedly some price discrimination. We have already mentioned fluid milk. The frequent result of product differentiation and advertising is to set apart advertised and unadvertised brands, with a price differential between them accepted as normal by all concerned. The most important examples probably are found in canned goods, such as canned fruits, vegetables, and evaporated milk, where an identical product may be sold at different prices according to whether or not its label is advertised. In such a market situation, it is common to find competition on a non-price basis among the advertised brands of the dominant firms, while they use "second labels" to compete on a price basis with non-advertising independents.

* * *

Price discrimination in *buying* farm products is perhaps less common than it once was. For advancements in transportation facilities and market-news service have strongly tended to replace isolated local markets with relatively perfect markets over a considerable area. For example, despite the increasing decentralization of hog buying in the past twenty years, it is prob-

able that the competitive situation has improved so far as hog producers are concerned. Thus, the state of Iowa has tended to become virtually a single market for hogs in recent years, so that it would be more difficult to pay different prices for the same grade of hog. A more common form of price discrimination today probably is that of paying the *same* price for products of different grades or yields. While the buyer can count on such differences averaging out over a large volume of purchases, there is bound to be discrimination among individual producers. Here the Canadian scheme of buying hogs on the more objective and accurate basis of *carcass* grade and weight, determined under public supervision, has pointed the way toward a solution.

* * *

Thus far, in considering elements of imperfect competition on the buying side of the market, we have centered our attention on the central market, where the principal departure from conditions of pure competition is found in the dominant importance of a relatively few buyers. We have tacitly assumed that the services offered to sellers by the various buyers are identical, so that sellers have no preferences as between the alternative outlets for their products. This is probably a fairly reasonable first approximation to reality in the central market, where sellers' preferences would be expected to be less important than in the local country market. For the various buyers are located at the same place, buyers and sellers are more specialized and better informed, and there is a strong tendency toward price sensitiveness.

When we turn to the local country market, however, service differentiation becomes especially important. Buyers' services are differentiated if any significant basis exists in the minds of sellers for preferring the services of one buyer over those of another. As the basis for producers' preferences, one might list such things as convenience of location; the reputation, personality, or other personal characteristics of the buyer or his agent; the "fairness" of grading, weights, and tests; hauling facilities offered; and promptness of payment. In so far as such factors — whether tangible or intangible, real or merely fancied — vary from buyer to buyer, the services in each case are different, and each seller takes them into account in his choice of a particular buyer as the outlet for his product. Given producers' preferences, each buyer has partial independence of action, being able to determine in part his own price policy (he is faced by a rising

rather than horizontal supply curve of the farm product), the services offered, and the extent of outlays for procuring his farm product. Under these circumstances of monopsonistic competition, we can get the whole range of market situations developed by Chamberlin on the selling side.

Service differentiation, especially on the basis of location, may make the phenomenon of oligopsony much more widespread than commonly thought. Thus, it may be supposed that a few local buyers frequently learn by experience to recognize circular interdependence, so that pricing policies become non-aggressive and profits excessive. Once again, however, costs of entry into the local market usually being low, such non-aggressive price policies may ultimately lead to long-run excess capacity, by which high costs and inefficient scale replace abnormal profits. It is the existence of such imperfections of competition in the local market which is the principal economic justification for local producers' co-operatives, such as grain elevators and creameries. Finally, when differentiation is primarily spatial, a radical change in transportation costs — such as we have witnessed in the past twenty years — may bring a shift from non-aggressive to aggressive price behaviour in the local market.

5.3.3 Hoffman, A. C. "Large-scale Organization in the Food Industries," Temporary National Economic Committee, Mono. No. 35, Washington, D. C., 1940. Pp. 79, 81, 82, 83–86.

Competition, Imperfect Competition, and Monopoly: The general principles which govern the determination of price and supply under competition and varying degrees of monopoly are well understood and require no extended elucidation here. The food industries, however, present some special problems for price theory which we shall want to examine.

* * *

The Dominant Firm: Theories of imperfect or monopolistic competition have been developed mainly for small numbers of competing firms. We have seen, however, that in the food industries the situation is more likely to be one in which there are a few large firms and numerous small ones. The presence of numerous small firms obviously precludes a solution based on small numbers, as in ordinary oligopoly. At the same time, the situation is not strictly competitive despite the numerous small firms because of the presence of a few large ones whose price is not independent of their output policies.

* * *

We may suppose first the case of a large firm in competition

with many small ones. Since none of the small firms has any appreciable part of the total supply it may be presumed that they will tend to behave competitively in adjusting themselves to any given situation. The existence of the large firm in no way alters the fact that their individual demand curves are virtually horizontal.

* * *

Several practical conclusions follow from the example which we have described. In the first place it is evident that the price is no longer uncontrolled or automatic in the sense that it results from the blind adjustment of competitive forces. By the very nature of the case the dominant firm appears to assume a position of price leadership. It may reasonably be expected to take the initiative in making price changes as it seeks to maximize its profits under varying market conditions. To each new position taken by the dominant firm the small ones will tend to adjust on the basis of competitive behavior.

Obviously a large firm which controls only 10 per cent of the total supply will be less likely to attempt price enhancement than one which controls 50 per cent. In the former case even a halving of its output would increase its price only a little even if the small firms held their supply virtually constant.

Equally important in determining the policy of the dominant firm is the elasticity of the supply for the small ones. If they respond to an increase in price by the large firm with a sharp increase in output then a restrictive policy on the part of the large firm will result mainly in its losing part of the market. To put the matter a little differently, the more elastic the supply of the small firms the more elastic the demand for the dominant firm, and hence the less incentive the dominant firm has for reducing its supply.

The supply response of the small firms will be affected by several factors. In the short run, a dominant firm conceivably might be able to raise prices quite considerably before the small ones could expand the scale of their operations to take advantage of the higher prices. This the large firm presumably would not do if it felt reasonably sure that the smaller ones subsequently would expand their operations or if new firms would be attracted into the industry. Moreover, most of the food industries are already characterized by unused resources and facilities so that they could quickly step up their output under the stimulus of higher prices.

Ease of entrance into a particular industry would also tend

to influence the nature of the supply response on the part of the small firms. In a sense the very existence of numerous small firms indicates that the entrance of new enterprisers is not difficult. Thus a widening of margins by the grocery chains would quickly attract many new enterprisers into this field, but a widening of margins by the meat packers might not do so immediately because it is not so easy for a new firm to establish plant facilities and market connections in this industry.

For reasons already made clear, one cannot generalize as to the effect of a dominant firm on price and total supply. The existence of such a firm would not necessarily mean that prices would be higher or supplies smaller than under perfect competition. As a matter of fact, the opposite might be true, and probably would be true if the costs of the large firm were substantially below those of its small competitors. It might limit its output to the point of maximum profit for itself and still offer its product at a lower price than its small competitors could do if they were to replace it. If there are advantages in large-scale organization from the standpoint of efficiency, then competition between several large firms able to match each other on this score almost certainly would result in a lower level of prices than under perfect competition. Certainly the existence of large firms and some degree of imperfect competition is not necessarily incompatible with the public interest if cost differentials are significant.

Bilateral or Successive Monopoly: Another special situation more likely to be encountered in the food industries than in most others is that of bilateral or successive monopoly. Such a situation might be defined as that existing when there are two monopolists (or several oligopolists), one above the other in the marketing system. A hypothetical example would be that of a processing monopolist who sold his entire output to another firm which had complete control of its distribution.

Needless to say, no pure examples of this kind are to be found anywhere in the economy. But to the extent that we may have imperfect or monopolistic competition at various points in the marketing system, we do have an element of bilateral monopoly. For example, in the cereal industry we have had the growth of large-scale baking superimposed on large-scale flour milling with a separate set of firms in each field. Another potential example is that of the meat packers and the grocery chains.

In the field of fluid milk distribution, however, the question

of bilateral monopoly appears to be one of immediate and practical importance. The milk producers in most large city markets are organized into cooperative associations through which most of the milk is sold to distributors. The distributors, in turn, are also relatively few in number, three or four of them often controlling as much as three-fourths of the total supply in a given market.

In the ordinary course of bargaining between these two groups, each concentrates its interest primarily on its own price or margin. Not infrequently each group is willing to grant the other certain concessions, provided there is reciprocity in the matter. Thus the distributors will agree to pay the producers' cooperative a high price for its milk, if by so doing they can widen their margin between the price paid the cooperative and that charged the consumer.

It is obvious that this sort of bargaining is not calculated to lower the price to consumers and may actually be carried to the point where the farmers and distributors themselves lose by it. This could almost certainly be true if the demand for fluid milk were elastic. In this case the efforts of each monopolistic group to improve its own position might force prices so high that the combined profits of both groups would be reduced, a situation which would never occur under conditions of horizontal monopoloy or oligopoly.

Indeed, economic theory affords a demonstration of the likelihood of just this outcome. So far as the writer knows, the case of bilateral monopoly has received very little attention from economic theorists. We will not burden the discussion at this point with a proof of the principles which are involved in it. Such a proof can be found, however, in an appendix at the end of the dissertation. It will suffice here to lay down only the conclusions to which the theory leads:

(1) Two successive monopolists, one above the other, would tend always to raise prices and limit supplies more than a single monopolist combining both their functions.

(2) As the number of points of successive monopoly increases in the marketing system, the situation so far as the public is concerned becomes progressively worse.

(3) Paradoxical as it seems at first thought, the public would probably be helped rather than injured by a conspiring between the successive monopolists to increase the amount of their combined profits.

(4) These general principles would be modified in degree but not invalidated by the assumption of monopolistic competition rather than monopoly at the various points.

Measuring the Effects of Monopoly: Criteria. . . .

Monopoly, or some degree of it, in the case of a commodity for which demand is elastic is almost certain to be less serious than in the case of one with an inelastic demand. One might even generalize to the point of saying that complete monopoly under conditions of elastic demand is of less economic consequence than even a small or partial degree of monopoly where demand is inelastic.

A further extension of this principle may be made in terms of substitution and product differentiation. Thus a firm in complete control of the canned-peach industry is much less to be feared than one which would control the entire canned-fruit industry; and even less serious is a monopoly of a particular brand of canned peaches. Concepts of this kind are a part of everyday thinking on the subject of monopoly and require no amplification here.

Somewhat more complicated are the considerations on the supply side. If the nature of the cost function is such that any diminution of supply is likely to be associated with a material reduction in cost, then clearly monopoly control will lead to a greater curtailment of output than where this is not the case. A distinction must also be made from the standpoint of costs between short- and long-run tendencies. If a considerable part of the cost is in the nature of an overhead, then we may expect at least a more stable output and a better sustained one in times of business crises than when most of the costs are variable. This will tend to be true in monopolized as well as competitive industries.

One of the simplest criteria of the degree of competition is "ease of entrance" into a particular industry. Perhaps a better way of putting this is in terms of the divisibility of the productive factors. It can be demonstrated that all economies of scale, both internal and external, arise out of the indivisibility of productive resources. If the factors of production cannot be easily divided and combined into small business units, then long-run average costs tend to be decreasing and perfect competition is impossible. A case in point is the difference between the business of meat packing and grocery retailing.

Greatly complicating the whole problem of monopoly are

the social, philanthropic, and conventional elements which go into the determination of business policy. The policies followed by businessmen do not necessarily conform to what might seem to be their best interest from the standpoint of an immediate maximizing of profit. For philanthropic reasons, they may at times choose to forego pressing the advantage of their position to its utmost. More commonly, however, their motives for foregoing profits probably are ulterior rather than philanthropic; as, for example, when they shape their policies to avoid governmental intervention, or to discourage the entrance of new firms into their particular line of business. But for whatever reason, it will be true that the precise outcome of monopoly cannot be predicated solely on the functional characteristics of the demand-and-costs factors.

Price discrimination is an aspect of monopoly which merits serious study. It has already been mentioned in connection with the economics of location. Some economists are inclined to assume that all forms of price discrimination are "bad," or "anti-social." The editor hopes these economists will study the following example proposed by Dupuit, and will ask themselves whether the single toll, or the discriminative toll, was more nearly in the public interest.—*Ed.*

5.3.4 Dupuit, Jules. *De l'Utilité et de sa Mesure.* (A collection of Dupuit's writings.) La Riforma Sociale, Torino, Italy, 1933. Pp. 139–41.

Une passerelle est établie entre deux quartiers très-populeux d'une grande ville, elle a coûté 150 000 francs; le produit à raison de 0fr.05 par passage n'est que de 5 000 francs; c'est une mauvaise affaire, l'entrepreneur qui avait emprunté la plus grande partie des 150 000 francs ne pouvant payer les intérêts de cette somme est bientôt ruiné. Le pont est vendu à un homme intelligent qui étudie la fréquentation et cherche à augmenter son revenu. Il lui est défendu d'élever son tarif, et d'ailleurs cette mesure pas plus qu'un abaissement n'accroîtrait suffisamment le produit, il est donc obligé d'avoir recours à de nouvelles ressources. Il remarque que son pont réunit le quartier des manufactures à celui où logent les ouvriers; matin et soir ces derniers sont obligés de faire un long détour pour se rendre à leur destination. Le pont abrège beaucoup la distance à parcourir, mais un sacrifice de 10 centimes par jour est beaucoup trop considérable, eu égard à leur salaire; en ne leur demandant que 2 centimes, pas un n'hésitera à se procurer cette satisfaction, et on obtiendra ainsi mille nouveaux passages quotidiens, qui à raison de 1 cen-

time, produiront une recette journalière de 10 francs et 3 000 francs pour les trois cents jours de travail de l'année. Il s'agit maintenant de faire cette recette supplémentaire sans réduire celle de 5 000 francs que procure le tarif à 0fr.05. C'est ici que l'imagination du spéculateur doit s'exercer, et on trouverait sans doute des combinaisons beaucoup meilleures que celles que je vais proposer et qui sont destinées plutôt à me faire comprendre qu'à servir de modèles.

Le propriétaire du pont pourra insérer dans son tarif une clause ainsi conçue: *Pour le passant en casquette, en blouse ou en veste, le péage est réduit à* 0fr.01. S'il est ainsi parvenu à définir d'une manière suffisante les ouvriers qu'il veut faire jouir de la réduction, il aura nécessairement la recette de 3 000 francs que doivent donner les nouveaux passages; mais il est très-possible que la recette de 5 000 francs soit diminuée d'une certaine somme, parce qu'un certain nombre de passants à 0fr.05 profiteront, grâce à leur costume, de la réduction qui ne leur est pas destinée: cette recette pourra descendre à 3 000 francs. La recette totale se composera ainsi:

	fr.
60 000 passages à 0fr.05.	3 000
40 000 passages à 0fr.01 provenant des anciens passants qui ont échappé au tarif au moyen de leur costume. ..	400
300 000 passages à 0fr.01 provenant des nouveaux passants.	3 000
Total	6 400

On voit que cette réduction partielle du tarif ne donne pas au propriétaire tout ce qu'elle pourrait donner, il perd 1 600 francs sur les anciens passants qui en profitent malgré lui. Or, par de nouveaux artifices, il pourra diminuer cette perte. Ainsi, il pourra stipuler que la réduction n'aura lieu que le matin et le soir aux heures d'ouverture et de fermeture des ateliers, ou qu'elle ne sera accordée qu'aux ouvriers porteurs de leur livret. Quelle que soit la combinaison adoptée, elle aura pour résultat d'augmenter d'autant plus le péage qu'elle distinguera mieux les passants qui attachent une utilité différente à l'usage du pont.

Ainsi le péage à 0fr.05 de ce pont produirait.	5 000 fr.
Id. à 0fr.01.	4 000 fr.
Et une combinaison de péage à 0fr.05 avec le péage à 0fr.01 pourrait en produire près de.	8 000 fr.

Ainsi, suivant que vous adopterez tel ou tel système de péage, le pont pourra se faire ou ne pas se faire, il sera une bonne ou une mauvaise affaire pour le constructeur, il sera utile ou inutile pour le public.

Discriminative pricing is involved in many programs to increase farmers' returns — in classified pricing of fluid milk and diversion programs for fruits and vegetables, in the former food stamp and nickel milk programs, in the "two-price plans" for wheat, in which there is current revival of interest. Some of these are discussed in Subsection 6.3.

We turn here to some further consequences of imperfect competition for the pricing of agricultural commodities. First, Nicholls outlines the situation confronting a dominant firm handling commodities which compete in production and in consumption.—*Ed.*

5.3.5 Nicholls, William H. *Imperfect Competition Within Agricultural Industries.* The Iowa State College Press, Ames, Iowa, 1941. P. 158.

If a dominant firm is selling, under imperfect competition, products (such as beef and pork) which compete in consumption, its beef and pork sales curves will be interdependent. In determining its derived demand for beef cattle, it must then take into account, when fixing the output of beef, not only the reaction of an increased supply of beef upon its own selling price, but also its reaction upon the prices of the other competing products (such as pork). If the same firm is also buying, under imperfect competition, various farm products (such as cattle and hogs) competing for the use of agricultural resources, its cattle and hog purchase curves will be interdependent. It will then have to take into account, when determining its volume of purchases of beef cattle, not only the reaction of increased purchases of cattle upon their buying price, but also the reaction on the prices of competing farm products (such as hogs). The effect of either interdependent demand or interdependent supply is to restrict further the volume of purchases of the given farm product (beef cattle) — the first by lowering its derived demand curve, the second by raising its supply curve. The greater the number of competing products in selling or buying, the greater such a restriction.

Administered prices, or "sticky" prices, are not so common in agriculture as in some other industries. Yet there are some examples in the food field.—*Ed.*

5.3.6 Nicholls, William H. "Post-war Concentration in the Cheese Industry," *Jour. Pol. Econ.*, Vol. XLVII, No. 6, Dec., 1939. Pp. 834–37.

In Figure I the weekly quotations established on the Wiscon-

sin Cheese Exchange for Twins are shown for the three years 1936–38. The considerable stability is apparent. Since the price is established for a week at a time, fifty-two changes a year are possible. The actual numbers of changes in the three years were fifteen, nine, and twenty-one, respectively. There was one period of twenty-four weeks during which a single price ruled, while prices sometimes continued unchanged for twelve to fourteen weeks at a time even in the season of heavy marketing. In the late summer of 1938 new rules of trading on the Wisconsin Cheese Exchange were set up designed to increase the volume sold at the weekly meetings. Prices have been more flexible since then. The very marked concentration in the industry makes it seem unlikely, however, that the results will guarantee a competitive price to the producer.

In order to check whether or not the inflexibility of prices on the Wisconsin Cheese Exchange was a relatively new development, the period 1918–38 was divided into seven three-year periods. Within each of these periods the frequency of occurrence of various periods of unchanged price was tabulated. . . .

Examination of these data reveals clearly the growing inflexibility of prices during the post-war period. The average period during which a single price ruled increased from a low of 1.25 weeks in 1921–23 to a high of 3.25 weeks in 1936–38. In fact, if 1938 is omitted because of the change in exchange procedure, the average period for 1936–37 was 4.0 weeks. Price flexibility increased slightly between 1918–20 and 1921–23, at a time when our previous analysis indicates that the increasing competition of processors and chain stores was first felt. By 1927–29, however, there had been a marked trend toward less flexible prices, during a period in which considerable concentration took place in the cheese industry. The degree of flexibility showed little change between 1930 and 1935 but showed a further sharp decrease during the last three years.

There appears to be a prima facie inference that this marked and growing stability of prices — in light of the conditions under which they are established — has not reflected comparable stability in supply and demand conditions.

While most agricultural prices are flexible, the costs and charges for processing, transporting, and selling are often inflexible. This fact and some of its consequences are pointed out in the two following excerpts.—*Ed.*

5.3.7 Nicholls, William H. "Price Flexibility and Concentration in the Agricultural Processing Industries," *Jour. Pol. Econ.*, Vol. XLVIII, No. 6, Dec., 1940. Pp. 885–87.

. . . Unlike ordinary manufacturers, the processor-distributors of any given agricultural product (such as milk used for cheese) do not have any important degree of short-run control over their volume of operations, since they are "obliged" (for a consideration, of course) to process and distribute whatever volume of product thousands of farmers decide to produce and (after considerable time) offer for sale. The natural reaction (exploited in meat-packer publicity, for example) is that, since there is no control over the supply (hence none over price), there can be no monopoly.

But such an argument is obviously fallacious. The "supply" subject to short-run control in such industries is surely that of processing-distributing services, not the supply of the unprocessed product or (except through storage) its derivatives. Hence, "control" in such industries means "margin" control in the short run. As far as the relationship to concentration of control is concerned, therefore, it is the flexibility of the margin between the prices of the unprocessed product and the processed product (or between the buying price and selling price), which is relevant, not the flexibility of either of these prices taken separately. Thus, the wholesale (selling) price of cheese might fluctuate willy-nilly with changing short-run supplies of milk, and yet — if competition among the processor-distributors were such as to permit the maintenance of relatively inflexible margins — the full effects of these fluctuations would be passed back to producers in the form of similarly flexible buying prices, as any agricultural economist knows they tend to do. Hence, concentration of control might be reflected in inflexibility of margins, even though prices were highly flexible.

I attribute my own failure (and probably that of others) to see this more clearly in previous writings to my preoccupation with long-run analysis. In long-run analysis, since inputs (and outputs) are conceived of as virtually an unchanging flow through time, it is not ordinarily necessary to distinguish between present and future prices. Therefore, control of the supply of processing-distributing services and control of the supply of inputs and outputs (hence, of buying and selling prices, and their difference — the margin) become one and the same thing. This follows

since any departures of price from such a long-run "equilibrium" are assumed to call forth continuous and instantaneous supply or demand responses, so that the margin is but the difference between instantaneously determined buying and selling prices. But, in short-run analysis of the agricultural industries, in particular, one must recognize that, due to the relative discontinuities in farmers' production response to price, current buying prices are related to production at some future date, not to current supplies. Hence, the farmer does not have to be paid the price at any given time which he expected to receive when his decisions on present production were made. The burden of short-run "surpluses" may, therefore, be laid squarely upon the farmer.

5.3.8 Hoffman, A. C. "Large-scale Organization in the Food Industries," Temporary National Economic Committee, Mono. No. 35, Washington, D.C., 1940. Pp. 78–79.

A widening of food margins either because of monopoly or for any other reason, obviously would result either in higher prices to consumers, lower ones to producers, or both.

In the short run (that is, within a crop year or whatever period of time is necessary for farmers to adjust their production), the food supply is relatively fixed. Once the crop is produced, it may be presumed that farmers will be willing to deliver it for any price above the cost of harvesting. The immediate effect of a widening of food margins thus would be reflected mainly in lower prices to farmers rather than in higher ones to consumers.

In the long run, however, the situation would be different, depending on the relative slopes of the curves of consumer demand and farm supply. If farmers responded to lower prices with a sharp curtailment of their production, then the effect of a food monopoly would be mainly to increase prices to consumers rather than to lower the farm price. If the situation were reversed (that is, if farmers tended to maintain their production despite lower prices), then it is the farm price which would be lowered and consumers would not be greatly injured by the monopoly. In either case the effect of the monopoly would be to lower the gross farm income. If farmers tended to maintain their production their price would be lowered; and if they curtailed it, their income would be lowered because they would have less to sell.

The supply of farm products in the aggregate is relatively

inelastic, even for periods of some length. Having made their investment in land and equipment and their own labor being somewhat in the nature of an overhead, farmers tend to go on producing at a point near the capacity of their farms regardless of price. This being the case, the expectation would be that not much of the incidence of a food monopoly would fall on consumers — at least until broad population shifts between agriculture and industry had worked themselves out.

For single products, however, the case might be different. Farmers are reasonably quick to shift production from one product to another in response to changing relative prices. A widening of margins for a single product therefore would be likely to cause a nearly proportionate rise in its price to consumers as farmers shifted away from its production. Beyond this, one hardly can generalize regarding the incidence of food monopoly.

As a final example of imperfect competition and its consequences, we quote from William H. Nicholls, who describes some of the circumstances surrounding the marketing of cigarette tobacco. This is a concrete example of market strategy. The theory of market strategy is parallel to the "theory of games."—*Ed.*

5.3.9 Nicholls, William H. *Price Policies in the Cigarette Industry.* Vanderbilt University, Nashville, 1951. Pp. 172–76, 181–82.

The Process of Revising Incorrect Anticipations Under Oligopoly: Since 1911, the American cigarette market has been characterized by oligopoly. Because the great bulk (68–91 per cent) of the nation's cigarettes has been produced and sold by three successor firms, no one of them could ignore the influence of its own price decisions upon the sales (hence price policies) of the other firms or, in turn, the influence of their resultant price policies upon its own sales. Even the smallest of the three major firms, Liggett & Myers, recognized this circular interdependence clearly in stating that its cigarette prices depend "to a considerable extent upon what its chief competitors are doing and what they are likely to do in respect of price changes." Such recognition did not spring full-blown from the dissolution decree. But during 1917–23 — after the three major brands had been introduced — each of the three firms certainly came to realize that circular interdependence did exist. It then became incumbent upon each firm to try to judge correctly the nature of this interdependence. For, until it knew what assumptions to make as to the extent and timing of any interactions which

it might set in motion by a change in its own policies, it could not correctly assess the probable *ultimate* effects of this change upon its own profits. The simplest way to have eliminated these oligopolistic uncertainties would have been outright merger or formal collusion. But, operating under the shadow of the recent dissolution decree, the successor firms could hardly avail themselves of these alternatives. Hence, a policy of experimentalism — by which the three companies tried out different price differentials and different timings of price changes (and responses to price changes) — was forced upon them.

There is ample evidence in the price history of 1917–23 that the major firms' original anticipations of rival reactions were incorrect. This was especially true during the earlier part of the period when price *increases* were the order of the day. An outstanding example of incorrect anticipations was American's unsuccessful attempt to lead in a price increase in September 1918. It is obvious that American expected its major rivals to follow upward and seriously underestimated the costliness (in loss of sales) of its policy in the event that they failed to do so. Out of this experience, American apparently revised its anticipations of rival reactions, becoming understandably reluctant to initiate price changes thereafter. While Reynolds was less unfortunate in leading price increases during 1918–19 even its success was mixed, with American once following upward all the way, once only in part. In the latter case, Reynolds then cut below American, which (through secret discounts) moved to the same level as Reynolds. Reynolds used similar techniques in following Liggett & Myers' one initial price *increase* only part way, and in following American's single initial price *decrease* by an even larger price cut, in each case thereby establishing the price level to which the original price leader then moved. Obviously, each of these price changes again reflected uncertainty as to what rival reactions would be. But, by its own choice of policies, Reynolds made it clear that a failure to follow its lead completely would result in its returning to lower prices but created a serious doubt as to whether it would itself follow its rivals' leads. While the latter doubts might have led to new conflicts and uncertainties, these were resolved by an increasing willingness of the other firms to concede a position of price leadership to Reynolds.

Uncertainties regarding probable rival reactions to initial price *cuts* were more easily diminished. During the period of price decreases 1921–22, American and Reynolds both discovered

that the other would promptly meet price cuts in full, thereby making it possible for each to anticipate correctly the other's reaction to a price decrease. Although reluctant to conform with this policy, Ligget & Myers' resistance to price cuts during 1921–22 probably revealed the costliness of such a policy and brought it around to the same point of view. Experience with secret rather than open price differentials was apparently found to be an unsatisfactory technique (probably because they did not remain secret) of increasing sales, being little used after 1919.

The market situation of 1917–23 had all the elements which, according to general theory, would result in a highly unstable or even chaotic outcome. Unquestionably, each of the three major firms was originally extremely uncertain as to the extent and timing of its rival's reactions to a price change. Furthermore, the fact that each firm at times tried to initiate price changes (Table 51) implies that each aspired to a position of price leadership in order that it might set that price which would correspond most closely to its own maximum-profit position. Yet, while there were indeed elements of instability during this period, the impressive fact is the pattern of order which rather quickly emerged. Such an outcome — particularly in view of the fact that there was apparently no formal collusion of any kind — is in itself remarkable and stands in sharp contrast with theoretical predictions of extreme instability. This outcome would suggest that anticipations as to rival reactions, while initially incorrect, can be gradually revised with experience until they become both correct and compatible. While it is impossible to predict, on purely theoretical grounds, that such revisions will converge or the paths by which convergence may be reached, the concrete fact in the cigarette industry is that they did so. Although American and Liggett & Myers subordinated their aspirations for price leadership to Reynolds' claims only reluctantly, Reynolds meanwhile enforced its own claims with considerable restraint. As a result of this element of "give and take," price competition (such as there was) was kept within reasonable bounds. And, reluctance and restraint notwithstanding, Reynolds' position of price leadership — particularly in the more uncertain area of price *increases* — was gradually recognized, reinforced by its steadily growing strength in the cigarette market. Once this became true, remaining uncertainties could be (and were in August 1923) easily resolved by standardizing dealer discounts — so that identical list prices automatically produced

the identical net prices to manufacturers which had tended to result anyway — and by making responses to changes in the leader's price, whether upward or downward, complete and immediate.

We may conclude that the crucial step in eliminating oligopolistic uncertainty in the cigarette industry was the mutual recognition that one of the three firms was to act as price leader, particularly on price increases. For this step eliminated the problem of a "kinked" demand curve which would otherwise have faced each of the three firms. Such a discontinuous demand curve would result if each oligopolist believed that "rivals will quickly match price reductions but only hesitatingly and incompletely

TABLE 51

SUMMARY OF PRICE LEADERSHIP AMONG THE THREE MAJOR CIGARETTE COMPANIES, 1917–50

Time Period	Company Initiating Price Change	Number of Successful* Leads			Number of Unsuccessful* Leads		
		Upward	Downward	Total	Upward	Downward	Total
1917–23† . .	Reynolds	2‡	2	4	0	0	0
	American	0	1	1	1	0	1
	Liggett & Myers	1**	0	1**	0	0	0
	Uncertain‡	2	0	2	0	0	0
1924–39 . . .	Reynolds	4	1	5	0	0	0
	American	0	2	2	0	0	0
	Liggett & Myers	0	0	0	0	0	0
1940–50 . . . (ex. OPA)§	Reynolds	2‖	0	2‖	0	0	0
	American	2	0	2	1	0	1
	Liggett & Myers	0	0	0	2‖	0	2‖
1917–50 . . . (ex. OPA)§	Reynolds	8	3	11	0	0	0
	American	2	3	5	2	0	2
	Liggett & Myers	1	0	1	2	0	2
	Uncertain‡	2	0	2	0	0	0

* A "successful" lead is one which the other firms followed, an "unsuccessful" lead one which they did not follow.

† Unlike price leads of the later periods, these price changes were often followed only after some weeks had elapsed, at times with some intermediate price adjustments.

‡ Reynolds' lead of Feb. 1919 was only partially successful, the others following upward only part way. Reynolds responded with a retaliatory price cut which American matched by secret discounts.

§ Exclusive of three price changes due to increases in wartime price ceilings.

‖ One of these unsuccessful leads by Liggett & Myers was made just prior to the tax increases of July 1, 1940, resulting in a price slightly below that of Reynolds but revised to the latter's figure before either price took effect.

** Only partially successful since Reynolds followed upward only part way and ultimately established the price to which the others moved.

(if at all) follow price increases." Under this pattern of expected behavior, the demand curve for the product of each oligopolist would have a kink at the existing price. The part above the kink would be more elastic, indicating the given firm's loss of business if it should raise its price, other prices remaining unchanged at the old level. The lower part would be more inelastic, showing the given firm's gains of business if its price cuts were at all times matched by its rivals.

American's unsuccessful efforts to bring about a general price increase in 1918 and its experience with matched price cuts during 1921–22 were undoubtedly such as to convince it of the reality of the "kinks." Had the other two firms (especially Reynolds) had precisely the same experience, any one of them would have been extremely reluctant to lead in a price increase because of the belief (verified by experience) that the others would not follow upward. Under such circumstances, cigarette prices would have been highly insensitive to changes in cost or demand, hence extremely rigid. Furthermore, unless the existing price was initially at the level which would maximize their joint profits, the final price would also have to be below that level. Thus, the advantages of mutual recognition of one (*any one*) of the oligopolists as price leader become obvious. For, once the price leader (Reynolds) could correctly anticipate that its price increases would be followed, the "kink" in its demand curve disappeared and it could raise prices with impunity. What the other firms lost in initiative was far more than offset by the gains in certainty as to the "rules of the game" on price increases, which made greater joint profits possible.

* * *

The Nature and Effects of the Price-Identity Policy: Between August 1923 and May 1951, there was a total of only 15 days on which the list (and net) prices of the three major brands differed because of a rival's delay in responding to an initial price change on one of the brands. At all other times (except 1923–28 and 1946–49, when minute price differences of 3–5 cents a thousand existed among them), the three major brands had (apart from what was apparently a small amount of price-shading) absolutely identical list prices, dealer discounts and net prices. The fourth major successor-company brand (Old Gold), while probably never important enough to have upset the common price policy had Lorillard shown more independence, also conformed fully

with the policy of price-identity except for a small 10-cent-per-thousand differential during 1928–29. Thus, the prices of the three (or four) brands moved together, either upward or downward, with an almost perfect harmony of amplitude and timing. The same was true for the major standard brands of Philip Morris and Brown & Williamson after 1940, by which time these two independents had successfully established themselves in the standard-brand field.

Between 1923 and 1939, there were seven price changes by the successor companies. Of these, four were *increases,* in every case led by Reynolds. During this period, neither American nor Liggett & Myers ever attempted to lead in a price increase or ever refused to match exactly Reynolds' higher price (including its notorious increase of 1931). Of the three price *decreases,* Reynolds led one, American two. These facts confirm the view that Reynolds was recognized as leader on price increases but that, on price decreases (at least under the drastic conditions of 1933), one of the other firms (always American) might assert itself. During 1940–48 (exclusive of the period of price controls) the earlier pattern was upset somewhat, with American and Liggett & Myers each trying unsuccessfully to lead in a price increase, followed by two successful leads upward by American. While these aberrations were probably due to extenuating circumstances stemming from current antitrust action and price control, they still resulted in essentially the same policy of virtual price identity which had characterized the years 1924–39. For the two unsuccessful leads were consistent with previous recognition of Reynolds as price leader (which it now insisted upon continuing by refusing to follow). And the fact that Reynolds did follow (almost but not exactly) the two price increases led by American in 1946 and 1948 suggests that Reynolds was for a time willing (perhaps even anxious in view of the recent antitrust decision) to concede its place to a new price leader (American), although it resumed its leadership role in 1950. Thus, while two of the leading players now appear to have switched roles upon occasion in recent years, the script of the play itself was hardly altered.

According to familiar theoretical models of oligopoly, the combination of identical price policies and a recognized price leader should serve to eliminate aggressive price behavior because each firm realized its own direct interest in maintaining joint profits at a high level. In the absence of the complicating

factor of advertising (product differentiation) . . . , total cigarette sales would be distributed evenly among the several firms. If their cost functions were also identical, their combined profits would be the same as under monopoly. On the other hand, if their cost functions differed, the price leader would establish that price which would maximize his own profits, resulting in (probably small) departures from the maximum profit position for the other firms so long as the given (equal) division of total sales was maintained. It follows that the high aggregate profits would be divided almost equally among the several firms.

Economists have developed many refinements to theories of duopoly, imperfect competition, and monopolistic competition. We have not attempted to cover them fully in the quotations used in this chapter. An excellent theoretical treatment can be found in George J. Stigler's, *The Theory of Price,* Macmillan, New York, 1947. Stigler also gives many references to books and articles which would be of interest to the student wanting theoretical material.—*Ed.*

SECTION 6

Government Policy Toward Competition

Since the 1870's, the state and federal governments have been increasingly active in defining the permissible nature and scope of competition. Policy has gradually shifted from rather complete laissez faire *(with respect to domestic trade) to a considerable degree of interference in the free play of supply and demand.*

Early recognition of imperfections in competition gave rise to two types of activity affecting agricultural marketing. One was an expansion of public services designed to facilitate competition. Extension work with farmers included the teaching of better preparation of products for market, along with improved production practices. To the traditional regulation of weights and measures was added the establishment of grade standards and the provision of inspection services. Market information was made available to farmers to help them to market their products to better advantage. The other was the regulation of rates charged by "natural" monopolies, like the railroads, and measures to curb "artificial" monopolies that threatened private control of free markets. The business practices of middlemen were increasingly brought under public regulation designed to prevent fraud and conspiracy or other predatory practices.

Of course, our state and national policies with respect to competition have never been entirely clear-cut and consistent. Historically, the main emphasis in agricultural marketing has been to facilitate and preserve competition. However, the state and federal govern-

ments have done many things to restrict competition in agricultural markets, or to change its nature significantly.

We shall consider in this chapter all three types of policy — the problems of facilitating, enforcing, and restricting competition in agricultural markets.—EDITOR

6.1 Facilitating Competition Through Marketing Services . . 300

6.1.1 Crow, William C. "The Function of the Government in Marketing."
6.1.2 Stewart, Paul W. and Dewhurst, J. Frederic. *Does Distribution Cost Too Much?*
6.1.3 United States Department of Agriculture. "The Agricultural Estimating and Reporting Services of the United States Department of Agriculture."
6.1.4 Montgomery, Donald E. "Consumer Standards and Marketing."
6.1.5 Taylor, George R., Burtis, Edgar L., and Waugh, Frederick V. "Barriers to Internal Trade in Farm Products."
6.1.6 Erdman, H. E. "Problems in Establishing Grades for Farm Products."
6.1.7 Harper, F. A. "The Problem of Grade Names."
6.1.8 Shepherd, Geoffrey, Beard, Fred J., and Erickson, Arval. "Could Hogs Be Sold by Carcass Weight and Grade in the United States?"
6.1.9 Clement, S. L. "Variations in Flue-cured Tobacco Prices."

6.2 Enforcing Competition by Public Regulation 313

6.2.1 Kitchen, C. W. "OMS Regulatory Work."
6.2.2 United States Department of Agriculture. "Report of the Administrator of the Production and Marketing Administration."
6.2.3 Simons, Henry C. "A Positive Program for Laissez Faire."
6.2.4 U. S. Federal Trade Commission. *Agricultural Income Inquiry, Part I, Principal Farm Products.*
6.2.5 The Farm Foundation. "Turning the Searchlight on Farm Policy."
6.2.6 Galbraith, J. K. "Monopoly and the Concentration of Economic Power."
6.2.7 Waugh, Frederick V., Hoffman, A. C., and Meyers, Albert. Statement on "Agricultural Marketing Policy."
6.2.8 Hoffman, A. C. "Changing Organization of Agricultural Markets."
6.2.9 Bressler, R. G., Jr. "Agricultural Marketing Research."
6.2.10 Nicholls, William H. "Conflicts between Economic and Legal Approaches to Monopoly."
6.2.11 Adelman, M. A. "Effective Competition and the Anti-Trust Laws."

6.3 Governmental Restrictions and Modifications of Competition 330

6.3.1 Dupuit, Jules. *De l'Utilité et de sa Mesure.*
6.3.2 Holt, Budd A. and Rubel, Donald M. "Marketing-Agreement Programs as a Means of Agricultural Adjustment."
6.3.3 Stokdyk, E. A. "Economic and Legal Aspects of Compulsory Proration in Agricultural Marketing."
6.3.4 Wellman, H. R. and Waugh, F. V. "The Economic Effects of Market Prorates."

6.3.5 Erdman, H. E. "Market Prorates as Restrictions on Internal Trade."
6.3.6 Edwards, Corwin D. *Maintaining Competition.*
6.3.7 Shepherd, Geoffrey. "Food Stamps and Farm Income."
6.3.8 Southworth, H. M. and Klayman, M. I. "The School Lunch Program and Agricultural Surplus Disposal."
6.3.9 Southworth, Herman M. "The Economics of Public Measures to Subsidize Food Consumption."
6.3.10 Hoffman, A. C. "Large-Scale Organization in the Food Industries."
6.3.11 U. S. Federal Trade Commission. Report of the Federal Trade Commission on Resale Price Maintenance.
6.3.12 Waite, Warren C. and Cassady, Ralph, Jr. *The Consumer and the Economic Order.*
6.3.13 Halvorson, Lloyd C. Statement before House Committee on Interstate and Foreign Commerce on HR 5767 — To Establish Minimum Resale Prices.
6.3.14 Galbraith, John Kenneth. *American Capitalism.*

6.1 Facilitating Competition Through Marketing Services

Economists have long recognized that perfect competition would require perfect knowledge of the present and perfect foresight with respect to the future. Insofar as actual conditions fall short of such an ideal situation, as they obviously must, consumers cannot make wholly intelligent choices nor can their choices be accurately reflected back to distributors and producers through the pricing mechanism. Nor can the farmer, processor, or distributor foresee the future accurately and allocate his resources most profitably. During the years since World War I, the U. S. Government, the agricultural colleges, and private trade associations have rapidly expanded their efforts to provide better and more useful information. By now, most Americans have become so accustomed to official market news, crop reports, outlook information, grades and standards, and other such services, that they are prone to take them for granted. As a result, some agricultural economists may fail to appreciate how much progress we have made toward achieving conditions of a perfect market over the continental United States. Or, at the other extreme, they may be tempted to consider that there is little room for further improvement. The selections in this subsection give little ground either for a lack of appreciation of progress achieved or for complacency about possibilities of additional progress.—*Ed.*

6.1.1 Crow, William C. "The Function of the Government in Marketing," *Marketing Activities,* U. S. Dept. Agr., Production and Marketing Admin., Feb., 1947. Pp. 3–4.

As the country began to develop, as railroads pushed out over the country, the producer began to have less direct contact with the ultimate consumer. Distance increased in a geographical sense as new producing sections opened up, and in a functional sense as improved processing facilities were developed. Today, prices are determined not by the supply and demand on the market, but the supply and demand in many markets. With consuming markets hundreds or even thousands of miles from producing sections, there has come a need for definitions of quality that are uniform at all places and at all times. The horse and wagon have been replaced by the railroad freight car, the motortruck, and even the airplane. Distance also has meant the development of storage facilities — huge grain elevators, cold-storage warehouses, and the like. To assure fair play in the markets, a number of regulatory laws have come into being. Under our present complex system of marketing, a great deal of governmental assistance is demanded, and needed, by both producers and consumers.

How to help consumers fulfill their role in an efficient marketing system presents peculiarly difficult problems.—*Ed.*

6.1.2 Stewart, Paul W. and Dewhurst, J. Frederic. *Does Distribution Cost Too Much?* The Twentieth Century Fund, New York, 1939. P. 349.

Under our present economic system the main directing source of all economic activity is expenditure by consumers. To the extent that their choices are irrational and uninformed, the system fails to reach its optimum performance. The variety of products now in the market, the importance of qualities not readily susceptible to sensory test, complications in service and convenience and the fact that consumers spend most of their time and energy as producers, all contribute toward making individual purchasing an inefficient process. Added to this is the incessant pressure of modern advertising — sometimes illuminating, but too often obscuring the facts which the consumer requires to enable him to buy intelligently.

But the problem of assisting consumers is not as simple as might at first appear. Until recently, at any rate, the great majority of them have not shown any great interest in becoming better informed. . . .

Accurate information is an essential feature of competition. The trade provides a good deal of information of various kinds. In addition, the federal and state governments publish a great mass of crop reports, market reports, and outlook reports which are used regularly by farmers and dealers. Most readers of this book are doubtless familiar with some of these statistical reports, but they may not fully realize either the size of the reporting job or the difficulties to be met in providing accurate and adequate information.

Here we shall include only a brief note summarizing the informational material available.—*Ed.*

6.1.3 United States Department of Agriculture. "The Agricultural Estimating and Reporting Services of the United States Department of Agriculture," *Miscellaneous Publication No. 703*, Bur. Agr. Econ., Dec., 1949. Pp. 2–3.

At present, the Bureau of Agricultural Economics, the principal statistical organization of the Department, publishes throughout the year statistical reports that give current national and State estimates of production, stocks, and prices received by farmers, for more than 150 farm products. These reports include estimates of the acreages of the crops farmers intend to plant, acres planted for harvest, and harvested acreages. During the growing season monthly forecasts of production are made on the basis of crop conditions or probable yield per acre as they are reported to the Department on the first of the month. Reports on the condition of pastures and ranges are issued monthly by States. Production estimates for 136 crops, including fruits, nuts, vegetables, and field crops are published regularly.

Statistics concerning livestock and poultry production include annual estimates of numbers and classes of livestock and poultry on farms January 1, and annual estimates of calf and lamb crops and chickens and turkeys raised. Estimates of the pig crop are made twice a year; the report in June covers the spring pig crop and intentions for the fall; the report in December relates to the fall pig crop and intentions for the following spring. The volume of milk and eggs produced is estimated monthly, and that of wool and mohair annually. The number of chicks hatched in commercial hatcheries is estimated monthly, and weekly reports are made for areas in which broilers are important.

A complete enumeration is made each year of the factory output of about 45 kinds of dairy products. Monthly and weekly estimates are made currently for the more important dairy products. . . .

Forecasts and estimates of agricultural production are made for the United States and for each of the 48 States. County estimates for a few major products are published annually in nearly all States, and county estimates for most of the important products are published in a third of the States. In 12 of these, county estimates are based on an annual Assessors' State Farm Census of crop acreages.

* * *

In addition to measures of production, the Bureau makes many other estimates. Examples are quarterly estimates of grain stocks; monthly estimates of the number of people working on farms, by regions; quarterly estimates of farm-wage rates, by States; monthly estimates of prices received by farmers; monthly estimates of prices paid by farmers for a considerable list of food items and quarterly estimates of prices paid by farmers for most other major producer and consumer goods bought by farmers; monthly estimates of farmers' cash receipts; triannual estimates of farm land values; and annual estimates of the farm population (in cooperation with the Bureau of the Census, Department of Commerce).

Certain additional statistical series originate within the Department, but outside of the Bureau of Agricultural Economics. Examples include the daily and weekly price and volume reports on grains, livestock, fruits, and vegetables arriving at or sold on the more important central markets; monthly reports on stocks of perishables in cold storage; and quarterly reports on stocks of leaf tobacco owned by manufacturers and dealers, by type. Commodity statistics of an essentially administrative nature, such as stocks of corn owned by the Commodity Credit Corporation or under CCC loan, are often invaluable when estimating total stocks on a given date, but the method of assembling such information is not discussed in this publication, since these statistics are prepared primarily for internal use within the Commodity Credit Corporation or Production and Marketing Administration. The preparation of occasional and nonrecurring estimates, whatever the phenomenon, will not be discussed in this publication.

The remainder of Subsection 6.1 will be concerned with grades for farm products and with the policies of government in defining grades and providing inspection services through which the grades are made effective.

The two following excerpts discuss some fundamental principles.—*Ed.*

6.1.4 Montgomery, Donald E. "Consumer Standards and Marketing," *Annals of Amer. Acad. Pol. and Soc. Sci.*, May, 1940. Pp. 141–42.

Thus a standard is a description. To be commercially useful it must be reasonably precise, suited to the purpose for which it is used, and generally accepted among those who use it. It may describe things or what we do about things. . . . The standard itself is just a description, but behind it is some kind of consensus — backed by opinion, custom, agreement, law, or regulation — that this or that be done with respect to it.

6.1.5 Taylor, George R., Burtis, Edgar L., and Waugh, Frederick V. "Barriers to Internal Trade in Farm Products," a Special Report to the Secretary of Agriculture, U. S. Dept. Agr., Bur. of Agr. Econ., March, 1939. Pp. 79–81.

The Ultimate Basis of Effective Grades. Grading has been promoted by producers and traders, and largely because they stood to gain by it; but grades must rest solidly on consumers' preferences or on basic utility to consumers if they are to be effective. Consumers will not pay more for one grade than another if it makes no difference to them which grade they buy. Furthermore, the fundamental economic justification of grades likewise is that they afford a means for consumers to register their preferences more accurately and more effectively, so that, if the grading system is carried all the way back to the producer, consumers are better able to encourage the production of the grades they prefer and to discourage production of the less desirable grades.

In other words, although it has been producer groups primarily that have promoted grading, it is the consumers who determine the effectiveness of the grades set up. The grades established have been effective in proportion as they have reflected real differences in consumer's preferences. For example, candling is used to determine egg grades because it is the most reliable method known for estimating in advance how the egg will taste when served on the table; and certainly a real difference exists in the strength of a consumer's desire for a good, fair, or bad egg. If egg grades were based on the shape of the egg and that alone, consumers probably would pay no more for one grade than another, and there would be no incentive to producers to grade, nor indeed any reason why they should.

These principles, while clear enough, perhaps require some explanation to bring out their applicability to grading that does not reach all the way through to the ultimate consumer. To give a few of the many possible examples, the grades for canning

peaches follow the product only as far as the canning factory. Wheat grades go only as far as the miller. Most grades for fresh fruits and vegetables are not used after the product reaches the wholesaler, for both the retailer and the consumer typically buy on personal inspection.

How then do grades rest on consumer preferences? There are two answers, depending on the commodity in question. If the commodity is radically changed in form on the way to the consumer, as when wheat is changed to flour, the ultimate consumer's influence on the choice of grade standards is indirect. Yet it is real. The miller prefers the qualities of wheat that will give a high yield of flour possessing the qualities consumers prefer. However, for commodities of this kind, which undergo a radical change in form, the arguments presented above are most realistic if "consumer" is understood to mean "user"; thus the miller is to be regarded as a consumer of wheat.

On the other hand, if the commodity is not greatly changed in form, the influence of the consumer is felt directly. Even if the consumer buys, say, lettuce on the basis of personal inspection and not on grade, yet the grades used by shippers and wholesalers are directly related to what the consumer wants. The qualities the dealer will prefer are usually and mainly the same ones that the consumer will prefer. Some modification of this statement is necessary, for the shipper and dealer will also prefer a type of produce that will ship and keep well. That is, to consumers' preferences, which they must keep in mind, they will add some preferences of their own growing out of the necessities of merchandising. This qualification is an addition to, and does not in any way weaken, the general principle that grades must be solidly based on consumers' preferences.

* * *

The problem of choosing "correct" grade standards involves several difficulties. The first difficulty is that there is no general agreement as to whether consumers' preferences as expressed through market prices, or home economists' or nutritionists' evaluation of basic usefulness, shall be taken as the basis of grade standards. The two may differ widely. The second difficulty is the small amount of research that has been done to determine consumers' preferences. We do not have very definite quantitative information about the details of consumer preferences. The third difficulty is to translate consumers' preferences into a description of the article in objective and measurable

terms. It is desirable to formulate grade standards so far as possible in terms of definite measurements — in terms of inches, pounds, a certain number on a color scale, etc.

It is necessary to solve all these difficulties before the fairness or unfairness of a given requirement in a grade standard can be judged. For example, the question of whether the requirement of nontremulous air cells in the top grades of eggs is fair or unfair cannot be settled until there is general agreement as to whether a tremulous air cell is or is not a reliable index of quality — "quality" being defined either on the basis of consumers' preferences or according to some scale of "basic utility" requirements. If it is generally agreed that a tremulous air cell is a reliable index of quality, then the exclusion from the two top grades of any eggs that have been shipped in from a distance must be recognized as fair and just; but if a relationship between quality and tremulous air cells cannot be satisfactorily demonstrated, such exclusion must be judged as unfair to shippers who are at a distance from the market.

It is possible then that some arbitrary requirement may be added to the grade standards and that it will have the effect of discriminating against a certain group of producers. In order either to prove or to disprove that the requirement is arbitrary, it is necessary to discover what characteristics are considered by consumers (or, alternatively, by experts) as making up quality, and then to express those characteristics in definite, measurable terms. If the description so arrived at includes the disputed requirement, it may be concluded that the requirement is necessary; if not, that it is arbitrary.

The right system of grade standards should maximize returns to producers by classifying the product on the basis that most accurately reflects what the buyers want and are willing to pay for. The implications of this have not always been clearly recognized. Some practical aspects of the problem are brought out in the following discussion by Erdman.—*Ed.*

6.1.6 Erdman, H. E. "Problems in Establishing Grades for Farm Products," *Jour. Farm Econ.*, Vol. XXXII, No. 1, Feb., 1950. Pp. 15, 17–19, 28–29.

The fact that farm products of low quality continue to appear on the market along with good products has concerned many persons. It is a matter of common observation that industrial products are highly standardized, usually at some acceptable level of quality. Agricultural marketers have sought to emulate

industry by dividing the product into "grades." Discussions of grading often emphasize prices for the top grades, ignoring the fact that other grades are also to be sold or otherwise disposed of.

* * *

One of the first problems encountered in the establishment of standard grades is that of locating boundaries between grades. These take the form of provisions in the "specifications" for the several grades. When such specifications are changed, there usually follows a change in the proportions which graders will place in the different grades affected. For example, the recent elimination of color as a factor in grading beef carcasses should place some carcasses in higher grades than would formerly have been the case. Presumably grading is done to maximize returns to sellers. It does this by dividing given products into "grades" on the basis of attributes which buyers of different classes consider significant. Standardizing grades at the determined levels and standardizing the names by which they are known merely facilitates bargaining once the terms come to be "common language" among buyers and sellers. Just where the boundaries between grades should be placed will then depend upon the degree to which the various users will pay premiums for certain qualities rather than substitute adjacent qualities within the ranges available.

Suppose buyers of apples in an independent market at a given time will pay $3.00 a box for "top quality" apples so graded as to include 10 per cent of the crop, $2.00 a box for "second quality" so graded as to include 60 per cent of the crop, and $1.00 a box for "third quality," including 30 per cent of the crop. A 100-box lot would thus gross $180.00. Readjusting the boundary line between the top two grades by changes in the specifications so that, let us say, only eight per cent fell in the top grade with 62 per cent in the second grade, would do at least two things. In the first place, it would raise the demand schedule for both grades by improving the quality of each. That is, the apples excluded from grade 1 to reduce its quantity from 10 per cent to eight per cent of the lot may be assumed to consist of the poorer apples in that grade; however, the apples so excluded should be better than those in grade 2, so that their inclusion in the latter grade should raise its quality. In the second place, readjusting the quantity should raise the price of the top grade somewhat by decreasing the supply of it by 20 per cent and should lower the price of the second grade by increasing

the supply 31/3 per cent. Allowing for both change in quality and change in quantity should produce a net change in price which would depend upon the elasticity and cross-elasticity of the demand for each grade at the particular time. Table I, based on assumed prices and elasticities, suggests the type of problem involved in the fixing of boundaries between grades if the aim is maximum returns to sellers.

The problem is obviously not as simple as here pictured. The range in quality of any product varies from year to year. In

TABLE I

HYPOTHETICAL ILLUSTRATION OF A NET CHANGE WHICH MIGHT RESULT FROM A SHIFT IN THE BOUNDARY BETWEEN TWO GRADES

	Per Cent of Lot Included	Assumed Price	Return on Assumed Bases
Plan I—Original boundaries			
Grade 1	10	$3.00	$ 30.00
Grade 2	60	2.00	120.00
Grade 3	30	1.00	30.00
Total	100	$1.80	$180.00
Plan II—Revised boundaries			
Grade 1	8	$3.40	$ 27.20
Grade 2	62	2.00	124.00
Grade 3	30	1.00	30.00
Total	100	$1.81	$181.20

addition, elasticities of demand vary within seasons, and doubtless from one season to another. It would not be feasible, even if it were possible, to adjust quantities falling in the several [grades] so as to maximize returns from year to year. The best that can be done is to approximate the best average distributions between grades over a period of years.

Grading is, of course, done at various stages of the marketing process. Each operator aims to maximize returns from *his* sales at *his* stage of the marketing process. There is a great deal of manipulation for this purpose, as when a grain dealer "mixes" grain, or when an egg jobber "splits" his grade A eggs into two subgrades for sale at different prices under different brands.

* * *

References to grades and grading in recent writings omit discussion of some of the broader implications suggested above.

Data on increased returns from the sale of graded produce can have significance only if considered in some such way as that suggested in Table I. It means little to say that "strawberry growers received a premium of $1.00 to $1.25 a crate for berries packed according to suggestions of the State Marketing Specialist," or that "using small and low-grade white potatoes for hog-feed helped to raise the quality of the stock marketed for food." Results of experience with modified grades in a few packing plants are pertinent only if such practices are not applied so widely as to affect significantly the volume sold under specific grades.

A problem that needs consideration in connection with programs to eliminate low quality from the market is that of so labeling low-quality products as to permit consumers to decide for themselves whether they want them at the prices asked. It is probably true — though not so represented in grade or preference studies — that much of the low-grade stuff that finds its way into the market does so through that part of the trade which is willing to deceive consumers by careless grading and by failure to label correctly. It is of little value to grade products if consumers are confused by the labels as is the case when a low-grade product is sold under a fancy label which implies quality but gives no facts to guide the consumer.

> If everyone were thoroughly familiar with all details of all grade specifications, the names by which the different grades are called should not matter. But this is not always the case, and we find each trade group trying to attach attractive names to its grade classifications — to make them "excellent, still better, unsurpassed," rather than "low, medium, high." The confusion resulting from unrestrained indulgence in such a practice can endanger the effectiveness of the whole grading system.—*Ed.*

6.1.7 Harper, F. A. "The Problem of Grade Names," *Farm Economics*, No. 146, Cornell Univ., Ithaca, New York, May, 1945. Pp. 3738–41.

To focus attention on the existing confusion of names, a summary has been made of official state and federal grades for 110 products. Since one product may have different standards in different states, it was found that 268 different grade systems were in use for these products. One sample from each grade within each of these grading systems would yield 636 samples. If each sample were to be marked by name, 150 *different* individual names would be found. Some would be found only once, and

others many times. The name most frequently found would be "No. 1," which would appear 137 times. Next in frequency would be No. 2, Fancy, and Minimum Standard. One hundred twenty-one of these names would appear only once.

The confusion of having 150 different names appear on these samples is enough to discourage most consumers from ever understanding grades. Yet the confusion becomes even worse when he tries to learn their placement and meaning in the *series* of names used for the various multiple-grade systems. This problem does not arise, of course, in the 114 grading systems which have only one grade. But in the other 154 systems, having from two to eleven grades each, the variety of sequence of names is a serious problem. These 154 multiple-grade systems use 78 different series of names, of which no two are exactly alike.

Before a given grade-name in a multiple-grade system can indicate quality clearly and accurately to the buyer, he must know how many grades there are and the number of grades better and poorer than the one he is considering. For instance, knowledge of the existence of a grade called No. 1 is, by itself, not a safe guide in buying. It might erroneously be assumed that the No. 1 grade could be depended upon, where found, to represent the best quality of a product, irrespective of how many other grades or grade-names were used. Any buyer who acts on that assumption will be fooled about half the time. Out of 110 uses of the grade-name "No. 1" in multiple-grade systems, it failed to represent the best quality in 54 cases, and in one case it was the fourth best. This lack of dependability is far worse for most of the other grade-names.

* * *

A summary of the 154 multiple-grade systems showed that only 36, or less than one fourth of them, used a simple and desirable system, either numerical or alphabetical. The other three-fourths involve some degree of confusion, so that a person not knowing its peculiarities is likely to be misled by the grade-name. There are some amusing illustrations. The grading of one product is largely a size consideration, wherein "large" is the next to the smallest among six grades, and "medium" is the smallest. In other words, the least desirable among six grades of this product is "medium." The *best* among nine grades of another is "middling fair." These two names have a similar tone of desirability. "Good" is the third best among seven grades of one product; "choice" is the poorest among three grades of another.

* * *

In all this confusion of names, it is little wonder that consumers and buyers do not generally depend on grade-names as a safe guide to quality. It is little wonder that much opposition exists to all programs of compulsory grading. Few people know grades well.

These considerations tend to cool our enthusiasm about the extent to which grade standards and names, as they now exist, can be generally helpful to consumers and buyers as guides to buying. They help to explain the common practice of personally inspecting products, whenever possible, rather than depending solely on representation of quality by grade.

> Official grades are most used, and best understood, in the wholesale trade. To be most effective they must be extended forward to the consumer and backward to the farmer. The wholesale market may pay a high premium for the best cotton, hogs, or potatoes. But unless the farmer can sell by grade, he may find it unprofitable to produce what the market wants. One answer is governmental inspection at or near the farm, as is done in the case of cotton and tobacco in certain areas. Another is cooperative marketing, through which the farmers' agents grade their products. Perhaps another alternative is to work out some practical arrangement through which processors will pay farmers according to the actual quality of the processed goods. Proposals of this kind have been made for pricing hogs by the weight and grade of carcass.—*Ed.*

6.1.8 Shepherd, Geoffrey, Beard, Fred J., and Erikson, Arval. "Could Hogs Be Sold by Carcass Weight and Grade in the United States?" *Iowa Agr. Exper. Sta. Res. Bull. 270,* Iowa State College, Jan., 1940. P. 449.

Detailed statistical investigation indicates that commercial butcher hogs are bought on too nearly a "flat price" basis; the differences between the values of different lots of butcher hogs are greater than the differences between the prices paid for them. Within each weight class the variations in value may be as much as five times as great as the variations in prices paid. The correlation between values and prices, lot by lot within each weight class, is rather low. It ranged from + .34 to + .56 in the cases studied.

The reason for the inaccuracy of the prices paid for hogs on the live weight basis is two-fold: (1) It is difficult for the buyer to detect value differences accurately on the hoof, no matter how experienced he is, and (2) it is even more difficult for farmers to do so. Accordingly farmers are reluctant to accept discounts for low-grade hogs. It is difficult for the buyer to detect value differences accurately in the first place and difficult for him to

register those differences in proper premiums and discounts. He therefore pays close to the average for all but the obviously defective hogs in each weight range. Both of these reasons stem from the fundamental impossibility of appraising hog values accurately on the hoof.

The Carcass Basis of Sale. Many of the shortcomings of the live weight system of sale would disappear if hogs were sold by carcass weight and grade. In 1938 farmers in Canada sold 40 per cent of their commercial hogs on the carcass value basis. The various physical problems involved have been solved under Canadian commercial conditions. . . .

There is considerable evidence that the methods worked out by the Canadians to handle their physical problems could be adapted to conditions in the United States.

> To devise a system of grades that clearly and accurately reflects market preferences is a difficult and complicated problem with some commodities. No matter how good the system, it cannot fulfill its purpose effectively unless it is accepted and used by the trade or industry concerned. Efforts to put into operation a grading system through which farmers could be assured of appropriate price differentials for quality of product have faced exceptional difficulties in the case of tobacco.—*Ed.*

6.1.9 Clement, S. L. "Variations in Flue-cured Tobacco Prices," *North Carolina State College Agr. Exper. Sta. Tech. Bull. No. 69,* May, 1942. P. 4.

In 1937 and 1938 on the Farmville market, prices paid for different lots of the same U. S. grades of flue-cured tobacco varied widely within days. The average of daily spreads between high and low prices paid for 14 representative U. S. grades in 1938 amounted to $15.33 for 100 pounds, or 63.5 per cent of the season average price of these grades. Even when the effect of extreme chance variations had been removed by the elimination of 10 per cent of the poundage at each extreme of the price range, there remained an average spread of $8.07 per 100 pounds, or 33.4 per cent of the season average price.

Since company buyers do not regard U. S. grades in making their purchases, in the analysis of price variations in terms of company grades less variation was found, although daily prices paid for representative company grades varied considerably. Corresponding average spreads for 16 company grades were 28.9 per cent and 13.2 per cent of the season average prices.

Probably no sane individual would attempt to explain in full the wide variation in prices indicated. A considerable part of it

is inherent in the system and defies logic. However, several factors associated with the variation have been examined, and the results may be summarized briefly.

Each company has its own private secret system of grades, and none of these systems correspond with the U. S. standard grades. A single company grade contains tobacco of many U. S. grades, and the tobacco of a single U. S. grade bought by a company is distributed among a number of company grades. The analysis of 15 representative company grades bought in 1938 on one market indicated that on the average 24.4 per cent of each company grade consisted of tobacco classified in one U. S. grade, 38.6 per cent in two U. S. grades, and 48.4 per cent in three. If the assumption is made that federal grading is accurate, company grades contain a wider range in quality of tobacco than U. S. grades, or have less uniformity of quality.

6.2 Enforcing Competition by Public Regulation

While marketing services can facilitate competition, they cannot create it. Farmers sensed at an early date that they were victims of monopolistic exploitation in many phases of marketing. Through their political demands they were instrumental in the establishment of railway rate regulation and antitrust legislation before 1900. Since then more specialized legislation has been passed to protect both farmers and consumers against monopoly and price manipulation and against misrepresentation and fraud. The principal instrument for maintaining competition in agricultural markets, as elsewhere, has been the Sherman Antitrust Act of 1890, and most of the excerpts in this section are concerned with the efficacy of this approach to public policy. First, however, we review briefly some of the federal regulatory activities that apply specifically to the marketing of farm products.—*Ed.*

6.2.1 Kitchen, C. W. "OMS Regulatory Work," *Marketing Activities,* U. S. Dept. Agr., War Food Admin., March, 1945. P. 3.

The Office of Marketing Services administers some 25 separate laws related to the marketing of farm commodities. Federal legislation on this subject began about 1914; before that time marketing had been regarded largely as a local problem, with some regulation and assistance by States and municipalities. The rapid development of transportation, refrigeration, and large-scale production, especially of the more perishable commodities, had forced producers to seek markets farther and farther from home.

Widespread confusion had developed in the use of terms for

describing the quality and condition of farm commodities. Various State and trade standards had been established for some commodities, but they were not uniform and consequently were not adapted to long-distance transactions and to distribution on a national and international scale. Various forms of abuses and unfair practices had arisen. The farmer badly needed a way of knowing the probable value of the commodities he had produced. Congress considered the marketing of farm commodities in interstate and foreign commerce as a proper subject for Federal legislation.

6.2.2 United States Department of Agriculture. "Report of the Administrator of the Production and Marketing Administration," 1946. Pp. 28, 33-34, 49-50, 56-57, 61-62, 63.

PMA administers the United States Warehouse Act and inspects warehouses used for storing commodities owned by the Commodity Credit Corporation. Licensing warehousemen under the act is voluntary. When an application is received from a warehouseman, an investigation is made of the facility and of the financial status and ability of the operator. If requirements are met, licenses are issued to the warehouseman and to persons qualified to sample, inspect, weigh, and grade the products handled by the warehouseman. Thereafter PMA supervises the licensee's operations to see that the requirements of the act are met.

More than 2 billion dollars' worth of agricultural products were stored during the year in warehouses licensed under the act. Again in 1946 — as during every other year since the act was passed — no storer of any product in any warehouse suffered financial loss. As the year ended, approximately 1,340 warehousemen were licensed and about 3,385 service licenses were in effect. Approximately 4,400 supervisory examinations had been made — an average of more than 3 inspections to a warehouse.

An investigation of rye warehousing in the Chicago market, made as a result of a complaint by a Chicago grain merchant charging violations of the act, failed to sustain a single charge of the complaint.

* * *

In the administration of the Commodity Exchange Act, PMA supervised the futures trading in 15 commodities, amounting to nearly 17 billion dollars, on 15 exchanges. In commodities not restricted by price ceilings, speculative and hedging transactions increased markedly during the year.

Nearly 1,100 brokers and brokerage firms with 1,548 offices were licensed by the Commodity Exchange Authority. Periodic audits of brokerage firms for the protection of customers' funds numbered 202, and 10 investigations of violations were made.

In three cases, respondents charged with violations of the act were denied trading privileges for varying periods by the Secretary of Agriculture. Effective December 3, 1945, the Commodity Exchange Commission reduced the limit on individual speculative positions and daily trading in rye futures to 500,000 bushels.

* * *

Perishable Agricultural Commodities Act. Highlights during the year in the administration of the Perishable Agricultural Commodities Act, which is a regulatory statute intended to suppress unfair and fraudulent practices in the marketing of perishable agricultural commodities in interstate or foreign commerce, were the new peak in the number of active licenses, and increases in the number of informal settlements and in the sums paid in connection with these settlements. All commission merchants, dealers, and processors handling fresh or frozen fruits and vegetables in interstate or foreign commerce in carlots or in wholesale quantities of 1 ton or more are required to be licensed, and violations of the act are punished by awarding reparations as damages or by other disciplinary actions.

At the end of the year licenses in effect totaled 22,126, an increase of 1,159 in 12 months and the largest number in the history of the law. Payments made in connection with the amicable settlement of registered complaints amounted to $1,188,200 — approximately $123,650 more than during the preceding year. A comparison between activities of the 2 years indicates a trend toward increased numbers of informal settlements of disputes through the efforts of PMA rather than insistence on formal action. Informal settlements of controversies in lieu of formal action were made in 85 cases, an increase of 32 over the previous year. Formal orders numbered 76 — 10 fewer than in 1945.

Activities under the Produce Agency Act were limited. Only seven complaints were recorded and no prosecutions appeared to be warranted. The only complaints handled were those that could not be handled under the Perishable Agricultural Commodities Act — chiefly complaints involving consignments transactions.

* * *

United States Grain Standards Act. Under this act, passed in 1916, the Secretary of Agriculture is authorized to establish official standards and inspection for grains. Official standards have been promulgated for wheat, barley, oats, feed oats, mixed feed oats, rye, mixed grain, flaxseed, corn, grain sorghums, and soybeans. After promulgation of standards for any grain, it must be inspected, graded, and certificated according to the official standards whenever it is merchandised by grade in interstate or foreign commerce from or to an inspection point. The primary inspection of grain is performed by inspectors of State and trade inspection departments and in some cases by independent inspectors, all licensed by the Secretary. Federal offices are maintained at headquarters in districts comprising definite areas for the purpose of supervising the work of the licensees and handling appeals from their inspections. These offices also aid in enforcing provisions of the act against fraud and misrepresentation in grain marketing.

More than 2 million inspections — a new high record — were made in 1946 by licensed inspectors. The quantity of grain inspected totaled more than 4 billion bushels, or more than 2.3 million carloads; the number of inspection certificates issued under the act totaled more than 2 million. The inspections included vast quantities of grain inspected for export. Inspection activities included problems involving quality defects, storage damage, the use of open-topped cars for intermarket grain shipments, the training and examining of applicants for licenses, and the maintenance of standardized inspection equipment.

Each State has a seed law that requires correct labeling of seeds offered for sale within its borders. The Federal Seed Act, which requires complete labeling of seeds in interstate commerce, supplements these State seed laws. During the fiscal year reports and investigations of complaints charging violations of the act numbered 527 — 92 per cent higher than during the preceding year. Criminal action was recommended in 44 instances representing 8 per cent of the complaints. Seizure was recommended in 9 instances. Nine criminal cases and 3 seizure cases were terminated in the Federal courts. Twelve criminal cases and 5 seizure cases were pending in court when the year closed.

The act also prohibits the importation of agricultural and vegetable seeds that fall below fixed standards of quality. By amendments to regulations under the act the number of kinds of seeds subject to this control has been increased from 159 to

225. When offered for importation these seeds must be tested. Approximately 70.5 million pounds of seeds were offered for importation during the year. Of this quantity 60.3 million pounds were released as offered, and an additional 7 million pounds were released after they had been put into admissible condition.

* * *

Packers and Stockyards Act. The Packers and Stockyards Act gives the Secretary of Agriculture supervision over the operations of packers, stockyard companies, market agencies, dealers, and licensed poultry handlers, and authorizes him to regulate rates and charges for services at stockyards and designated poultry markets.

Petitions for increased yardage and commission rates were restricted to a level generally representative of actual increased labor costs plus other essential increases. A provision that stockyard companies who seek additional revenues must obtain a part of them by assessing yardage charges against dealers and traders saved farmer-producers $222,000 in three markets alone.

* * *

Meat Inspection. At the end of the year, animals and meat and meat products were being federally inspected at 554 slaughtering establishments (with or without meat processing) and 474 processing establishments — 1,028 establishments in all.

New inspection labels and sketches for labels submitted for approval numbered 15,919 — 1,856 more than in 1945.

Ante mortem inspections were made of 82,817,790 animals, of which 34,049 were condemned and 233,737 were marked "suspect," and post mortem inspections were made of 82,781,260 animals, of which 319,091 were condemned. Somewhat smaller than in 1945, these totals were in line with the decreased animal slaughter.

More than 1,379,752,000 pounds of meat and meat products for foreign commerce were inspected.

> Governmental policy with respect to large-scale business has been unclear, ambiguous, and conflicting. On the one hand, there has been concern over the growing concentration of economic power in the hands of a few large concerns. On the other hand, there is a growing awareness that American efficiency has been built to a large extent upon mass production and mass distribution.
>
> Some economists urge the enforcement of competition and apparently believe this would cause no serious loss in

efficiency. Other economists warn against the sort of anti-trust activities that might destroy, or seriously impair, the efficiencies made possible by mass production and mass distribution. A representative cross-section of different policy positions is presented here.—*Ed.*

6.2.3 Simons, Henry C. "A Positive Program for Laissez Faire," Public Policy Pamphlet No. 15, University of Chicago Press, Chicago, 1934. P. 19.

There must be outright dismantling of our gigantic corporations, and persistent prosecution of producers who organize, by whatever methods, for price maintenance or output limitation. There must be explicit and unqualified repudiation of the so-called "rule of reason." Legislation must prohibit, and administration effectively prevent, the acquisition by any private firm, or group of firms, of substantial monopoly power, regardless of how reasonably that power may appear to be exercised. The Federal Trade Commission must become perhaps the most powerful of our governmental agencies; and the highest standards must be maintained, both in the appointment of its members, and in the recruiting of its large technical staff. In short, restraint of trade must be treated as a major crime, and prosecuted unremittingly by a vigilant administrative body.

6.2.4 U. S. Federal Trade Commission. *Agricultural Income Inquiry, Part I, Principal Farm Products.* U. S. Government Printing Office, Washington, D. C., 1938. Pp. 38–39.

When a considerable proportion of the total output of an industry is brought under one ownership or control by a union of former competitors there is a strong probability that competition will be substantially lessened in the process. Accordingly, the Commission recommends further legislation to provide that no enterprise engaged in interstate commerce be permitted to acquire control over the assets of a competitor, whether directly or indirectly, if the combined assets or output after the union would exceed a specified percentage of the total assets or output of the industry, except under conditions, such as purchase from a receiver in bankruptcy, to be specified in the statute. If this recommendation is adopted, judicial inquiry into the lessening of competition in each particular case will be necessary only when, because of special circumstances, competition is substantially lessened by acquisition of less than a controlling interest in a competitor's assets or by acquisition of a controlling interest which in other respects meets the requirements of the statute.

The problem created by consolidations and mergers is not merely that of the lessening of competition in a particular in-

dustry. The progressive enlargement of a few predominant enterprises has already gone so far that, in financial strength and in numbers of persons subject to their control, the largest concerns exceed some State governments. Although the most conspicuous examples of this process are not to be found among food manufacturers and distributors, the cumulative enlargement of the dominant food enterprises points to the possibility that such a condition may arise here also. The dangers of such concentration of power are evident, whether the power is concentrated in one industry or spread over a considerable number of industries. The Commission does not suggest that limits be set to the growth of an enterprise by virtue of its success in attracting customers and of its consequent enlargement through purchase of new equipment. It believes, however, that there should be limits to growth which consists in combining the assets of various enterprises for the sake of the greater power which can be exercised by the combination. Therefore, the Commission recommends the enactment of legislation to forbid the acquisition of the assets of another enterprise by any concern whose total assets thereafter would exceed a specified amount.

6.2.5 The Farm Foundation. "Turning the Searchlight on Farm Policy," Chicago, 1952. Pp. 56–57.

Sound policy dictates that farmers and agricultural organizations direct their efforts toward attacking any monopolistic restrictions that exist in other areas rather than themselves becoming parties to programs that result in lessening the total national product. Pushing up farm prices does nothing to lower nonfarm prices or to increase the supply of industrial goods or commercial services. Instead, it still further contracts the total supply of goods in the general market and lessens the volume of consumer satisfaction. Restrictionism in agriculture is not an effective and satisfactory way of compensating for the harm done to farmers by such price maintenance and restriction of production as exist in the industrial and labor segments of the economy.

6.2.6 Galbraith, J. K. "Monopoly and the Concentration of Economic Power," *A Survey of Contemporary Economics*, ed. by Howard S. Ellis, Blakiston Company, Philadelphia, 1949. Pp. 127–28.

. . . The problem of monopoly policy has long been intellectual property of men whose faith is in competition. A rule of oligopoly poses, for them, the unattractive alternatives either of recommending a wholesale dissolution of existing business units or of devising rules of behavior for a kind of society which none

likes, which for some is a positive anathema, and to which conventional modes of analysis and thought are inapplicable.

. . . The dilemma may be more intellectual than real. We do live in an industrial community where oligopoly — or, more horrid word, private collectivism — is the rule. But, strangely, we do live. Our dissatisfaction with our world is less the result of having known any other than of having constructed a model of another economic society, the *rationale* of which we know and which is more companionable to our sense of elegance and order. We shall never find anything so agreeable in the world we have. But perhaps there will be compensation, once we have exchanged elegance for actuality, in a greater rate of progress in understanding what we have.

6.2.7 Waugh, Frederick V., Hoffman, A. C., and Meyers, Albert. Statement on "Agricultural Marketing Policy," Investigation of Concentration of Economic Power: Final Report and Recommendations of the Temporary National Economic Committee, Senate Doc. No. 35, 77th Cong., 1st Session, 1941. Pp. 388–90.

It is our belief that, in the main, mass processing and distribution in the food industries have their roots in technological factors which make them as inherently a part of our present-day economy as mass production in industry. We believe that at least some degree of integration and large-scale organization in agricultural marketing makes for greater efficiency and offers a means for reducing the costs of processing and distributing farm products. There are, of course, many exceptions to this general statement. Many efficiently operated small concerns can and do match the mass distributors in operating efficiency. Moreover, in some cases the economies inherent in mass distribution appear to have been dissipated in excessive sales and advertising expenditures, and the profits of some food concerns have been such that obviously not all the advantages of scale have been passed on to farmers and consumers.

* * *

It may be that the people will choose in general to preserve competition and small-scale enterprise for the non-economic values inherent in this type of economy. Certainly they have not done so with respect to all parts of the economic system, as exemplified by those industries in which competition has been replaced by some degree of public control. Moreover, in many of the heavy industries carried on under conditions of mass production, there is no substantial body of support for giving up

technical advantages in order to return to small-scale enterprise. In our view, there is no reason to follow a different policy for mass distribution than for mass production. Insofar as both flow from the same causes, have the same general economic advantages, and are subject to the same abuses of monopoly control, they should be dealt with alike.

So far as the food industries are concerned, there is probably no one policy which can be universally applied. Each branch presents a different set of circumstances, and should be treated accordingly.

Where competition is reasonably free, profits not excessive, and prices to farmers and consumers reflect a proper charge for necessary marketing services rendered, no type of public intervention is necessary. In this connection, competition between large firms may be fully as effective in keeping margins down as that between many small firms.

* * *

Where competition can no longer be relied on to protect the public interest, then one of two general courses must be chosen: (1) An attempt to preserve competition under the Sherman Act, or (2) some type of public regulation. If there are no economies of size, if small enterprises are as efficient as large ones, then patently proceedings under the Sherman Act are in order. But if this is not the case, and if to dissolve corporate mass distributors leads to an increase in food costs and margins, then we believe public intervention should be in the direction of control of the monopolistic elements rather than their dissolution. We recognize that public control is inherently difficult, sometimes ineffective and even corrupt. But where competition breaks down or fails to produce a proper balance, it may be the best alternative.

6.2.8 Hoffman, A. C. "Changing Organization of Agricultural Markets," *Jour. Farm Econ.*, Vol. XXII, No. 1, Feb., 1940. Pp. 171–72.

In summing up, what shall we say about corporate mass distribution in terms of the fundamental forces which lie back of it? With respect to this, there are two diametrically opposed schools of thought.

On the one hand are those who hold that this trend has no real basis either in operating efficiency or in the indivisibility of economic resources. Their contention is that the chief stimuli have been nothing more than bargaining advantages and a non-

economic drive for business power. If large-scale enterprises have tended to displace small ones it is, according to this view, only because the former have been in position to exact monopolistic prices. And for allowing them to do this, we must blame, in the words of Professor Fetter, "mistaken human laws, misinformed public opinion, and the limitations of public officials — legislative, judicial, and executive."

The other view stems from the materialistic interpretation of economic and social development. It holds that business patterns are largely determined by such material factors as the mode of transportation, the facilities for communication, and the technology of production. Applied specifically to the food industries, this would mean that large-scale marketing is to be explained mainly in terms of the automobile, the motor truck, new techniques of food processing, and even of such seemingly unrelated innovations as the cash register and the adding machine which make it possible to extend the function of business management over a wider range and scope of activities.

If this latter view is accepted, and I think it is much more realistic than the first, then large-scale organization in marketing is as inherently a part of our modern economic system as mass production in industry.

6.2.9 Bressler, R. G., Jr. "Agricultural Marketing Research," *Jour. Farm Econ.*, Vol. XXXI, No. 1, Feb., 1949. Pp. 555–56.

Competitive economic theory can thus provide the framework for our ideal market. Confronted with any marketing and pricing problem, the research worker can plan his attack by asking himself such questions as "How would this marketing process be organized if it operated under the conditions of perfect competition?" This does not imply that competitive conditions could be completely attained, nor that the solution to marketing problems is simply a "return" to the system of free and perfect competition. A realistic view of the industrial economy of today indicates that it would be *both undesirable* and impossible to attain many of the characteristics of a competitive market. Two main types of modifications are necessary: first, the inclusion of welfare considerations that modify the distribution of income, such as progressive income taxes and minimum wages; and second, the possible advantages of a limited number of firms in those areas where economies of large-scale operation are important. In this last case, the significant questions are "What or-

ganization of this process would minimize costs and how can these costs be reflected in prices?"

Attempts to improve marketing by approximating competitive conditions will be appropriate in many instances. These include such things as curbing large-scale organization where its effects are primarily to exact charges not commensurate with costs, and perfecting knowledge through research, education, and market news. In certain other areas, however, this approach will not be productive and here the stress must be on approximating the *results* of competition in terms of costs and prices. As already mentioned, large-scale organization may frequently result from technological factors that give rise to economies of scale, and the curbing or breaking up of such large units would necessarily lead to higher costs. This is a much more common situation in marketing than is sometimes supposed, for economies of scale are frequently of sufficient importance relative to the size of local markets to result either in (1) a considerable degree of local and spatial monopoly or (2) a number of small and high-cost competing firms. In country marketing and processing plants, for example, this conflict is clear. The problem may be one of how to achieve and regulate low-cost monopolies in the public interest.

One of the main problems in legal control of monopoly is the establishment of tests of its existence. How do we determine whether a particular firm is a monopoly, or whether a group of firms is engaged in concerted action that restrains competition? Here the lawyers and the economists have not always seen eye to eye.—*Ed.*

6.2.10 Nicholls, William H., "Conflicts between Economic and Legal Approaches to Monopoly," *Pricing and Trade*. A Report of the National Marketing Research Workshop, U. S. Dept. Agr., 1952. Pp. 166–67.

It is the task of the law of monopoly to distinguish between business practices which are in the public interest and those which are not. In carrying out this difficult problem of evaluation, the courts have had to devise and apply tests capable of differentiating between approved and disapproved practices. As elsewhere in the law, the law of monopoly has reflected the perennial conflict between certainty and change. As we have already indicated, two tests of monopoly have become traditional — (1) On the question of conspiracy, does the evidence show that competitors actually agreed? (2) On the question of monopolization, was there overt predatory action to exclude competition? These two tests had

the advantages of certainty — they could be applied with sufficient consistency to assure equality of treatment before the law; and they were sufficiently concrete to indicate the practices which must be avoided to escape condemnation under the law. Unfortunately, however, these tests have become increasingly inadequate as the structure and practices of American industry have taken new and more subtle forms. Thus, the need for change — for adapting the law to a new industrial environment — has become more and more apparent, particularly since 1930.

With the coming of the theories of monopolistic competition, a wide gap quickly developed between the legal and economic concepts of monopoly. The law continued to emphasize restriction of competition — whether by agreement with, or predatory practices against, competitors — as the essence of monopoly. Economics, however, turned increasingly to an emphasis upon the individual firm's control over prices — due either to large size or product differentiation — as the sum and substance of monopoly.

Under this new concept, economists were quick to point to important shortcomings of the law. First, while explicit agreements among competitors were illegal *per se,* oligopoly theory pointed to the likelihood that a few dominant firms would involve patterns of non-aggressive pricing which, being largely or wholly *tacit,* were beyond the reach of the antitrust laws. Since domination-by-a-few had become the typical pattern of modern industry, it appeared that non-aggressive policies — such as price identity, market sharing, price leadership and non-price competition — would, in general, produce the economic results of industry-wide market control while avoiding the legal sanctions of monopoly. Second, the close combination or merger, however large — in the absence of overt actions of *exclusion* against existing or potential competitors — was safe under the law. Yet, in terms of control of the market, "mere size" was of paramount importance, especially when supplemented by price leadership and other devices which effectively extended the dominant firm's control over an entire industry. Furthermore, even though illegal (predatory) actions to exclude competitors had almost wholly disappeared, high costs of entry and expansion remained as a significant but perfectly legal barrier to competition in industries characterized by large-scale production and highly advertised brands.

The final excerpt in this subsection is taken from the *Harvard Law Review.* It is an unusually clear discussion of the legal and economic issues to be met in enforcing competition.—*Ed.*

6.2.11 Adelman, M. A. "Effective Competition and the Anti-Trust Laws," *Harvard Law Review*, Vol. 61, No. 8. Pp. 1291–97, 1298–1300, 1303–04.*

I. WORKABLE COMPETITION AND ECONOMIC WELFARE

A. EFFICIENCY AND SIZE

Does the large corporation suffer from hardening of the bureaucratic arteries, and is it inherently less efficient than smaller ones? We simply have no reliable evidence. Moreover, there are limits to what research can accomplish in this area, simply because every large corporation comes so close to being a historical individual. The background of its formation, the products it sells and their interrelated cost structures, its markets and market policies, and the men who have built it — to call them necessarily incommensurable with other firms' would be an exaggeration, yet they are often so. A more promising line of inquiry, in my opinion, would be to discover the minimum size of firm needed to operate efficiently in a given industry, but I know of no attempts to do so.

B. CONCENTRATION

The American economy is generally regarded as being highly concentrated; its being so regarded in the late 1880's led to the Sherman Act. Since that time, we have had three merger movements. But as the TNEC hearings proved, we know practically nothing about their permanent effect. Statistics on concentration of corporate assets and income appear to show (the fragmentary and unsatisfactory data forbid our saying more) a substantial increase from 1909 to about 1939. We can say with much greater assurance that concentration has *not* increased since then. During the war small and medium-size firms increased their profits, assets, and net worth faster than large ones, probably because they sold in a less regulated market. In manufacturing, the largest firms' share of total assets probably declined; we have no reliable information on their share of total employees. But the large firms probably made the greatest gain in wartime research; and know-how is the most valuable, if least measurable, of all assets. Since the war, there have been a good many mergers, mostly of small companies; but there is no evidence that the relative share of the larger firms has been made either greater or less.

Furthermore, much of the appearance of a general increase in concentration has been due to the rapid growth of public utilities. Now that the Supreme Court has cleared away the

* ED. All footnotes in the Adelman selection are omitted here.

obstruction to thought known as *Smyth v. Ames,* we need a policy toward these legal monopolies; but this is obviously no part of anti-monopoly policy. On the other hand, it is common knowledge that in many important markets within the area covered by anti-trust — e.g., in steel, oil, sugar, tobacco, and aluminum — there are more companies in the market today than there were decades ago, and the share of the largest is less. Concentration, since the great flowering after the Civil War, appears to be a plant of slow and uncertain growth. Yet this does not make it beneficial. Let us explore the effects.

"The Decline of Competition." — Many people who consider that "concentration" and "monopoly" are two names for the same thing will in the same breath argue further that, in markets where the number of sellers has increased, the public may be exploited just as badly. Both ideas cannot be true, but common observation seems to support the latter. The consumer is not benefited by a choice between Tweedledum and Tweedledee; he needs a wider market, which includes at least one real alternative.

But a widening of markets has taken place on a large scale since the rise of big business — the two processes were, in fact, closely joined. Transport costs have declined relative to prices and income: in 1941, as compared to 1890, they were approximately one-fourth as high a protective wall for local monopoly. New products have competed with old: aluminum, for example, with copper on one side and steel on the other. The development of the chemical industries has also facilitated substitution. The general rise in living standards has made a larger share of the consumer's budget consist of discretionary items: furniture competes with automobiles, for example. On the other hand, the small town's one bank, one farm implements dealer, one grain elevator or cotton gin, one general store, were literally and actually monopolies.

Regarding the situation as a whole, there is no reason to speak of "the decline of competition." The notable book of that title is actually a study in existing limitations on competition. In many fields, price competition has indeed declined; but, in the field of distribution, there was little price competition until big business introduced it: "The farmer's only friends are God and Sears-Roebuck." The low-income city family may feel similarly about the chain stores. A senator once called them "the most startling development of monopoly in our country at the

present moment [1931]." If by monopoly he meant simply size, he was obviously right. If he meant market behavior, he was as obviously wrong.

Juggling definitions of monopoly yields no light. If we dislike size and concentration, we ought to proceed directly against these. But they have no obvious or simple relation to objectionable market control.

* * *

C. THE OPERATION OF COMPETITIVE MARKETS

The concept of monopoly suggested above seems (although it is not) very different from more popular ones. A "monopolist" is most often and most briefly defined as a person or business which is the only supplier of a certain product. But brevity is not always simplicity. Common sense suggests that the monopolist of any product competes for the consumer's dollar with the seller of every other product and that what matters is the degree of ease or difficulty with which buyers can substitute one product for another. A single hand controlling the water supply might be a grave threat to the community. A single company rolling sheet brass might be serious. A "monopolist" of ¼-inch square black imitation pearl buttons might not even be a minor nuisance.

In a word, monopoly and competition are no either-or dichotomy: they are matters of degree, of the ease or difficulty of substitution, of the availability of "sufficient" alternatives to buyers and sellers. The way in which a "sufficiently" competitive market operates, and the results it attains, are worth a brief glance.

Within limits, the more a business firm is able to sell, the lower its cost per unit sold. If buyers are price conscious, a small price cut takes additional trade from rivals, lowering costs and increasing profits. Rivals are compelled to follow because the customer is always ready and able to seek the better alternative. Prices are cut toward the point where additional output would be more, not less, costly; at this level, there is full utilization and maximum output at minimum cost. If competition be unrestrained, there can be no excess capacity; and vice versa. Thus the quest for private gain leads to the greatest possible efficiency and abundance.

This is the ideal. An approximation to it involves the existence at all times of substantial downward pressure on prices and profits. Competition sounds like a heavily brutal and despotic ruler; his subjects, the competitors, can hardly be blamed for wishing he were a little milder. But it is their own doing: they

have maneuvered each other into cutting prices to the level of bare maintenance.

The outstanding virtue of a system of private enterprise, therefore, arises out of a kind of mutual confidence game. But if there are few enough sellers in the market to enable each to watch all the others, the play may slow down: if a price cut will be quickly met, and no lasting benefit secured, why make it at all? To the extent that the sellers anticipate each others' reactions and become of one mind, they behave like one seller, a monopolist. But it is not the number of sellers which is crucial. Some *uncertainty,* some good gambling chance that price cuts will not be immediately met, is necessary for effective competition. Some degree of ignorance is therefore no blemish or imperfection in a market: it is an advantage. Too much ignorance, however, keeps buyers from responding to price cuts. Quality differences, real or fancied, tend to make buyers less price conscious. If one can succeed in persuading the public that his goods are really unique, obviously he becomes their only supplier. But, unless the number of sellers is extremely large, complete uniformity of quality, despite the beneficial tendency of reduction of buyer ignorance, is apt to mean less rather than more competition in industrial markets. It becomes too easy to fix the watchful eye and to develop group consciousness. The activities of some trade associations come readily to mind.

We can go even further. A limited degree of monopoly ("substantial bargaining power"), on one side of the market, can be of great service in maintaining competition on the other. A strong, alert buyer, large enough so that the loss of his patronage is not a matter of indifference, constantly on the watch for a break which he can exploit by rolling up the whole price front, able to force concessions first from one and then from all, and followed by other buyers, can collapse a structure of control or keep it from ever coming into existence. Small wonder, as the NRA experience showed, that sellers attempt to keep big buyers out of the market or to restrict their bargaining power. Not only can certain kinds of monopoly promote effective competition; some kinds of competition inhibit others. The used car market is an important check on possible monopoly in the sale of new, low-priced cars. But it may also have prevented the making of simpler and cheaper automobiles.

Enough has been said to demonstrate that any actual industrial market is compounded of various elements of monopoly—

i.e., restriction — and of pressures toward minimum price and full utilization. The market must be judged as a whole.

* * *

D. SUMMARY

Most readers of this article, if asked for examples of reasonably competitive industries, would doubtless point to the manufacture of women's apparel, to automobile manufacturing, and to much of the field of retail distribution. Elaborating a little, they might point out some obvious imperfections in all three but call the situation more than tolerable and in need of no remedial public action. I would suggest that they are probably right. In the light of the preceding discussion, the moral may be drawn in more general terms.

(1) *Prerequisites.*— (a) Workable competition has no close connection with the size of business firms or the concentration of an industry. It is compatible with many small firms, as in apparel; with a few large ones, as in automobiles; and with large and small ones together, as in distribution.

(b) Competition requires rivalry in buying and selling among business firms which are not in collusion. But rivalry alone is not competition. A sufficient number of alternatives open to any given buyer or seller are necessary, including alternatives in the type of goods ("stripped" versus begadgeted models, for example).

(c) A proper blend of competitive and monopolistic elements is needed in any particular market to produce workable competition, and small changes in the ingredients may produce large changes in the result.

(2) *Results.*— The pursuit of business advantage in a competitive market takes the form of reductions in price, improvements in quality, and a constant search for cost reductions and innovations. The benefits are a higher level of output at any given moment and a faster rate of progress.

(3) *Limitations.* — (a) Workable competition will not free us from inflations and depressions.

(b) Part of the benefits must be dissipated in the act of communicating them. Hence some advertising and "selling" is essential for workable competition. But promotional outlays can be used to stave off competition by persuading buyers that there are no alternatives in the market: in such cases they are a burden on the consumer in themselves and in the competition they inhibit.

(4) *Two Hints on Public Policy.*—(a) There are no perfectly competitive industrial markets, *i.e.,* every one contains some elements of control. If the legal concept of monopoly is equated to the widest economic concept, then *every* market contains elements of illegal restraint.

(b) A policy favorable to *competition* is necessarily irksome to many of the *competitors,* who may yearn for a less strenuous existence.

No more general statements seem possible. In fact, the net result of the past twenty-five years of discussion has been a deep appreciation by economists of the variety of results met in actual situations, and the development of a few tools helpful in understanding them. At the risk of giving offense where none is meant, it might be added that abstract theorizing and application of rigidly simplified models to a complex reality are today much more characteristic of "practical" men who claim that they have no truck with any kind of theory. They are able to delude themselves only because the accumulation of sufficient facts, and the utilization of what store we already possess, takes more research work and financial support than we, as a citizenry, have thought it expedient to supply. Knowledge does not come free. The ancients conceived Truth as a goddess, but to our disillusioned modern eyes she is that odious kind of strumpet who demands both love *and* money.

6.3 Governmental Restrictions and Modifications of Competition

Although perfect competition is often considered an ideal, we purposely restrict and modify competition in many ways. This is true not only in public utilities, where competition is practically impossible, but also in many other fields including agricultural marketing. Some of these have been alluded to in earlier sections. See especially in Section 3 the discussion of so-called "interstate trade barriers" (Readings 3.2.11 and 3.2.12) including a variety of laws and regulations designed to modify interstate competition in the marketing of farm products, and the discussion of problems in fixing fluid milk prices under federal marketing orders (Readings 2.6.8, 2.6.9 and 3.2.7).

Attempts to modify competition frequently take the form of discriminative pricing. This has been the subject of a great many controversies. The editor has been involved in some of these disputes and, therefore, is prejudiced. He does not accept the Doctrine of the Invisible Hand as a universal and absolute truth. Anyone who takes the trouble to read a modern analysis of "welfare

economics" will see that any statements on the subject must be carefully qualified. A good treatment may be found in Paul Samuelson's *The Foundations of Economic Analysis* (Harvard University Press, Cambridge, 1947: Chapter VIII). Pure and perfect competition would not necessarily maximize public welfare, especially if incomes are unevenly divided. Price discrimination in favor of low-income families or outright subsidies to reduce income disparity are quite likely to increase public welfare, as the editor sees it.

We turn our attention first to a defense of price discrimination in general by the French economist Dupuit. —*Ed.*

6.3.1 Dupuit, Jules. *De l'Utilité et de sa Mesure.* (A collection of Dupuit's writings.) La Riforma Sociale, Torino, Italy, 1933. Pp. 141–42.

Le meilleur de tous les tarifs serait celui qui ferait payer à ceux qui passent sur une voie de communication un péage proportionnel à l'utilité qu'ils retirent du passage. Supposons un pont ainsi tarifé: chaque passant payera la moitié du prix qui l'empêcherait de passer. Celui qui dirait: si le péage était de plus de 6 centimes, je ne passerais pas, en payera 3; celui qui ne voudrait pas passer pour plus de 2 centimes n'en payerait qu'un. Il est évident que l'effet d'un tel tarif serait: d'abord de laisser passer autant de monde que si le passage était gratuit; ainsi point d'utilité perdue pour la société; ensuite de donner une recette toujours suffisante pour qu'un travail utile pût se faire. Car en demandant aux passants, au lieu de la moitié, les deux tiers ou les trois quarts de l'utilité, on arrivera nécessairement à en obtenir une plus ou moins grande partie. Je n'ai pas besoin de dire que je ne crois pas à la possibilité d'application de ce tarif volontaire; il rencontrerait un obstacle insurmontable dans l'improbité universelle des passants, mais c'est là le type dont il faut chercher à s'approcher par un tarif obligatoire. Il faut deviner les besoins des consommateurs et les sacrifices qu'ils sont disposés à faire pour les satisfaire, puis définir les caractères généraux à l'aide desquels ces consommateurs peuvent être classés dans le tarif. Il faut tâcher de rendre ce tarif flexible pour qu'il puisse se plier à l'infinie variété des besoins et se mettre à leur portée.

Si je ne craignais de sortir du sujet spécial de cet article, je ferais voir que l'exploitation de la plupart des monopoles particuliers présente de très-nombreux et de très-ingénieux exemples à suivre.

Un tarif unique dans une salle de spectacle ne la remplirait

pas, et ne pourrait souvent donner qu'une recette médiocre. De là, perte pécuniaire pour l'entrepreneur et perte d'utilité pour le public. Des divisions dans la salle et dans le tarif augmenteront presque toujours la recette et le nombre des spectateurs. On le comprendrait facilement, si ces divisions ne devaient avoir pour résultat que de séparer les places d'où l'on voit et entend bien, de celles d'où l'on voit et entend mal. Mais si l'on examine comment ces divisions sont faites dans la plupart des salles de spectacle, on remarquera que c'est là une des considérations qui influent le moins sur le prix des places; que les entrepreneurs dans leurs tarifs savent mettre à profit tous les caprices des spectateurs, de ceux qui vont pour voir, de ceux qui vont pour être vus, et de ceux qui vont pour tout autre motif. On les fait payer en raison du sacrifice qu'ils sont disposés à faire pour satisfaire leurs caprices, et non pas en raison du spectacle dont ils jouissent.

Au reste, bien des percepteurs de péage sont déjà entrés dans cette voie; ils ont reconnu que le tarif légal était aussi nuisible à leurs intérêts qu'à ceux du public, et ils ont été successivement amenés à accorder des modérations de péage très-nombreuses et qui varient suivant les localités. Il ne s'agit aujourd'hui que de traiter scientifiquement, si on peut s'exprimer ainsi, une question dans laquelle l'industrie a déjà fait quelques progrès en marchant au hasard.

Marketing agreements are one type of program extensively used by federal and state governments to modify or restrict competition in the marketing of agricultural products. These programs frequently involve some form of discriminative pricing. In fact, this is the main characteristic of the marketing agreement and order programs for the regulation of fluid milk markets. They provide for the establishment of different prices for milk going into different uses. In the marketing agreements on fruits and vegetables and other specialty crops, discriminative pricing is usually a secondary feature. Its operation is incidental to the control of volume marketing through regular channels by diversion of part of the crop to processing or alternative outlets.

We include here a brief description of the marketing agreement programs sponsored by the federal Department of Agriculture, followed by several discussions of economic and other aspects of such programs. The reader is referred also to previous discussions of the seasonal marketing of plums (3.3.5), and of the distribution of lemons between fresh market and processing (3.4.4).—*Ed.*

6.3.2 Holt, Budd A. and Rubel, Donald M. "Marketing-Agreement Programs as a Means of Agricultural Adjustment," *Farmers in a Changing World—Yearbook of Agriculture,* 1940, U. S. Dept. Agr., 1940. Pp. 638–40, 642, 644–45.

Marketing-agreement programs combine voluntary and regulatory control of the marketing of agricultural commodities for the purpose of increasing returns to producers. They differ from other agricultural adjustment programs having the same objectives in that they are not directly concerned with production; their purpose is to regulate the marketing of available supplies.

Programs Established for Two Groups of Commodities. Authority to undertake marketing-agreement programs was given in the Agricultural Adjustment Act of 1933. They have been established for two general types of commodities — (1) milk and dairy products and (2) specialty crops, particularly tree fruits, tree nuts, and vegetables.

While the results that producers of these two main groups of commodities seek to obtain by regulation — principally increased income, greater price stability, and more equitable sharing of the market — are similar, the marketing problems in these two types of industries differ, owing largely to the inherently different characteristics of the commodities themselves. Fluid milk is a highly perishable commodity which must be delivered to the consumers at a relatively constant rate, and producers usually ship their fluid milk to one consuming market.

The producers of the specialty crops, on the other hand, are usually concentrated in areas favorable to the production of their commodities and ship their products to many scattered consuming markets.

A second main difference in the marketing of these two types of commodities is in the number of buyers of the product for distribution to consumers. Conditions surrounding the retail distribution of fluid milk favor the growth of large distributing organizations, and relatively few organizations buy and distribute the bulk of the fluid milk in most markets. In contrast, there are many local buyers of most specialty crops, and these commodities are shipped to widely distributed consuming markets in each of which many buyers are located. To offset the tendency for prices of fluid milk to be determined in a buyers' market, organizations of producers have been established for the principal purpose of bargaining with distributors. Bargaining between large buying and selling interests is not common in the fruit and vegetable field. Furthermore the several different market uses

for milk — as fluid milk, cream, butter, etc. — have led to the development of pricing plans involving two or more prices for the producer's product depending on the use made of the milk. Such multiple pricing is seldom found in the producers' markets for fruits and vegetables.

The approach to the problem of improving the income of producers through regulation of marketing differs for the two general types of commodities with the differences in marketing problems and marketing institutions of these commodities. In the case of milk, regulations involve classification according to use and determination of prices for the various uses. The price of milk for fluid distribution is established at a higher level than prices for other uses, and the seasonal and operating surpluses which cannot be sold for fluid distribution are diverted to use for cream or manufactured products. On the other hand, regulations for specialty crops, such as tree fruits and nuts or vegetables, approach the problem of growers' prices indirectly from the supply side. That is, the quantity, quality, rate, and method of shipment from the producing areas to all markets are controlled, and prices received by producers are thereby indirectly affected.

* * *

. . . Additional legislation, provided by the amendments to the Agricultural Adjustment Act in 1935 and by the Marketing Agreement Act of 1937, further clarified marketing-agreement programs and specifically stated the types of control that could be effected and the agricultural industries for which programs could be established. Provision was made for the issuance of orders to take the place of the licenses in the earlier marketing-agreement programs. Furthermore, producers were given a more definite place in the development and operation of marketing-agreement programs. It was provided that no order could go into effect without the approval of two-thirds of the growers by number or by volume of the commodity involved. In addition, authorization was given the Secretary of Agriculture for the selection of industry committees or agencies to assist in the administration of marketing agreements and orders.

* * *

Three main types of regulation — volume regulation, regulation of grade and size, and price-posting requirements — have been used in marketing-agreement programs for general crops, and each program contains provision for one or more of these methods of regulation.

(1) Volume regulation is designed to control the volume of shipments of a given commodity in specified channels during a given period of time. One form of volume regulation is the limiting of the total quantity shipped over the season. Where conditions of demand are such that the proportionate increase in price to growers resulting from the restriction is greater than the proportionate restriction in volume, returns to growers will be improved by such a limitation in shipments. A more complex form of volume regulation may be established where two or more market outlets for the commodity exist and where conditions of demand are such that the producers' returns may be improved by protecting prices in one outlet through the diversion of supplies to other outlets. This, in effect, is what is accomplished in milk-marketing programs through the classification of milk and the establishment of prices in the various channels of use. In the specialty-crop field, returns to walnut growers, for example, are improved by diverting supplies from the domestic unshelled market to the shelled and export markets.

Another form of volume control is regulation of the rate of flow to market. It has been found that total returns to growers from many semiperishable and perishable commodities can be raised by such regulation, which may or may not involve elimination of part of the available supplies. This form of regulation is usually designed to prevent the periodic gluts and scarcities of supplies in consuming markets that often occur when perishable commodities are concerned and the control of shipments is determined by the usual competition in the industry. Benefits to producers through this type of regulation come from more uniform prices throughout the shipping season and from the prevention of actual losses on shipments to glutted markets. Regulation of the rate of flow to market might also be designed to achieve different prices at different times in the marketing period if the demand conditions were known to be such that this form of control would improve returns to producers. Thus far, however, this form of volume control has not been undertaken in any marketing-agreement program.

(2) Regulations of grade and size relate to the prohibition of shipments of particular grades or sizes of the product during a given period of time. To the extent that these regulations increase or decrease the total volume of shipments during any given season or accelerate or retard the rate of shipments during given periods of the season, they tend to influence growers' prices and

returns in the same manner as regulation of volume. Likewise, regulations of volumes of shipments tend to result in limitation of discounted grades and sizes, since usually the most preferred supplies are shipped when volumes are limited. Grade and size regulations, however, influence growers' returns through affecting the quality as well as the quantity of the product which may be shipped in the period during which the regulations are in effect. They have, in some cases, been established for the purpose of improving the quality of shipments early in the season by prohibiting shipments of immature fruit. (Shippers often ship immature fruit in order to take advantage of high prices existing during those weeks when the volume of shipments is small.) Grade and size regulations, furthermore, have been established for the purpose of preventing losses to growers for those discounted grades and sizes that would occasion a loss if they were shipped during the period of regulation.

(3) Price-posting provisions require that no shipper may quote or sell his commodity at prices other than those contained in his posted schedule. This is not designed to effect price fixing, since shippers may file new price schedules. They are not permitted to quote or sell the commodity at the new schedule of prices, however, until a designated period of time has elapsed. The primary purpose of price posting is to make available more reliable information concerning the prices prevailing in the market. At the same time this may prevent destructive price cutting.

As would be expected, regulations limiting the total volume shipped during the season have proved to be the most effective in improving prices and returns to growers. . . .

6.3.3 Stokdyk, E. A. "Economic and Legal Aspects of Compulsory Proration in Agricultural Marketing," *Univ. of Calif. Agr. Exper. Sta. Bull. 565*, Dec., 1933. P. 5.

One of the fundamental weaknesses of voluntary action in restricting the quantity placed in the primary channels of trade is that nonparticipating individuals derive the benefits of such action without bearing any of the burdens. Such individuals usually consider only their own self-interest and do not consider the possibility of loss to themselves as well as to the industry as a whole if their lack of participation results in the demoralization and failure of industry-wide restriction programs. Experience has shown that it takes only a small number of nonparticipating growers to greatly impair programs which aim to limit or curtail production or shipments. The failure of a few to partici-

pate induces other growers to desert the programs or at least to lose some of their enthusiasm. Therefore, it has been suggested that in order to obtain the desired control in curtailment programs, benefits and costs be pro-rated equitably among all growers in the industry by making participation in a restriction program compulsory if two-thirds or more of the growers desire to engage in such action and if such compulsion is essential to the welfare of the industry.

6.3.4 Wellman, H. R. and Waugh, F. V. "The Economic Effects of Market Prorates," outline prepared for Marketing Res. Comm. of Am. Farm Econ. Assoc. and Soc. Sci. Res. Council, 1938. Pp. 1, 3, 4, 5–6, 7, 8, 9, 15, 17–18.

Most of the marketing control schemes which are conducted or supervised by State or Federal government have as their chief purpose the raising of incomes to farmers, either temporarily or permanently. . . .

The effects of certain types of prorates on grower incomes have been discussed in detail in a recent paper by Waugh, Burtis, and Wolf. The paper shows that whenever a crop can be segregated into two or more parts, to be sold in different forms, at different times, or in different geographical areas, and when the demand functions for the different segments of the crop are independent of each other, maximum income is attained only when marginal net returns for the different segments are equalized. This principle is quite different from the principle commonly called "orderly marketing," by which a crop is so distributed that the net prices of the different segments are equalized. . . .

The exact character of the effects upon growers' incomes and upon the welfare of other groups can be discussed most satisfactorily in relation to specific kinds of prorates. The succeeding sections consider some of the major types which have been developed as a basis for suggestions concerning the type of research needed.

Limitation of Total Supply in All Markets Combined. The primary purpose of any plan to limit the amount of a crop to be sold usually is to raise the incomes received either by growers or by some other group in the industry. The programs developed by Governmental agencies and cooperative associations are mainly for the purpose of raising the incomes of growers. It is necessary, therefore, first to consider the principles which determine the success or failure of such schemes in accomplishing this primary objective.

* * *

If the quantity-price curve at the farm is inelastic, or, in

other words, if the quantity-returns curve is decreasing at the amounts under consideration, a reduction in the amounts sold will increase the total returns to the farmer. If the quantity-price curve is elastic, that is, if the quantity-returns curve is rising, such a reduction in the marketings of the crop will reduce returns to the farmer. In this connection the existence of substitutes may affect returns to the farmer indirectly, even though the supplies of them are fixed. If substitutes are readily available the quantity-returns curves of the particular commodity will, in general, be more elastic than if they are not readily available. The slope and shape of the quantity-price and quantity-returns curves depend partly on the willingness of the consumers to accept substitutes and on the quantity of substitutes available.

* * *

In general, any plan which raises the price of a particular commodity will tend to encourage an increase in the production and marketing of substitutes wherever such an increase is possible. The increase in the amounts of substitutes put on the market would tend to reduce somewhat the demand for the particular commodity, the price of which is raised by the program. Thus, it is necessary to consider not only the quantity-price curve for the particular commodity, but also the degree to which this curve may be lowered on account of probable increases in the availability of substitutes.

Although the problem of substitution in some cases is very important, even in a short run, it is likely to be particularly important in a long run. There are two reasons for this. First, over a period of time the producers of substitute commodities may be able to enlarge their production substantially, and, second, there may be a tendency for consumers to become accustomed to substitutes and to develop a rather permanently higher demand for them and a correspondingly lower demand for the commodity which was restricted.

* * *

A very important consideration in connection with the long-time effects of such a program on the income of growers is its effect on productive capacity. This will depend, mainly at least, on how any gains from such a program are distributed among the growers. If the benefits to individual growers are in proportion to the size of their current crops, each year there will be a tendency for individual growers to increase their production as long as the program results in profitable net prices. If there

should be substantial monopoly gains from such a limitation program it might lead to a serious over-expansion of productive capacity with accompanying unnecessarily high costs of producing commodities which were not sold.

It is even more important to avoid such a situation if the limitation program is of a rather temporary nature. If such a temporary program tends to build up a large and unnecessary productive capacity, disastrously low prices are likely to result when the program is discontinued. However, if the gains from the limitation program are moderate enough so that they simply make it possible for the industry to continue to maintain a productive capacity in line with normal market requirements there may be a real gain to the grower, both during an emergency while the program is in operation and after the program is dropped.

* * *

Any effective limitation of total supplies also reduces the quantity of the particular commodity available to the consumer and raises the price of it during the immediate period of time. . . .

An elastic consumer demand for a commodity does not necessarily mean that the quantity-price curve for that commodity at the farm is also elastic. Marketing costs per unit tend to be relatively rigid, at least for short periods of time. When these costs are both rigid and high the quantity-price curve at the farm may be very inelastic, even though the corresponding consumer-demand curve is elastic. In such cases the total returns to growers may be increased by limiting the supply, and at the same time the total expenditures by consumers for the commodity may be lowered. This is possible only because the total gross returns to the marketing agencies are substantially lowered because of the reduced volume of business. In some situations the reduced volume of business may result not only in a reduction in the total gross charges of marketing agencies, but may also tend to reduce the charges per unit handled. Such a reduction may be brought about either by a decrease in the profits of handlers on account of keener competition among them, or by a decrease in the risk of future price declines. When marketing charges represent a high proportion of the retail value of a crop there appears to be more justification for a prorate scheme than when marketing charges are small.

A temporary disadvantage to consumers from a reduction in the market supply of a commodity may, under certain situations,

be more than offset by larger supplies and lowered prices over a period of time than would otherwise prevail. In general, the use of rather moderate limitation programs during the emergency period of low prices will tend to enable farmers to maintain their productive capacity more nearly in line with normal market requirements than would be possible without such a program. From the standpoint of consumers it seems desirable to develop some set of principles by which we might define a long-time normal supply of a commodity and by which we might judge the effects of a limitation program. The effects of a limitation program on consumers might then be judged, partly at least, by the way such a program affected actual supplies in relation to this long-time normal supply.

* * *

Diversion from Regular Commercial Channels. . . . In general, however, it may be said that as long as the marginal revenue is higher in the diversion outlet than in the regular outlet, total returns will be increased by transferring a small quantity from the regular outlet to the diversion outlet.

Marginal revenues will be higher in the diversion outlet than in the regular outlet, if the price at which a small quantity can be sold in the diversion outlet is above the marginal revenue for the entire quantity in the regular outlet. On the other hand, marginal revenues will be higher in the regular outlet than in the diversion outlet if the price at which a small quantity of the commodity can be sold in the diversion outlet is below the marginal revenue for the entire quantity in the regular outlet. The latter situation would occur only if the quantity-price curve in the regular outlet were elastic or if the price in the diversion outlet were a minus amount. Whenever the quantity-price curve is inelastic the marginal revenue is negative, and under these conditions it is profitable to divert some of the crop to another use even if it returns a zero price for the other use.

* * *

Diversion from the regular outlets affects different classes of consumers in different ways. In general, the effect is to penalize those consumers who purchase in the regular outlet and to benefit those who purchase in the diversion outlet. . . .

Grade and Size Restrictions. . . . Actually, however, the demand for any given grade is usually affected more or less by the quantity of other grades available. In addition to considering the elasticity of demand for a particular grade it is necessary to

consider the effect of a given quantity reduction in the supply of one grade upon the price per unit of the other grades, and also the number of units of the other grades affected. Numerous cases are likely to arise in which total returns to growers will be maximized from a given quantity reduction in shipments by distributing the reduction between the grades rather than applying it entirely to any one of them.

The opinion is widely held among growers and handlers that if any products are to be withheld from the market, they should consist of those grades and sizes which bring the lowest price per unit. The arguments advanced in favor of such a procedure are generally two. First, that if each grower or handler is permitted to ship only a limited quantity, it will pay him individually to confine his limited shipments to those grades and sizes which bring the highest net price per unit. And, second, that the presence of low quality products on the market adversely affects the prices of superior products.

With regard to the first argument, if each grower or handler is given a quantity allotment, it will pay him to fill his quota with that portion of his total supply which brings the highest net price per unit. In this way each grower or handler individually will maximize his own returns. It does not necessarily follow, however, that the total returns to the industry as a whole will be maximized under this procedure. The same quantity reduction for the industry as a whole may result in larger total returns if a portion of the reduction is applied to the superior grades. Marginal revenues rather than price is the key to the solution of the problem. We are concerned here with the marginal revenue of the crop as a whole rather than the marginal revenue for particular grades or sizes. The marginal revenue for a particular grade or size might be positive, indicating that increased shipments would raise the returns for that grade or size, but such an increase might lower the returns for other grades and sizes more than enough to offset the rise in income for the particular grade or size.

Either in the absence of any control or with individual allotments on a quantity basis, growers will incur a net loss on any grades and sizes whose selling price is less than the costs of marketing. Under such situations the obvious thing to do is to withhold these grades and sizes from the market. However, if the markets for the several grades and sizes are interdependent, a restriction on the higher-priced grades and sizes may raise growers' returns more in some cases than would a restriction on

the lower-priced grades and sizes. With competing grades and sizes a reduction in the quantity of the higher-priced ones will not only result in higher prices for them but also in higher prices on the lower grades and sizes, so that instead of selling at a net loss, the lower grades and sizes may be selling at prices above marketing costs. Here the significant fact to consider in determining what grades and sizes to restrict is not the relative net prices of the various grades and sizes but the addition to total returns which would occur from the restriction of each of them.

From the standpoint of consumers, grade and size prorates which reduce the quantity of merchantable products that would otherwise be available have much the same effect as outlined in the previous section. Another consideration, however, appears in sharper focus. That has to do with discrimination as between classes of consumers. When the higher-priced grades and sizes are restricted, gains to growers are largely at the expense of the wealthier groups, while when the lower-priced grades and sizes are restricted, gains to growers are largely at the expense of the poorer groups.

Marketing agreements and orders obviously restrict competition. Those who emphasize the goal of competition are likely to be critical of the programs carried on under agreements and orders.—*Ed.*

6.3.5 Erdman, H. E. "Market Prorates as Restrictions on Internal Trade," *Jour. Farm Econ.*, Vol. XX, No. 1, Feb., 1938. P. 178.

A serious aspect of any curtailment scheme is the tendency of those who seek to gain an advantage through it to be less critical of similar controls on the part of other groups. Hence such controls may develop into a creeping paralysis on industry. Any group may favor curtailment by other groups whose political aid the first may desire, provided they are not on the supply list for the former. The situation may not be unlike that in the case of the tariff, where, for example, American farmers have actually accepted a generally ineffective tariff on wheat in exchange for generally effective tariffs on products they must buy. In view of recent price maintenance legislation the tendency seems already to be in the direction of universal monopoly and universal scarcity, rather than in the direction of increased abundance.

6.3.6 Edwards, Corwin D. *Maintaining Competition.* McGraw-Hill, New York, 1949. Pp. 62–65. Reprinted by permission.

Agricultural Products. A much more serious breach of the

antitrust laws was made by the agricultural marketing agreements legislation of the 1930's. As part of a general policy designed to raise the relative prices of farm products, the Agricultural Marketing Agreements Act gave the Secretary of Agriculture authority to enter into marketing agreements with processors, producers, associations of producers, and others engaged in handling any agricultural commodity or product thereof, and exempted such agreements from the antitrust laws. This statute clearly applies not only to farmers and farm organizations but also to industrial establishments that process farm products and to traders who sell either the original or the processed products. Its field, therefore, is not only agriculture, but substantially all of the food industry and considerable portions of other industries as well. There are no limitations upon the subject matter of the agreements except the general provision that they shall carry out the purposes of the law. The exemption from the antitrust laws is complete, including not only the right to create combinations in restraint of trade but also the right to coerce competitors and to create monopolies. Protection for the public interest rests entirely in the unchecked and unguided discretion of the Secretary of Agriculture. His assent is necessary to give effect to the original agreement, and he is authorized subsequently to obtain reports from the participants and to examine their business records in order to determine whether the agreement has effectuated the policy of the act and whether the exemption from the antitrust laws has been abused. By withdrawing his approval of an agreement, he can restore the applicability of the antitrust laws.

In practice, the Secretary of Agriculture has made no investigation directed to the discovery of abuse of the antitrust exemption and has revoked no marketing agreement on this ground. His inquiries have sought to determine whether agreements were being carried out and whether they were accomplishing the purposes of the Agricultural Marketing Agreements Act. In practice, too, the Secretary has sometimes used other portions of the agricultural legislation, which gives him the power to issue marketing orders, in such a way as to extend the application of marketing agreements to persons who were unwilling to enter into them. Thus agreements have become devices by which, through the authority of the Secretary of Agriculture, groups concerned with marketing agricultural products have been able not only to accomplish their own purposes in disregard of the

antitrust laws but also to enforce these purposes upon their reluctant competitors.

Agricultural marketing agreements have actually been approved only for commodities that are produced locally by specialized enterprises. They have not been applied to the great nationwide crops. The largest group of agreements (more than thirty) have governed various local milk markets. Other important agreements have covered citrus fruit, peaches, pears, and potatoes. With the exception of one agreement for bees, one for hops, and two for nuts, all others have dealt with various fruits and vegetables. Only in the case of milk has the Secretary used his power to make an agreement applicable to groups of processors. Corporations engaged in making and selling evaporated milk have been parties to one such agreement, and dairy companies have been parties to a considerable number.

The practices incorporated in agricultural marketing agreements have included fixation of prices, limitation of the amounts or percentages of output which may be sold, diversion of products to supplementary markets, and various other directly restrictive programs. The central purpose of the agreements has been to raise the prices of the commodities covered thereby, and the most usual technique has been to prohibit the sale in ordinary commercial markets of some portion of the amount produced. The first agreement, for example, which regulated the handling of walnuts, provided that a portion of the crop should be defined as surplus and should be surrendered to a control board which might dispose of it by export, by gift or sale to charitable institutions, or by other means not likely to upset the market for the rest of the crop, but specifically not by domestic commercial sale as unshelled walnuts.

The approved marketing orders have granted powers of administration and often substantial powers of enforcement to central administrative agencies composed of processors and handlers. These agencies usually have been given authority to apply the formulas through which the price and the quantity for sale are to be determined, to apportion shares in the market, and to make marketing regulations. The Secretary's surveillance over them has been typically limited to a requirement that they make annual reports of their activities.

This statute is objectionable by standards that are fundamental to any public policy. Its purpose, to improve the relative well-being of farmers, calls for no challenge. Its method, how-

ever, is to sanction devices that reduce the amount of the available food supply and is therefore inherently restrictionist. Its standards of price are based, like those of other farm legislation, upon comparative prices of farm products and other commodities in a base period; and such standards are notoriously incompetent both to take account of changes in farm income because of increases in productivity and to maintain a suitable relationship among farm prices themselves. Its administrative technique is to entrust exercise of public power to persons who are privately interested, without adequate provision for public surveillance. The substantive content of agreements made under its authority is determined by bargaining between representatives of one private interest and a single public official, under procedures which are designed to afford some protection to those who enter into the agreements but not to the consumers of the product. This official's power is sometimes used to enforce arrangements thus made upon dissenting minorities within the producing groups, and thus to give those arrangements the full effect of public laws without the precautions attached to the enactment and enforcement of ordinary laws. Official discretion is not appreciably limited by law nor subjected to judicial or administrative review.

In the years immediately before World War II, many programs were developed to enable low-income families to obtain more and better food. These included a food stamp program, a school lunch program, and a nickel milk program, as well as the direct distribution of surplus foods taken off the market by government purchase. Some of these programs, also, have aspects of discriminative pricing — especially the low-price milk plan — but for the most part they are best analyzed as consumption subsidies.

Much was written about the stamp program. We shall not cover it here, except to reproduce a short note concerning the proposed "food allotment" program, a postwar version of a stamp plan. We also include a short statement on school lunches and a general analysis of the economics of food subsidies.—*Ed.*

6.3.7 Shepherd, Geoffrey. "Food Stamps and Farm Income," *Farm Policy Forum*, Vol. 3, No. 7, Iowa State College, Ames, Iowa, July, 1950. Pp. 27–28.

The Aiken Bill. The 1950 Food Stamp Plan is a streamlined version of the original prewar model. It is embodied in Senator George D. Aiken's bill (S. 104). (*Editor's Note*: See June, *Farm Policy Forum.*)

Aiken's Bill differs from the prewar Food Stamp Program in

one important respect, however. It offers to sell food stamp books, enough to provide an adequate diet (as defined in the bill) to anybody for 40 per cent of his income. This solves at one stroke the problem of substitution and the problem of how many and which people to take into the program.

It takes away the money that the participants used to spend for food so they can't use it for other things. And each man decides himself, based on his income and size of family, whether to come into the program.

6.3.8 Southworth, H. M. and Klayman, M. I. "The School Lunch Program and Agricultural Surplus Disposal," U. S. Dept. Agr. *Miscellaneous Publication* No. 467, Oct., 1941. P. 44.

SPECIAL EFFECTIVENESS OF THE SUBSIDY UNDER THE SCHOOL LUNCH PROGRAM

Replacement of family food purchases. Foods distributed for school lunches may replace normal sales in two ways. Families of the children fed may reduce their food purchases somewhat. It would be very difficult to measure accurately the extent to which this occurs, but it does not seem probable that there would be much cutting down on meals at home for the whole family because the children receive free lunches at school. Families on short rations are more likely to continue to spend as much as they can afford on food, and be glad that the children get something extra through their school lunches.

Creation of a new demand for food through new lunch projects. The other possibility of replacement of commercial food sales is in the lunch projects themselves. Sponsors must agree that the receipt of surplus foods will not cause them to cut down on their own food purchases for the lunches. But the important point here is that most of the projects receiving surplus commodities are new. Probably most of them would not have come into operation at all had it not been for Federal aid. In these new projects, instead of "normal" purchases being replaced, the opposite occurs. A new, previously nonexistent, demand for farm products is created in regular market channels in the form of foods bought by these projects for use with the surplus commodities that they receive.

This new demand certainly much more than compensates for any replacement of commercial purchases that would be made in the absence of the program. Because of it the effect of the Federal subsidy is multiplied rather than diminished.

This is a peculiar advantage of the School Lunch Program

as an outlet for surplus foods. As a consequence, it is probable that no other method of surplus disposal brings farmers so large an increase in income per dollar of Government subsidy as does the School Lunch Program.

6.3.9 Southworth, Herman M. "The Economics of Public Measures to Subsidize Food Consumption," *Jour. Farm Econ.*, Vol. XXVII, No. 1, Feb., 1945. Pp. 48, 54–56.

In analyzing the relationships of the different operating characteristics to the objectives of food subsidy measures, we consider first their comparative effects upon consumption by the individual participating consuming unit — in general, the family. . . .

. . . A given amount of subsidy will be least effective in increasing food consumption if in the form of a cash grant; the greatest diversion to non-food uses occurs in this case. (A grant of food stamps or of food itself will have the same low level of effectiveness unless the amount of subsidy involved is substantially greater than that represented in the diagram.) The subsidy will be 100% effective if given in the form of food stamps with the requirement that the family invest its original expenditure in stamps also. (In practice, however, the inability to freeze expenditures at this precise level will on the average decrease the effectiveness of this form of subsidy.) The same amount of subsidy given through a price reduction will be less effective than under a frozen expenditure plan, assuming that demand is inelastic; if it were elastic, this would be the most effective form of subsidy. The incentive to participate is greatest in the case of the cash grant and least in the case of the frozen expenditure plan. In general, it varies inversely with the effectiveness of the plan in increasing food consumption.

This analysis has enabled us to compare in detail the effects of different ways of restricting the use of a subsidy upon the increase that a subsidy measure will achieve in food consumption by an individual participant. We have drawn certain incidental conclusions regarding the effect of varying the rate of subsidy. In the case of the cash grant, the effectiveness of the subsidy will decrease as the rate increases. In the case of a price reduction, this will also be the case, assuming that demand for food becomes less elastic at lower prices. (There are, of course, individual commodities to which this assumption will not apply.)

Under a plan freezing participants' own food expenditure, the effectiveness probably will not vary much with the rate of

subsidy, although to the extent that a larger rate of subsidy will induce greater participation by eligibles whose expenditures are frozen at a relatively high level, it will probably be slightly more effective. Unconditional grants of food stamps or of food itself become much more effective after the point is reached where the grant exceeds what the family would willingly buy anyway at the equivalent subsidized level of income.

Not all restrictions on competition affecting the marketing of agricultural products are for the benefit of farmers. Special taxes on chain stores have been imposed in many states as a means of promoting "fairer" competition for the independents. Resale price maintenance (or the more pleasant term "fair trade laws") represents another popular form of interference with competition. Such laws have been in effect in 45 states. The Congress in 1952 strengthened this legislation. Farm groups, as well as others, have sometimes opposed this type of restriction.—*Ed.*

6.3.10 Hoffman, A. C. "Large-Scale Organization in the Food Industries," Temporary National Economic Committee, Monograph No. 35, Washington, D. C., 1940. Pp. 154, 156.

Another way in which public policy is affecting the type and scale of business enterprise in the food industries is through State chain-store tax laws. The purpose of such laws is openly and avowedly to help the independent retailer by imposing special taxes on their chain competitors.

At the present time more than 20 States have special chain-store tax laws on their books. Most of these laws were enacted within the last 3 or 4 years.

* * *

In a case brought before the Supreme Court by the Great Atlantic & Pacific Tea Co., the Louisiana law was nevertheless held to be constitutional. The Court based its decision on the fact that the operating advantages of a chain increase with an increase in the number of its stores. The decision turned on virtually the same point as that made in upholding the Indiana law in 1931; namely, that chains may properly have special taxes levied against them because they are able to pay the tax. Nowhere does the Court seem to recognize that consumers may be adversely affected by penalizing what it admits is the more efficient system of retail distribution.

6.3.11 U. S. Federal Trade Commission. Report of the Federal Trade Commission on Resale Price Maintenance, Washington, D. C., 1945. Pp. xxvi–xxvii, xxviii, xxxi, liv, lix–lx.

Nature of Resale Price Maintenance. Resale price maintenance as now practiced in intrastate commerce in 45 States of the

United States, and in interstate commerce with those States, is a system of pricing a trade-marked, branded or otherwise identified product for resale in which, pursuant to laws legalizing such arrangements, the manufacturer, producer or brand owner, or his authorized agent, factor or wholesale distributor, prescribes by contract the minimum price or the resale price at which such product may be sold at wholesale, and the producer or manufacturer and his factors or wholesalers prescribe the minimum price or the resale price at which such a product may be sold at retail, in a specified State, or in a specified portion thereof, with the effect of legally binding all other distributors in the specified area to conform to such prices. This is done by entering into contract with at least one such distributor of such product and serving notice upon all other distributors who are thereupon obligated to maintain the minimum price or the resale price named in the contract. In some cases, wholesale distributors, acting without the authorization of the manufacturer or brand owner, have entered into contracts with retailers for the maintenance of retail prices.

The significance of the resale price movement cannot be properly interpreted without taking into consideration its fundamental origin, namely, that it was the manufacturers who were in the vanguard in advocating and using it on the ground that they had a proprietary interest in goods carrying their trade name or brand. Later, with the development of the department store, the consumer cooperative, the chain store and last of all, the super market or "giant store" types of distribution, the older types of merchandisers who progressively lost business to each new type of distributor that developed, turned to manufacturers, demanding price protection. Since about 1920, the development of new types of distributors has been rapid and the leadership in the resale price maintenance movement has been transferred from the manufacturers, of whom a small proportion, producing trademarked commodities, actively promoted resale price maintenance, to distributors seeking protection in a maintained resale price.

* * *

Resale Price Maintenance in the Food Trade. Resale price maintenance is not applicable to a large proportion of food products either because unbranded products are excluded by the provisions of resale price maintenance laws or because its use is considered impractical by manufacturers or producers on account of the nature of many identified products and the market practices connected with them.

In the food trade, competition of branded package goods with

unbranded bulk goods, or with non-price-maintained branded package goods, and, also, the fact that many items of branded, packaged goods fluctuate in market price with the cost of the raw materials of which they are made, or with the market prices of substitute items, limit the practicability of resale price maintenance for many nationally advertised brands of grocery-trade products.

* * *

The little progress made in placing food trade products under resale price maintenance in the 45 States having such laws, the inapplicability of this type of price regulation to a large proportion of the products handled in a grocery store, the reluctance of manufacturers of food trade products to adopt resale price maintenance unless their competitors do likewise, the keen competition that exists among manufacturers of food products for the business of food retail dealers, the generally negative results reported by manufacturers having food products under minimum resale price contracts, the relatively unorganized state of independent retail grocers, the diversity of retail food outlets with widely varying operating costs, the shift in emphasis from resale price maintenance in many of the States to laws prohibiting sales below a specified mark-up, all suggest that any increase in the number of companies adopting resale price maintenance on food trade items will probably not be important.

6.3.12 Waite, Warren C. and Cassady, Ralph, Jr. *The Consumer and the Economic Order*. 2nd ed., McGraw-Hill, New York, 1949. P. 298. Reprinted by permission.

. . . Though legislation designed for the purpose of enforcing fair competition may be justifiable, that having as its purpose the freezing of existing techniques is definitely undesirable. The independent should not be protected on the ground that he is being forced out of business by more efficient retail institutions, since such a course would tend to perpetuate inefficiency. He might be so protected, however, if the large-scale retailer is competing *unfairly* in the market. The drawing of customers by means of less-than-invoice-cost prices in order to sell them goods of a higher-than-average markup probably cannot be defended economically. The sale of goods at low average prices as a result of low distribution expense probably can. Such a conclusion would indicate that resale-price-maintenance legislation is not justified, but that a prohibition of less-than-cost selling may be.

6.3.13 Halvorson, Lloyd C. Statement before House Committee on Interstate and Foreign Commerce on HR 5767 — To Establish Minimum Resale Prices. The National Grange, Feb. 14, 1952. Pp. 1–2.

The National Grange is opposed to legalizing resale price fixing. It believes in full competition and it supports such a system by actions as well as words. The National Grange has a great history in the fight against monopoly. It has had much to do with the enactment of the anti-trust laws of our nation. The purpose of the anti-trust laws was to prevent monopolistic price fixing — to prevent exploitation of the public. This bill, HR 5767, would do the opposite — legalize price fixing by manufacturers —fix the marketing margins. We are for laws that allow competition to keep prices down, not for laws that destroy competition or even restrict it — except as clearly called for to protect public interest.

Farmers have worked for years to reduce the marketing margins — the middleman spread — on farm products which make up the food and clothing of consumers. We have fought for and secured legislation and appropriations to expand marketing research. We are properly concerned also with the marketing and sales cost spread on products farmers buy. We do not believe in laws that fix a wider margin than competition would set. In fact, we believe in trying to improve competition so as to reduce the middleman margin.

The cost of processing and marketing farm products has been studied by Congress and various Federal agencies. We now ask that the cost of manufacturing drugs and the mark-up on drugs be studied and made public by this committee or any other appropriate committee of the Congress before this resale price fixing law is acted upon. Not only drug items but also other items that have used resale price fixing should be studied. This committee and the public needs to know how the wholesale and retail mark-up on drugs, especially the fair trade items, compares with the mark-up on items not fair traded and especially compared to grocery items which are nicely trade marked but very few of which have used the resale price maintenance contracts.

Laws of the kind described in this chapter to restrict or modify competition in the interest of particular groups like farmers or independent retailers reflect the efforts of these groups to gain some degree of monopolistic control in the market. But they may be looked upon also as the organized response of these groups to the monopolistic power of others with whom they deal. Professor Galbraith has presented an interesting theory of this alternative to competition in restraining the use of monoply power in a

world of large corporations, labor unions, and organized farmers.—*Ed.*

6.3.14 Galbraith, John Kenneth. *American Capitalism.* Houghton Mifflin, Boston, 1952. Pp. 118–19, 131–32, 160, 161–62.

. . . Thus, with the widespread disappearance of competition in its classical form and its replacement by the small group of firms if not in overt, at least in conventional or tacit collusion, it was easy to suppose that since competition had disappeared, all effective restraint on private power had disappeared. Indeed this conclusion was all but inevitable if no search was made for other restraints and so complete was the preoccupation with competition that none was made.

In fact, new restraints on private power did appear to replace competition. They were nurtured by the same process of concentration which impaired or destroyed competition. But they appeared not on the same side of the market but on the opposite side, not with competitors but with customers or suppliers. It will be convenient to have a name for this counterpart of competition and I shall call it *countervailing power.*

To begin with a broad and somewhat too dogmatically stated proposition, private economic power is held in check by the countervailing power of those who are subject to it. The first begets the second. The long trend toward concentration of industrial enterprise in the hands of a relatively few firms has brought into existence not only strong sellers, as economists have supposed, but also strong buyers, as they have failed to see. The two develop together, not in precise step but in such manner that there can be no doubt that the one is in response to the other.

The fact that a seller enjoys a measure of monopoly power, and is reaping a measure of monopoly return as a result, means that there is an inducement to those firms from whom he buys or those to whom he sells to develop the power with which they can defend themselves against exploitation. It means also that there is a reward to them, in the form of a share of the gains of their opponents' market power, if they are able to do so. In this way the existence of market power creates an incentive to the organization of another position of power that neutralizes it.

The contention I am here making is a formidable one. It come to this: Competition which, at least since the time of Adam Smith, has been viewed as the autonomous regulator of economic activity and as the only available regulatory mechanism apart from the state, has, in fact, been superseded. Not entirely, to be sure.

There are still important markets where the power of the firm as (say) a seller is checked or circumscribed by those who provide a similar or a substitute product or service. This, in the broadest sense that can be meaningful, is the meaning of competition. The role of the buyer on the other side of such markets is essentially a passive one. It consists in looking for, perhaps asking for, and responding to the best bargain. The active restraint is provided by the competitor who offers, or threatens to offer, a better bargain. By contrast, in the typical modern market of few sellers, the active restraint is provided not by competitors but from the other side of the market by strong buyers. Given the convention against price competition, it is the role of the competitor that becomes passive.

* * *

The development of countervailing power requires a certain minimum opportunity and capacity for organization, corporate or otherwise. If the large retail buying organizations had not developed the countervailing power which they have used, by proxy, on behalf of the individual consumer, consumers would have been faced with the need to organize the equivalent of the retailer's power. This would be a formidable task but it has been accomplished in Scandinavia and, in lesser measure, in England where the consumer's co-operative, instead of the chain store, is the dominant instrument of countervailing power in consumers' goods markets. Quite probably there would have been similar organization in the United States. The fact that there are no consumer co-operatives of any importance in the United States is to be explained, not by any inherent incapacity of the American for such organization, but because the chain stores pre-empted the gains of countervailing power first. The counterpart of the Swedish Kooperative Forbundet or the British Co-operative Wholesale Societies has not appeared in the United States simply because it could not compete with the A & P and the other large food chains. The meaning of this, which incidentally has been lost on devotees of the theology of cooperation, is that the chain stores are approximately as efficient in the exercise of countervailing power as a co-operative would be. In parts of the American economy where proprietary mass buyers have not made their appearance, notably in the purchase of farm supplies, individuals (who are also individualists) have shown as much capacity to organize as the Scandinavians and the British and have similarly obtained the protection and rewards of countervailing power. The Grange

League Federation, the Eastern States Farmers' Exchange and the Illinois Farm Supply Company, co-operatives with annual sales running to multi-million-dollar figures, are among the illustrations of the point.

* * *

In our time, partly as a result of the new market power of the farmer and partly as a reaction to his very considerable political influence, the market power of those to whom he sells has come to be exercised with profound circumspection. This has not been true in the past. On the contrary, the farmer was often made to pay dearly for his lack of market power. It was this that led him to search long and hard for a formula for expressing effective countervailing power.

* * *

As the analysis of the last two chapters suggests, there are, in principle, three things which the farmer can do to offset his weakness in bargaining power. He can seek to build countervailing power in the market — in the tradition of the Virginia tobacco planters. Or he can seek to dissolve the original power of those to whom he sells or from whom he buys. Finally, he can attempt to get the advantages of the enhanced market power that are associated with changes in demand. To the extent that demand in the economy as a whole can be maintained at strong or inflationary levels, his position as a seller will be strong. This results from the shift of power from buyer to seller under conditions of inflation which, in relation to its effect on countervailing power, was examined in Chapter IX. Like other producers, the farmer is more disposed to emphasize his role as a seller than as a buyer and there are very good reasons why he should do so.

American farmers have tried all three methods of buttressing their market power. . . .

SECTION 7

Agricultural Cooperation

Farmers' cooperatives are cited by Galbraith, in the closing excerpt of the preceding section, as one of the devices through which farmers have organized to exert "countervailing power" in the market place. Farmers and farm groups have indeed often felt that they were being robbed by a marketing system which was inefficient and which involved manipulative elements that worked to their disadvantage. Partly in response to this feeling, many farmers have turned to a form of economic organization — the producers' cooperative — which has become a major factor in selling many farm products and in buying feeds, fertilizer, gasoline, and other materials used by farmers. A few of its advocates go so far as to believe that cooperatives are destined to supplant competitive strife and to annihilate monopolistic exploitation. In any event, most observers agree that cooperatives buttress the survival of family farming as the dominant form of organization of agricultural production in the United States.

Some students of marketing and rural sociology have long been interested in cooperative organizations which in this country have developed chiefly in agricultural marketing and purchasing. But many economists and other social scientists could well give greater consideration to it than they do. Accordingly, we devote considerable space in this book not only to summarizing the scope and status of agricultural cooperation in the United States but also to presenting its history, theory, and objectives, and some current issues surrounding it, as set forth by its leaders and its students.—EDITOR.

7.1 Trends and Present Scope 357

7.1.1 Fetrow, Ward W. and Elsworth, R. H. "Agricultural Cooperation in the United States."
7.1.2 Wanstall, Grace. "Statistics of Farmers' Marketing and Purchasing Cooperatives, 1947–48," and Gessner, Anne L. "Statistics of Farmers' Marketing, Purchasing and Service Cooperatives, 1950–51."
7.1.3 Hedges, Harold. "Looking Into the Next Half Century."

7.2 Philosophy and Theory of Agricultural Cooperation . . 366

7.2.1 Nourse, E. G. "Economic Philosophy of Co-operation."
7.2.2 Robotka, Frank. "A Theory of Cooperation."
7.2.3 Koller, E. Fred. "Cooperatives in a Capitalistic Economy."
7.2.4 Knapp, Joseph G. "Cooperatives and American Business."

7.3 Aims 379

7.3.1 Nourse, E. G. and Knapp, J. G. *The Co-operative Marketing of Livestock.*
7.3.2 Knapp, Joseph G. "Improving Farm Efficiency Through Co-operative Purchasing."
7.3.3 Heline, Oscar. *Some Considerations of Vital Importance to the Future Cooperation in Iowa.*
7.3.4 Sapiro, Aaron. "An Analysis of Marketing, Fundamental Principles of Co-operation."
7.3.5 Montgomery, Robert Hargrove. *The Cooperative Pattern in Cotton.*
7.3.6 Nourse, E. G. "The Outlook for Cooperative Marketing."
7.3.7 Babcock, H. E. "Cooperatives, the Pace-Setters in Agriculture."
7.3.8 Stokdyk, E. A. "Economic Objectives of Farmers' Cooperatives."
7.3.9 Babcock, H. E. "Cooperatives as a Means For Doing Business Practically."
7.3.10 Taylor, Carl C. "Objectives of Farmer Cooperatives — by a Sociologist."
7.3.11 Jesness, O. B. "A Critical Appraisal of Marketing Cooperatives."

7.4 Integration 397

7.4.1 Knapp, Joseph G. "Cooperative Expansion Through Horizontal Integration."
7.4.2 Koller, E. Fred. "Vertical Integration of Agricultural Co-operatives."
7.4.3 Hirsch, Werner Z. "The Economics of Integration in Agricultural Marketing."

7.5 Legal Aspects 402

7.5.1 Hulbert, L. S. "Agricultural Cooperatives and Federal Statutes."
7.5.2 Elsworth, R. H. "The Story of Farmers' Cooperatives."
7.5.3 Jackson, Clarence A. Statement Before Committee on Ways and Means, Eighty-Second Congress.
7.5.4 Rumble, Wilfrid E. "Cooperatives and Income Taxes."
7.5.5 Bradley, W. L. "Taxation of Cooperatives."
7.5.6 Davis, John H. *An Economic Analysis of the Tax Status of Farmer Cooperatives.*

7.1 Trends and Present Scope

Fetrow and Ellsworth have provided an excellent brief summary of the history of agricultural cooperation in the United States.—*Ed.*

7.1.1 Fetrow, Ward W. and Elsworth, R. H. "Agricultural Cooperation in the United States," *U. S. Dept. Agr., Farm Credit Admin., Bull. 54,* April, 1947. Pp. 1–3.

Development of Agricultural Cooperation. Agricultural cooperation in the United States has been molded by leaders emerging from a constantly increasing number of alert and progressive farmers. Its growth and expansion continued through four rather distinct stages or periods. It is now in a fifth period. Each stage has been dominated by ideals that reflected the economic and legal concepts of the day.

The first period was one of experimentation — a searching for methods and techniques whereby farmers might solve some of their economic problems through cooperative business organizations.

This early period extended from the establishment of "associated or cooperative" dairies in Connecticut and New York in 1810 to about 1870. During these 60 years enterprises for cooperative production of cheese and butter, for cooperative marketing of grain, fruits, and vegetables, and for cooperative purchasing of farm supplies were started in various States from New England to the upper Mississippi valley. In general these early ventures blazed trails and then disappeared although one, a supply purchasing association organized in 1863, is still operating.

The second period has been designated as that of Grange stimulation. The Grange known officially as The Order of Patrons of Husbandry was founded in 1867. It largely determined the character of this cooperative period. The growth of the Grange was slow until it was discovered that its local units were as well implemented to deal with economic problems as with social and fraternal ones. In the years 1871 to 1876, more than 20,000 local granges, as well as nearly two score of State granges were chartered.

The farmer members used both local and State organizations for marketing cotton, grain, and other products, and for buying needed supplies. In Iowa the manufacture of farm machinery was undertaken, and in Kansas and California cooperative banks were established. As the country recovered from the depression of the seventies fewer Granges were organized. But the impetus

given farmer cooperation by the first generation of the Grange lasted well into the twentieth century.

The development of farmer cooperatives was stimulated from time to time by the founding of such organizations as the Sovereigns of Industry, Farmers Alliance, the Agricultural Wheel, the Ancient Order of Gleaners, the Farmers Cooperative and Educational Union of America, the American Society of Equity, and the American Farm Bureau Federation.

As the weaker of the Grange-sponsored organizations were flickering out during the period of recovery following the depression of the seventies, farmers continued their experiments in the cooperative field and slowly evolved techniques for successfully turning milk into butter, cheese, and other dairy products; operating farmer-owned grain elevators; marketing citrus fruits; and for managing cooperative stores.

During the three decades beginning with 1890 agricultural cooperation firmly established itself as a part of the economic system. Outstanding characteristics of the period were intelligentsia support and national recognition.

Two men, G. Harold Powell and Theodore Roosevelt, made outstanding contributions. The first is credited with developing techniques for cooperative fruit federations. President Roosevelt, by appointing in 1908 the Country Life Commission, started a train of events that greatly stimulated the agricultural cooperative movement. In transmitting to Congress the report of the commission he said: "The cooperative plan is the best plan of organization wherever men have the right spirit to carry it out."

College professors and others concerned with improving the general welfare turned their attention to the possibilities of farmer cooperation. A series of conferences on marketing and farm credit was started. A commission, including outstanding economists, educators and farmers was appointed by President Woodrow Wilson in 1913 and sent to Europe to study cooperation and report its findings.

An Office of Markets was created in the United States Department of Agriculture in 1914 with a project in cooperative purchasing and marketing. The Smith-Lever Act, was passed, providing for the extension system of the United States Department of Agriculture in cooperation with the State agricultural colleges.

During this period antitrust laws were amended to improve the legal status of farmers' cooperatives and more than one-third of all the farmers' cooperatives of record were organized. These were largely local associations concerned primarily with improvement and development of marketing procedures.

Early in 1920 farmers were given a new slogan, "orderly commodity marketing." Thus started the fourth period in the history of agricultural cooperation. It was proposed that large-scale associations be created to handle the entire output of specified crops in the important producing regions. Back of the enthusiasm with which the idea was presented was the implied promise of monopoly control and monopoly prices.

The original impetus to this movement was given at a meeting in Montgomery, Ala., in April 1920. A California lawyer, Aaron Sapiro, in a 2-hour address presented ideas which overnight changed very greatly the course of cooperative development. Heretofore the local association had been the backbone of farmer cooperation; henceforth emphasis was placed on large-scale associations.

The program contemplated State or regional single-commodity cooperatives each controlling enough of its respective crop to be a decisive factor in the process of determining prices. Following the Montgomery meeting, cooperative leaders proceeded to form State and regional associations for marketing cotton, tobacco, wheat, broomcorn, white potatoes, peanuts, rice, sweet potatoes, olives, alfalfa, milk, melons, and poultry. Farmers signed ironclad contracts providing for delivery of their crops to these new enterprises.

At the close of 1920 there were 16 large-scale centrally controlled cooperatives with 49,746 members; at the close of 1921, 31 associations with 249,632 members; at the close of 1922, 48 associations, 524,933 members; 1923, 65 associations, 709,669 members; 1924, 74 associations, 826,827 members; and 1925, 74 associations, 879,190 members. The largest of the new enterprises boasted a membership of 109,000.

Not all the associations formed after 1920 were committed to the slogan "monopoly and prosperity," but these ideas colored cooperative development for nearly two decades. Although it is difficult at this time to indicate a closing date for the fourth period of farmer cooperation, the idea of monopoly control has given away to other programs for economic advancement of farmers.

In this the fifth period, we find that new philosophies are determining current trends. Well informed leadership, increased business efficiency, and the expansion of cooperation into new fields are outstanding developments. Improved methods of operation and higher business standards have been achieved and further progress is promised. These tendencies are evolving because of a better understanding of what can, and what cannot, be accomplished by a highly developed cooperative system.

Cooperative production — overshadowed in past years by spectacular cooperative marketing — is receiving intelligent attention. Formal and informal associations are being organized for soil conservation, dairy herd improvement, ownership and operation of farm machinery, improvement of strains of seeds, and other strictly farm activities.

Farmers have demonstrated their ability to cooperatively own and operate in a large way plants for the production of fertilizer, feed, petroleum products, baby chicks, and other farm necessities. They are manufacturing farm machinery on a small scale, but with blueprints for expanding as rapidly as the technical problems of the various steps are mastered.

Cooperative services such as rural electrification; credit for production and marketing; insurance for more of the risks faced by farmers; auditing, accounting, and management for farms; medical care; and last of all burial, are being expanded.

These current trends in the development of agricultural cooperation doubtless will continue with increasing importance, unless interrupted by unforeseen conditions or forces.

The following statistical tables, prepared by Grace Wanstall and Anne L. Gessner, indicate the size and extent of farmer-cooperatives in the United States.—*Ed.*

7.1.2 Wanstall, Grace. "Statistics of Farmers' Marketing and Purchasing Cooperatives, 1947–48," *Farm Credit Admin., U. S. Dept. Agr. Miscellaneous Report 137* (and supplementary data for 1949–50). March, 1950. Pp. 4, 5, 7; and Gessner, Anne L. "Statistics of Farmers' Marketing, Purchasing and Service Cooperatives, 1950–51," *Farm Credit Admin., U. S. Dept. of Agr., Miscellaneous Report 169.* March, 1953. Pp. 10, 41.

FARMERS' MARKETING AND PURCHASING ASSOCIATIONS: NUMBER LISTED FOR SPECIFIED PERIODS, 1913 to 1949–50

Period	Marketing		Purchasing		Total	
	Number	*Percentage*	*Number*	*Percentage*	*Number*	*Percentage*
1913.....	2,988	96.4	111	3.6	3,099	100.0
1915.....	5,149	94.9	275	5.1	5,424	100.0
1925–26....	9,586	88.7	1,217	11.3	10,803	100.0
1934–35....	8,794	82.2	1,906	17.8	10,700	100.0
1941–42....	7,824	74.2	2,726	25.8	10,550	100.0
1944–45....	7,400	72.9	2,750	27.1	10,150	100.0
1947–48....	7,159	70.6	2,976	29.4	10,135	100.0
1949–50....	6,922	69.0	3,113	31.0	10,035	100.0

FARMERS' MARKETING AND PURCHASING ASSOCIATIONS: ESTIMATED MEMBERSHIP FOR SPECIFIED PERIODS, 1915 to 1949–50

Period	Marketing		Purchasing		Total	
	Number	*Percentage*	*Number*	*Percentage*	*Number*	*Percentage*
1915.....	591,683	90.9	59,503	9.1	651,186	100.0
1925–26....	2,453,000	90.9	247,000	9.1	2,700,000	100.0
1934–35....	2,490,000	75.9	790,000	24.1	3,280,000	100.0
1941–42....	2,430,000	67.5	1,170,000	32.5	3,600,000	100.0
1944–45....	2,895,000	64.3	1,610,000	35.7	4,505,000	100.0
1947–48....	3,630,000	61.6	2,260,000	38.4	5,890,000	100.0
1949–50....	4,075,000	61.9	2,509,000	38.1	6,584,000	100.0

FARMERS' MARKETING AND PURCHASING ASSOCIATIONS: ESTIMATED BUSINESS FOR SPECIFIED PERIODS, 1913 to 1949–50

Period	Marketing		Purchasing		Total	
	$1,000	*Percentage*	*$1,000*	*Percentage*	*$1,000*	*Percentage*
1913.....	304,385	98.1	5,928	1.9	310,313	100.0
1925–26....	2,265,000	94.4	135,000	5.6	2,400,000	100.0
1933–34....	1,213,000	88.9	152,000	11.1	1,365,000	100.0
1939–40....	1,729,000	82.8	358,000	17.2	2,087,000	100.0
1942–43....	3,180,000	84.1	600,000	15.9	3,780,000	100.0
1945–46....	5,147,000	84.8	923,000	15.2	6,070,000	100.0
1947–48....	7,195,000	83.3	1,440,000	16.7	8,635,000	100.0
1949–50....	7,082,600	81.2	1,643,400	18.8	8,726,000	100.0

The statistics for 1950–51 as given in the two following tables cannot be compared directly with prior years because of recent changes in statistical procedures.—*Ed.*

ESTIMATED BUSINESS OF MARKETING AND PURCHASING COOPERATIVES, AND ASSOCIATIONS PERFORMING RELATED SERVICES, 1950–51[1]

Commodities	Associations handling		Gross business	Percent of total gross business	Net business after adjusting for duplication[4]	Percent of total net business
	Number[2]	Percent of total associations[3]				
			$1,000		*$1,000*	
Products marketed for patrons:						
Beans, dry	175	1.8	38,450	.4	31,137	.4
Cotton and cotton products	550	5.5	349,934	3.3	320,019	3.9
Dairy products	2,072	20.8	2,298,201	21.9	1,933,174	23.9
Fruits and vegetables	951	9.5	1,024,577	9.8	701,777	8.7
Grain, soybeans, and soybean meal and oil	2,740	27.5	2,051,297	19.6	1,355,392	16.7
Livestock and livestock products	753	7.5	1,406,328	13.4	1,321,248	16.3
Nuts	81	.8	141,012	1.3	113,485	1.4
Poultry products	760	7.6	303,716	2.9	263,360	3.2
Rice	32	.3	131,191	1.3	90,729	1.1
Tobacco	24	.2	125,842	1.2	125,842	1.6
Wool and mohair	258	2.6	30,882	.3	29,270	.4
Miscellaneous[5]	405	4.1	81,179	.8	74,168	.9
Total marketing	[2]7,276	72.9	7,982,609	76.2	6,359,601	78.5
Supplies purchased for patrons:						
Farm machinery and equipment	2,149	21.5	104,053	1.0	63,152	.8
Feed	4,707	47.2	896,882	8.6	683,268	8.4
Fertilizer	3,521	35.3	255,771	2.4	153,538	1.9
Petroleum products	2,848	28.5	574,005	5.5	366,013	4.5
Seed	3,930	39.4	120,908	1.2	89,248	1.1
Other supplies	5,937	59.5	439,097	4.2	288,989	3.6
Total purchasing	[2]7,335	73.5	2,390,716	22.9	1,644,208	20.3
Receipts for services:						
Trucking, storage, grinding, locker plants, miscellaneous	3,448	34.6	75,498	.7	75,498	.9
Cotton ginning	480	4.8	21,800	.2	21,800	.3
Livestock trucking	216	2.2	2,561	(6)	2,561	(6)
Total service	4,144	41.5	99,859	.9	[7]99,859	1.2
Total marketing, purchasing, and service	[2]9,977	100.0	10,473,184	100.0	8,103,668	100.0

[1] The net business figures for 1950–51 cannot be compared with volume of business for previous years since the 1950–51 net covers all business for each commodity whether handled by a cooperative specializing in this commodity or not. In previous years, for example, the poultry figure was all the marketing business reported by a cooperative doing more than 50 percent of its business in poultry which meant it also might include sideline business. The 1950–51 figures cover the poultry business handled by poultry cooperatives, and they also include the poultry business handled by all other types of cooperatives.

[2] The number of associations handling each commodity in 1950–51 cannot be compared with the figures shown in previous years. In this year's figures each association reporting any sales of poultry or poultry products is counted in the number of associations handling this commodity. For example, in addition to the 126 associations whose major operations were marketing poultry, 634 associations which were engaged primarily in other types of marketing or supply business were also marketing poultry. Therefore, because many associations are engaged in more than one type of business, these totals are less than the number that would be obtained by adding the number of associations handling individual items.

[3] Number of associations handling each commodity group is computed as a percentage of the total number of 9,977 associations listed.

[4] This figure represents approximately the value at the level at which the farmer does business with his cooperative. It does not include wholesale business of farm supply cooperatives with other cooperatives or terminal market sales for local associations.

[5] Includes associations handling forest products, fur pelts, honey, maple syrup, sugarcane and other products not separately classified.

[6] Less than .05 percent.

[7] Charges for services in which no duplication occurs.

FARMERS' COOPERATIVES: TYPES, NUMBER, AND MEMBERSHIP

Type	Year or date of data	Associations	Estimated members or participants
Production:			
Mutual irrigation companies[1]	1950	9,374	148,496
Dairy herd improvement associations[2]	Jan. 1, 1952	2,109	40,105
Dairy-cattle artificial breeding associations[2]	Jan. 1, 1952	1,648	543,397
Grazing associations[3]	June 30, 1951	30	1,311
Indian enterprises[4]	Dec. 31, 1950	[5]219	12,520
Marketing and purchasing:			
Marketing[6]	1950–51	[7]6,507	4,117,408
Purchasing[6]	1950–51	[8]3,208	2,842,878
Miscellaneous services[6] [9]	1950–51	[10]262	94,282
Service:			
National farm loan associations[6]	Jan. 1, 1953	1,164	312,000
Production credit associations[6]	Jan. 1, 1953	499	477,000
Banks for cooperatives[6]	Jan. 1, 1953	13	[11]3,168,000
Rural credit unions[12]	Jan. 1, 1951	530	230,450
Farmers' mutual fire insurance companies[13]	1950	1,800	3,500,000
Mutual telephone companies[14]	1937	32,879	669,344
Rural Electric Cooperatives[15]	June 30, 1952	932	3,588,506
Rural health cooperatives[16]	1950	51	[17]18,000

[1] Seventeenth Census of the United States, 1950. Estimated membership from Sixteenth Census of the United States, 1940.

[2] Bureau of Dairy Industry, Department of Agriculture.

[3] Grazing Service, Department of Interior.

[4] Office of Indian Affairs, Department of Interior.

[5] There are 295 other Indian Corporate and Tribal Enterprises.

[6] Farm Credit Administration, Department of Agriculture.

[7] When associations marketing farm products but principally engaged in providing some other services are included, the total is 7,276.

[8] When associations purchasing farm supplies but principally engaged in providing some other services are included, the total is 7,335.

[9] Includes general trucking, storage, grinding, cotton ginning, and livestock trucking.

[10] When associations providing miscellaneous services but principally engaged in marketing or purchasing are included, the total is 4,144.

[11] Estimated members of associations borrowing from banks for cooperatives.

[12] Bureau of Labor Statistics, Department of Labor.

[13] Farm Credit Administration estimates.

[14] Census of Electrical Industries, 1937, Bureau of the Census. Number of associations includes 2,067 companies with switchboards and 30,812 without switchboards. Number of participants estimated from number of telephones, assuming 1 patron per telephone.

[15] Rural Electrification Administration, Department of Agriculture.

[16] Public Health Service, Federal Security Agency.

[17] Membership reports for only 27 associations were available.

Marketing is a dynamic process. Many changes are going on, both in corporations and in cooperative associations. The following excerpt predicts some likely trends.—*Ed.*

7.1.3 Hedges, Harold. "Looking Into the Next Half Century," *News for Farmer Cooperatives,* Vol. 17, No. 10, Jan., 1951. Pp. 1–2.

As farmer cooperatives round the corner into the second half of this troubled century, they find themselves, in most cases, stronger than ever before. But as they look into the future, they find their vision partially veiled by the uncertainties facing the whole world . . . the problems of being half at war and half at peace with the portent of even more hazardous times ahead, the problems of whether to plan for expansion or for cutbacks, for plenty or for scarcities.

Must Stay on the Ready. About their only out — just as for the rest of the economy — is to stay on the ready. Whichever way the pendulum of change sways in the next decade, they need to be flexible enough to quickly shift with it. For cooperatives naturally exhibit reflex action from the country's ups and downs.

The development of farmer cooperatives in the United States parallels quite closely the changing character of agriculture over the past. Even 50 years ago farmers were still producing primarily for family needs. Today, farmers are producing primarily for an off-farm market . . . with a vital interest in that market.

The cooperative continues to be a tool to maintain close contact with and actively participate in merchandising and marketing their products and for purchasing needed supplies and services. It permits them to do so without interfering with the independent status of their individual farm business.

Just as the farmers' markets have grown in size and complexity, so have their cooperatives changed in scope and nature. These changes have developed largely as the economic need for

them has risen, as farmers have felt impelled by necessity to take on responsibilities for off-farm activities of vital concern to themselves — using the cooperative as their medium. A half century ago, farmer cooperatives not only were fewer in number but were largely local in their fields of activities. Today, their influence often reaches into activities far removed from the local scene. Tomorrow this influence seems likely to reach out even farther. Certainly the basic structure and the know-how are at hand to permit them to wield their influence if the need arises.

Looking ahead, what appears the most likely trend in number, membership and business volume? Over the past decade the number of marketing associations has tended downward, and seems likely to continue so, but with a growing tendency to level off. The pressure of competition on small volume marketing associations is probably more likely to increase than decrease. The net result — consolidation with nearby associations or discontinuance, but not necessarily a decrease in cooperative business volume. The offsetting factor from the standpoint of numbers is of course the organization of new associations which continue to be formed as needs arise, but not in any large number.

The number of purchasing and service cooperatives — a relatively more recent development than cooperative marketing — still has not reached its peak. Here, too, we see evidence of a leveling off now that this cooperative activity has reached into more and more farming areas of the country. And here, too, the competitive pressure remains on small volume and poorly operated associations. Over-all — in both marketing and purchasing — the long-term trend appears toward fewer but larger associations with more diversified business, particularly for those operating at the local level.

Membership in farmer marketing and purchasing cooperatives has been moving steadily upward during the last decade, with 6,384,000 memberships reported for 1948–49. Dollar volume of business likewise has increased, but when allowance is made for changes in price level and the substantial gain in the physical output of agriculture the increase loses much in significance. This offers material evidence that the membership gain mainly reflects the fact that a growing proportion of the patrons have become members. Looking to the future, any growth in physical volume — either marketing or purchasing — handled by cooperatives is as likely to come from their attracting a larger portion of the business of present members as from a larger membership.

Trend Toward More Distribution. Rough estimates indicate that about one-fifth of the farm products moving into commercial channels are handled at one or more stages by the farmer cooperatives. Although increasing slightly in the last decade, the changes in proportion have not been of any great significance. Likewise in purchasing, the proportion — perhaps 16 to 18 percent — has not changed materially in the last 10 years, although the proportion has increased a little faster than in marketing.

Of greater significance than the slight gains in physical volume on the part of cooperatives is the trend on their part to perform more and more of the distributive functions. An increasing number of marketing cooperatives is doing more than local handling or price bargaining. They — individually or by working together through federated cooperatives — are getting further into the merchandising field. Similarly in purchasing they are moving closer to the sources of raw materials involved in the farm production supplies they are handling. This trend seems fairly certain to continue. Thus, the bargaining position of farmers as represented by their cooperatives continues to improve even though the proportion of products or supplies handled by their associations may show little change.

Thus farmers through their cooperatives are achieving more vertical integration — the closer linking of supply, production, and marketing operations so familiar in the industrial and business picture generally. Horizontal integration is taking place by consolidation or when cooperatives widen the range of products they market or services they render.

The federation of local and regional cooperatives — with several or a large number of them working together in a jointly owned operation — is being used to bring about both forms of integration. As for the future, the device of federation holds promise of even greater development and more effective use as cooperatives strive to meet the challenge of other large integrated business concerns. After all, farmers have a lot at stake in the whole business of marketing farm products and buying needed supplies and services. It is their direct and immediate responsibility to see that the business units they themselves own and control operate economically and efficiently. Thus, the scale of operation is significant.

7.2 Philosophy and Theory of Agricultural Cooperation

There are some basic differences in philosophy and

theory of cooperation. The following four readings were selected because they state clearly some of the basic differences between cooperative, and non-cooperative methods of buying and selling. Many of the other readings in this section imply particular philosophies or theories of cooperation, although they deal with its practical problems or history. Some of the writers in this field are more inclined to emphasize the similarities rather than the differences between cooperative and other businesses.—*Ed.*

7.2.1 Nourse, E. G., "Economic Philosophy of Co-operation," *Am. Econ. Review*, Vol. XII, No. 4, Dec., 1922. Pp. 577–78, 579, 582, 583, 586–87, 594–95, 597.

Taken by and large cooperators are long on practice and short on theory. The contrast is marked as against such inveterate theorists as the socialist and the single taxer. These latter are well drilled in the reasons for the faith that is in them, albeit they have been able to produce but scanty actual achievements against the organized opposition of constituted government. On the other hand, any small group of persons may enter on business ventures after the cooperative pattern long before they are in a position to answer the higher catechism of cooperative doctrine. Driven to action as they feel themselves to be by the pressure of surrounding circumstances, they accept cooperation as a mystic formula destined to usher in the economic millennium, without in any real sense attaining an understanding of its purposes and methods. Likewise, misunderstanding or misrepresentation of the real nature of the cooperative form of economic organization has caused many persons outside the movement to view it with quite needless alarm as the creator of monopoly and the breeder of a harmful class-consciousness. A better common understanding of the several distinctive features of the cooperative form of organization is indispensable if legislative proposals are to be correctly appraised and the various features of organization and practice wisely regulated. The cooperative movement is putting laws on our statute books and giving rise to cases in our law courts. It is presenting problems to the accountant and calling for rulings by income tax officials. It is entering into business relations with other commercial organizations; it is soliciting members and patrons, and seeking persons or institutions to finance its operations. These relationships are being made awkward, uncertain, and often disastrous because of a general failure to grasp the principles upon which cooperative organization proceeds.

The movement grew up out of the circumstances of the Industrial Revolution and was a reaction against the early abuses or,

at least, rigors of the capitalistic industrial system. Ground between the upper and nether millstones of low wages and what by comparison were high prices, the factory hands of Britain, seeking any and every path of escape, finally found what seemed a practicable measure of relief in the establishing of non-profit stores upon a model perfected by twenty-eight weavers — the now famous Rochdale pioneers. Three "fundamentals" are generally held to have constituted the theoretical basis of their practical success:

1. Increased efficiency or reduced costs of service: no credit, no solicitation, and gratuitous or nominally paid service by members.

2. Popular distribution of savings or profits: minimum interest paid to invested capital, any surplus to go as patronage and wage dividends.

3. Democratic control, each member voting as an individual.

In spite of some interaction among them, these three premises represent three salient points of economic theory actuating the cooperative movement as something distinct among forms of economic organization. They register a threefold protest against the costs and wastes of the competitive selling system, against capital as the residual claimant of profits, and against the identification of economic control with stock ownership and the accompanying tendency toward concentration and autocracy.

However incomplete or confused may have been the thought of the Rochdale weavers on these three points or of any other subsequent group of cooperators unversed in the lore of economics, the continued adherence of the older bodies and the constant accession of new converts seem to argue that there is in this cooperative philosophy something which must be reckoned with as a factor in the future evolution of our economic life. Let us examine the matter from each of its three aspects in turn.

The first of the cooperator's three tenets, stated in its broadest terms, is that cooperative business is more economical and efficient than what he is pleased sometimes to call "private" business and sometimes "competitive" business. Several points of attack present themselves here. Like the humble beginners of Rochdale with their plain little store in Toad Lane, most cooperative enterprises dispense with enticing display and frequently use the volunteer help of their members to a greater or less extent. The cash payment plan is much favored not alone because it simplifies the management and accounting system and

cuts down interest as an operating expense, but also because, from the standpoint of the buyer, it protects him against the temptation to spend more than he should.

* * *

. . . Insofar as the cooperative store represents the voluntary assembling of orders by the consuming group or the guidance of the process of market distribution and, back of that, of production itself according to the needs of the consumer, it proposes a quite distinctive and vigorous attack on the problem of economic efficiency and social economy. It enunciates the principle that business activity should be a means and not an end. It brings to tangible expression the growing feeling that our modern society is organized too exclusively in the interest of the exploitative tradesman and the not less exploitative manufacturer. . . .

Possibly dearest to the heart of most cooperators are their theories of distribution. A cooperative association differs from the ordinary incorporated company in that profits, instead of being paid as a stock dividend, go as a "patronage dividend" or as a dividend or bonus to labor, or both. Capital invested in the business is generally allowed the going rate (though sometimes a little more or a little less) but either the patron member or the laboring member is viewed as the proper residual claimant to any surplus above the cost of supplies and the payment of contractual shares of income. This has led to a rather common practice of referring to cooperation as being the opposite of capitalism or of saying that cooperation displaces profit-making and substitutes service as the motivating force in business. Cooperative associations are asserted to be non-profit bodies and a non-stock form of organization has been worked out.

. . . The cooperator's actual objection is not against capital dividends merely as interest at the market rate on tangible investment but against the piling up of such dividends at an excessive rate, or against the capitalization of putative earning power into watered stocks which shall thenceforth be claimants before price-governing tribunals or at the bar of public opinion equal in repute and authenticity to actually paid-in capital. Granting that, in the absence of any factor of monopoly, such a level of charges cannot be indefinitely maintained, the cooperator asserts that what the consumer does pay should go to reward the worker instead of being absorbed by the promoter. His quarrel is with the promotional system on distributive grounds even as

it was on grounds of efficiency. Any dividend distribution of profits in excess of a conservative interest rate is taken, he says, from some more suitable claimant to be given to capital simply because it assumed some risk in its entrepreneurship. But where producers or consumers are organized cooperatively, the risk is thereby removed from the business and the claim of capital can consequently be reduced to its competitive contract share, service to either buyer or seller being thus brought down to a strict cost-of-service basis. . . .

The third of the chief considerations of cooperative theory touches the matter of business control. In the ordinary corporation, control is in the hands of stockholders and tends thus to be identified more or less specifically with capital ownership. Furthermore, there has been a tendency, through the limitation of voting power of preferred stock and the general withholding of the vote from capitalists whose capital contribution is evidenced by bonds, through the use of proxies, and through the device of the holding company and voting trust, to concentrate control in the hands of a few. The original control group, likewise, has often entrenched itself further in power by offering any new issues of stock to itself upon favorable terms or by transmuting accumulated earnings into stock dividends.

Against these control features of the ordinary stock corporation the cooperative philosophy sets up three protestant counter-proposals as follows:

1. All invested capital should be put in the category of loan funds, divested of voting power or control over the affairs of the association. Instead, voting power should go to members duly admitted because of their participation directly in the business to be done by the association.

2. By the prohibition of proxies, limitation on the amount of stock which may be held by an individual, abolition of holding companies and trust arrangements, and the transfer of governing power to members, each of whom votes as an individual, democracy of control is substituted for the old autocracy.

3. Instead of closed stock lists and mounting dividends or the cutting of "melons" for the few, cooperative organization requires a membership list open at all times to any person of good repute who is engaged in the business which is carried on by the association, his membership to terminate whenever he ceases his participation in the given pursuit.

Possibly all this may most conveniently be summed up in

the observation that cooperative organization aims to perfect a system of bringing many individuals together in business associations which will retain the personal interest and responsibility of the individual, instead of submerging it or allowing it to be lost as is the case in the highly impersonal form of the ordinary corporation. . . .

A moment's reflection must suffice to show that the cooperative faction in agriculture is the conservative wing of the industry. This bourgeois element sees in the cooperative association merely a new legal form peculiarly adapted to the needs of modern agricultural industry. Using this form, it seeks to organize such a range of activities as can be effectively integrated and to distribute the economic benefits of this efficiency so broadly and equitably as to insure the prosperity of the whole body of family-farm operators. There is no attempt to introduce any distinctively new principle of industrial guidance such as is proposed in the elaborate scheme of consumer cooperation. But it is proposed to put the individual members of our agricultural industry in an economic position compatible with the demands of modern economic life both as to productive efficiency and as to distributive justice. Possibly, the keynote of the philosophy lies in the idea that a means must be found for giving agriculture a type of organization whose productive and bargaining units respectively will expand in step with the growing needs of the agricultural technique (and its accompanying capital demands) and of the size requisite to an effective bargaining position in contact with the units of commercial organization with which they must deal.

* * *

Agricultural cooperation offers to the inherently decentralized industry of agriculture a workable and expansible scheme of organization designed to set up an agency for the progressive study and adjustment of the larger problems which are being forced upon this industry by the inescapable processes of our economic evolution. If, as Mill suggests, the goal which we are seeking is to raise the rank and file of our workers to a position where they are also, in the largest measure possible, owners of that share of the productive capital of society which is employed in their industry, we should look upon agricultural cooperation, conserving as it does (and in time extending) the present highly desirable combination between capitalist and labor role of the American farmer, as a movement to be carefully fostered and directed into

channels of practical success as well as social helpfulness. Like other evolutionary processes its future course depends largely on the quality of its leadership. To analyze the issues intelligently and helpfully would be a service which the economist might well feel himself called upon to undertake.

7.2.2 Robotka, Frank. "A Theory of Cooperation," *Jour. Farm Econ.*, Vol. XXIX, No. 1, Feb., 1947. Pp. 100–1, 103, 105–6, 107–8, 111, 113.

An adequate theory of the cooperative type of business organization must explain and rationalize in acceptable economic terms all of the considerations with respect to which this type of organization claims distinctiveness. For example: If the capital of a cooperative is, in fact, loan capital, how is the transformation from traditional entrepreneurial capital brought about? What disposition is made of the traditional functions associated with entrepreneurial capital, such as decision-making and risk-bearing? If a cooperative is in fact profitless, a logical corollary is that it must also be riskless, hence what happens with respect to risks must be explained. If patronage refunds and returns paid on capital do not constitute distributions of earnings, what is it that is thus distributed? What are the implications of the usual assertion that true cooperatives operate at cost? Since agents derive income from rendering services for their principals, how can this fact be reconciled with the usual allegation that a cooperative is a nonprofit organization? How may the traditional "one-man, one-vote" method of control be explained?

* * *

It is believed that a satisfactory basis for the rational explanation in economic terms of the distinctive features which characterize the cooperative association is provided when a cooperative arrangement is conceived as a federation of autonomous economic units whose avowed purpose it is to function in their individual capacities but in a coordinate manner with respect to specific activities integrally related and common to their individual economic pursuits. A new economic entity emerges when a cooperative association is formed because participants must agree to submit to group decisions questions relating to the activity being coordinated. The cooperative association, as such, however, is a sovereign unit only with respect to its external relationships. Internally, the participants act in their individual capacities in a mutually agreed upon manner, hence the acts of the cooperative

represent the sum of the acts of the participants. Functioning cooperatively thus represents a choice on the part of participants of alternative methods of functioning; that is, it represents an extension of their entrepreneurial functioning.

It is only on the basis of such a concept that the nonprofit character of the cooperative arrangement, as such, its "service-at-cost" basis of operation, the nature of its capital, the patronage basis of members' participation in benefits, risks, costs, and control, and the other distinctive features of true cooperation are explainable in an economic sense.

* * *

. . . Although a cooperative does not appear to meet all the specifications of a firm, it cannot be denied that it is an economic entity. Even in the case of the two farmers shipping stock cooperatively, a new decision-making body is created. The essence of the agreement they had entered into involves a commitment on the part of each of them to submit certain questions regarding his shipping activity to group decisions. Each participant must surrender sovereignty to this extent; hence each participant's status as an individual maker of decisions in this particular respect is modified. Others now participate with him in this process. Those who thus participate in making these decisions, therefore, constitute a new decision-making unit.

It must, however, be recognized that this decision-making unit cannot make decisions which are unrelated or inimical to the interests of participants *as livestock producers.* This decision-making body consists of the participants, but as members of this body they continue to function in their capacity as livestock producers. Their joint decisions with respect to the shipping activity will, therefore, be integrated with their decisions as individual livestock producers.

A New Risk-Bearing Body Emerges. Since the decisions of the participants regarding their shipping activity are now group decisions, and since those who make decisions must assume responsibility for their consequences, a new decision-making body cannot emerge without the simultaneous emergence of a corresponding risk-bearing body.

* * *

The cooperative shipping arrangement merely represents an extension of the entrepreneurial functioning of the participating

units. It is a method by which several small units may jointly accomplish the integration of functions which larger units may accomplish individually. The proceeds from sales in the case of the cooperative do not belong to the cooperative any more than they belong to the sales or shipping *department* of the large-scale producer who shipped his own livestock. Nor does the cooperative incur expenses for which it itself is responsible, any more than does the shipping department of the large-scale producer. The producer, as such, is responsible for such costs. The cooperative is, of course, authorized by the participants to incur necessary expenses in their behalf. Hence the proceeds a cooperative receives from sales of members' products accrue to participants as liabilities of the cooperative, and expenses which it incurs in their behalf are receivables which patrons are obligated to pay. Hence the cooperative, as such, cannot realize a profit nor incur a loss.

Patronage an Obligation. Obviously, the benefits which the producers in our illustration anticipate gaining by shipping cooperatively can be realized only if each of them fulfills his part of the agreement. Neither of them could afford to go to the trouble and expense of delivering his livestock for shipment at the appointed time and place except on the assurance that the other would do likewise. In consideration of the mutual advantages to be gained each participant obligates himself to function as contemplated or to reimburse the other to the extent of any damage sustained by him in case of a default. Each has therefore placed himself under a moral obligation to function as contemplated. In more formal arrangements, such obligations are usually explicitly set forth in a legally binding contract, with provision for the payment of stipulated damages in case of a breach thereof. Every cooperative arrangement involves an implied if not explicit obligation to utilize the facilities jointly provided as a means of carrying out the purpose of the participants.

Moreover, acceptance by the participants of the obligation to ship livestock jointly through specific facilities provided for the purpose means, in effect, that the participants have decided to abstain from shipping or selling in competition with others. Their combined offerings enter the market supply as a single unit of product rather than as several competing units. As a consequence, participants abstain from competing against each other in their search for sales or marketing facilities and are no longer free to respond individually to the solicitation of competing dealers or sales agencies. Instead of vying against each other in these matters, they act in coordination with each other.

. . . The real reason why cooperative activities are said to be conducted at cost is because they are a part of the integrated activities of the participants. When a farmer does his plowing himself, he receives service for what it costs him to render it. If he hired it done, he would normally have to pay not only the expenses of the plowman but something extra to induce him to assume the risks and for planning, organizing and supervising the operation. When cooperators jointly conduct an integrated activity, they themselves incur the expenses of conducting it, and in addition assume the risks and the responsibility for planning, organizing and supervising the operation. They thus "earn" or "save" what they would otherwise have to pay someone else for performing these latter functions.

* * *

Students of cooperation would probably agree that the so-called patronage dividend is not a true dividend in the sense that it represents a distribution of profits. However, where the patronage dividend is used, as it frequently is, as a profit-sharing device (as a competitive device to attract patronage) it becomes a method of distributing profits. Ordinary corporations may distribute some of their profits to their customers in this manner. Where business operations are conducted on a competitive price basis, and where it is not contemplated that patrons, as such, shall assume responsibility for costs and risks, then it is a fortuitous matter as to whether the operations result in a profit or a loss. If under such conditions a loss results, stockholders must bear it. Such a business cannot attract capital unless investors are offered inducements in the form of profits. It is, of course, for them to decide whether or not they wish to share their profits with the customers of the business. If they decide to do so, the refund consists of a share of the profits distributed as a gratuity to customers.

Although the operations of many so-called cooperatives resemble those of a profit-sharing corporation more than those of a true cooperative, the patronage dividend as used by true cooperatives functions in quite a different manner. It is only when it is used as a truly cooperative device that the patronage dividend is not a true dividend. No true cooperative deals with its patrons on a competitive price basis. Technically a price is a consideration involved in the transfer of title. The risks of ownership pass with the title. When a customer pays or receives a price, his interest in the transaction or its consequence in terms of profit or loss ceases. However, when a cooperative patron's interest in the

transaction continues in the sense that the transaction is not consummated until it is adjusted to a cost basis, then the settlement at the time of the transaction is not a *price* settlement but a tentative or "provisional" settlement subject to adjustment after a final accounting. The patronage refund under such circumstances is a device designed to adjust the transaction to a cost basis. In such case, there would be no profit to distribute in the form of a true dividend.

* * *

Interest or "Dividends" on Capital. Since, as already indicated, the participants in a true cooperative assume responsibility for costs and risks on a patronage basis, capital as such is relieved of the usual business risks. Contributors of such capital, therefore, are not entitled to receive a return on capital in the nature of profit as a reward for assuming risks. Moreover, the capital which participants advance is not advanced in anticipation of the returns they may receive upon it, but as a necessary condition in order to make certain desired services available to them. In any case, since the operations of a true cooperative are conducted on a cost basis, there would be no residual income to distribute to capital as such. Moreover, since any return members receive on their capital contributions would either be added to the expenses of the services they receive or be deducted from proceeds from sales accruing to them, there would be no point in paying such a return. Members would merely be shifting such amounts from one pocket to the other. In practice, however, capital contributions are frequently not made in proportion to the use participants anticipate making of the services of the organization. In such cases, the payment of a return on capital is justified on the ground that it compensates for disproportionalities in capital contributions. The members who contribute capital in excess of their proportionate share, in effect, loan to those who contribute less than their proportionate share, and the return is, therefore, in the nature of interest rather than a distribution of residual income.

The Basis of Control. . . . the members of a cooperative participate in control, not because they have contributed capital, but because they participate in the activities of the organization. In a farmers' marketing cooperative, for example, a member may contribute $100 of capital but may entrust products to the association worth many times that amount. Obviously he would not

be willing to do this if the organization's policies were controlled by capital contributors, as such, or others whose interests were not identical to his own. Hence, control in a cooperative is identified with patronage because it is with respect to patronage that the member normally assumes major risks. In an ordinary corporation it is consistent to identify control with capital contribution, because in that case the major risk is borne by stockholders as contributors of capital.

7.2.3 Koller, E. Fred. "Cooperatives in a Capitalistic Economy," *Jour. Farm Econ.*, Vol. XXIX, No. 4, Pt. 2, Nov., 1947. Pp. 1138, 1139, 1140, 1141, 1144.

Thus, after reviewing the basic concepts of capitalism and cooperation, we find a maximum of agreement in their underlying principles and foundations. We may say that cooperatives are an integral part of the capitalistic economy just as are ordinary corporations, partnerships and individual proprietorships. Cooperation is a phase of the capitalistic free enterprise system and not foreign or antagonistic to it. A better understanding of these concepts by both cooperators and ordinary businessmen would serve to lessen the bitter controversies which often develop between these groups and would promote a greater tolerance.

The Role of Cooperatives. Now we may inquire, "What is the place of cooperatives in our capitalistic economy? What positive contribution can these organizations make toward improvement of the economic system?" A number of answers may be supplied to these questions but, in general, the primary role of cooperatives is to overcome some of the defects and limitations of the capitalistic economy. Important among these are imperfections in the competitive process which interfere with the free allocation of resources in accordance with consumer preferences. A fundamental objective of the cooperative plan of business is to improve competition and to enlarge the area in which the competitive pricing mechanism is effective.

In performing their important role in the economic system, successful cooperatives provide leadership in supplying their patrons with goods and services on a more efficient and economical basis than they have been provided by non-cooperative business. Some have referred to this as the "pacemaker" or "yardstick" role of cooperatives. Let us review by what methods these organizations have achieved these desirable results.

Repeatedly cooperatives have taken the lead in the introduction of *improved techniques* of production and distribution which

have served to reduce costs and improve the returns of their members. . . .

By bringing about the horizontal combination of producers, cooperatives have played a distinctive role in achieving important economies. Horizontal combination has been a means of effecting an *optimum scale of enterprise* including optimum scale of plant, optimum scale of management and other services. In this way small-scale farmers who could not perform certain marketing and purchasing activities efficiently on an individual basis have been brought together to obtain the advantages of size. Horizontal combination has been instrumental in reducing irrational competition characterized by excessive duplication of services and facilities in many local and terminal markets. Duplication of creameries, livestock buyers, egg and poultry buyers and other services were frequent and tended to leave the scale of production of various business units far below the optimum level. By entering these situations, cooperatives have contributed significantly in improving the allocation of resources in our economy.

* * *

Cooperatives have achieved other significant economies and improved the economic position of small-scale producers (and small-scale consumers) by *vertical integration*. . . .

Another important role which cooperatives have performed consistently is that of counteracting and breaking down the monopolistic elements which develop in private business. The prevalence of monopolistic pricing is one of the more important reasons why the capitalistic economy fails to function satisfactorily, since the system depends upon prices to direct the activity of individuals into the most productive channels. Cooperatives are a means of effecting some control over monopolistic pricing. By entering into competition with existing monopolies, cooperatives are a factor in making the price structure more nearly competitive in many lines of enterprise. Furthermore, it is a control that operates within the framework of the private enterprise system and it is, therefore, a means of avoiding further extension of controls by government.

* * *

Thus, we see that cooperatives provide a means of complementing and strengthening the capitalistic economy at its weakest points. While cooperation is clearly not a panacea for all the

ills of capitalism, it does perform a positive role in the free enterprise economy by aiding it to achieve a better allocation of resources, higher total production and a wider distribution of income. The ameliorating influence of cooperatives in our economy is particularly vital in these days when the free enterprise system is being challenged by the sanguine promises of state-controlled economies that now prevail over so much of the world.

7.2.4 Knapp, Joseph G. "Cooperatives and American Business," *American Cooperation*, American Institute of Cooperation, Washington, D. C., 1950. P. 70.

It is not possible at this time to fully present the distinguishing features of the cooperative form of business. Briefly, a cooperative business differs from other private business in four main ways:

1. A cooperative business is set up by a group of individuals to obtain services for themselves at cost — not to obtain profit from rendering services to others.
2. A cooperative business tries to render the greatest possible benefit to its members — not to make the largest possible profit.
3. A cooperative distributes amounts remaining after payment of the cost of doing business among those who are served by it, in proportion to their use of its services — not in proportion to their investment.
4. A cooperative is controlled by its patron members, each of whom ordinarily is allowed a single vote — not by the owners of its capital stock, if any, in proportion to the number of shares they hold.

Thus the chief aim of cooperative business is to serve its members, to provide goods and services to its members at cost. It is obvious that the cooperative is as much a part of our American free enterprise system as any other individually-owned business, whether it be owned by an individual, partners in a business enterprise, or stockholders in a corporation.

Moreover, there is nothing basically radical about the cooperative form of enterprise which permits people to serve themselves if they prefer to do so rather than hire the services of those who desire to serve them for the chance of profit involved. . . .

7.3 Aims

Farmers cooperate for two main purposes: economic and social. We shall first consider some of the economic aims.

While the first excerpt in this subsection refers specifically to the economic aims of livestock-marketing cooperatives,

it indicates very well the aims of marketing cooperatives generally.—*Ed.*

7.3.1 Nourse, E. G. and Knapp, J. G. *The Co-operative Marketing of Livestock.* Brookings Institution, Washington, D. C., 1931. Pp. 48–50, 51–53, 54.

. . . Many farmers made the initial move toward co-operative livestock marketing simply because they were "sore" at some particular private shipper or exasperated over the details of some individual transaction. Likewise, many communities were swept into the movement during the disturbed conditions of the war or early post-war period and did not stop to examine at all adequately the long-run tendencies in the business or long-run possibilities of improving the system of marketing. The "promoter" has been a factor in the movement also, often making his appeal to ignorance or prejudice rather than attempting to get an accurate analytical view of the whole situation. Furthermore, county agricultural agents and farm organization leaders have frequently hit upon co-operative work as a promising demonstration of the value of their services to the farmer, often measuring the results by the number of associations established rather than by any lasting constructive work.

On the other hand, both in the early beginnings of the movement and in its later expansion and solid growth in our important livestock producing territory, there is evidence that both farmers and those who organized and managed shipping associations had a clear-cut reaction to certain specific abuses and a reasonably logical notion of ways in which the situation could be improved. It would of course be absurd to suppose that every farmer who participated in co-operative shipping had any real perception of what it was all about. Nevertheless, along with all the economic nonsense and frothy evangelism which gathered about this as other popular movements, there is discernible on the part of the more articulate leaders some fairly recognizable marketing philosophy. Without intending to over-simplify or ascribe rationality to what was essentially irrational, it seems worth while to attempt to winnow out from all the discussion and activity of the period some statement of what it was that gave justification to the effort and to explain in what direction those who shaped the movement thought — more or less coherently — that they were going.

In attempting to do this we shall note two principal goals toward which co-operative livestock shipping has moved in its effort to relieve old abuses or to create a more agreeable[1] and

profitable system of marketing livestock. The major objective probably was to eliminate inequalities or discriminatory practices such as were discussed in the preceding section of the present chapter. A second important objective which was probably formulated only vaguely by the rank and file but which was often played up in roseate colors by the leaders was the future improvement in the economy and efficiency with which the business would be carried on, through which net prices in the local market would be raised. This campaign for a larger proportion of the terminal market dollar was based on three proposals: (1) cutting out the profits of the private dealer, (2) eliminating waste and loss in operation, and (3) developing more efficient selling services.

The most obvious proposal of the shipping association was to reduce the middleman's toll taken by the country buyer by performing this service at cost. No longer were these middlemen to thrive on margins which covered not only actual costs but also whatever profit they could secure by any special arrangements or preferred position which they could build up for themselves.[2] In this the co-operative shippers were running true to the basic co-operative doctrine of service at cost, or the "non-profit" system of business.

* * *

It was a notorious fact also that some country buyers were ignorant or careless as to the best methods of loading stock or preparing it for shipment to market. Here, too, the co-operative had constructive proposals. Managers were instructed not to use clubs or sticks in such a way as to bruise animals and injure their salability, nor unnecessarily to excite or overheat them in the process of loading. Frequently losses were due to lack of proper help at loading time, and this was often remedied in the co-operative because self-interest of farmers moved them to remain after delivery of their own stock and assist the manager is getting the animals on the car. Great emphasis was placed also on careful cleaning and suitable bedding of the car and in sprinkling hogs

[1] The word "agreeable" is used advisedly since farmers were seeking not merely to enhance their pecuniary return but in greater or less measure to secure the spiritual satisfaction which "the independent farmer" derives from "having his own business in his own hands."

[2] In more than one case farmers have deferred the initiation of shipments through their associations or suspended them after once begun because they were reasonably satisfied that this potential competition had secured the remedying of abuses against which they complained.

or suspending sacks of ice in hot weather. Toward the same end, care was taken that cars should not be so over-loaded as to increase the hazard of death or crippling in transit.

As to the third proposal for the betterment of conditions through co-operative shipping, it was assumed that the associations could improve prices paid locally by securing more efficient selling services. Country buyers were sometimes highly inefficient in securing advantageous market connections, relying for their own remuneration more on taking a sufficient margin below whatever terminal price they secured than in working zealously and intelligently to get the best price obtainable in any accessible market. Co-operatives hoped to build up a system of alert and skillful management which would get the farmer a price according to grade, and later to make such shifts in shipping arrangements, according to the season or strength of particular markets, as would yield the "high dollar." The choice of the best sales agency also entered into the plan and embraced, as we shall see later, a program of selling through their own co-operative agencies at the terminal. Particularly in this larger aspect the aims of efficient selling included the idea of gaining strength in the market as a result of collective bargaining. . . .

* * *

Finally, the co-operative livestock shipping movement to some extent set up as one of its aims a program of "orderly marketing" similar to that which had attained such wide vogue in the case of other commodities. In the main, however, any program of orderly marketing concerns itself with stabilizing the placing of stock in the principal markets and thus in turn bringing an equalizing effect between markets. Such an aim is hardly within the scope of even the most comprehensive system of local shipping associations, much less of scattered and unrelated locals whose activities are not clearly correlated through any overhead organization. Thus the discussion of this larger aim must be left to our chapters on overhead agencies and terminal selling.

The economic aims of purchasing associations are summarized by Knapp.—*Ed.*

7.3.2 Knapp, Joseph G. "Improving Farm Efficiency Through Co-operative Purchasing," *Jour. Bus. Univ. of Chicago*, Vol. IX, No. 4, Oct., 1936. Pp. 301, 303, 307–8.

The co-operative purchasing of farm supplies is a movement that has developed with the increasing commercialization of agri-

culture. Under conditions of commercialized agriculture farming has become more of a manufacturing business. Crops are produced for distant markets, and basic supplies needed in the process of production must be purchased if they cannot be produced economically at home. In order to increase the net income of the farming enterprise farmers have found it advantageous to specialize on the actual production of their crops, delegating the task of purchasing supplies and marketing their crops to co-operative or commercial agencies.

* * *

General Characteristics of Farm-Supply Associations. Co-operative purchasing associations are business organizations set up by farmers for the acquisition of goods and services needed in their farm enterprises. In effect they are simply an extension of the farming enterprise since they are set up for the purpose of making the farm enterprise more profitable. These associations from an external point of view are little different than other business enterprises which sell farm supplies to farmers. From an internal point of view, however, they are markedly different.

* * *

Co-operative Purchasing an Extension of Private Enterprise. It is clear that co-operative purchasing associations should not be looked upon as a radical form of business enterprise. In the words of one prominent co-operative purchasing executive, "The co-operative movement among farmers is an expression of an independent spirit, an ability to take care of themselves, and a willingness to fit agriculture to the conditions imposed on it by a competitive capitalistic society."

Farmers' co-operative purchasing associations simply join a group of business men — farmers — together to perform a purchasing service for themselves. The legality of such group action for a common benefit in accordance with public policy is well established. Co-operative purchasing associations do not eliminate the profit or self-interest motive since they enable individual producers — as entrepreneurs — to act together to secure the benefits of group action. Co-operative purchasing associations simply tend to share the "profits" — which would otherwise by taken by private supply enterprises — among the producers who contribute to the success of the enterprise by furnishing it with their patronage. In this way farmers extend their individual production operations

to the collective acquisition of farm supplies needed in production.

Mr. Heline makes a distinction between "business success" and "economic success."—*Ed.*

7.3.3 Heline, Oscar. *Some Considerations of Vital Importance to the Future of Cooperation in Iowa.* Address before 47th annual convention, Farmers Grain Dealers Association of Iowa, Des Moines, Iowa, Jan. 1951. P. 4.

MEASURING COOPERATIVE PROGRESS

Business Success. A cooperative may be a business success and yet be a failure in an economic and in a cooperative sense. Co-operative progress or success is usually measured in terms of numbers of organizations, number of members, dollar volume of business, net worth, net proceeds, patronage refunds, and so on. These measures may be regarded as measures of success in a *business sense.* An ordinary business is concerned primarily about success in this sense. Business success is, of course, as essential in a co-operative as in any other kind of business.

Success in an Economic Sense. By success in an economic sense I mean success in attaining the objectives for which farmers established their cooperatives. We make progress in an economic sense when, by cooperating, we increase the efficiency of our family farm operations, do a better job of using our markets, eliminate monopolistic practices and competitive wastes, correct market abuses and undesirable trade practices, improve the quality of our products and supplies, and bring about a better adjustment of supply to market demands. A cooperative, although a business success, may be an economic failure when it takes the point of view of the trade, adopts the practices of other dealers, whether good or bad, renders no better service than competitors force it to render, or is more interested in its own survival than in benefiting its farmer patrons.

Some farmers have hoped to control prices through large, tightly-organized cooperatives. These hopes have usually proved to be quite illusive. But in the 1920's, Sapiro and others thought it could be done.—*Ed.*

7.3.4 Sapiro, Aaron. *An Analysis of Marketing, Fundamental Principles of Co-operation.* Chicago, Am. Farm Bur. Fed. Address delivered December 11, 1923, Fifth Annual Meeting, Am. Farm Bur. Fed., Hotel Sherman, Chicago. Pp. 4, 6, 9, 11, 14.

So the big thing we have found in co-operative marketing is, first, to clear up the purpose. Co-operative marketing is a system

under which farmers by proper organization, can learn to merchandise a commodity and control the flow of the supply as to time, place and quantity, and thereby have something to do with affecting the price value on that product. Co-operative marketing is not the making of cheese in a co-operative cheese factory. Co-operative marketing is a step which follows co-operative manufacturing. It is a step which follows co-operative packing or co-operative receiving, and it is not co-operative marketing unless the aim is distinctly the stopping of individual selling and dumping, and the substitution of merchandising, control of flow and supply, as to time and place and quantity.

* * *

Remember, the aim of co-operative marketing is not to fix prices — that can't be done unless you have absolute control of an industry. The aim is to control flow of supply as to time, place, and quantity, so that you have something to say about the conditions that affect price values. You cannot do it as individuals, you cannot do it as local units, but if you take the local units and you federate them from a commodity viewpoint, then you can do something to affect the price.

* * *

So we have learned absolutely that co-operation which depends solely on spirit is beautiful but not enforceable, and that co-operation which depends on spirit plus contract is equally beautiful and more dependable. So that is why we now come to the point that most all of the co-operative leaders, not only in the United States, but in Canada and Europe, have now determined, that written contracts in some form are essential for true co-operation.

* * *

Here is where we failed. You have got to have a regular minimum. You have got to be certain of a definite delivery to you, and that delivery must be enough to enable you, first, to pay your overhead for good men, without costing too much per dozen, too much per bushel, or too much per box. Second, you have got to have a large enough minimum so that you are an important factor in that market from the day that you open your doors. Merely being another commission house isn't worth a single thing to the farmer, although it may mean some jobs to some of the farmer representatives. Merely being another thing doesn't solve

a problem. You have got to be a different thing, and the different thing that you have to be is a unit which has enough in quantity to make the control of the flow of that supply really mean something.

* * *

. . .I tell you that next to religion, next to determining your relationship with God, there is no worthier thing under the sun to which you can consecrate yourselves than the work of teaching the American farmer how to pull himself up on his own feet, how to adjust his business to the business of the rest of the community, how to do by his own efforts the things that will give him a decent standard of living in his home; how to accomplish things, so that by his own work, his children will stand with their heads up, with a chance for real education, with hope in their faces and become the finest, cleanest citizens in the entire United States.

The "Sapiro movement" in cotton is discussed in the next reading.—*Ed.*

7.3.5 Montgomery, Robert Hargrove. *The Cooperative Pattern in Cotton.* Macmillan, New York, 1929. Pp. 44–49, 74.

During the latter part of 1919 a group of the more intelligent leaders of the South began another of those perennial attempts to "organize" the Cotton Kingdom. The dominant figures in this movement were Mr. John Scottowe Wannamaker and Colonel Harvey Jordan. The latter had been previously involved in several similar attempts, among them the ill-fated Southern States Cotton Corporation. It seems to have been the purpose of these leaders to create an organization along the general lines of that Corporation. The new organization was called the American Cotton Association. By the end of the year several states had organized and a call was issued for a national convention to meet in Montgomery, Alabama, on April 12th, 1920.

The story of that April convention records one of the most dramatic episodes of Southern history. By apparent accident — a casual invitation of an assistant secretary — Mr. Aaron Sapiro was brought to the meeting. The results of that invitation, and of the activities of Sapiro during the three days convention, are perpetuated in the score or more of powerful Southern cooperatives.

When he reached Montgomery, Sapiro discovered that he was not on the program. While there are some who will contend that

it is not safe to put Sapiro on a program, no one will deny that it is dangerous to conspicuously leave him off. The convention was scheduled to begin its formal deliberations on the morning of April 12th. On the night of the eleventh Sapiro called the delegates who had arrived into informal session at the Gay-Teague Hotel. To this session he presented his now famous plan for organizing the American cotton farmers.

It would be impossible to understand the sweep of the cooperative marketing movement in the South without an appreciation of the peculiar powers of this young California lawyer. Sapiro had been intimately connected with the organization and operation of some of the most successful cooperatives on the West Coast. He had made a careful study of cooperative marketing, both in the United States and in Europe, and had devised what is now known as the Sapiro form of organization.

Sapiro is a dynamic speaker. His ability to convince his audience of the soundness and importance of his proposals is almost incomparable. He is an able lawyer. He understands the weakness as well as the strength of his case, but is able to present the latter without having the former embarrass him. As a matter of fact, he presents just enough of the difficulties to convince the hearer of his complete candor, and not enough to damage his cause in the slightest degree.

Moreover, Sapiro undoubtedly had absolute faith in the panacea he proposed. His strange dominance of the cooperative marketing movement in the South may be attributed in large part to his tremendous earnestness. Here we had an evangelist of the very highest intellectual and emotional abilities who was able to convince his hearers of his own illimitable faith in the gospel he taught.

Probably no better statement of that gospel could be made than that made by Sapiro himself. I have heard him present his plan to a bankers' convention, to a state legislature, to a group of economists, to cooperative organization leaders, and to farmers in the field. His technique of presentation is quite formalized. In the first place he sketches a dismal picture of rural California during the first years of this century. Overproduction, low prices, poor country roads, inadequate schools, unkempt churches, women and children working in fields — in short, all those social and economic ills to which we of the South have grown accustomed during the past sixty years, are passed in review. Then the new gospel, commodity cooperative marketing, is proclaimed.

Through ten years of trial and error this process of marketing agricultural products is perfected. From local associations for handling various local problems there gradually evolves the centralized marketing agency with its sole function, the marketing of one kind of agricultural product.

* * *

The result of this new technique in the methods of marketing is pictured by Sapiro as having completely revolutionized rural life in California. Today, California (as every Californian freely admits) is the pride of the nation: "first in excellence of rural schools, and in salaries paid rural teachers; first in rural highway construction; first in welfare of rural churches, and in salaries paid rural ministers; and incomparably first in standard of living of the actual dirt farmers. Women and children do not work on the farms of California." In short, commodity cooperative marketing has procured for the farmers of California all those social and economic advantages which so obviously have been denied the cotton farmers of the South for the past sixty years. The logic is irresistible: "Go thou and do likewise."

* * *

By the time the convention formally assembled Sapiro was the dominant factor. After delivering an able address, the president, John S. Wannamaker, appointed a number of committees; among them, one on cooperative marketing. This committee met that afternoon and invited Sapiro to meet with them to explain his plan in detail. Two other committees whose members had heard Sapiro the evening before, asked permission to sit with them. After discussing the new proposal for several hours, three members were appointed from each of the three committees to consider the matter further, and to draft a report to be presented to the convention.

When this report was given to the convention at its last session, Sapiro, for the first time, was permitted to speak. His brilliant two-hour defense of his plan effectively demolished, for the time, all opposition. . . .

* * *

So the careful and painstaking report of the committee which under a different set of circumstances might have become the foundation for the new economic structure of the Cotton Kingdom was quietly laid to rest. The whole direction of the move-

ment toward a new control of the cotton industry was changed by one man.

> The more sober students of cooperation were never misled by promises of monopolistic gain. They foresaw the danger that the pursuit of monopoly profits would not only fail, but would weaken the cooperative movement. —*Ed.*

7.3.6 Nourse, E. G. "The Outlook for Cooperative Marketing," *Jour. Farm Econ.*, Vol. IV, No. 2, April, 1922. P. 81.

Success is a relative term, and in attempting to apply a measure to the achievements of cooperation we must bear clearly in mind the two quite different ideals which have been set up as possible objectives of the movement. Baldly stated, these two goals proposed by American cooperators are, on the one hand, centralized market control and, on the other, decentralized business organization for the more efficient standardization, assembly, and market distribution of farm products. Obviously, these two ideals are not antithetical nor even mutually exclusive. But they do differ materially and significantly in general outlook and intention as well as in methods of procedure. They differ in degree and particularly in the length of time which enters into their considerations.

To waste no words, then, I shall state it as my conviction that the outlook for cooperative marketing after the first of these patterns is extremely bad. Several specific projects of this kind are definitely before us at the present time, aiming to set up a national agency for administering the market supply of a given class of products so as to "control" or "stabilize" the market in the interest of their members. In their first and worst form they proposed to "fix prices" on a cost plus basis through control of seventy-five per cent or some other necessary fraction of the product. Fortunately, they have in general now receded from this position, but still are pinning an enormous and naive faith to promises of vast improvement in prices to be brought about through statistical bureaus of impossible omniscience and through supply manipulation of dubious efficacy and of uncertain physical and financial practicability.

7.3.7 Babcock, H. E. "Cooperatives, the Pace-Setters in Agriculture," *Jour. Farm Econ.*, Vol. XVII, No. 1, Feb., 1935. P. 153.

I regard a farmer-owned, farmer-controlled cooperative as a legal, practical means by which a group of self-selected, selfish capitalists seek to improve their individual economic positions in a competitive society.

Personally I do not believe for any long pull in those types of cooperative which depend upon contracts for membership support, which so operate that they tend to level off the individual positions of members or which sacrifice the welfare of the membership to the interests of those who remain on the outside. Apply these tests to the cooperatives you know and you will find that they take in a great deal of territory.

When you and I are honest with ourselves and each other, we both must admit that the only neighbor or associate we ourselves are ever at all anxious to cooperate with, is the one who can help us advance toward some particular objective which seems desirable to us. This, then in my judgment, becomes the one safe formula by which the members of a cooperative may determine the membership in the organization.

Contracts Not Necessary. If sufficient opportunities for selfish advancement exist, members will join a cooperative voluntarily and stay with it. If they do not, membership contracts will not hold them. Here I draw a distinction between membership agreements, which can be voluntarily entered into and voluntarily cancelled, and business contracts covering the delivery of goods.

> Especially in Europe, but to some extent in the United States, farmers' cooperatives have been organized not to attain monopoly — but to combat monopoly by "countervailing power."—*Ed.*

7.3.8 Stokdyk, E. A. "Economic Objectives of Farmers' Cooperatives," *Farm Credit Admin., U. S. Dept. Agr., Miscellaneous Report 90.* Washington, D. C., Oct., 1945. P. 1.

Cooperatives and Their Place in the American Economy. Americans have traditionally resisted monopolies. Nevertheless, technological development, mass production, and improved transportation and communication have favored their formation and growth.

Three principal methods have been employed to curb them: (1) legislation and regulation; (2) State ownership and operation; and (3) cooperative competition. The antitrust laws were enacted in the early stages of our industrial history; likewise, laws regulating public utilities were soon formulated. State, Federal, or municipal ownership has been undertaken in some situations. At the same time cooperative competition grew out of many individual and separate situations where monopolies, sometimes small in scope but nevertheless real, exacted too large a return for the services rendered.

Cooperative competition has been one of the most effective tools employed to curb monopolies. Public policy has supported cooperative activity, particularly among farmers, for more than half a century. Associations of farmers to conduct their own business activities have been fostered and encouraged by Federal and State statutes and agencies. Their services have been so outstanding that they are attracting considerable attention. In some quarters, partly because of their influence in this regard, cooperatives are regarded as in conflict with the American system of "free enterprise."

> Although the main objectives of farmers' cooperatives in this country admittedly are economic, there has been a thread of social significance woven through the fiber of the growing movement. Sociologists, philosophers, and economists all agree that the influence of successful cooperative enterprise affects the social aspects of community life. At the same time, as some authorities point out, there is a spiritual value resulting from the working together of cooperative members. The following two selections bring these facts into vivid perspective.—*Ed.*

7.3.9 Babcock, H. E. "Cooperatives as a Means for Doing Business Practically," *American Cooperation*, The American Institute of Cooperation, Washington, D.C., 1935. P. 44.

Spiritual Value of Cooperatives. Now what of the human value of the cooperative movement?

The most useless man in the world is the one who has lost his freedom. I have seen economic conditions so constructed here in this very locality that some of you in this audience, my own father and my neighbors, lost their economic freedom. I have seen men file like a chain gang to sign away their milk prices about which they were not even consulted. I have felt the chill of the homecoming of a man who had lost his economic freedom and whose spirit was broken.

As a farm boy I have burned with resentment, as I followed an old horse up the long potato rows, over my helplessness in marketing the potatoes I was caring for. I have had my hopes raised and my spirit fired by the promises of politicians and demagogues over what this or that political party or this or that leader was going to do for me, only to have both dashed to earth by my own analysis of the faulty economics of such promises.

Never, and you young men remember this, as a farm boy did I see the slightest chance to escape from the economic bondage which bound my father and his neighbors, which crushed their spirits, which tended to make them men without hope, mean, nar-

row, small, until I grasped the significance, the availability and the practicability of the farmer-owned, farmer-controlled cooperative as a means of doing farm business.

Not until then did I see how my few dollars and the few dollars of my neighbors could be rolled into sums which matched the capitalization of the giants in the business field. Not until then did I see how my needs as buyer of farm supplies and seller of my farm products could be welded into a mass which gave me an opportunity to have something to say about the price. And above everything else, not until I saw how I might by being a member of a cooperative, an employee or an executive become a man free to struggle for economic freedom did I see a future in agriculture or even an endurable existence.

Economic freedom and spiritual freedom are the greatest possessions of the farmer. Regimentation kills freedom. The cooperative movement alone stands as the practical means for a farmer both to win economic freedom and to safeguard his spiritual freedom.

7.3.10 Taylor, Carl C. "Objectives of Farmer Cooperatives—by a Sociologist," *American Cooperation*, American Institute of Cooperation, Washington, D.C., 1949. Pp. 63–64, 69–72.

* * *

Cooperation, Conflict and Competition. To the sociologist cooperation, conflict and competition are not loaded words. They are quite objective words used to describe three different types of human behavior, each of them quite universal and quite susceptible to being observed. Each also is a key to an elaborate theory of organization or systems of human relations. Whole schools of sociological thought have been constructed on the so-called conflict theory. Most of economics is written on and out of an acceptance of the theory of competition. Needless to say, cooperatives have arisen and been promoted on the theory of and belief in cooperation.

There is a common denominator to all three of these types of behavior, namely, the fact that the actions of others stimulate a person to a higher level of activity and enthusiasm. In conflict, the motives and actions of contestants are opposed; in competition, they may be opposed or parallel; in cooperation, they are parallel and mutual. The issue at stake is to determine which accomplishes the highest level of individual and group attainment and which is most satisfactory as human experiences.

* * *

People Join Cooperatives to Serve Their Need "to Belong." Certainly all of us know, however, that in other necessary concerns of life the old primary types of association are kept alive and functional — in families, communities, schools, churches, recreation and welfare activities. Primary group activities and a belief in primary group values did not die with the development of secondary group relations and the emergence of secular values. The fact that they have never died is a part of the cause of the growth of the cooperative movement. Historically and sociologically viewed, the cooperative movement has attempted to perpetuate primary group activities and serve primary group values. It has not always, especially in later days, been conscious of the fact that it was doing so but sociological understanding and evidence from actual research show that the serving of primary group needs is part of the explanation of why persons join and support cooperatives.

A series of outstanding studies of farmer cooperatives by Iowa State College is revealing some exceedingly interesting characteristics and attitudes of cooperative members. Not least significant among their preliminary findings is the fact that cooperative members have a better understanding of cooperative principles than do non-cooperative members in the same community. While 84 per cent mentioned "economic savings" as one reason for belonging to cooperatives, 56 per cent said they were justified in not patronizing them under certain circumstances; 16 per cent said they traded elsewhere for personal reasons and/or with friends who operate competing businesses. While 61 per cent feel they have a say in running their cooperatives, 29 per cent say they feel no moral obligation whatsoever to use them.

Thus far, these Iowa studies have not gotten into some of the subtler phenomena I have been discussing, but it is my prediction that, as these significant analyses continue, there will be discovered positive correlations between the felt responsibility for, use made of, and loyalty to cooperatives and the primary group behavior and attitudes of members of cooperatives. I say this because numerous studies of group behavior show that no matter how strong the stimulus of an outside objective is and no matter how powerful and effective group leaders are, the "need to belong" to some group or groups, to be accepted as a cooperating member, is one of the basic needs of every personality and primary groups satisfy this need more perfectly than any others.

* * *

Mutual Aid Is a Law of Life. Modern man would be in an inescapable dilemma if he were faced with the necessity of either sacrificing the secular techniques and organizations by means of which he carries on world trade, big governments, and even big religious and scientific organizations and activities or of sacrificing the types of human relations and sentiments which can live and be perpetuated only in primary group relations. One does not escape this dilemma by calling the sentiments of primary groups either romantic or utopian. Nor does he escape it by attempting to make cooperatives successful big business methods and nothing else.

I will confess that I am almost as often disgusted with their sophomoric utopianism in some cooperative undertakings as I am discouraged about the doctrines and activities of those who believe all the business, political, scientific, and even aesthetic and religious issues of life should and can be settled by means of utterly impersonal values and completely secular organizations. Mutual aid is one of the laws of life. Conscious cooperation with one's friends and neighbors is one of the necessary experiences in sustaining personality status. Mutual effort is more effective than either conflict, competition, or isolated endeavor. There is no fiction in the evidence of these facts even if sentiment is one of the ingredients which makes them work. Cooperatives can and should utilize a knowledge of these facts in activities, agencies and organizations which are thoroughly secular in their contacts and dealings with what Graham Wallace called "The Great Society."

Membership Participation Vital to Success. Cooperatives, and cooperatives alone, can be the bridge between primary and secondary group techniques and values, because they are membership organizations. If they are also membership operated they need not depend very much on propaganda or even depend greatly on so-called public relations, both of them tools of great secular organizations. They can and will depend on membership education which comes chiefly through membership participation. I mean membership participation in local units of the cooperative organizations, and membership participation in neighborhood and community discussions, *i.e.,* primary groups or semi-primary groups. But I mean also membership participation in the general cooperative movement, which is made up of thousands of associations large and small, all with a common idea of what they are trying to do and with intelligent common purposes in doing it. This means that not only cooperative idealists and practical lead-

ers of cooperative associations, but members by the millions must understand the values of cooperative behavior, must have an understanding of something more than cooperative shibboleths and must realize that if they don't neither their philosophic leaders nor their hard-headed business leaders can make cooperatives succeed or keep the cooperative movement alive.

I do not believe that the millions of persons who keep organizing new cooperative ventures are mere sentimentalists, even if some of their schemes are utopian and their naivete sometimes almost ridiculous. They are, in fact, persons who have a deep appreciation of primary group values even if they don't have a critical knowledge of the psychological and sociological factors involved in the operation and perpetuity of cooperatives. It is, however, out of basic beliefs and faiths such as theirs that all great movements are sustained and carried forward and who could look at the history of cooperation and cooperatives and not know that there is a cooperative movement.

Movements are different from revolutions or revolts which attempt to overthrow the whole political, economic and social order of a society. They are different from isolated reforms which pick or peck piecemeal at some single maladjustment. They arise and are perpetuated by a felt need for a basic adjustment within and as a part of a whole economic, political or social order. The labor movement arose out of the development of the wage nexus and is perpetuated by the constant need for improving wage, hour and work condition adjustments. The farmers' movement arose out of the development of the price nexus and is perpetuated by the need for constant adjustment of prices, markets and credits.

Human Passion for "Joining Hands" Key to Future. The cooperative movement can hardly be said to have *arisen* because it has always been in existence to serve the need for mutual aid in every aspect of human existence. It has taken on its pronounced economic coloring because of the universal development in the western world, now almost all the world, of what Thorstein Veblen called a price and market culture. In this culture most cooperatives are business organizations in some or most of their activities. But they are and must be more than business organizations. They must be social organizations. If they aren't, or where they don't become such, there is nothing unique about them and it is high time that cooperative leaders become aware of this fact. Cooperatives as social organizations, those which now exist and increase in number and volume of service joined with those of

the past, many of which failed, constitute a cooperative movement. This movement will live as long as human beings have a passion for joining hands and purposes with others in the universal mutual struggle not only to live, but to live in peace rather than conflict, and to live mutually rather than competing with other human beings.

7.3.11 Jesness, O. B. "A Critical Appraisal of Marketing Cooperatives," *American Cooperation*, American Institute of Cooperation, Washington, D.C., 1946. Pp. 34, 35, 36.

Cooperative marketing among farmers outgrew its swaddling clothes quite some time ago. The volume of business handled, the number of farmers served, and the size and performance of outstanding organizations attest to this. Agricultural cooperation today is big business. But have cooperative leaders and enthusiasts entirely outgrown "baby prattle" and childhood manners?

Many an organizer has found it convenient for this purpose to regale farmers with tales of how they are victimized by the marketing system. Many a cooperative has been built on a foundation of the alleged sins of other agencies. The contention is not that this is a sinless world or that the marketing system is lily-white. The sole question is over the wisdom of selling wares by knocking those of the competitor instead of on the basis of their own merits.

Cooperatives, to be sure, are often themselves the target of criticism from competitors. Have cooperators even considered the extent to which such attacks are boomerangs of their own making? Persons who insist on "slinging mud" must not be too surprised if they get "spattered." Moreover, is the other man's weakness the source of your strength? If he is as corrupt, as unfair, as unscrupulous as pictured, why not rely on the eloquence of fair and aboveboard performance by the cooperative as the most effective answer? Why not let accomplishments rather than arguments "do the speaking" for the cooperatives? After all, cooperatives are part of the business world. They must live and deal with other agencies. Why create an atmosphere of battle where peace should reign?

* * *

Co-ops Must Perform Service To Live. Few business undertakings, cooperative or other, can stay alive without performing service. Cooperatives exist so specifically for rendering service for their patrons that they will do well to appraise themselves con-

stantly to see how adequately they justify their existence and deserve the continued support of their patrons by the services performed.

Successful cooperatives are pacemakers. They lead rather than bring up the rear. They owe their success to the results they have produced. These results are due to service, not black magic. Some have succeeded because they have found better or more economical ways of performing services for their patrons; others are trail blazers in developing new services and new activities.

* * *

Encourage Real Membership Participation. All of us have noted wide differences among cooperative managers. Some dominate the board of directors to the point where the latter are hardly more than rubber stamps; others follow the more democratic process of presenting issues fairly to the board and leaving decision to it. The board naturally will look to the manager for information and counsel but it should not give up its responsibility for final decision in policy matters.

Can cooperatives in truth say that the decisions which are made always give first consideration to the interests of the men out on the farms whom the cooperative exists to serve rather than to the position of management and the employees? May not this, at times, result in blocking progress rather than helping organizations play the role of pacemakers and trail blazers? There is no intent here to phrase a blanket indictment of cooperatives. It is instead an invitation to engage in some self-examination to discover traces of this weakness and to apply correctives where needed.

The relations between members and the association need strengthening in many cooperatives. There also is room for improvement in relationship between directors and manager. Reference was made above to the tendency of some managers to dominate the board of directors in policy decision. There also are cases where the board attempts to participate in actions which are the domain of the manager. The board clearly has responsibility for developing and deciding matters of general policy; the manager must have control over administrative detail in putting these policies into effect.

7.4 Integration

In the growth of farmers' cooperatives, the scope of activ-

ities has increased to meet the demands of farmers. Cooperatives have expanded their operations to include manufacturing programs of considerable scope. Such activities have resulted in integrated operations, both vertically and horizontally. In some cases these steps have been taken by cooperatives because of the unwillingness of manufacturers to do business with farmers' associations. The following selections describe cooperative activities from the standpoints of both horizontal and vertical integration.

When a farmers' cooperative attains greater efficiency through integration, the benefits obviously go to the farmer and to the general public. The corporation may retain some of the benefits of integration in the form of larger profits.—*Ed.*

7.4.1 Knapp, Joseph G. "Cooperative Expansion Through Horizontal Integration," *Jour. Farm Econ.*, Vol. XXXII, No. 4, Pt. 2, Nov., 1950. Pp. 1038–39, 1046–47.

In the early 1920's the idea of horizontal integration was vigorously promoted by Aaron Sapiro, who conceived of the organization of wheat growers, cotton growers, tobacco growers, potato growers, etc., into state, regional and national "commodity" organizations which would be powerful enough to achieve the advantages of monopoly control in marketing. Although this program presumed a certain degree of vertical integration, emphasis was placed on horizontal expansion to gain control of the supply. At the height of this development, about 1924, hundreds of thousands of farmers were members of organizations dedicated to "orderly marketing," the slogan of this movement.

Although the experience of the Sapiro-promoted commodity marketing cooperatives demonstrated the weakness of the basic premises of monopoly control, the idea was taken up again in 1929 by the Federal Farm Board which endeavored to form strong national marketing federations or organizations of various types. While some of the organizations which were then set up have survived in modified form, they gradually lost faith in the possibility of achieving the type of commodity control that gave them birth. At present large-scale cooperative organization has largely reverted to the pattern of federation for business efficiency purposes, as first developed by the California Fruit Growers Exchange.

Since 1933 the existing regional federations have added many local association members, and many new regional federated organizations have been formed. In fact, there are now few independent local associations, as most have found it desirable to join an existing regional federation. Moreover, many new local associations have been formed with the assistance of a federated

organization with the understanding that they would become a segment of the already federated system.

In recent years groups of regional federations have made considerable progress in financing and operating "overhead" federations on a national or semi-national scale. These organizations may be thought of as federations of federations, although generally the overhead federation includes some member organizations of the centralized type. In the field of cooperative purchasing, United Cooperatives, Inc., National Cooperatives, Inc., and the National Farm Machinery Association, Inc., are organizations of this type. Somewhat comparable organizations in the field of cooperative marketing are the National Livestock Producers' Association, the National Federation of Grain Cooperatives, the National Cooperative Milk Producers' Federation, and the National Wool Marketing Corporation. The member associations in these national federations reach back to the farmers who own and control the primary cooperative units. Thus these national cooperative net-works horizontally and vertically integrate the marketing and procurement operations of the hundreds of thousands of farmers who are served.

* * *

Concluding Observations.

1. The process of integration — both horizontally and vertically — has been going on as an attribute of cooperative expansion since the first cooperative association was formed.

2. The first stage of cooperative expansion is horizontal, although a certain degree of vertical integration is associated with the horizontal expansion.

3. It is more difficult to achieve integration by cooperatives than by non-cooperative corporations, for the latter have greater flexibilty in decision making. However, cooperatives have found out how they can make effective use of the process.

4. Horizontal integration in cooperatives usually is achieved through federation, i.e., by the formation of an association to unite separate associations. The process of federation invariably brings with it a certain degree of vertical integration, for new functions are performed by the overhead association for the benefit of the integrated units.

5. Horizontal integration by cooperatives has been carried farther than vertical integration. However, at present there appears to be a greater need and opportunity for more horizontal than for more vertical integration. Until the process of working

together — that is, coordinating horizontally — is carried further, many cooperatives cannot proceed advantageously with vertical integration.

6. A strong horizontally integrated cooperative marketing or purchasing cooperative should protect itself by achieving a certain degree of vertical integration. For example, a horizontally integrated cooperative distributive system may find it necessary to integrate vertically so as to protect itself during periods of seller's markets. Moreover, there may be outright advantages from vertical integration in control of quality of product.

7. Many cooperatives have endeavored to integrate vertically when greater returns could be derived from intensification of present activities. Diversification is an attribute of horizontal integration. It is like adding more power on existing transmission lines. Excessive vertical integration may involve heavy investment and more complex management decisions and may limit flexibility of operations.

8. Horizontal integration has had its greatest development in regional federated organizations. As the area covered extends, problems of administration become more difficult. If the regional purchasing associations could better integrate their petroleum, feed, fertilizer or farm machinery operations horizontally, it would make possible greater achievements in vertical integration through raw materials procurement, manufacturing, distribution, and research.

9. Concentration on horizontal integration alone may become a fetish, and keep organizations from undertaking vertical expansions that would prove highly beneficial. Both horizontal and vertical integration are tools for expansion. Frequently, they can be used together like a shovel and a pick.

10. More research work is needed in the field of horizontal and vertical integration. Case studies of organizations and groups of organizations are needed to determine economies of scale, overhead costs, the optimum size for management, conditions essential for democratic control, and legal or structural limitations. Information is especially needed on how far integration should be carried in specific circumstances and how it can best be achieved within the cooperative framework. Also, more information is needed on the extent to which integration by cooperatives, as well as by non-cooperative organizations, is in the interest of desirable public policy.

7.4.2 Koller, E. Fred. "Vertical Integration of Agricultural Cooperatives," *Jour. Farm Econ.*, Vol. XXXII, No. 4, Pt. 2, Nov., 1950. Pp. 1049–50.

A simple illustration of vertical integration in agriculture is that of a local milk producer who has acquired control of retail distributing facilities for his product. Another more complex illustration of this technique is that of middlewestern farmers who, through their cooperatives, have brought under one control petroleum supply operations extending through the various stages of retail and wholesale distribution, transportation, refining, and ownership of oil producing properties.

Vertical integration is described as being forward when it is initiated at or near the raw material stage of production and is extended toward the finished product and the ultimate consumer. Agricultural marketing cooperatives, such as Land O'Lakes Creameries and California Fruit Growers Exchange, which control some or all of the various productive stages in the producer to market chain, are illustrative of this type. Backward vertical integration exists when it is initiated at or near the consumer level and is extended toward the raw material level. Agricultural purchasing cooperatives, such as Southern States Cooperatives, Inc., and others, which have brought various productive units extending from the farm to the fertilizer factory, to the refinery, to the oil well, and to other sources of basic raw materials for farm supplies, under a single managerial control are of this type. Our large chain store systems are also good illustrations.

It should be noted that vertical integration is not always of the so-called simple or pure type, that is, of a firm handling a single product, or very similar products, over successive levels in the producer to market chain. For instance, vertical integration often is effected on the basis of a number of different, or complementary, products handled over successive levels by a given firm. Also, joint horizontal and vertical integration may be effected in one firm. Many cases of integrated firms involve combinations of vertical, horizontal, and complementary integration.

It should be pointed out that a farm which has membership in a cooperative is part of a vertically integrated unit. The farm is the production level from which integration is initiated forward toward the market in the case of membership in marketing cooperatives, and backward toward raw material for farm supplies in the case of purchasing cooperatives.

7.4.3 Hirsch, Werner Z. "The Economics of Integration in Agricultural Marketing," Ph.D. dissertation on file in Univ. of Calif. Library, June, 1949. P. 3.

. . . Introduction and expansion of various types of integration by agricultural marketing cooperatives may well maintain active and keen competition in most agricultural industries. Indications are, that with further cooperative integration, production and supply of agricultural commodities will tend to be heavy and stable. This appears to be consistent with relatively low prices to consumers, relatively low marketing costs and margins, and perhaps smaller unit profits, but larger total profits, to farmers. At the same time, there are signs to the effect that further integration would be fully consistent with rising net income levels, more rapid recovery from depression and restraints to the extent of inflation. In addition, our conclusions lead us to believe that agricultural price and net income fluctuations may be mitigated.

7.5 Legal Aspects

In this book we are not concerned with any detailed legal distinctions between cooperation and other forms of business. However, there have been important legislative milestones which have had a bearing upon the development of different types of cooperative enterprises. Moreover, as the impacts of cooperative business efforts have been felt in the economic arena, legal issues have been raised, and legislation has been passed concerning the taxation of cooperatives.

The first two excerpts in this subsection summarize some of the most important federal laws concerning cooperation. —*Ed.*

7.5.1 Hulbert, L. S. "Agricultural Cooperatives and Federal Statutes," *Agricultural Cooperation in the United States, Farm Credit Admin., U. S. Dept. Agr., Bull. 54,* April, 1947. Pp. 5–6.

The Federal statutes do not contain an over-all definition of an agricultural cooperative association. Such associations are simply mentioned in quite a good many Federal statutes. In the Capper-Volstead Act, the Agricultural Marketing Act, and in the Internal Revenue Code, however, agricultural cooperative associations are defined in each instance for specific purposes.

The Capper-Volstead Act was approved February 22, 1922. The purpose of this Act was to resolve any doubt regarding the right of farmers to unite and act through a cooperative association composed of producers in the handling and marketing of their agricultural commodities. Prior to the enactment of this statute doubt existed as to the right, from the standpoint of the antitrust acts, of farmers to unite and act together in cooperative associations.

This act made it clear that the elimination of the competition between individual producers, which comes to pass when they act through a cooperative association, would not in and of itself constitute a violation of the antitrust acts. Of course, after a cooperative association is formed, and particularly in its dealings with third persons, it is as subject to the antitrust acts as is any other business entity under like conditions; and in appropriate instances the Department of Justice may proceed against them.

In order for a cooperative association of producers to be entitled to the protection of the Capper-Volstead Act the association must be composed of producers, must operate on a mutual basis for the benefit of the members thereof as producers, and no member of the association may have more than one vote, or else the association may not pay dividends on stock or membership capital in excess of 8 per cent per year. In any event the association may not deal in the products of nonmembers to an amount greater in value than such as are handled by it for members.

Under the act, if the Secretary of Agriculture has reason to believe that an association meeting its conditions monopolizes or restrains trade in interstate or foreign commerce to such an extent that the price of any agricultural product is unduly enhanced by reason thereof, he may proceed against the association and if following a hearing he finds that this is true he may issue an order directing the association to cease and desist from monopolization or restraint of trade.

The Agricultural Marketing Act contains a definition of a cooperative association of producers that is eligible to borrow from a bank for cooperatives. This definition in many respects is quite similar to that contained in the Capper-Volstead Act. For instance the restrictions regarding nonmember business, dividends on stock and voting are the same. On the other hand, the definition of a cooperative association as given in the Agricultural Marketing Act is considerably broader than that contained in the Capper-Volstead Act. For instance, the Capper-Volstead Act does not cover cooperative purchasing associations of producers. Likewise, the Agricultural Marketing Act definition includes associations that are engaged in the furnishing of "farm business services," whereas associations of this type are in no way affected by the Capper-Volstead Act.

The Internal Revenue Code provides for the exemption of cooperative marketing and purchasing associations of producers from the payment of income taxes, but the requirements for exemption differ in some respects from the requirements that must

be met by an association that is to be eligible to borrow from a bank for cooperatives or which must be met by an association if it is to be covered by the Capper-Volstead Act. For example, the requirements for exemption do not contain any provisions with respect to the method of voting that may be followed by the members of an association if it is to be eligible for exemption.

Any marketing or purchasing association of producers that is to be eligible for exemption should be composed entirely of producers, and exemption will be denied if the right to vote is possessed by an appreciable percentage of persons who are not producers. In brief, in order to be eligible for exemption, the activities of an association of producers must be restricted (1) to the marketing of products of members or of other producers, or (2) the purchasing of supplies and equipment for the use of members or other persons, or to both of such purposes.

The operations of the association must be on a mutual basis with equal treatment for all patrons, members and nonmembers alike. Business with nonmembers must not exceed that done with members. In the case of a marketing association, if it deals with nonmembers the association should deal only with nonmembers who are producers. In a purchasing association the total amount of its nonmember business, like a marketing association, may not exceed 50 per cent, but not over 15 per cent of its business with nonmembers may be done with nonmember-nonproducer patrons.

An association may accumulate reserves required by State statute or reasonable reserves for any necessary purpose. The organization papers should provide for the allocation of accumulated reserves on a patronage basis among all patrons, members and nonmembers alike. For an association to be exempt it must maintain permanent records covering all of its business with all of its patrons. The rate of dividends that may be paid on stock or membership capital may not exceed 8 per cent per year, or the legal rate of interest in the State of incorporation, whichever is higher. An association may issue nonvoting preferred stock which may be held by anyone, but there must be restrictions barring the holders of such stock from receiving more than the par value of their stock plus dividends

As pointed out above, the Capper-Volstead Act, the Agricultural Marketing Act and the Internal Revenue Code each contemplates that an association will be composed of agricultural producers and each of them restricts the amount of nonmember business which an association may do to 50 per cent.

7.5.2 Elsworth, R. H. "The Story of Farmers' Cooperatives," *Farm Credit Admin., U. S. Dept. Agr. Cir. E-23.* Rev. ed. 1948. Pp. 25–26.

Legal Developments Benefit Farmers' Co-ops. Numerous important contributions to the legal side of cooperative marketing were made during the 1920–29 period. A Standard Marketing Act was drafted and accepted in slightly modified forms by the legislatures of more than half the States. Three Federal legislative acts of concern to cooperatives were put upon the books.

The Capper-Volstead Act which became law in February 1922 provided that "farmers, planters, ranchmen, dairymen, nut or fruit growers may act together in associations, corporate or otherwise, with or without capital stock, in collectively processing, preparing for market, handling, and marketing in interstate and foreign commerce, such products of persons so engaged. . . . *Provided, however,* that such associations are operated for the mutual benefit of the members thereof. . . ." and conform to certain state requirements. This legislation specifically sanctions associations that meet the requirements.

Four years later the Cooperative Marketing Act was passed by Congress. This law provided for a division of cooperative marketing in the United States Department of Agriculture, which division, among other things, should "acquire, analyze, and disseminate economic, statistical, and historical information regarding the progress, organization, and business methods of cooperative associations in the United States and foreign countries." It is under this law that the present Cooperative Research and Service Division of the Farm Credit Administration operates.

Near the close of the twenties the Agricultural Marketing Act was put upon the Federal statute books. This law provided for the Federal Farm Board which was appointed by the President in the summer of 1929. A revolving fund of half a billion dollars was authorized among other things to assist cooperatives. A number of new associations appeared in the early days of the Federal Farm Board which otherwise probably would not have been organized. Among these were several with the word "national" in their names. Some of the new enterprises were formed under general corporation laws rather than cooperative statutes. Substantial aid in the form of loans from the revolving fund was extended to some of the new enterprises.

Among the Farm Board organizations still operating on a large scale are the National Live Stock Marketing Association, a federation of terminal market sales agencies; the National Wool

Marketing Corporation; the American Cotton Cooperative Association, a federation of State and regional associations; and the National Beet Growers' Association, a federation of regional bargaining associations.

FCA Formed in 1933. So far the most important event of the thirties pertaining to the farmers' cooperative movement has been the legislation creating the Farm Credit Administration. The act of 1933 and supplemental legislation provide for bringing together in one administrative unit the Federal agencies extending financial aid to farmers through the medium of short- and long-term loans.

The Farm Credit Administration helps the farmer to solve his credit problems by assisting him to create agencies through which he can tap the money reservoirs of the country. Thus he is able to obtain credit for acquiring farm property, for producing crops and livestock, and for the intelligent marketing of his products.

With the rise in the rates of Federal income taxes applicable to corporations, brought about by World War II, there began in 1943 a vigorous organized campaign to bring about fundamental changes in the tax laws relating to cooperatives. The discussion centered around the taxation of patronage refunds paid to patrons or retained by the organizations as patrons' capital. After extensive hearings and numerous studies, the situation was at least partly clarified by the Revenue Act of 1951. Briefly, this Act establishes that patronage refunds of farmers' cooperatives made either as cash distributions or retained as capital in accord with the provisions of the Act are not taxable to cooperatives, but are to be taken into account by cooperative patrons in preparing income tax returns for their farming enterprises. A brief statement of some of the arguments of those proposing that patronage refunds of farmers' cooperatives be taxable to cooperatives and of those opposing this position are presented in the following statements.—*Ed.*

7.5.3 Jackson, Clarence A., representing The National Tax Equality Association. Statement presented at hearing before the Committee on Ways and Means, House of Representatives, Eighty-second Congress, First Session. Part 2. Pp. 1435, 1438, 1441, 1442.

Representatives of the National Tax Equality Association first appeared before your committee in November of 1947 and presented the results of exhaustive research on the competitive aspects of Federal income tax exemption. They pointed out the unfair position that businessmen found themselves in during the

war when taxpaying businesses were required to pay up to 80 per cent of their earnings in Federal income taxes while their tax-free competitors paid none. . . .

* * *

The most important source of additional revenues that remain to be taxed . . . are the tremendous earnings of cooperative corporations. These business corporations, as you know, are able to escape the payment of Federal income taxes by two separate routes. About half of the farmer marketing and purchasing cooperative corporations are granted exemption from the payment of all income taxes by section 101 (12) of the Internal Revenue Code. The other half of the farm cooperatives, the business, manufacturing, and wholesale cooperatives, the city consumer cooperatives, etc., are able to avoid all or nearly all of their Federal income taxes because of liberal Treasury rulings, not based on any statute, which permit them to deduct or exclude from gross income that part of their net earnings which is distributed as dividends on patronage. These nonexempt cooperatives are required to file income-tax returns just like any other corporation. By the use of the patronage dividend device, however, these corporations are able to transfer their profits to their owners without paying a corporation income tax on them.

* * *

An article on the taxable income of cooperatives, whose coauthor is Roswell Magill, has been published in the Michigan Law Review. . . .

* * *

Mr. Magill irrefutably denies the oft-repeated claim of the cooperatives that they have no income and that their patronage dividends are not, therefore, taxable before distribution to members. He says:

"The so-called net margins of cooperative corporations constitute in reality the net income of such corporations. . . . The net margin is quite as much the net profit of the cooperative as the exactly similar net margin of operating income of the stock corporation buying or selling goods next door. . . . It should pay a Federal income tax on its gain, just as its competitor must do."

"Equity would not be established by taxing to the cooperatives merely that part of their income which is accumulated, or is reinvested in corporate stock or obligations, while exempting

cash distributions from income tax, for their actual income consists as well of the net profits or net margins distributed in cash, as of amounts reinvested in the cooperative."

Mr. Magill concludes:

"Tax gratuities, or subsidies, in favor of worth-while social experiments, such as cooperatives, may have been sound and desirable under the low tax rates prevailing during the first two decades of the income tax. They cannot be justified, however, in the political, economic, and tax climate of the 1950's."

7.5.4 Rumble, Wilfrid E. "Cooperatives and Income Taxes," *Law and Contemporary Problems*, School of Law, Duke University, Vol. 13, No. 3, Summer, 1948. Pp. 534, 536, 537, 541.

Cooperative associations are subject to every real and personal property tax and almost every other type of tax, in the same way and to the same extent as ordinary private business corporations. It is in respect to income taxes that their treatment is different. . . .

* * *

I would define a true cooperative as one which is legally obligated, by written agreement or by appropriate provisions of its articles of incorporation or by-laws or by the statute under which it is organized (1) to distribute to its members or patrons, or both, in proportion to their patronage, all of its income in excess of its costs of operation, except such as it is authorized to pay in limited dividends upon capital stock and to place in statutory or other necessary reserves, and (2) to allocate or credit all reserves (except consumable reserves) to the patrons who contributed to them, upon the same patronage basis. It is this type of true cooperative to which I refer when using the term "cooperative."

* * *

. . . cooperatives are practically compelled to secure their capital from their own patrons and members. The result is that this capital has been secured to a considerable extent from the reinvestment in capital securities of the cooperative by patrons of their share of the receipts of the cooperative. All the state statutes require cooperatives to distribute net income (after dividends on capital stock and after small required reserves) to patrons annually or oftener, and most of them expressly permit distributions to be made in capital securities. It is principally the methods used by cooperatives to finance their activities which give rise to the present bitter attacks upon the income-tax treat-

ment accorded cooperatives by Congress, the Treasury Department, and the courts.

* * *

Analysis shows that patronage distributions of a true cooperative are not profits of the corporation and that such distributions must be excluded in determining its net taxable income. (The term "excluded" rather than "deducted" is used because such distributions do not and should not enter into the income account of the cooperative at any time.) This is the position to which the Treasury Department has adhered for many years, and there can be little dispute that the courts have adopted the same view. The position of the Treasury Department is perhaps best stated in the following quotation from a memorandum of the general counsel:

* * *

So-called patronage dividends have long been recognized by the Bureau to be rebates on purchases made in the case of a cooperative purchasing organization or an additional cost of goods sold in the case of a cooperative marketing organization when paid with respect to purchases made by or sales made on account of the distributees. For purposes of administration of the Federal income tax laws, such distributions have been treated as deductions in determining the taxable net income of the distributing cooperative organization. Such distributions, however, when made pursuant to a prior agreement between the cooperative organization and its patrons, are more properly to be treated as exclusions from gross income of the cooperative organization (I.T. 1499; S.M. 2595; G.C.M. 12393). It follows, therefore, that such patronage dividends, rebates, or refunds due patrons of a cooperative organization are not profits of the cooperative organization notwithstanding the amount due such patrons cannot be determined until after the closing of the books of the cooperative organization for a particular taxable period.

7.5.5 Bradley, W. L. "Taxation of Cooperatives," *Harvard Business Review*, Vol. XXV, No. 4a, Autumn No. 1947. Pp. 576, 577, 578–579, 585.

. . . The claims and counterclaims of those engaged in the controversy have, in some instances, reflected such extravagant departures from truth that many earnest men have conscientiously arrived at the conviction that these cooperative organizations actually do not pay any taxes, and that the so-called exemption extends to the whole field of taxation rather than merely to the federal tax on corporate incomes.

* * *

Tax Minimization Through Refunds. The present controversy seems to boil down to the consideration of the right to exclude patronage refunds in determining taxable net income. The

accomplishment of price adjustments to cost of doing business through the medium of patronage refunds reflects the fundamental cooperative principle. However, its utilization is not limited to farmer cooperatives or even to cooperatives as a whole, including the so-called "urban-consumer" cooperatives which have been established to meet the demands of urban dwellers for goods and services at cost. It has been so extensively adopted by almost every segment of commercial business that any objective appraisal of the denial of the right, if such contractual right could lawfully be denied, must take into consideration the effect of such action not alone on farmer cooperatives but also on business in general.

* * *

The cooperative principle of doing business at cost through the medium of patronage refunds or price adjustments has been so widely adopted by so many segments of American business enterprise other than farm cooperatives, over so long a period of time, that to hold that such patronage distributions or price adjustments were in fact income to the entity making them would result in changing established business practices of many commercial enterprises. The average American businessman will not have to venture very far from the orbit of his own business enterprise to find that he himself may be utilizing the services of numerous commercial organizations which embrace this cooperative principle in their dealing with their customers, that is, which grant rebates or discounts based on the relative volume of the customers' business. Almost every type of industry is represented in the cooperative purchasing agencies or service bureaus which have been established and are maintained to serve commerce and industry. Amounts refunded to their patrons by such organizations, pursuant to agreements effecting such price adjustments, do not constitute taxable income, nor can it be maintained that such organizations enjoy tax exemption.

* * *

A dividend paid to a stockholder as an income return on his investment cannot be likened to a patronage refund paid to a patron in adjustment of the price of goods or services from his cooperative. In the first instance, the corporation realized a profit on the patron, and retained it, eventually paying it over to its owners, the stockholders. In the second instance, the corporation realized a margin on transactions with its patrons, but instead of retaining it as an enrichment of the corporation itself or passing

it on to its stockholder owners, it passed it back to the patron as an adjustment of costs. The basic criticism here cannot involve the question of tax exemption; it has no connection whatever with tax exemption. The only criticism which can be directed here is to the right of businessmen to elect to adopt cooperative principles in the conduct of their enterprises. Each man will have to determine in the light of his own judgment whether such criticism is justified, and whether the system of free enterprise, inherent in the commerce of this nation, can afford this freedom of election as to the basic method of doing business.

7.5.6. Davis, John H. ***An Economic Analysis of the Tax Status of Farmer Co operatives.*** **American Institute of Cooperation, 1950. Pp. 120–21, 122, 123.**

Farmers have used the cooperative form of business to integrate procurement, selling and service functions with production on farm units which are individually too small to support such functions efficiently. The cooperative form of business has been used because it permits groups of farmers to combine their purchases, sales, etc., into sufficiently large quantities for efficient operation, and at the same time retain the basic autonomy of the farm home and farm unit. Under such arrangement, the source of authority continues to be vested in the farm operators, the cooperatives having only delegated powers which the members can at any time alter or withdraw.

Thus a cooperative constitutes a distinct form of business, differing from the proprietary corporation, the partnership and the individually-owned proprietary business. The basic difference is that the cooperative is owned by the patrons who use it rather than by third parties who invest merely for the profits they can earn on such investments. In the cooperative there is a form of relationship between the association and its patrons or customers which does not exist in the case of other forms of business. Such relationship may be one of agency, trusteeship, or other fiduciary character, depending on the terms of the contract.

* * *

Farmer cooperatives are a part of the American system of competitive private enterprise, since the investment in and control of such organizations are assumed by individuals and not by government.

* * *

The patronage refunds paid by a cooperative do not accurately correspond in amount to the profits of a proprietary business cor-

poration because many cooperatives do not advance to or collect from the patron an amount comparable to the current price of the item at time of the initial transaction. Therefore, if an attempt were made to tax cooperatives on an amount comparable to the income of competing proprietary business corporations, patronage refunds would not reflect an accurate measure of such funds.

* * *

Therefore, it follows that neither exempt nor non-exempt farmer cooperatives have any great competitive advantage over other forms of business by virtue of preferential tax treatment. Also, facts fail to support the contention that the tax laws relating to farmer cooperatives have resulted in wasteful and uneconomic use of resources by encouraging and enabling inefficient businesses to remain in operation by virtue of public aid or subsidy.

SECTION 8

Market Development and Improvement

The real goal of marketing research is to help improve marketing. Description and analysis are only steps toward that goal. Research in this field should result in practical recommendations for improving the marketing of farm products.

Moreover, improvements do not always come about automatically when a research bulletin is released—however accurate, complete, and sound the bulletin may be. To get improvements in marketing, we must have a vigorous program of education, and must often do promotional work.

In Section 2, we consider the demand for farm products as something to be measured, but as something largely beyond the control of farmers or dealers. Here we shall consider efforts to change demand. Throughout the book we have considered market institutions and practices as something to understand, and possibly to adjust here and there. Here we shall consider programs to provide new and better markets.—EDITOR.

8.1 Aims 414

8.1.1 Schumpeter, Joseph A. *Business Cycles.*
8.1.2 Wells, O. V. "Agricultural Surpluses and Nutritional Deficits: A Statement of the Problem and Some Factors Affecting Its Solution."
8.1.3 Benson, Ezra Taft, "The Challenge-Research."

8.2 Market Surveys 417

8.2.1 Cassebeer, F. W. "Better and Better Iris."
8.2.2 Brunk, Max E. "Discussion of Research on Consumer Behavior and Preference."
8.2.3 Robert, Shelby A., Jr. "Measuring and Developing Market Potentials."
8.2.4 Bayton, James A., Dwoskin, Philip B., and Robert, Shelby A., Jr. "New Concentrated Apple Juice, Its Appeal to Consumer."
8.2.5 Bayton, James A., Meyers, Trienah, and Goldhammer, Margaret. "Consumers' Use of and Opinions About Citrus Products."
8.2.6 Hyde, A. D. "How General Mills Develops."

8.3 Promotion: Advertising and Merchandising Campaigns . 427

8.3.1 Waite, Warren C. and Cassady, Ralph, Jr. *The Consumer and the Economic Order.*
8.3.2 Tousley, Rayburn D. "Advertising Fresh Fruits and Vegetables."
8.3.3 Washington State Apple Commission. *Report to Growers, 1951.*
8.3.4 Clark, Fred E. and Weld, L. D. H. *Marketing Agricultural Products in the United States.*
8.3.5 Moulton, Harold G. Remarks on His Retirement as Head of the Brookings Institution.

8.4 The Economist's Part in Development Programs . . . 437

8.4.1 U. S. Department of Agriculture Extension Service. *Extension Marketing Work Under the Research and Marketing Act 1951–52.*
8.4.2 U. S. Department of Agriculture. *Activities of the Marketing and Facilities Research Branch During the Fiscal Year Ended June 30, 1951.*

8.1 Aims

The general aim of market development is to increase demand, either by finding new markets or by enlarging old ones. More specific aims are suggested in the following three readings. The first of these is a brief comment on innovation. New products, new markets, and new methods of marketing can contribute to "economic evolution" as Professor Schumpeter called it.—*Ed.*

8.1.1 Schumpeter, Joseph A. *Business Cycles.* McGraw-Hill, New York, Vol. 1, 1939. P. 86. Reprinted by permission.

If we do this, we immediately realize that innovation is the outstanding fact in the economic history of capitalist society or in what is purely economic in that history, and also that it is largely responsible for most of what we would at first sight attribute to other factors. To illustrate this by an example: modern economic processes are to a great extent contingent upon agglomerations of population in cities and upon the facilities put at the disposal of the business community by public action. But these conditions of further innovations themselves are, not indeed always, but in most cases the results of industrial processes which come within our concept of innovation, and either directly produced or made possible by them.

The changes in the economic process brought about by innovation together with all their effects, and the response to them by the economic system, we shall designate by the term Economic Evolution. . . .

In the depression years preceding World War II, a main aim of market development was that of finding ways to make food surpluses available to low-income families.—*Ed.*

8.1.2 Wells, O. V. "Agricultural Surpluses and Nutritional Deficits: A statement of the Problem and Some Factors Affecting Its Solution," *Jour. Farm Econ.*, Vol. XXII, No. 1, Feb., 1940. Pp. 317, 319, 321, 322–23.

When the President called the attention of Congress to that third of our nation which is "ill-housed, ill-clad, ill-nourished," he succinctly summarized a problem with which researchers, administrators, and the people themselves are becoming increasingly concerned. Considering our natural resources, our mechanical facilities and the number of competent workmen available, why should any sizeable portion of our population lack adequate housing, or sufficient clothing, or the food necessary for an adequate diet?

Agricultural workers, of course, are chiefly interested in the nutritional aspect of this problem, since approximately 85 per cent of farmers' income is derived from the production of commodities used for food, and since agricultural surpluses, either actual or potential, have been one of the dominant factors in the agricultural situation since 1920. . . .

* * *

Considering these minimum and maximum estimates and assuming that families and individuals now obtaining adequate diets continue their current consumption pattern, it seems safe to conclude that the consumption of 10 to 20 per cent more milk and butter, of at least 20 per cent more tomatoes and citrus fruits, and about double the current quantity of leafy, green, and yellow vegetables is needed in order to obtain substantial nutritional improvement.

* * *

An educational program can contribute to the solution of the problem. But attention is called to the fact that education is usually a relatively slow method of obtaining improvement; that it will not solve the problem for families whose incomes are too low to afford an economically fair diet, even assuming wise selection; and that in the case of many families whose incomes are sufficient to support a reasonably good diet provided their foods are properly selected, such a selection would simply mean shifting the demand from one class of food to another, so that the net effect would be to change the form of our surpluses rather than to increase total demand.

Public agencies undertake promotional programs for a variety of reasons. The Agricultural Extension Service helps organize groups of farmers to do a more efficient job of marketing. The Production and Marketing Administration promotes a new market for perishables in some cities. Such programs may benefit farmers, dealers, and consumers, if they are based upon sound research. But the point here is that promotional work of some kind is often essential to put the program across.

The economist should not forget the importance of innovations as a means of overcoming stagnation and chronic unemployment. Innovations are essential to economic progress.

Quite recently there has been a renewed interest in market development as a means of moving surpluses into consumption with a minimum reliance upon government measures to support prices.—*Ed.*

8.1.3 Benson, Ezra Taft. "The Challenge—Research," address before the National Institute of Animal Agriculture, West Lafayette, Indiana, April 21, 1953.

We need to expand our markets for many farm commodities. How shall we do it?

In the General Statement on Farm Policy which we issued some two months ago, there is this statement: The most important method of promoting the long-time welfare of farm people and the Nation is the support of adequate programs of research and education in the production, processing, marketing, and utilization of farm products and in problems of rural living.

* * *

Research can help in freeing American farmers from too much dependence upon Government. Through these methods we can help the individual to help himself. We can and must find new uses that will reduce the problem of continuing surpluses at great cost to the taxpayer.

As all of you know, I am making every effort to expand markets, foreign and domestic, for our farm products. This is part of our fundamental policy.

Now we use about 85 per cent of our total farm production for food, feed, and fiber. We have no exact figure on the percentage that goes to industrial uses, but it is very low, probably between 2 and 3 per cent of our total production. Even a small increase in industrial uses could exert a profound influence on demand for those commodities used by industry. We expect to strengthen research of the Department aimed at developing new uses for farm products and by-products. I feel sure that industry could profitably increase its investment in this field.

We also need to do more on nutrition education. If farmers and the dairy industry could team up to recapture the market for the 130 pounds of milk per person which has been lost in the last 13 years, they could turn milk surpluses into scarcities. If everyone followed the recommendation of nutritionists — that they use 5 quarts of milk a week — we would be consuming one-fifth more milk than we are now.

* * *

I challenge you to create more basic research to produce a wider use in industry for surplus farm products. I challenge you to step up the tempo of marketing research to move these products. It is my conviction that our very freedom is involved in meeting this challenge.

Unless we in agriculture, and you in industry, closely allied to agriculture, can provide a framework of free enterprise in which the American farmer can do his job, then it is inevitable that the forces of a "planned economy" will step in to entice our people down the false road of statism. This must never happen.

8.2 Market Surveys

Sound promotion needs to be based on careful research regarding the market to be developed. Industrial concerns have generally found it necessary to conduct "market surveys" before mapping out advertising campaigns or before introducing a new product. Such surveys can be useful in developing a program for the marketing of farm products, foods, and clothing.

We first note a point of view which is fairly common among plant hybridizers, breeders of animals, and judges at county fairs.—*Ed.*

8.2.1 Cassebeer, F. W. "Better and Better Iris," *The Home Garden*, May, 1952. P. 9.

Flower hybridizers, especially those who breed Bearded Iris, are a race apart in the commercial world: unlike other "manufacturers" (which indeed they are!), they do not make market surveys to determine public taste, nor do they make a conscious effort to cater to it. On the contrary, they set for themselves standards of perfection, strive to attain them, and then pass the fruits of their efforts on to the public on a take-it-or-leave-it basis.

In the following excerpt, Brunk clearly states the opposite point of view and goes on to discuss practical methods of surveying markets.—*Ed.*

8.2.2 Brunk, Max E. "Discussion of Research on Consumer Behavior and Preferences," *Market Demand and Product Quality—A Report of the Marketing Research Workshop,* July 13 to 21, 1951, Mich. State Coll., U. S. Dept. Agr. Pp. 39–41.

. . . The knowledge that consumers react in a given way can greatly contribute to the effectiveness of our marketing mechanism and can mean dollars in the pockets of marketing agencies and growers as well as greater customer satisfaction. The necessity for identification of a customer is one of the first problems that confronts a researcher in observing purchasers in a store.

* * *

In my opinion the controlled experimental method is not a complicated, slow and expensive technique but quite to the contrary it is a simple, fast and inexpensive research method. An additional advantage is that it is also one of the most direct methods. The fear of complexity and expense has kept many researchers from using this method. This past fall studies were made of the reactions of 80,000 customers to 17 different ways of displaying apples in a controlled experiment replicated four times in a latin square design. Four months were required to secure the data. Only a short period of time was necessary to analyze the data and by the middle of January the results of this study were available for store use at a cost of only $6,500 which included overhead. This illustrates the point that controlled experiments can be fast, simple and economical. Of course the controlled experiment is not a substitute for the survey method. The type of technique to be employed should depend entirely on the objectives of the study.

The observation technique is excellent but it needs to be incorporated into some experimental design that will permit assigning definite values to store differences or time differences. The design must not create an artificial situation that will influence the decisions of the customer. Too often in "matched lot" tests this principle has been violated. In many of these tests the difficulty has been that the consumer is confronted with an abnormal situation. Consumers normally make their decisions in qualities of a product between stores not within a store.

In our study of apple merchandising consisting of a combination of displays of packaged and bulk apples priced at 4 pounds for $0.29 people bought 5½ times as many apples in packages as in bulk. But this did not tell us one thing about how many apples would have been sold if they had been offered to customers

in either packaged or bulk form alone. Actually the sales showed that the customers bought 13 pounds per 100 customers when apples were displayed in bulk, 18 pounds when displayed in packages and 20 pounds when offered in combination bulk and package display. They were all priced in the same units, displayed in the same location and in displays of the same size. Inference from matched lots would have been that 5½ times more apples would be sold in package form. In actual practice less than 50 per cent greater volume of apples were sold in packaged form.

The measurement of "market potentials" is far from an exact science. The object is to estimate how much could be sold and at what prices — also, what sort of promotional campaigns would be required, and what it would cost to develop the potential market. Such research involves a great many different considerations, as is indicated below. —*Ed.*

8.2.3 Robert, Shelby A., Jr. "Measuring and Developing Market Potentials," *Pricing and Trade — A Report of the National Marketing Research Workshop,* July 11–19, 1952, Texas A. and M. College. U. S. Dept. Agr. Pp. 160–62.

There are many other problems involved in appraising consumer acceptance, production possibilities and market potential for new products. I would like to indicate somewhat of a check list that might be used on problems of this kind and indicate some of the approaches or techniques which have been used in studying some of these problems:

1. How does the consumer react to the new product in terms of taste, use and actual purchase?

* * *

2. How should the product be packaged in terms of sizes, use, and will the package stand up under storage and transportation difficulties?

3. At what price can the product be sold and what margins are normally required in similar items and at various levels of trade?

* * *

4. Are raw materials available in sufficient quantities and how may they be obtained?

* * *

5. What are the problems in distribution? What channels are available for distributing a new product?

* * *

6. What is the competitive picture in the field in terms of direct and indirect competitive products and the distributive, promotional and production policies of competing producers?

* * *

7. What investments would be required for production facilities including inventories, distribution, and promotion?

8. What is the size of market? The estimated potential in terms of dollars or volume of product? What is the character of the market in terms of consumers who are the potential users? Will the market be steady or will it be seasonal? Can it be expected to increase and over what periods of time? The measurement, or more accurately, the estimation of the potential size of the market for a new or improved product is one of the keys to determination of commercial feasibility. Statistical measures of market expansion or size can sometimes be used when distribution is of a size to provide adequate data. In most instances, however, other measures must be developed for estimation of the size of the market from a very small base. For example, the meat concern introducing baby meats placed these on sale in three mid-Western markets and expanded these figures on the basis of birth rate. In the industrial field we have recently completed a study of the market potential for oilseed proteins in industrial uses. Our expansion to potential market in this study was made on the basis of interviews with the larger factors in the using industries and their ideas of trends in use of oilseed proteins and competing products. In most instances the expansion from a small market test to market potential is primarily based on subjective approaches.

Several studies of potential markets for new foods have been made.—*Ed.*

8.2.4 Bayton, James A., Dwoskin, Philip B., and Robert, Shelby A., Jr. "New Concentrated Apple Juice, It's Appeal to Consumer," U. S. Dept. Agr., Bur. of Agr. Econ., Nov., 1951. Pp. 1–2, 4–5.

In the fall of 1950 the Washington State Apple Commission furnished the Western Laboratory with enough apples of each of the major varieties produced in the State of Washington to manufacture sufficient quantities [of frozen concentrated juice, a new product] to carry out discrimination, preference, and market tests. These apples were processed at the Western Regional Research Laboratory and various varieties were blended to make several different juices for experimentation. All of the juices

contained at least one-half Delicious apple juice. Other varieties were blended in varying degrees.

Samples of 12 of these juices were sent to Washington State College. There discrimination tests were conducted that had been designed cooperatively by Washington State College's agricultural economic staff and the Bureau of Agricultural Economics to ascertain the ability of panels to discriminate between the juices. A report on this phase of the work is in process at Washington State College. From these discrimination tests, it was learned that the panels could not discriminate between the various varietal blends of approximately equal acidity. Furthermore, those in the test had difficulty in discriminating between the 100-per cent Delicious juices and the blended juices when they were of equal acidity. The findings indicated that people are more likely to detect differences in acidity in these juices than they are variety differences at the same level of acidity. As a result of these tests, 3 juices were selected for further preference tests in the San Francisco metropolitan area. They were: (1) a 100-per cent Delicious juice without acid added, natural acidity about 0.2 per cent, (2) a 100-per cent Delicious juice with citric acid added to adjust the acidity to about 0.4 per cent, and (3) a blend of 50 per cent Delicious, 20 per cent Jonathan, 20 per cent Winesap, and 10 per cent Rome Beauty, with a natural acidity of about 0.4 per cent.

Samples of these three juices, with instructions as to how to carry out preference tests, were delivered to a sample of approximately 300 households in the San Francisco metropolitan area, and preferences were determined for these three juices. The over-all preference as found in this study was for the blended juice; however, the younger age groups — those tasting who were under 21 years of age — preferred the sweeter straight Delicious juice without acid added.

As a result of these studies, market tests were made to assist in determining whether it would be commercially feasible to undertake commercial production of frozen concentrated apple juice manufactured by this method. This was the over-all purpose of the study on which this report is based. On the basis of the San Francisco preference tests, the blended juice described above was selected as the juice to use in the market tests.

The Southwest and Pacific Coast appeared to be the most advantageous market for apple products manufactured in the Northwest. Therefore, markets in these areas were selected for the

market tests. The criteria for the selection of markets included the following: Cities of around 30,000 population having a daily newspaper and radio station for advertising purposes. An additional criterion was the cooperation of wholesale frozen-food distributors who would assist in carrying out the studies. The market tests were made in Tyler, Tex. and Modesto, Calif.

The Washington State Apple Commission supervised the market tests and placed the juice on sale in Tyler on February 7, 1951; on February 14, 1951, the juice was placed on sale in Modesto. A program of newspaper and radio advertising was begun through the Commission's advertising agents. After the juices had been on sale for 9 weeks, homemakers in the two cities were interviewed to find their opinions as to the frozen juice. Interviewing began in each city on May 14, 1951.

* * *

How many homemakers bought frozen concentrated apple juice? Among the homemakers who knew about this product 22 per cent in Tyler and 16 per cent in Modesto had bought it. These represent 7 per cent of all of the homemakers in Tyler and 4 per cent of all of the homemakers in Modesto.

How many homemakers made repeat purchases of frozen concentrated apple juice? In each town nearly 7 out of 10 of the homemakers who had bought this product made repeat purchases. Approximately 4 out of 10 of those who had bought it had made 4 or more separate purchases.

In what ways did homemakers use frozen concentrated apple juice? Most homemakers used it either as a breakfast juice or a between-meal snack. Very few used it as a dinner cocktail. Homemakers in Tyler were more likely to use this product as a between-meal snack than those in Modesto.

What did the homemakers who had bought frozen concentrated apple juice think about it? A very large majority of those who used it said they liked it unqualifiedly. The taste of this product was the chief reason given by homemakers for liking it. In most cases the fresh-fruit flavor was cited. Among the homemakers who had used both frozen concentrated apple juice and bottled apple juice, most preferred the former. Among those who had used both frozen concentrated apple juice and frozen concentrated orange juice for the same purpose, most preferred the latter.

How did the homemakers who had bought frozen concentrated apple juice react to the price of it? There was very little evidence of homemakers being dissatisfied with the price at which this product was being sold.

Conclusions and Further Considerations. The data gathered in this research warrant the conclusion that there is a fairly sizable market for frozen concentrated apple juice. But in order to be certain that this product would be acceptable to consumers commercially, on a continuing basis, several factors, in addition to those considered in this study, will have to be taken into consideration. Two of them are as follows:

1. The necessity for an intensive and properly directed promotional campaign. One important problem in such a campaign would be making more users of bottled apple juice aware of this new product.

2. Maintaining, or improving, the quality of the product, including standardization throughout the processing season.

Of course, market surveys are not limited to new products. The producer and processor need to know more about market preferences for the commodities which have been sold for years. There is still much to learn about the preferences, attitudes, and habits of consumers, and about the relation of such factors to the effective market demand for bread, potatoes, meat, and other common articles of diet and clothing.—*Ed.*

8.2.5 Bayton, James A., Meyers, Trienah, and Goldhammer, Margaret. "Consumers' Use of and Opinions About Citrus Products," *U. S. Dept. Agr., Bur. of Agr. Econ., Agr. Inf. Bull. No. 50,* Oct., 1951. Pp. 4–5.

Attitudes toward citrus products. Most homemakers regard citrus fruits as representing a special class within the larger category of fruit. The uniqueness of citrus fruits is attributed by the homemakers primarily to their health and food values. Among the various fresh citrus fruits, oranges were thought by them to be highest in food value; fresh citrus fruits, in general, were said to be of better quality than processed citrus items.

Health and taste characteristics were the primary factors involved in either using or not using citrus products. In addition, convenience and cost factors were influential in the use of the canned products.

Among homemakers who had used frozen concentrated orange juice this product usually had a preference rating much higher than the canned citrus juices.

Purchasing Practices and Preferences—Alternatives	*Direction of Preference*	*Preference With Greater Intensity*
Fresh oranges, fresh grapefruit—*loose vs. packaged*	Loose	Loose
Fresh oranges, fresh grapefruit—*priced by count vs. priced by pound*	Priced by count	Priced by count
Fresh oranges—*natural-color vs. color-added*	Natural color	Natural color
Fresh grapefruit, canned grapefruit juice—*pink vs. white*	Fresh grapefruit—pink Canned grapefruit juice—white	White White
Canned citrus juice—*sweetened vs. unsweetened*	Except Pacific Region—sweetened Pacific Region—unsweetened	Unsweetened Unsweetened
Canned citrus juice—*small vs. large cans*	Large cans	Small cans
Lemon juice—*canned vs. bottled*	Bottled	Bottled

Decision-making in purchasing citrus products. Decisions as to whether to buy fresh citrus fruit or which one to buy were influenced by the quality of the fruit within the store. The criteria used in judging quality usually were aspects of the skin rather than size, weight, or variety.

Whereas many homemakers said they usually buy a particular brand of canned citrus juice, they seem to shift, rather readily, to other brands at those times when their preferred brand is not available.

The foregoing examples illustrate research by colleges and governmental agencies. Many large corporations find it necessary to carry out extensive research programs as a basis for intelligent, i.e. profitable, market development. —*Ed.*

82.6 Hyde, A. D. "How General Mills Develops," *Food Industries*, Vol. 19, Oct., 1947. Pp. 1374, 1375–76.

To be successful, a new food specialty must rest upon a substantial three-corned base consisting of, first, a sound idea; second, a market opportunity; and third, a superior product. Commercial manufacturers who introduce grocery items with any part of that base missing are inviting failure.

* * *

At General Mills we have found that a *complete* research pro-

gram — including chemical, engineering and specialized market investigation — is the only reasonably sure means of creating new food products that make a worthwhile contribution to the American table and return reasonable profits to the company.

During recent years it has become increasingly clear that America's new frontiers lie in industrial and economic expansion. Today, full employment, an improved standard of living, an increase in national wealth must come through the fuller utilization of raw materials — through the building of new industries, the development of new products.

Development Policy Stated. Consequently, the success of a new product, food or non-food, has become important, not only to the individual producer, but to the nation as a whole. Recognizing this fact, General Mills has been steadily reinforcing its laboratory organization, making doubly sure that the base for its new grocery specialties is firm and complete. The company has adopted the policy that "new General Mills products must not only be the very best that science and technology can possibly devise; they must also have a well charted course from the plant to the consumer."

The basic steps used to maintain this policy have evolved from pioneer experience in food development and processing since 1852.

To be effective, all phases of product development must move simultaneously toward a definite goal; formulation, packaging, engineering and market research are complementary, working together like the parts of a machine. At General Mills the organizations which conduct these four phases of development are integral parts of the research department and, consequently, function in close cooperation, guiding each other in the development of the original idea.

That idea, itself, may come from an almost limitless number of sources — from the research staff, from manufacturing personnel, from the sales and advertising departments, from independent consultants, from wholesalers or retailers and many others. But the soundness of all ideas must be established through studies of general consumer tastes and habits, market possibilities and production methods.

Many articles have been written about man's tastes and habits and about means of measuring them. Some are excellent, providing highly useful technics for evaluating desires, buying habits, and so on. But technics are only tools and must be used as such.

The tools for measuring consumer taste and habits are valuable only in the hands of workers who understand the basic nature of the things they seek to measure.

* * *

Cheerios Took 10 Years for Development. As a highly simplified example of how these factors may be used to develop and establish the soundness of an idea, take the story of Cheerios, General Mills' ready-to-eat oat cereal. In the early 1930's, market analysis confirmed our observation that rolled oats as a porridge was one of America's most popular breakfast dishes. It also indicated that the American housewife was becoming increasingly interested in ready-to-eat foods; she was socially more active than ever before. Often she did a full day's work outside the home, and she both wanted and needed to escape the long hours of "KP" which were accepted by her mother. Since no ready-to-eat oat cereal was then on the market, the Cheerios idea appeared sound. Time has shown that it was.

Actually, of course, Cheerios was not born that simply. Although the product was conceived shortly after the turn of the '30's, it was not ready for the market until 1941, nearly 10 years later. It came into being amidst the pain and effort of careful development and economic research, and the idea was examined in the light of detailed market analysis.

That all ideas must be so examined is the fact most often overlooked by the food manufacturer. He frequently will study the economic factors relating to production; he will determine the materials he needs; find out where he can buy them and how much they will cost. He will assure himself an adequate supply of labor and learn whether or not he can handle the new product with present plant facilities and equipment. Yet he may have only a hazy idea of how he will move his product from the plant to the dining room table — if, indeed, he has any idea at all.

Lack of Market Opportunity May Mean Failure. Since a market opportunity is the second corner of the triangular base vital to a new grocery product, failure to establish it beyond doubt can easily lead to economic disaster.

Accurately speaking, market research (or New Products Commercial Research, as we term it at General Mills) is a continuous process. It keeps its finger on the public pulse, ready to detect changes in taste and habit which suggest new product ideas. When it uncovers an idea, it measures that idea against the yard-

stick of economic feasibility. It helps guide chemical and engineering research during product development, and finally, it determines how that product may best be sold. Each phase merges with the next, and there is no clear line of demarkation between them. Since, however, we are momentarily concerned with "establishing the soundness of ideas," let's consider market research's role in determining economic feasibility.

Will It Be Profitable? In the mind of every food manufacturer (and in the mind of every other manufacturer, for that matter) one question is predominant: "Will my product make money?" Unfortunately, that question can never be answered with complete certainty; the factors involved are too numerous and complex. However, it can be answered with a minimum of doubt if we know how many people may want or need the product, who and where those people are, how much they can afford to pay and how much it will cost to produce and market.

Aside from the special technics developed by all active market research organizations and guarded as valuable "trade secrets," the basic procedures for answering these questions are standard. Through business literature, they are available to the food processor, large or small, and he need only adapt them to his own individualized operation. In addition, he has at his finger tips the myriad United States Government publications, listed in "Market Research Sources," the "List of Publications of the United States Department of Commerce," general government price lists and many other releases.

8.3 Promotion: Advertising and Merchandising Campaigns

A great deal of money and effort nowadays goes into advertising, merchandising, and other promotional efforts. This activity has become a major industry in its own right. Payments for advertising provide the main income of most popular magazines and newspapers, not to mention radio and television broadcasting. Some idea of the range of advertising costs for products of agricultural origin is given in the following excerpt.—*Ed.*

8.3.1 Waite, Warren C. and Cassady, Ralph, Jr. *The Consumer and the Economic Order*. 2nd ed. McGraw-Hill, 1949. Pp. 176, 177, 187, 194. Reprinted by permission.

Several points should be kept in mind in this connection, however. (1) If there is any waste in advertising, it should not be condoned on the ground that it is only a minor percentage of national income. (2) The social effect of advertising may be

TABLE 19

ADVERTISING AND SELLING EXPENSE PER DOLLAR OF NET SALES FOR SELECTED INDUSTRIES, 1940

Industry	No. of Corporations	Advertising	Selling and Delivery	Total Advertising, Selling, and Delivery
		(*cents*)	(*cents*)	(*cents*)
Cereal preparation	14	13.08	5.77	18.85
Cigarettes	10	11.30	4.60	15.90
Soaps and cooking fats	20	10.94	8.89	19.83
Fruit and vegetable canning	49	4.49	6.87	11.36
Men's and boys' clothing sold through own stores	5	4.20	20.90	25.10
Bread and bakery products	82	2.63	24.24	26.87
Cane sugar refining	17	.17	4.62	4.79

much greater than is indicated by the amount of the expenditure. (3) As is shown by the figures in Table 19, advertising expenditures in certain fields in terms of a percentage of the consumer's dollar are quite significant. (4) Advertising may permit higher prices to be charged for products by giving the seller a quasi-monopolistic position in the market. These costs to the consumer may be many times the advertising outlay.

* * *

To summarize, then: In analyzing the effect of advertising on prices, one needs to inquire into (1) the effect of the advertising — whether increased sales accrue to the entire industry or to one producer at the expense of others; (2) the type of industry — whether it is one of increasing, constant, or decreasing cost; and (3) the disposition of the product of increased efficiency — whether the consumer actually is given the benefits or whether, on the other hand, efficiency savings are retained in the form of profits by the firms effectively utilizing the sales-promotional device.

* * *

It must always be borne in mind, however, that (if, indeed, we are to condone *any* sales effort in our economic system) advertising may aid in accomplishing a selling task at a lower cost than if personal sales effort were utilized exclusively. There are at

least two ways in which this may be brought about. (1) By utilizing the device for economically seeking out prospective buyers or sellers. . . . (2) By supplying information to, and reducing sales resistance of, prospective purchasers so that the costly time of the salesmen may be saved. . . .

Few individual farmers are large enough producers to undertake extensive advertising of their products. Nor could they get much individual benefit from advertising, except in small local markets, since their products cannot be differentiated in the consumer's mind from those of other individual producers growing the same commodities. Some of the larger cooperatives, however, have carried on successful advertising programs. Sunkist Growers, Inc. (formerly the California Fruit Growers Exchange) is perhaps the best known. There has been a growing tendency, also, for states officially to sponsor advertising programs for particular farm products important in their commercial agriculture. Such programs are usually financed through taxes or assessments against the marketings of producers in the state.

Some facts about this development in fruits and vegetables have been summarized by Tousley. We quote from his study, and add also an excerpt from a recent report of the Washington State Apple Commission.—*Ed.*

8.3.2 Tousley, Rayburn D. "Advertising Fresh Fruits and Vegetables," *Harvard Business Review*, Vol. XXII, No. 4, Summer, 1944. Pp. 457, 448.

For a number of years, there have been three main types of advertising programs: (1) those carried on by cooperatives, (2) those administered by the industry on a voluntary basis, and (3) those administered under compulsory state laws. The strong, well-established cooperative which controls a large percentage of the production of its region has been able to continue advertising on much the same basis as it did during the more prosperous nineteen twenties. In those cases, however, in which the cooperative has felt that it was "holding an umbrella over the industry" and in those cases in which a strong cooperative did not exist, voluntary industrial and compulsory state programs have developed. In general, it may be said that the voluntary programs have had considerable difficulty in maintaining permanent interest, and thus we have had the development of compulsory state advertising laws.

* * *

At the present time there are four organizations which are generally considered to be the leaders in advertising and sales

promotion: the California Fruit Growers Exchange, the California Walnut Growers Association, the American Cranberry Exchange, and the Calavo Growers of California. All four are well-established, well-managed cooperatives with good promotional programs. Studies have been made of their sales methods and policies by competent and unbiased authorities; in each instance the conclusion has been favorable to the organization. None of the four was forced to curtail activities because of the nineteen thirties, and in no instance has the state taken over the advertising activities of the cooperatives in order to place them upon a wider industry basis.

California Fruit Growers Exchange. . . . An appropriation of not to exceed $10,000 was made after the Southern Pacific Railway promised to match it dollar for dollar. Iowa was selected as the test market, and the exchange spent between $6,000 and $7,000 in that state during the 1907 season. At the end of the season, the sales records of the exchange indicated an increase of 50% in Iowa compared with an increase of 17.7% for the country as a whole.

8.3.3 Washington State Apple Commission. *Report to Growers, 1951.* Wenatchee and Yakima, 1951. Pp. 11, 22, 23.

In answer to insistent grower request and pressure during its 1937 session, the Legislature of the State of Washington passed legislation which created and, that same season, launched the Washington State Apple Advertising Commission. The Commission law, in simplest form, shifted to a mandatory and compulsory basis a cooperative advertising and merchandising program for 5,000 Washington apple growers, 80% of whom were already voluntarily supporting a similar plan operating under the title of Washington State Apples, Inc.

* * *

Financing of the Commission program is handled through an assessment on all Washington apples moving into fresh market channels — apples going into processor outlets are exempt from the assessment. The original legislation placed the ceiling on such assessments at 6 cents per 100 pound gross billing weight (approximately 3 cents per packed box), but left to the discretion of the Commission the amount to be collected within limits of the 6-cent ceiling provision. Various assessment rates have been in effect during the 15-year history of the Commission, with increased postwar pressure from competing fresh, canned and frozen

fruits, produce and juices, plus rising advertising costs, having prompted the Commission to increase assessments to the legal limit during recent seasons.

* * *

It would not be proper to close this chapter without stressing to the reader the fact that the mere purchase and placement of advertising is not in itself the answer to selling an apple crop. Purchase and placement of apple advertising is only the beginning — only part of a well-rounded, effective, result-getting promotional program that can do the job that needs doing for our product. Supplementing the ad programs, and of equal significance in merchandising apples, is the work of the Commission's field staff, the efforts of its research department, the interplay of various other related programs, and the home office planning and direction of Commission management. Each of these phases of Commission work is inter-dependent upon, and strengthens, each other phase. Over-emphasis on any particular phase of Commission activity could do more harm than good, and one of the important and most constant responsibilities confronting members of the Commission is the problem of properly balancing and relating these many phases of Apple Commission activity.

Of equal importance to direct media advertising (described in preceding chapters) but quite different in nature is the closely related field covered by the general term "merchandising." By "merchandising" we indicate a number of important Commission activities, all of which are specifically aimed at gaining the fullest possible measure of apple selling impact from the Commission's advertising.

Work of the Commission's field staff in promoting apple sales events, and its constant use of display materials, promotional aids, etc., to improve retail apple handling and to increase apple movement is merchandising in every sense of the word. *Merchandising and direct apple advertising are inescapably related — it is advertising which paves the way for the fieldman and his merchandising approach, and it is merchandising which makes apple advertising fully effective.*

For an illustration of merchandising and newspaper advertising working together let's consider Birmingham as an example. A general step up of apple movement is needed. On information from the market and after consultation with the advisory committees it is indicated that Birmingham as an individual market

can be sparked to greater volume by the addition of newspaper advertising. The first step is to so notify the agency, which in turn contracts for the advertising space. Copy for the ads is approved and furnished to the newspaper. A regular ad schedule is established which will last from three to ten weeks, depending on the circumstances.

The next step is for the Commission's merchandising man to call on the advertising and merchandising managers of the newspapers to get their help in notifying the trade, both retail and wholesale, that Washington State apple advertising is coming and to solicit tie-in advertising in the retailers' own ads.

The most important job of the Commission's representative, after the quick check with the newspaper, is to call on the distributive and retail trade of the area to show them copies of the Commission ads that will be run, to leave the advertising schedule with them and to ask, in return for our advertising, that they give special attention to Washington apples during the period. Quite often these contacts are made ahead of time and trade support is secured before the advertising schedule is even placed. The value of the Commission's consumer advertising is doubled when it is sold back to the trade in return for its whole-hearted support. Thus, merchandising helps the advertising and the advertising helps the merchandising.

While he is at the paper the fieldman also calls on the food page editor to urge her to feature apple recipes and pictures during the period of the apple advertising campaign. This is adding the personal follow up to the general mailings that already will have been sent to her with apple stories, pictures, etc.

It is easy to see how much more effective our apple ads are likely to be when all of this background work has been accomplished — an example of what *merchandising* really is, and of how it supports and amplifies the direct *advertising*.

Modern advertising and promotional activities have been a subject of considerable interest and controversy among economists. From the general social standpoint, some have praised advertising as the spark plug of economic growth and progress. Others have condemned it as a deplorable economic waste and a corrupter of public morals to boot. Clark and Weld see considerable value to advertising.—*Ed.*

8.3.4 Clark, Fred E. and Weld, L. D. H. *Marketing Agricultural Products in the United States.* Macmillan, New York, 1932. Pp. 517–19, 520, 523–24.

The Economics of Advertising. The creation of demand, which is an important part of the marketing process, can be accomplished in two principal ways: first, through personal salesmanship, and second, through advertising. The salesmen of manufacturers, jobbers, and retailers are continually working to get their customers and prospective customers to want the product or products they have for sale. They have to spend much time in pointing out the advantages and superior qualities of their products before actual sales are consummated.

Personal salesmanship is effective in creating demand; but it has its limitations. One salesman can talk with a very limited number of people in a day. If he is a salesman that visits retailers, there is still the problem of creating demand in the minds of consumers. The retail salesman cannot be expected to pass along the sales talk with any degree of effectiveness, because his time is so limited, and because he usually has so many different items to sell.

This is where advertising enters in creating demand. While a personal salesman is visiting perhaps a hundred customers in a week, an advertisement in a leading national magazine enters as many as 2,000,000 or 3,000,000 homes. Its message may not be as forcible or as convincing as the personal story, and it may actually be read by only a part of those who buy the magazine; but by frequent repetition in different magazines and newspapers, on outdoor displays, and over the radio, there is gradually built up a knowledge and acceptance of the product advertised. Sometimes this acceptance takes the form of an active demand for the product; sometimes it sets up a subconscious demand, that is brought into active operation when the product is seen on display in a retail store or when a retail clerk calls attention to it. Through proper and sustained advertising there is built up such a demand as could never be developed by personal salesmanship; it would require too many salesmen, and the cost would be prohibitive.

By creating demand, advertising therefore tends to reduce the cost of selling. The salesman — on the road or in the retail store — has to spend less time in describing the goods, and has more time for taking orders. In many cases he becomes nothing more than an order-taker. In still other cases, the salesman is dispensed with altogether, as in self-service stores or in the use of slot machines. Advertising, by creating a lively and continuous demand,

also tends to reduce selling costs by increasing the rate of turnover in the retail store. In other words, a larger volume of sales is made with a smaller average stock of goods on hand — a situation that results in lower unit selling costs.

Not only does advertising tend to reduce selling costs, but it also tends to reduce manufacturing costs, by helping the tendency toward large scale production. The successful advertiser gets volume by creating demand that did not exist before, and by winning business away from competitors. As his business grows, he may enjoy the lower unit costs of mass production.

As a result of these tendencies to reduce selling and manufacturing costs, advertising often tends to reduce prices. This statement is contrary to the belief of some people, who think that advertising raises prices, and who say that they do not buy advertised goods, because they have to pay for the advertising. This is not sound reasoning, because although the cost of advertising has to be included in the price, other costs may be, and often are, substantially lower because of demand created by advertising. It would be just as logical for a person to refuse to buy factory-made shoes, because he has to pay for the use of the machinery. He would have to pay very much more if the shoes were made by hand.

* * *

Limitations to Advertising of Farm Products. How do the foregoing fundamentals of advertising affect the advertisability of farm products? In the first place, advertising has undoubtedly increased the demand, and hence the market, for many farm products. It has undoubtedly reduced the cost of selling some products that go to market in their natural state, like oranges and walnuts; it has unquestionably reduced the cost of selling many manufactured goods that are made out of agricultural products, like flour, canned goods, tobacco products, and by increasing the demand for such products it has increased the demand for the farm grown materials of which they are made. Furthermore, to the extent that it has reduced the manufacturing costs of these articles, it has widened the market for the farmer's products, and hence has had a beneficial effect on farm prices.

Farm products, in their natural state, have not been advertised to the same extent as have manufactured products. There are several reasons for this. In the first place, many farm products are simply raw materials, which are converted by manufacturers. . . .

Another reason why farm products have not been advertised heavily is that most of them are difficult to brand. . . .

Another reason why farm products are difficult to advertise is that many of them are so perishable and so seasonal in character. . . .

And finally, one very fundamental reason why farm products have not been advertised to a greater extent is the fact that farm production is scattered among millions of individual farmers, not one of whom produces on a large enough scale to advertise in a broad way. . . .

Although there are many examples of the successful advertising of farm products as such, it is in the field of manufactured food products that advertising has done the most to expand the market for the products of the farm. The fruit and vegetable canners, the meat packers, the flour millers and bakers, the soup canners, the tobacco manufacturers, are among the heaviest advertisers of the country. Farmers do not always realize how important this advertising has been in creating a large and steady demand for their own products which these manufacturers process for sale to consumers. And yet there is plenty of room for further development of advertising among farmers themselves, through their associations. Advertising has assisted materially in solving the "farm problem" for many growers, and it will be helpful to others in the future.

Some observers have criticized advertising and promotion as unproductive, and sometimes misleading. They have pointed out that some brand advertising, as well as promotional campaigns to sell a particular commodity, may simply divert demand from one product to another without raising total demand. The economist should discount exaggerated claims. The following reading is a delightful parody on such claims.

The last paragraph quoted below refers to "the multiplier principle advanced by Mr. Keynes." Exaggerated claims have been made for such a multiplier in the case of farm income, but it would be rather foolish to deny the possibility of any multiplier at all. Economists and statisticians might well study this problem thoroughly and try to make objective measurements of the multipliers associated with various parts of the economy.—*Ed.*

CATS

8.3.5 Moulton, Harold G. Remarks on His Retirement as Head of the Brookings Institution, *Congressional Record*, July 4, 1952. P. A4507.

Consider the economic significance of keeping a cat. In the

first place, it is necessary to give the cat milk. This tends to raise the price of milk and to increase the income of the milk producer, who begins his day at 4 a.m. that the teeming children of our cities may have the vitamins essential to health and happiness. Moreover, higher incomes for the dairymen would enable them to raise more cows, thus increasing the market for hay, grain, etc. — thereby materially aiding the hard pressed farmers as a whole. Since the milk, hay, grain, etc. have to be transported, railway income will be favorably affected; and the railways can and should be compelled to provide more employment, thus increasing national purchasing power.

In the interest of a well-balanced diet, the cat will doubtless require some fish. This will not only furnish a desirable stimulus to the fishing industry, but since it will be found most economical to provide canned salmon or tuna fish, the tin can industry will also be favorably affected, giving a still further impetus to employment and purchasing power. Since the American Can Company is a market leader, the increase in its earnings will provide a needed tonic to the stock market, paving the way for the flotation of new securities for the rehabilitation and upbuilding of the Nation's industries generally.

If perchance the salmon or tuna fish should come from Japan, relations with that country are likely to be improved, paving the way for the reopening of the channels of international trade over ever widening areas. To be sure, the birth rate in Japan, already high, would tend to be further raised, which in turn might ultimately involve Japan in additional wars; but these considerations are remote and speculative — the immediate results would undoubtedly be favorable.

If the cat occasionally eats a bit of meat, this also would inure to the benefit of agriculture, not to mention the long suffering packing house industry.

The cat will catch rats and mice. The damage done by these rodents to crops and wildlife has been reliably computed by the statisticians of the CSB at $216,587,216.29 per annum, the saving of which would go far toward balancing the Federal budget. There would also be a reduction of the diseases spread by these animals. Moreover, since mice eat bees and bees fertilize blossoms, the quantity of flowers and fruits would be increased. Furthermore, the destruction of field mice would increase the supply of clover, thereby enriching the quality of the soil.

If, at the first thought, you may incline to the view that

the ramifying economic importance of the program thus briefly outlined has been somewhat exaggerated in the foregoing statement, it may be observed that if there were only one cat per family the cat population of the United States would be 28,363,452 units. In the preindustrial age an average of four cats per household was by no means unusual. With the food surpluses now available and with our superior knowledge of feline habits and diseases, is it too much to expect that we might at least equal, if not exceed, our former standard of achievement? It may be noted in passing that the multiplier principle advanced by Mr. Keynes would here operate under propitious conditions.

8.4 The Economist's Part in Development Programs

The typical agricultural economist is not a promoter; he is a researcher or an educator. His creed is "give people the facts and they will know what to do." There is nothing wrong with facts, nor with analysis, nor with education, but economic ideas must be promoted if there is to be any action. Many sound ideas are buried in research reports and are dormant because they have never been successfully promoted.

Economic research and education do, of course, bring about a gradual improvement in public understanding of issues and of alternative ways of dealing with them. But before major changes are made, someone, or some group, usually must promote a specific program. Somebody promoted most cooperative associations, most railroads, most breakfast foods, most city markets, and most legislation.

Agricultural economists have paid too little attention to these promotional activities. Promotion of the wrong things can do great harm; promotion of the right things is necessary to progress in agricultural marketing — as in other fields. Economists have perhaps been too ready to confine themselves to armchair discourses on promotion and development work when the need is to study actual programs and to measure their economic effects.

Subsection 8.2 on market survey work indicated another field where the services of the economist are needed, and where an increasing amount of work is being undertaken by economists.

But above and beyond these, there are many fields of activity where economists should — and many do — work directly with those concerned in promotional endeavors in marketing. This is true of economists in private industry, of economists in the state colleges and extension services, and of economists in government agencies. Economists can and do help develop and promote sound ideas. And to

the extent that they are active and effective in this, they are more likely to be listened to when they oppose crackpot proposals and the schemes of self-seekers.

As examples of such promotion we include, first, brief statements on two Extension Service marketing projects. —*Ed.*

8.4.1 U. S. Department of Agriculture Extension Service. *Extension Marketing Work Under the Research and Marketing Act 1951–52.* Prepared by the Division of Agricultural Economics, Feb., 1952. Pp. 8, 4. (Processed.)

A marketing program was developed in one area through the cooperation of the local county agricultural agent, an egg dealer, and the State Extension Poultry Marketing Specialist. The dealer agreed to buy all the eggs produced by farmers with flocks of 500 or more hens, if the hens were fed and managed, and the eggs cared for according to approved methods. The eggs were paid for on a graded basis. During May 1951 the total weekly egg check to producers in the county amounted to $10,000. This was "new money" which did not go into that county the previous year. It has resulted in improving the farm income for a number of under-employed farm people and has demonstrated that quality eggs can be produced and marketed locally to partially meet the needs of a deficit egg area.

* * *

Work with food retailers is designed to aid them in the adoption of efficient methods and techniques of handling and merchandising farm products based on research and successful business practices.

The work consists mainly of demonstrations in the care and handling, displaying, and merchandising of food products at retail. Most emphasis so far has dealt with perishable fruits and vegetables, but the program is now being broadened to include meats, dairy, and poultry products. One-day schools, or four two-hour meetings, supplemented by personal visits to the retailers' stores, constitute the backbone of the program. It also consists in working with retail food groups in assisting them in planning, developing, and presenting their own educational programs.

Examples of Progress: The benefits of this kind of educational work with the trade appear promising. For example, over three-fourths of the retailers attending the *Illinois* retail merchandising school indicate that, as a result of their attending the school, they have increased their sales and reduced their losses. In *New York,* apple sales were found to increase 40 per cent when sold in a

six-pound, transparent film bag and displayed with bulk apples. Pilot demonstrations of these findings are being carried on in a number of retail stores. The retailer education specialist in *Michigan,* besides holding regular schools and giving talks to trade groups, was recently invited to assist in developing a produce educational program being planned by a trade association representing more than 6,000 retail food stores.

Our remaining example of promotional work refers to the many activities needed in developing plans for new market facilities, gaining support for these plans, and helping to get the facilities built. Brief progress reports on several such projects suggest the scope of these activities. They include numerous meetings with trade groups, farm groups, labor representatives, and officials of the city and state governments. This work is a combination of research, education, and promotion; and all three are essential to a successful program to improve marketing facilities. The work also involves discouraging the buiding of new market facilities that careful investigation indicates would be unsound ventures.—*Ed.*

8.4.2 U. S. Department of Agriculture. *Activities of the Marketing and Facilities Research Branch During the Fiscal Year Ended June 30, 1951.* Production and Marketing Admin., Washington, D. C., 1951. Pp. 16, 17, 19, 20, 21. (Processed.)

Work Done During the Year in Developing Markets Previously Recommended.

* * *

Columbia, S. C. In line with the plans developed by the Branch, as outlined in its report of January 1949, the South Carolina State Marketing Commission currently has under construction, on a 50-acre site near the Fair Grounds in the southern section of the Columbia metropolitan area, a modern wholesale produce market facility. Included in the original construction program are: Four store buildings containing a total of 61 units, 36 of which will have direct rail connections, for produce wholesalers; three sheds containing a total of 125 stalls for farmers and truckers; an office building; service station; container storage shed; paved streets and parking areas; and team tracks. Space will be available in the market area for a 100 per cent expansion of the amount of facilities now under construction. The estimated cost of the new market, including the costs of land and construction, will approximate 1 million dollars. It is expected that some of the new facilities will be completed and occupied in August

1951. However, some of the construction work now under way may not be completed until October 1951. Branch representatives have continued to work with the State Marketing Commission as problems have arisen in connection with the construction program.

* * *

Louisville, Ky. The final report covering the findings of the study of the produce market in Louisville and containing plans for a new wholesale market, which was prepared in cooperation with the Department of Markets and Rural Finance of the University of Kentucky, was published as Kentucky Agricultural Experiment Station Circular No. 69 in October 1950. The market recommended consists of 42 wholesale stores with rail connections alongside the rear platforms and 150 stalls under sheds for farmers and truckers. Total market cost was estimated at $1,070,000. Of this amount, the cost of land was estimated at $120,000 and the cost of constructing facilities at $950,000. The annual savings in marketing costs in the new facility were estimated at $321,000. The plans and recommendations have been presented to farmer groups, wholesale dealers, railroad officials, and to members of the independent retail grocer association. The Louisville Chamber of Commerce, the organization which requested the study, has appointed a special market committee consisting of wholesalers, farmers, and interested businessmen to sponsor the project and to devise ways and means of financing it. In November 1950, the market committee met with the Mayor of Louisville and the City Board of Aldermen to present a summary of the conclusions and recommendations of the Louisville report and to discuss possible methods of financing a new wholesale produce market. The consensus of this group was that the project should be sponsored and financed by the city of Louisville, and it was requested that the market committee prepare and submit a specific proposal for financing the market. Branch personnel have acted as technical advisers to this committee.

* * *

Raleigh, N. C. A study of the Raleigh produce market was completed in fiscal year 1950. Since the publication of the final report, Branch personnel have worked with the State Department of Agriculture and the agricultural committee of the Chamber of Commerce in an effort to find means of financing the acquisition of land and the construction of facilities.

* * *

Tyler–Jacksonville, Tex. Since the publication of the final project report in June 1950, Branch representatives have worked with local groups in Tyler and in Jacksonville in further exploring types of ownership and methods of financing the proposed markets. At both localities it was decided by these groups that municipal ownership and operation would be most desirable, and the respective city administrations were petitioned to hold referenda to decide whether bonds should be issued to acquire land and construct the proposed facilities. Referenda were held in Tyler in January 1951 and in Jacksonville in March 1951. The market proposals were defeated in both instances. In Tyler, a second referendum is scheduled for August 1951.

* * *

New Studies Conducted During the Year to Develop Market Facilities.

* * *

Beckley, W. Va. In February 1951 a survey to determine the feasibility of the establishment of a centralized wholesale produce market at Beckley was undertaken at the request of the Beckley Chamber of Commerce. This study was made in cooperation with the Department of Agricultural Economics, West Virginia University. The field work has been completed, and the final report is being prepared for publication.

With the exception of a branch store of a wholesale fruit and vegetable firm in Charleston, W. Va., two dry grocery firms handling small quantities of fruits and vegetables, and one packer branch house, all firms supplying produce at wholesale to the area are located in larger marketing centers 15 or more miles away. Wholesale buyers in the area are primarily those buying for independently owned and company owned retail stores.

The several wholesale distributors in the city did not show favorable interest toward the development of a central produce market. The area as a whole consumes a much greater amount of all kinds of produce than it produces, and it is being well served by the more distant markets. Under the circumstances that exist there, the investment in central wholesale marketing facilities would be attended by a very high degree of risk. Therefore it was recommended that no attempt be made to organize and build such a market.

Index of Names and Sources

This index lists all authors of readings in the book, as well as agencies, periodicals, or other sources of those readings showing no authorship. Page references to the readings are in boldface type. The index also lists names of persons mentioned in the readings and in the editorial comments.

Adams, Thurston M., **233**
Adelman, M. A., **325**
Agnew, D. B., **145**
Aiken, Sen. George D., **345**
Allen, R. G. D., **35, 48**
Aquinas, Thomas, 13
Aristotle, 12
Artman, Charles E., **272**

Babcock, H. E., **389, 391**
Baer, J. B., **168**
Barton, Glen T., 53
Bayton, James A., **420, 423**
Bean, Louis, **62**
Beard, Charles A. and Mary R., **161**
Beard, Fred J., **311**
Benson, Ezra Taft, **416**
Beveridge, E. A.,**173**
Black, Guy, **40**
Black, John D., **9, 54, 126, 165, 240, 255**
Blau, Gerda, **183**
Böhm-Bawerk, E. von, 20
Bowley, A. L., **48**
Bradley, W. L., **409**
Braun, E., 69
Bressler, R. G., Jr., **211, 212, 226, 231, 238, 256, 322**
Brunk, Max E., **197, 210, 418**
Burk, Marguerite C., **43, 45**
Burtis, Edgar L., **138, 304**

Calhoun, W. T., **220**
Campbell, C. E., **69**
Cantillon, Richard, 14
Cassady, Ralph, Jr., **37, 350, 427**
Cassebeer, F. W., **417**
Cassels, John M., **11, 66, 68, 118**
Cassiodorus, 13
Chamberlin, Edward H., **244, 280**
Clark, Colin, 16
Clark, Fred E., **18, 70, 145, 432**
Clark, J. M., 265
Clement, S. L., **312**
Cochrane, W. W., **84**
Colebank, A. W., **248**
Commons, John R., **166**
Consumer Reports, **181**
Cooper, Martin F., 53
Cournot, Augustin, **31, 32, 94, 99**
Cox, R. W., 69
Crowe, William C., **219, 220, 301**
Cummings, R. O., **114**

Daggit, E. M., 69
Davis, John H., **411**
Dewhurst, J. F., **301**
Dummeier, E. F., **111**
Dupuit, Jules, **285, 331**
Dwoskin, Philip B., **420**

Edgeworth, F. Y., 70
Edison, Thomas A., 20
Edwards, Corwin D., **342**
Elsworth, R. H., **357, 405**
Emery, Henry C., **185**
Engel, Ernst, 43
Engels, Friederich, 43
Erdman, H. E., **306, 342**
Erickson, Arval, **311**
Ezekiel, Mordecai, 69, **77, 94, 95, 152**

Farm Foundation, 319
Fetrow, Ward W., 357
Fetter, F. A., 115, 121, 322
Fox, Karl A., 94
Foytik, Jerry, 147
Frick, G. E., 212, 256
Frisch, Ragnar, 95
Froker, R. K., 248

Galbraith, J. K., 54, 319, 352, 355
Gaumnitz, E. W., 68
Gessner, Anne L., 360
Gilboy, E. W., 69
Gilbreth, F. B. and L. M., 211
Goldhammer, Margaret, 423
Guthrie, E. S., 255

Haavelmo, T., 95
Halvorson, L. C., 351
Hammerberg, D. O., 226
Harper, F. A., 309
Harrod, R. F., 48, 55
Harwell, E. M., 203
Hassler, J. B., 206
Hedges, Harold, 364
Heflebower, R. B., 111
Heline, Oscar, 384
Henry, W. F., 212, 256
Hibbard, B. H., 6
Hicks, J. R., 49, 99
Hirsch, Werner Z., 402
Hoffman, A. C., 236, 248, 256, 266, 280, 290, 320, 321, 348
Holt, Budd A., 333
Hoos, Sidney, 163
Hoover, Edgar M., 123
Hotelling, H., 70
Houston, Neil T., 165, 240
Howell, L. D., 175, 216
Huebner, S. S., 179
Hulburt, L. S., 402
Hyde, A. D., 424
Hyson, C. D., 69

Irwin, H. S., 143, 188, 192

Jackson, C. A., 406
Jesness, O. B., 255, 396
Johnson, D. Gale, 60
Johnson, Stewart, 93
Jordan, Harvey, 386

Kaldor, Nicholas, 178
Katona, George, 106
Keim, Walter G., 129
Keirstead, C. H., 145
Keynes, J. M., 105, 176, 184, 435, 437
Kiefer, Maxine E., 9
Kiekhofer, W. H., 6
Kitchen, C. W., 313
Klayman, M. I., 346
Knapp, Joseph G., 379, 380, 382, 398
Koller, E. Fred, 255, 377, 401

Larson, Adlowe L., 5, 142
Leontief, W. W., 100
Lösch, August, 117
Luke, H. Alan, 233
Lyon, Leverett S., 170

Magill, Roswell, 407
Marschak, Jacob, 95, 96, 103
Marshall, Alfred, 29, 33, 99, 257
Marx, Karl, 43
Mehl, J. M., 173
Melder, F. E., 136
Meyers, Albert, 320
Meyers, Trienah, 423
Mill, John Stuart, 112, 371
Montgomery, D. E., 304
Montgomery, R. H., 386
Moore, H. L., 94, 95, 99
Moulton, Harold G., 435

Nelson, Saul, 129
Nicholls, W. H., 72, 75, 246, 252, 260, 262, 264, 274, 287, 289, 291, 323
Norton, L. J., 23
Nourse, Edwin G., 19, 367, 280, 389

Palander, Tord, 117
Pareto, Vilfredo, 99
Park, J. W., 220
Parker, L. W., 226
Paul, Allen B., 251
Pearson, F. A., 65, 69
Pendleton, W. C., 140
Petty, Sir William, 14
Plato, 11
Powell, G. Harold, 358
Pre-Pack-Age, 162
Prest, A. R., 95

Quintus, Paul E., 225

Reed, O. M., 68
Reid, Margaret G., 16, 25
Riddell, G. E., 71
Robert, Shelby A., Jr., 419, 420
Robinson, Joan, 244, 263
Robotka, Frank, 225, 372
Rollefson, A. M., 145
Roosevelt, Theodore, 358
Rowe, Harold B., 5
Rubel, Donald M., 333
Rumble, Wilfrid E., 408

Sammet, L. L., 206
Sanderson, F. H., 69
Sapiro, Aaron, 359, 384, 386, 398
Saxon, O. G., 168
Schultz, Henry, 69, 94, 95
Schultz, T. W., 44, 47, 51, 88, 186
Schumpeter, J. A., 414
Seltzer, R. E., 163
Shaffer, Paul F., 203
Shepherd, G. S., 69, 131, 149, 311, 345

Simons, Henry C., 318
Smith, Adam, 12, 14
Southworth, H. M., 49, 157, 346, 347
Spencer, Leland, 233
Staehle, Hans, 105
Steinbeck, John, 273
Stewart, Blair, 189
Stewart, Paul W., 301
Stigler, George J., 297
Stine, O. C., 94
Stokdyk, E. A., 39, 69, 336, 390
Stone, Richard, 95

Taylor, Carl C., 392
Taylor, Frederick W., 211
Taylor, George R., 138, 304
Thomsen, F. L., 4, 21, 63, 159
Thunen, J. H., von, 117
Tinbergen, J., 95
Tolley, George, 104
Tousley, R. D., 429
Trelogan, H. C., 35, 68

U. S. Code, 22
U. S. Congress, 22
U. S. Department of Agriculture, 134
  Agricultural Adjustment Administration, 230
  Agricultural Research Administration, 4, 115, 239
  Bureau of Agricultural Economics, 6, 9, 302
  Commodity Exchange Administration, 174
  Extension Service, 438
  Production and Marketing Administration, 170, 314, 439
U. S. Federal Trade Commission, 318, 348

Veblen, Thorstein, 395

Waite, Warren C., 35, 37, 68, 350, 427
Wallace, Graham, 394
Wallace, Henry A., 149
Walras, Leon, 99, 100
Wanamaker, J. S., 386, 388
Wanstall, Grace, 360
Warren, G. F., 65, 69
Washington, George, 11
Washington State Apple Commission, 430
Waugh, F. V., 138, 236, 304, 320, 337
Weber, Alfred, 117
Weld, L. D. H., 18, 20, 70, 145, 169, 432
Welden, W. C., 90
Wellman, H. R., 69, 337
Wells, Oris V., 23, 415
Wilcox, W. W., 69
Wilson, Woodrow, 358
Working, E. J., 69, 96
Working, Holbrook, 69, 176

Zuroske, C. H., 202

Subject Index

The symbol "ff" in this index usually indicates that the subject is treated in two or more succeeding excerpts.

Commodity references include cases of factual or substantive mention but not cases where the commodity is mentioned merely for hypothetical or illustrative purposes.

Absorption of transfer costs, 123
Accumulations, middlemens', 143, 192
Advertising and promotion, 427 ff
  appraisal, 301, 427, 433
  in cigarette industry, 264
  by cooperatives, 368, 429
  and discriminative pricing, 278
  effects on prices, 428, 434
  exaggeration in, 435
  expenditures for, 428
  of farm products, 429 ff
  Government programs, 429 ff
  as marketing service, 41
  private vs. social benefits, 237, 254, 264, 329
Agricultural Marketing Act (1929), 402
Agricultural Marketing Act of 1946, 4, 22
Agricultural Marketing Agreements Act, 342
Agricultural surpluses
  development of markets, 415 ff
  handling, 152, 163
Alfalfa, cooperative marketing of, 359
Allocation of supplies for increased returns, 337 ff; (*see also* Marketing agreements programs)
  economics of, 113, 163, 337 ff
  effects on consumers, 339
  effects on future production, 338
  grade and size restrictions, 335, 340
  limitation of total supply, 335, 337
  between markets, 39
  seasonal, 145 ff
  between uses, 163, 335, 340
  year-to-year, 149 ff
Anti-trust laws, 321, 325, 342, 359, 390
Apples
  elasticity of demand, 68
  juice concentrate, 420
  merchandising, 430
  packaging, 418
  wholesale-retail price spreads, 272
Assembly, efficiency in, 129, 225 ff
Attitudes towards marketing, 10 ff
  historical, 11 ff
  modern, 16 ff
Auctions, 71
Avocados, advertising of, 430

B

Bakery products
  advertising, 428, 435
  concentration in industry, 246
  farm value, 8
  marketing charges, 8
  retail cost, 8
Bananas, elasticity of demand, 68
Barley, elasticity of demand, 68
Barriers to trade, 136 ff
Basing-point pricing, 123
Beans, dry, cooperative marketing associations, 362
Bread; *see* Bakery products
Broomcorn, cooperative marketing of, 359

Budgetary method, in efficiency studies, 215
Buffer stocks, 149
Butter
butterfat assembly, 225
concentration in processing and distribution, 247, 260
economics of scale in processing, 255
integration in distribution, 250, 260, 278
sale by contract, 169
supply-area boundaries, 118
trend in number and size of plants, 251

C

Candy, trend in number of plants, 251
Cantaloupes, growing under contract, 169
Capper-Volstead Act, 402
Carrying charge, 177
Cattle
concentration in assembly and processing, 247
production and market reporting, 302
production cycle, 76, 82
Celery, preparation for market, 197
Cereal products
Cereal products; *see also* Bakery products; Flour
advertising and selling expenses, 428
Cheerios, development, 426
farm value, 8
marketing charges, 8
retail cost, 8
Chain stores
development, 248
economic concentration, 246
efficiencies, 266
margins, 266 ff
as protectors of consumers, 326, 353
taxation, 348
vertical integration, 250, 268, 277
voluntary chains, 248, 268
Charges, marketing; *see* Marketing charges
Check-out counter, efficiency in operation, 203
Cheerios, development of, 426
Cheese
concentration, 247, 262
integration, 194, 250, 262
pricing on Wisconsin Exchange, 287
trend in number and size of plants, 251
Cigarette industry
advertising, 264, 428
concentration, 247, 264
integration, 194, 265
price leadership, 291
Citrus fruit
advertising, 430, 434
consumer survey, 423
cooperative marketing, 358, 430
Cobweb theory, 77 ff
Coffee, elasticity of demand, 68
Commodity Exchange Act, 314
Commodity exchanges, 168, 172; (*see also* Futures trading)
Competition; *see also* Imperfect competition; Perfect competition; Monopoly
in agricultural markets, 244 ff
Government policies toward, 298 ff
regulation, 313 ff
restrictions, 124, 136, 330 ff
"workable," 325
Concentration, economic; *see* Economic concentration
Congress, U. S., aims regarding marketing, 22 ff
Consumer
expenditures for food, 6, 43
inefficiency in buying, 301
interest in marketing, 21, 25
and market control programs, 339
Consumer preference
for apple-juice concentrate, 421
as basis of grades, 304
for citrus products, 423
in fluid milk distribution, 233
and overlapping of market areas, 124
Consumption subsidies, 345 ff
Contract
evolution, 166
sale by, for future delivery, 169 ff, 193
Contract futures; *see* Futures trading
Cooperatives, agricultural marketing and purchasing, 355 ff
aims, 19, 280, 353, 368, 379 ff
advertising, 429
butter marketing, integration in, 260
and capitalist enterprise, 377 ff, 383, 410 ff
cotton, and "Sapiro movement," 386
creameries, economies of scale in, 255
criteria of success, 384, 396
current trends, 364
dairy, pricing problems of, 127
development of, in U. S., 357 ff
efficiency, 202, 255, 377, 381
eggs, efficiency in handling operations, 202
farm organizations and, 357, 380
grading by, 311
and income distribution, 369, 379
integration, 260, 366, 378, 397 ff
legal aspects, 358, 402 ff
livestock, aims of, 380
member contracts, 359, 374, 385, 390

monopolistic control, 337, 359, 384 ff, 398
vs. monopoly, 378, 390
numbers and size, 359 ff
opposition, 367, 406 ff
philosophy and theory, 367 ff
purchasing, aims of, 382
social aspects, 366, 371, 391 ff
taxation, 403, 406 ff
Cooperatives
consumer, 353, 371
production, 360, 363
service, 360, 363
Corn
economic concentration in processing, 246
elasticity of demand, 68
geographic price structure, 131
price instability, 181
price spreads, cash vs. futures, 176
stocks, reporting of, 303
time contracts, 193
Corn-hog price ratio, 76
Cost analysis
in milk plants, 212
in cotton-yarn mills, 216
Cost of entry, 280, 284, 324
Costs, marketing; *see* Marketing costs
Cotton
cooperative marketing, 357, 362, 386
economic concentration, 247
effects of storage program, 154
price instability, 181
time contracts, 193
Cottonseed oil, trend in number of plants, 251
Cotton-yarn mills, efficiency of, 216
"Countervailing power," 352
Country markets, imperfect competition in, 250, 253, 279, 326
Cowles Commission, 94
Cranberries
advertising, 430
elasticity of demand, 68
Cream, supply area boundaries, 118
Crops, reporting of, 302
Crosshauling, 124
Cycles, production and price, 75 ff

D

Dairy products; *see also* Butter; Cheese; Milk
cooperative marketing, 357, 362
economic concentration, 246, 248
farm value, 7
integration, 250
marketing charges, 7
production and market reporting, 302
retail cost, 7
supply area boundaries, 118
Decisions, business
and market strategy, 291
noneconomic motivation, 285
psychological approaches, 108
Demand, 27 ff, 63 ff
definition, 29, 37
derived, for farm products, 63 ff
elasticity of; *see* Elasticity of demand
factors underlying, 34, 107
at farm level, relationship to retail, 63 ff
interrelated; *see* Interrelated demands; Kinked demand curve
law of, 30, 32, 107
for marketing services, 40
modification of; *see* Advertising and promotion; Market development
for particular seller's product, 37
psychological approaches, 107
reciprocal, 115
for segment of market, 38
statistical measurement of; *see* Statistical measurement of demand
and supply, equation of, 70 ff
variation with income, 42 ff, 92
Depression, economic
stability of agricultural production, 51 ff
Derived demand for farm products, 63 ff
Development, market; *see* Market development
Direct marketing
of butter, 260
by chain stores, 250
of cheese, 262
of hogs, 134
Discriminative pricing; *see* Price discrimination
Distribution, efficiency in fluid milk, 230
Diversion programs, 163, 335, 340
Division of labor; *see* Economies of scale; Specialization
Dominant firm, 73, 244, 253, 275
price leadership by, 280

E

Economic concentration
causes, 254 ff
and "countervailing power," 352
extent, 246 ff
public policy regarding, 317 ff
in storage, 143, 193
trends, 325
Economies of scale, 212 ff
in creameries, 225, 255
and economic concentration, 254 ff
in fluid milk plants, 256
in management, 257, 267

Educational work in marketing, 438
Efficiency in marketing, 195 ff; (*see also* Economies of scale; Specialization; Technological development)
  in assembly and distribution, 225 ff
  of chain stores, 266
  cooperatives and, 377, 381
  and increased price spreads, 236
  of marketing systems, 235 ff
  of operations, 197 ff; (*see also* Work simplification)
  of plants, 211 ff
  and price leadership, 73
  pricing, 23 ff, 88, 222
  and welfare, 195, 238
  in wholesale distribution, 270
  of wholesale markets, 218 ff
Eggs
  efficiency in handling, 202
  extension marketing program, 438
  farm value, 7
  marketing charges, 7
  production and market reporting, 302
  retail cost, 7
Elasticity, definition of, 35
Elasticity of demand, 31, 33 ff
  and discriminative pricing, 123
  estimates of, for various commodities, 68
  factors influencing, 34 ff
  at farm level, compared with consumer demand, 64
  "income," 42 ff
  and monopolistic control, 253
  for product of individual seller, 37, 123
  variation with income, 48
Engel's curve, 42
Equalization of demand and supply, 70 ff
Ever-normal granary, 149
Excess capacity, 74, 280
Exchange aspects of marketing, 5, 11, 16, 109, 239
Exchanges, commodity; *see* Commodity exchanges

F

Fair trade laws, 348 ff
Farm Credit Administration, 405, 406
Farm income; *see also* Allocation of supplies for increased returns
  effects of storage program, 150
  and price policy, 88
Farm price policy, 24, 88, 149, 319; (*see also* references to specific programs)
Farm prices
  effects of futures trading on, 179 ff
  and farm income, 87
  geographic structure, 62, 93, 118, 127, 129 ff
  instability, 65
  market basket, 10
  policy regarding, 87, 149, 319, 342
  relationship to retail prices, 64 ff
  reporting, 302
  response of production to, 54 ff
  seasonal variation, 127, 146
  stabilization, 88, 149 ff
Farm production; *see also* Supply of farm products
  cost characteristics, 54 ff
  cycles in, 75 ff
  location of, 114 ff
  and market control programs, 338
  response to price changes, 54 ff, 75 ff, 290
  reporting of, 302
Farm supplies and equipment, cooperative purchasing of, 357 ff, 382
Farmer
  bargaining power, 354
  interest in marketing, 21
  marketing problems, 18
  share of consumer's food dollar, 9, 236
Feed grains
  effects of storage program, 150
Federal Farm Board, 398, 405
Federal Seed Act, 316
Finance, market; *see* Market finance
Flavorings, trend in number of plants, 251
Flour
  advertising, 434
  concentration in processing, 247
  trend in number of plants, 251
Food allotment program, 345
Food manufacturing, trend in size and number of plants, 251
Food stamp plan, 345
Foods
  expenditures vs. income, 43 ff
  farm value, 6
  "market basket," 6, 9
  marketing charges, 6
  retail cost, 6
Form utility; *see* Utility, *also,* Grades, Processing, Packaging, etc.
Formula pricing, 90
Freight rates; *see* Transportation costs, Transit privileges
Frozen foods, trend in number and size of plants, 251
Fruits and vegetables; *see also* references to specific commodities
  advertising of, 429, 434
  concentration in fruit distribution, 246

cooperative marketing, 357 ff
direct buying by chain stores, 250
farm value, 8
improvement of wholesale markets, 219 ff
labor efficiency in distribution, 270
marketing agreements, 332 ff
marketing charges, 8
pickled, trend in number of plants, 251
production and market reporting, 302
regulation of marketing, 315
retail cost, 8
wholesale-retail price spreads, 272
Fruits and vegetables, canned
advertising of, 278, 428, 434
economic concentration in processing, 247
grower contracting, 169
sale by future contracts, 194
trend in number of plants, 251
vertical integration, 194, 250
Functions of marketing, 17
Futures prices
as guides to production, 186
relationship to "spot" or "cash," 174 ff, 186
Futures trading, 172 ff
Commodity Exchange Act, 314
and competition, 181, 193
controversial nature, 192
difference from "spot" or "cash," 173
effects of, upon prices, 179 ff
evolution, 172
functions, 174, 179
hedging, 172, 174 ff, 193
vs. integration, 193
inverted market, 176
and market finance, 180
relation of "spot" to futures prices, 174 ff, 186
speculation, 172, 179 ff, 188 ff
types and operation of traders, 188 ff

G

Games, theory of, 291
Government marketing policy, 298 ff; (*see also* under Competition; Concentration; Cooperatives; Monopoly; Prices, farm; Trade barriers; *and* references to specific laws, programs, etc.)
Grades and standards, 303 ff
basis of, 304
consumer grades, 309
economic justification for, 304, 307
for hogs, 311
and returns to producers, 306
terminology, confusion in, 309
for tobacco, 312
United States Grain Standards Act, 316
Grain; *see also* Corn; Feed grains; Wheat; etc.
cooperative marketing of, 357, 362
market reporting, 303
sale by time contracts, 193
United States Grain Standards Act, 316
Grapes
demand in principal auction markets, 39
elasticity of demand, 68
Grocery; *see* Retailing

H

Hedging, 172 ff, 193
effectiveness, 175
purpose, 174, 179
Hog-corn price ratio, 76
Hog cycle, 76
Hogs; *see also* Livestock; Meat-packing industry
competition in buying, 275, 278
concentration in assembly and processing, 247
direct marketing, 134
effects of corn storage program, 151
estimation of supply and demand, 105
geographic price structure, 133
grading, 279, 311
price discrimination in buying, 279
production cycles, 76
production and market reporting, 302
sale of, by time contracts, 193
Horses, cycle in production, 76

I

Ice cream, trend in number of plants, 251
Identification problem, 95
Imperfect competition, 244, 273 ff; (*see also* Concentration; Discriminative pricing; Monopoly)
consequences, 273 ff
in country markets, 250, 253, 279, 326
effects of, on price, 282
and excess capacity, 74, 280
extent, 274
forms, 275 ff
pricing under, 72, 273 ff
theory, 297
Import controls, 140
Income elasticity of demand, 42 ff
Indifference curves, 49
Innovation and economic progress, 414, 416

Input-output analysis
in individual plant, 212
in inter-industry studies, 100
and measurement of efficiency, 239
Integration
in butter marketing, 260
in cheese marketing, 262
by cooperatives, 366, 378, 397 ff
vs. futures trading, 193
by grocery chains, 248 ff, 268
in meat distribution, 258
and transfer of ownership, 166, 269
Inter-industry studies, 100
International trade, 140
Interrelated demands, 31, 70
between brands, 37
between goods and marketing services, 41
between grades, 307, 340
under imperfect competition, 287
and market control programs, 338
seasonal interdependence, 148
Inventories; *see* Storage; Working stocks
Inverted market, 176

K

Kinked demand curve, 38, 294

L

Labeling requirements as trade barriers, 140
Labor, division of; *see* Economies of scale; Specialization
Labor saving; *see* Work simplification
Lambs
concentration in processing, 247
elasticity of demand, 68
production and market reporting, 302
sheep production cycle, 76
Lard, integration and organized trading in, 194
Layout, plant, 201
Lemons
allocation of supply, 163
elasticity of demand, 68
Lettuce, wholesale-retail price spreads, 272
Liquors, malt, trend in number of plants, 251
Livestock; *see also* Meat-packing industry; Cattle; Hogs; Lambs
concentration in processing and distribution, 247
cooperative marketing, 362, 380
integration by processors, 194
production and market reporting, 302
regulation of marketing, 317
sale of, by contract, 170
Location, 114 ff
coalescence of market areas, 125
geographic price discrimination, 123
geographic price structure, 62, 93, 123 ff
of market boundaries, 114 ff, 126
of meat-packing industry, 135, 258
and monopoly, 244, 250, 253
overlapping of market areas, 123, 225 ff
of production, 114 ff
trade barriers, 136
transportation costs and, 114 ff
of wholesale fruit and vegetable market, 221

M

Macaroni products, trend in number of plants, 251
Management specialization and integration, 257, 267
Margarine, taxation of, 136, 139
Margins, marketing; *see* Marketing charges
Market
auction, 71
commodity exchange, 168, 172
definitions, 5
as equator of demand and supply, 70 ff
futures; *see* Futures trading
inverted, 176
spot, 173
wholesale fruit and vegetable, improvement of, 219
Market areas
boundaries, 114 ff, 126
coalescence, 125
economic law, 115
overlapping, 123, 225 ff
Market basket of farm food products, 6, 9
Market control programs; *see* Marketing agreements; Allocation of supplies for increased return
Market development, 413 ff; (*see also* Advertising and promotion)
for agricultural surpluses, 415 ff
aims of, 414 ff
for apples, 430
for *Cheerios,* 426
for concentrated apple juice, 420
problems involved, 419, 424
promotion, 423, 427 ff
role of economist, 437 ff
Market facilities, 219, 439
Market finance, 180, 192, 265
Market information, 219, 222, 302; (*see also* Advertising)
Market location; *see* Location
Market prorates, 336 ff
Market reporting, 302

Market sharing, 72, 275
Market surveys, 417 ff
consumer acceptance, 421
consumer preference, 421, 423
controlled experiment, 418
Marketing
aims, 20ff
attitudes towards, 10 ff
definitions, 4 ff, 109
essentiality, 10, 16
farmers' problems, 18
functions, 17, 239
government policies, 22 ff, 298 ff
improvement, 27, 413
problems, 21
public interest, 22 ff
vs. production, 4, 109
public regulation, 313 ff
and specialization, 11, 16 ff
timing of, 142 ff
Marketing Agreement Act of 1937, 334, 343
Marketing agreements programs, 332 ff; (*see also* Allocation of supplies for increased returns)
criticisms, 342 ff
diversion programs, 335, 340
fluid milk, 89
grade and size restrictions, 335, 340
supply limitations, 335, 337
Marketing charges, 6 ff, 64
and efficiency, 236
under imperfect competition, 289
incidence of, 66, 69, 290
relationship to farm prices, 64, 66
Marketing costs; *see also* Marketing charges; Efficiency; Transportation costs; Ownership, transfer of
"absorption" of, 123
fixed vs. variable, 212
Marketing, educational work; *see* Educational work in marketing
Marketing, exchange aspects; *see* Exchange aspects of marketing
Marketing research
aims, 22 ff, 27, 195, 413 ff
needed, 134, 192, 209, 337, 400
role of research economist, 239, 437
scope, 4
Marketing services
demand for, 40, 233
differentiation, 275, 279
increase, 236
monopolistic control, 289
public, 300 ff
product differentiation and, 40
Maximizing farmers' returns; *see* Allocation of supplies for increased returns
Meat
farm value, 7
geographic price structure, 133
inspection, 317
integration in distribution, 250, 259
marketing charges, 7
retail cost, 7
Meat-packing industry
advertising, 435
vs. chain stores, 278, 282
economic concentration, 246, 258
integration, 259
location, 135, 258
market-sharing, 72, 275
monopolistic control, 289
technology and economies of scale, 258
trend in number of plants, 251
Melons, cooperative marketing of, 359
Merchandising; *see* Advertising and promotion; Market development
Merchants; *see* Middlemen
Methods engineering, 210
Middlemen
attitudes towards, 10 ff
objectives, 21
Milk, canned and evaporated
advertised brands, 278
concentration in processing, 247
integration in, 194, 250, 278
Milk, fluid
assembly, efficiency in, 226
bilateral monopoly, 282
Boston pricing formula, 90
consumer preferences for marketing services, 233
cooperative marketing, 359
distribution, efficiency in, 231
economies of scale in pasteurizing, 212, 256
elasticity of demand, 68
marketing agreements, 89 ff, 332 ff
pricing, 66, 90, 126
production and market reporting, 302
relation of margins to farm prices, 66
reorganization of distribution, 230 ff
reorganization of milksheds, 226
sanitary regulations, 126, 137, 138
supply areas, 114, 118, 126
Mohair, production reports, 302
Monopolistic competition; *see* Imperfect competition; Monopoly
Monopoly, 273; (*see also* Economic concentration; Imperfect competition)
bilateral, 277, 282
in cheese industry, 263
cooperatives and, 359, 378, 384 ff, 390, 398
criteria, 284, 323 ff
farmers' interest regarding, 319, 342, 351
incidence of, in food, 290

legal vs. economic concepts, 323 ff
limitations, 252, 326
in local markets, 244, 250, 253, 279, 326
and marketing agreements, 342 ff
of marketing services, 289
patents and, 263
public policy regarding, 318 ff, 390
Monopsony, 252; (*see* Monopoly)
Motion and time study, 206, 210
Motor-truck transportation; *see also* Transportation; Transportation costs
and direct marketing, 134
and local monopoly, 251
regulation of, as trade barrier, 137, 139

N

Nuts
advertising, 430, 434
cooperative marketing, 362
marketing agreements, 333
production and market reporting, 302

O

Oats
development of *Cheerios*, 426
elasticity of demand, 68
price instability, 181
price spread, cash vs. futures, 176
Oilseed proteins, market potentialities, 420
Oleomargarine, taxation of, 136, 139
Oligopoly, oligopsony, 252; (*see* Imperfect competition; Monopoly)
Olives, cooperative marketing of, 359
Onions, wholesale-retail price spreads, 272
Oranges
advertising, 430, 434
price spreads, wholesale-retail, 272; (*see also* Citrus fruit)
Orderly marketing, 145, 147, 337, 359, 382
Overlapping of market areas, 123, 225 ff
Ownership, transfer of, 165 ff; (*see also* Contract; Exchange aspects of marketing)
costliness, 269
Ownership utility; *see* Utility; *also* Ownership, transfer of; Storage, motives for

P

Packaging, 161, 162, 418
Packers and Stockyards Act, 317
Packing house, efficiency of operation, 208
Patents, processed cheese, 252, 263
Peaches, elasticity of demand, 68
Peanuts, cooperative marketing of, 359
Perfect competition
departures from, in agricultural markets, 244 ff
as a norm, 113, 322, 327, 330
Perishable Agricultural Commodities Act, 315
Place utility; *see* Utility; Location
Planning curve, 215
Plums, seasonal allocation of supply, 147
Pork, elasticity of demand, 68
Possession utility; *see* Ownership
Potatoes
cooperative marketing, 359
elasticity of demand, 68
response of acreage to price, 62
wholesale-retail price spreads, 272
Poultry products
cooperative marketing, 359, 362
farm value, 7
marketing charges, 7
production and market reporting, 302
regulation of marketing, 317
retail cost, 7
trend in number of plants, 251
Prepackaging, 162
Price cycles, 75 ff
Price discrimination, 278, 285, 330 ff; (*see also* Marketing agreement programs)
between forms or uses, 163
geographic, 123
Price leadership, 73, 280, 291
Price ratio, corn-hog, 76
Price spreads; *see* Marketing charges
Price support; *see* Farm prices, policy regarding; Allocation of supplies; Surpluses; *and* references to specific programs
Price systems, 124
Prices
administered, 90, 287
effects of advertising on, 428, 434
fair, 25
functions of, 23 ff, 88
resale price maintenance, 348 ff
Prices, farm; *see* Farm prices
Prices, futures; *see* Futures prices
Pricing, 70 ff; (*see also* Farm prices on auctions, 71)
central role, in marketing, 5, 23
cobweb theorem, 77
discriminative; *see* Discriminative pricing
efficiency in, 23 ff, 88
of fluid milk, 90, 127
formula, 90
in fruit and vegetable wholesale market, 222

under imperfect competition, 72, 272 ff
Processing, 159 ff; (*see also* commodity references)
as adjunct of storage and transportation, 160
by chain stores, 250
diversion of products to, 163
location of, in meats, 135
trend in numbers and size of plants, 251
Produce Agency Act, 315
Product differentiation, 40, 278
Production aspects of marketing, 4, 109
Production, farm; *see* Farm production
Production function, 212
Promotion; *see* Advertising and promotion
Prorates, market, 336 ff
Public interest in marketing, 22 ff
Public regulation of marketing, 313 ff; (*see also* Monopoly)
Psychological approaches in economics, 106

Q

Quality; *see* Grades and standards
Quality control, 262
Quarantines as trade barriers, 137, 140

R

Railroads; *see* Transportation; Transit privileges
Ratio-delay method, 206
Refrigeration, 114, 258
Reports, market, 302
Resale price maintenance, 348 ff
Research and Marketing Act, 4, 22
Research, marketing; *see* Marketing research
Restrictions on competition; *see* Competition, restrictions on
Retailing, grocery; *see also* Chain stores
economic concentration, 247
educational work, 439
efficiency in check-out operation, 203
integration, 268
local monopoly, 251, 326
super-markets, 162, 249
wholesale-retail price spreads, 272
Rice
cooperative marketing, 359, 362
elasticity of demand, 68
Risk; *see also* Ownership, transfer of; Hedging; Speculation
burden of, in storage, 145
farmers', 170
transfer of, through futures trading, 172 ff, 179, 193
Rye, price instability, 181

S

Safe storage period, 157
Sanitary regulations, as trade barriers, 137, 138
School lunch program, 346
Seasonal variation; *see also* Allocation of supplies; Orderly marketing
adjustment for, in milk pricing, 91, 127
and allocation of supplies, 145 ff
in demand for storable products, 65
in milkshed boundaries, 126
and use of annual average data, 32
Services, marketing; *see* Marketing services
Sheep; *see* Lambs
Sherman Act; *see* Anti-trust laws
Shopping goods, 125
Simplification; *see* Work simplification
Size of business; *see* Concentration, economic; Economies of scale
Smith-Lever Act, 358
Soap, advertising and selling expense, 428
Soft drinks, trend in number of plants, 251
Soybeans
cooperative marketing, 362
farm storage, 145
Specialization, economic; *see also* Efficiency; Economies of scale
of cotton-yarn mills, 218
facilitation of, by marketing, 11, 16 ff
and transfer of ownership, 165
Specialty crops, marketing agreements for, 333
Speculation, 172 ff
effects upon prices, 179 ff
as motive for storage, 145
types and operations of speculators, 185, 188 ff
Spot markets, 173
Standards; *see* Grades and standards
Statistical measurement of demand, 94 ff
and analysis of storage programs, 156
estimates of elasticity, for various commodities, 68
identification problem, 95
single-vs. multiple-equations approach, 94, 99, 103
treatment of trend, 105
Storage, 142 ff
burden of, 143, 192
farm, 145

inverse carrying charges, 176
motives for, 144, 178
programs, effects of, 150 ff
regulation, 314
seasonal, 143
stocks, reporting of, 302
wartime planning, 156
working stocks, 142, 178
year-to-year, 149 ff
Structural analysis, 103
Subsidies to consumption, 49, 345 ff
Substitution; *see also* Interrelated demands
in consumption subsidy programs, 345 ff
and elasticity of demand, 36
as limitation to monopoly, 253
and market control programs, 338
Sugar
advertising and selling expense, 428
elasticity of demand, 68
grower contracting for sugar beets, 169
import controls, 140
refining, concentration in, 246
Sugar Act of 1948, 140
Super-markets, 162, 249
Supply areas
boundaries of, 114 ff
seasonal variation in, for fiuid milk, 126
Supply of farm products, 51 ff, 84; (*see also* Allocation of supplies; Farm production)
and demand, equation of, 70 ff
effects of technological development, 84
factors influencing, 54 ff, 84
lag in response to price, 75 ff
stability, 51 ff
statistical measurement, 62, 104
Surpluses, agricultural; *see* Agricultural surpluses
Surveys, market; *see* Market surveys
Sweet potatoes
cooperative marketing, 359
wholesale-retail price spreads, 272
Synthetic method, in efficiency studies, 215

T

Taxes
chain store, 348
on cooperatives, 403, 406 ff
Edgeworth's taxation paradox, 70
as trade barriers, 136 ff
on whiskey, 161
Technological development
in cheese manufacturing, 262
and economies of scale, 257, 320 ff
and farm production, 84
and management efficiency, 257
in meat packing, 258
in transportation, effects on marketing, 114, 134, 257
Time-study method, 206
Timing of marketing, 142 ff; (*see also* Storage; Allocation of supplies, seasonal)
Time utility; *see* Utility; Timing of marketing
Tobacco
advertising, 434
concentration in assembly and processing, 246
cooperative marketing, 359, 362
grades, 312
stocks, reporting of, 303
vertical integration, 194
Tomatoes, sale by contract, 169
Trade; *see* Exchange; Market areas
Trade, international, 140
Trade associations, and imperfect competition, 275
Trade barriers, 136 ff
Trading, futures; *see* Futures trading
Transit privileges, 131, 135; (*see also* Motor-truck transportation)
Transportation, 114 ff
necessary conditions for, 115
Transportation costs
absorption of, 123
in assembly, 225 ff
decrease in, and widening of markets, 326
in distribution, 231
effect of, on marketing methods, 134
and geographic price structure, 130 ff
and market and supply areas, 114 ff
pooling of, for fluid milk, 129
and processing, 135, 160
transit privileges, 131, 135
zoned, and overlapping of markets, 123

U

Uncertainty
and business decisions, 107
and competition, 328
and market sharing, 72
and price leadership, 291
United States Grain Standards Act, 316
United States Warehouse Act, 314
Utility, types of, 109 ff

V

Veal, elasticity of demand, 68
Vegetables; *see* Fruits and vegetables

W

Waste and spoilage
prepackaging and, 162
processing and, 160
Welfare; *see also* Perfect competition, as a norm; Advertising, private vs. social benefits; Public regulation of marketing
and discriminative pricing, 285, 331
economic concentration and, 273 ff
efficiency and, 195, 236 ff
Wheat
carrying charges and stocks, 177
cooperative marketing, 359
economic concentration, 247
elasticity of demand, 68
futures trading, 188
price instability, 181
price spread, cash vs. futures, 176
sale of, by contract, 169
storage program, effects of, 152
Whiskey rebellion, 161
Wholesale markets, improvement of, 219 ff, 439
Wholesaling
integration, 260, 262, 268
labor efficiency in, fruits and vegetables, 270
Wool
cooperative marketing, 362
production reporting, 302
Work simplification, 197 ff
in celery packing, 197
in egg handling, 202
in fruit-packing houses, 208
ratio-delay method, 206
research on, in marketing, 210
in retailing, 203
Working stocks, 142, 178