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## *Need for Greater Emphasis on Capital Investment in Human Resources*

A COMPREHENSIVE TREATMENT of society's investment in human resources would involve an analysis of the effects of increased incomes on productivity or income earning ability for those families which have low incomes. It would also include analysis of improved education, housing, recreational, and health services and facilities on total national income. Finally, it would appraise the effects of other community services which would improve the general welfare of individuals and communities. Not all of these variables or forces can be treated in this chapter; therefore, the major implications of human resource development will be illustrated by concentrating upon investment in education.

The current national interest in education and the need for a greater public investment in developing a higher quality labor force no doubt stems from the experience in manpower utilization during World War II and world economic competition.<sup>1</sup> The wartime experiences served to emphasize the need for a definite manpower policy since it was suddenly realized that this "nation did not possess unlimited manpower resources and that care would have to be taken in utilizing the available supply."<sup>2</sup> However, it was not until the development of the atomic bomb and the speed with which the Russians challenged the United States in the development of nuclear weapons that a full realization of the importance of the scientist in the contemporary world was fully recognized.<sup>3</sup> Also, during this period a fuller recognition was gained of the scientific-manpower problem and its relation to questions of economic development, and of the increasing dependence of American industry on discoveries in the laboratory.<sup>4</sup> In this scientific age, business, government officials, and economists are becoming increasingly aware that

<sup>1</sup> Eli Ginzberg, *Human Resources: The Wealth of a Nation*, Simon and Schuster, Inc., New York, 1958, pp. 28-29; Clarence H. Linder, "Trends in industrial requirements for scientists and engineers," *Scientific Manpower 1958*, National Science Foundation, NSF 59-37, pp. 27-31.

<sup>2</sup> *Ibid.*

<sup>3</sup> *Chemical and Engineering News*, "Education 'crash' program in the works," Dec. 16, 1957, pp. 19-20.

<sup>4</sup> Phil N. Scheid, "Technical manpower accession and utilization analysis in an expanding decentralized company," *Scientific Manpower 1958*, National Science Foundation, NSF 59-37, pp. 14-26.

the limiting factor governing the nature and extent of the expansion of the American economy lies in the limit of the skills and competence of its work force. This phenomenon and the increasing interest in maintaining continuous economic growth of this country have undoubtedly been the major reasons for our growing concern about the lack of adequate education and training programs to meet this country's future manpower needs.

Need for a greater emphasis on capital investment in human resources in agriculture cannot be considered apart from national interests because of the interdependency of agriculture and the rest of the economy. National economic growth creates adjustment problems in agriculture and opens up new income opportunities for capital and human resources both within and outside of agriculture. For example, technological progress within agriculture and the changing demand structure for agricultural products serve to create a surplus labor supply in agriculture; an expanding national economy creates additional nonfarm job opportunities and a demand for surplus labor. Utilization of excess labor in agriculture to further economic growth is dependent upon employment opportunities and manpower utilization in general. For these reasons it is necessary that an examination of national manpower problems and the nation's need for greater capital investment in human resources be made before the need for capital investment in human resources through education in agriculture is considered.

### EMPLOYMENT AND ECONOMIC GROWTH

National economic growth and technological progress have brought about changes in employment opportunities as well as changes in the demand for different types of goods and services. Predictions of economic growth indicate that even greater shifts in the kind and volume of goods and services produced are to be expected.<sup>5</sup> These changes will necessarily cause important differences in the distribution of industrial employment to emerge.

The growth of the nation's labor force over the years has been accompanied by sharp changes in the relative size of different industries and occupations which have greatly affected employment opportunities. For example, the proportion of the total labor force in agriculture has declined with expansion and growth of the national economy. The shift from farm to nonfarm work will necessarily continue with expansion of the total economy and increased agricultural technology. Data illustrating this trend are cited in Chapter 1. As farm employment continues to drop and the number of farms decreases, an increasing number of our rural youth will have to look to nonfarm work. The type of nonfarm employment for which these rural young people can qualify will be determined largely by their education and vocational skills.

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<sup>5</sup> U. S. Department of Labor, Occupational Outlook Handbook, Bul. No. 1255, Washington, 1959.

Historically, the proportion of the labor force engaged in agriculture has declined with expansion and growth of the national economy. The existence of a geographic pattern of underemployed human resources in an era of rapid national economic growth has been associated with regions that have a high proportion of the labor force in agriculture.<sup>6</sup> For example, the proportion of the labor force engaged in agriculture is higher in the Southeast and the Tennessee Valley region than for the nation. In 1940 approximately 45 percent of those employed in 11 southeastern states were in agriculture, while only 23 percent were so employed for the nation (Table 22.1). The decline in farm employment since 1940 for the Southeast was greater than for the nation, but the proportion of total employment engaged in agriculture in this region was approximately twice that for the nation in 1958. These data, in addition to migration and farm income data, emphasize the existence and persistence of a surplus labor problem in agriculture and emphasize the fact that this surplus is closely related to general economic growth. Hendrix and Lanham developed this point in Chapter 14.

As with agricultural employment, industrial employment since 1940 has undergone changes which have caused alterations in employment by occupational groups. These changes in the labor forces of the nation and the Southeast between 1940 and 1950 are presented in Table 22.2 and Figures 22.1 and 22.2. These data indicate the nature of the declining employment in farming and the unskilled labor groups, and the increasing importance of the semiskilled, skilled, and scientific groups since 1940. During the 1960-70 period, changes in the distribution of employment opportunities are expected to continue with increases in the skilled and technical groups exceeding the increases in the semiskilled and nonskilled labor groups, since technological advances are expected to permit large gains in production without corresponding increases in the number of semiskilled workers.<sup>7</sup> The necessary investment capital in physical production factors required to expand output undoubtedly will be forthcoming, but the important question is to what extent will additional capital be invested in developing an adequately skilled and educated labor force to meet the changing needs of our expanding economy. Since the Southeast has the highest proportion of the total farm population, as well as the majority of the low-income or underemployed rural people, the extent to which public and private funds are allocated to the development of these human resources is expected to affect the future rate of growth for the nation. This consideration is important since one of the greatest opportunities for human resource development lies in the surplus farm labor force of the South. A more complete utilization of these human resources would make an important contribution to national and regional economic growth. It would also

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<sup>6</sup> William E. Hendrix, "Income improvement prospects in low-income areas," *Jour. Farm Econ.*, Vol. 41, No. 5, Dec., 1959, pp. 1065-75.

<sup>7</sup> U. S. Department of Labor, *Occupational Outlook Handbook*, Bul. No. 1255, Washington, 1959.

Table 22.1. Percent of Persons Engaged in Agriculture and Wage and Salary Employees in Nonagricultural Establishments, United States and Selected Areas in the Southeast, 1940, 1950, and 1958

				Percent change in employment		
	1940	1950	1958	1940-50	1950-58	1940-58
	(percent)					
<u>United States</u>						
Total employment <sup>a</sup>	100	100	100	25.6	7.9	35.6
Agriculture <sup>b</sup>	22.9	14.4	10.4	-21.3	-22.2	-38.7
Nonagriculture	77.1	85.6	89.6	39.6	13.0	57.7
<u>11 S. E. States</u>						
Total employment <sup>a</sup>	100	100	100	13.2	10.3	24.9
Agriculture <sup>b</sup>	45.1	29.0	20.3	-27.3	-22.8	-43.9
Nonagriculture	54.9	71.0	79.7	46.5	23.8	81.4
<u>7 Tenn. Valley States</u>						
Total employment <sup>a</sup>	100	100	100	11.9	5.9	18.4
Agriculture <sup>b</sup>	45.6	30.0	21.5	-26.6	-23.9	-44.2
Nonagriculture	54.4	70.0	78.5	44.2	18.6	71.0
<u>Tenn. Valley (125 Cos.)</u>						
Total employment <sup>a</sup>	100	100	100	10.6	2.6	13.5
Agriculture <sup>b</sup>	47.7	34.6	25.8	-19.9	-23.5	-38.7
Nonagriculture <sup>c</sup>	52.3	65.4	74.2	38.4	16.4	61.1

Source: Nonfarm data for the U. S. and states are from the U. S. Bur. of Labor Stat., Ann. Suppl. issues of Employment and Earnings.

<sup>a</sup>The employment estimates cover the annual average number of persons engaged in agriculture, and wage and salary employees in nonagricultural establishments including federal, civilian, and state and local school and nonschool governments; mining; manufacturing; contract construction; transportation, communication, and public utilities; trade; finance; and service. Nonfarm proprietors, domestics, and professional non-salaried trade and service workers are not included. Agriculture includes farm operators, hired workers, and unpaid family workers.

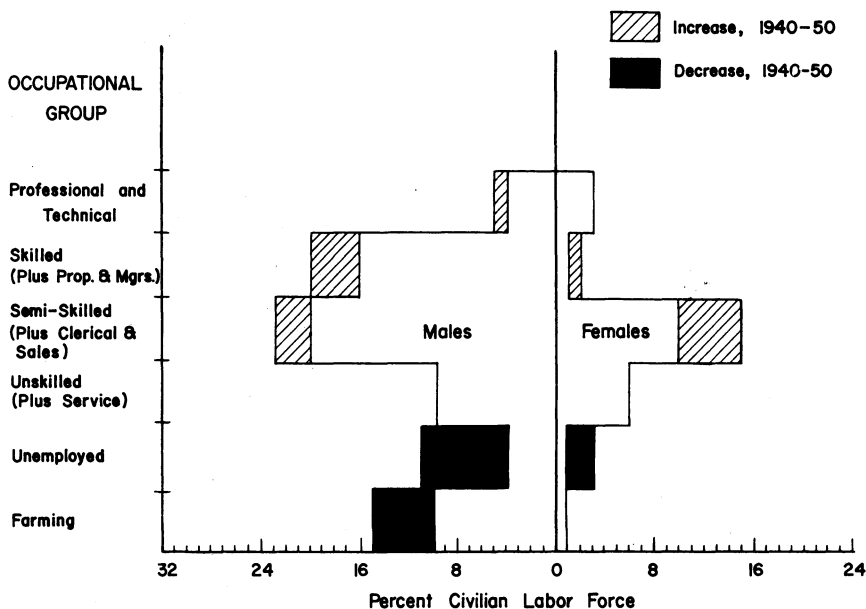
<sup>b</sup>Agricultural employment estimates for the U. S. are the annual estimates compiled by the U. S. Bureau of the Census and published in Annual Report on the Labor Force. State and county estimates were obtained by allocating a portion of the national total to states, and in turn to groups of counties in the respective states, on the basis of data from the Censuses of Agriculture and Population.

<sup>c</sup>Nonagricultural employment estimates for the Tennessee Valley, derived from the BLS state estimates, are based upon special tabulations of county data from the Bureau of Old-Age and Survivors Insurance, Census and Civil Service reports, and other related materials.

help to bring about a more efficient agriculture through better farm organization, land use, and farm enlargement.

## AGRICULTURE AND ECONOMIC GROWTH

National economic growth, which has served to create additional nonfarm job opportunities, in combination with increased production efficiency in agriculture, has provided the incentives for increased



Source: 1950 Census of Population, General Characteristics.

Fig. 22.1. U. S. labor force becoming more skilled.

labor mobility, especially among the young adult farm population. Also, underemployment of labor in agriculture and the incentives for making production and income adjustments have generally been an outgrowth of economic and technological progress (cf. Chapters 6, 7, and 14). The extent to which workers will be employed by 1975 was indicated by Baum and Bachman.

The nature and extent of underemployment of human resources are related to the changing structure of agriculture and to the relative speed with which different regions in the United States make the necessary adjustments in farm technology and resource use. Rapid national economic growth and technological progress in agriculture have accentuated underemployment and low income in the Southeast because many individuals are not prepared to make the necessary changes in their farm production or type of employment. Woodworth and Fanning (Chapter 23) and Hendrix and Lanham (Chapter 14) make similar observations. There are many barriers which inhibit or prevent many individuals from making the necessary production and income adjustments in agriculture and outside agriculture. Migration data and the rate of nonfarm job creation yield some insight about the type of adjustments being made with respect to changes in human resource use, but these data tell us little about the extent to which additional adjustments will be needed.

An examination of the agricultural census data on farms by

Table 22.2. Distribution of Employment by Occupational Groups and Sex for the United States and Eleven Southeastern States, 1940 and 1950

Region and occupational group <sup>a</sup>	1940						1950					
	Thousands of persons			Percent civilian labor force			Thousands of persons			Percent civilian labor force		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
<u>United States</u>												
Professional and technical	2,075	1,491	3,566	4	3	7	2,971	1,940	4,911	5	3	8
Skilled	8,261	511	8,772	16	1	17	11,888	913	12,801	20	2	22
Semi-skilled	10,306	5,189	15,495	20	10	30	13,320	8,643	21,963	23	15	38
Unskilled	5,093	3,301	8,394	10	6	16	5,748	3,376	9,124	10	6	16
Not reporting, employed	245	173	418	-*	-*	1	449	282	731	1	-*	1
Unemployed	5,916	1,707	7,623	11	3	14	2,079	753	2,832	4	1	5
Farming	7,770	473	8,243	14	1	16	6,143	566	6,709	10	1	11
Total civilian labor force	39,666	12,845	52,511	76	24	100	42,598	16,473	59,071	73	28	100
<u>Eleven Southeastern States<sup>b</sup></u>												
Professional and technical	262	241	503	2	2	4	405	335	740	4	3	7
Skilled	1,167	74	1,241	11	1	12	1,876	148	2,024	16	1	17
Semi-skilled	1,552	749	2,301	15	7	22	2,234	1,357	3,591	20	12	32
Unskilled	1,044	826	1,870	10	8	18	1,134	829	1,963	10	7	17
Not reporting, employed	42	31	73	-*	-*	1	100	63	163	1	1	2
Unemployed	904	305	1,209	9	3	12	303	138	441	3	1	4
Farming	2,974	323	3,297	28	3	31	2,233	251	2,484	20	2	22
Total civilian labor force	7,945	2,549	10,494	75	24	100	8,285	3,121	11,406	74	27	100

Source: 1950 Census of Population, "General characteristics."

<sup>a</sup> As used here, occupational groups are defined as: Professional and technical — same as given in source.

Skilled — Includes managers, officials, proprietors (except farmers), and craft, foremen, and kindred classifications in source.

Semi-skilled — Includes clerical and kindred, sales workers, and operatives and kindred classifications in source.

Unskilled — Includes private household, service (except private household), and laborers (except farm), and mine classifications in source.

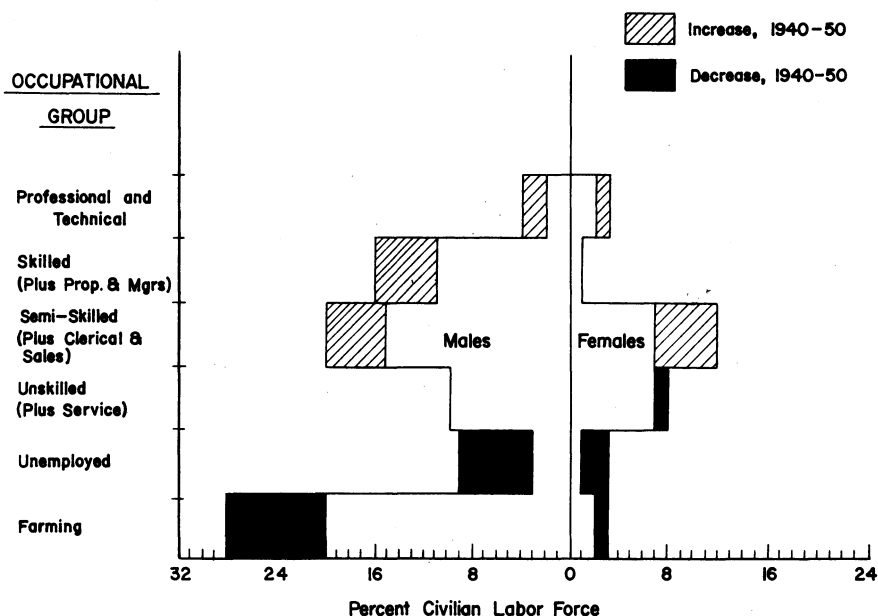
Not reporting, employed — Same as given in source.

Unemployed — Same as given in source.

Farming — Includes farmers and farm managers, farm laborers (unpaid family), and farm laborers and foremen classifications in source.

<sup>b</sup> Includes Alabama, Arkansas, Georgia, Florida, Kentucky, Louisiana, Mississippi, North and South Carolina, Tennessee, and Virginia.

\*Less than 1 percent.



Source: 1950 Census of Population, General Characteristics.

Fig. 22.2. Farm employment declines in Southeast.

economic class gives some additional knowledge of the relationship of agriculture to economic growth, and of the nature of adjustment problems in agriculture resulting from further improvements in agricultural technology. From 1930 through 1954 the number of all commercial farms and each individual grouping of commercial farms, except for Economic Class I farms which increased from 1950-1954, declined in absolute terms. The most drastic decline in the number of farms was in the low-income small-scale commercial farms. As farm production technology and efficiency continue to increase, these low-income farmers, as well as most rural farm youth, will find it increasingly difficult to find productive employment in agriculture. However, rural people, especially those in the low-income group, generally have the least qualifications for entering the nonfarm labor force in terms of age, education, and vocational training.<sup>8</sup> Therefore, these people must enter the nonfarm labor force at the unskilled level where the demand for this type of labor is decreasing relative to other occupational groups.<sup>9</sup> In terms of their contribution to total economic growth and national income, these rural people will be able to make a limited contribution because of their lack of education and training. Additional

<sup>8</sup> Arthur B. Mackie and E. L. Baum, Problems and Suggested Programs for Low-Income Farmers, Div. of Agr. Rel., TVA Report T 60-2 AE, Oct., 1959.

<sup>9</sup> Ewan Clague, Testimony before Special Subcommittee on Unemployment Problems, United States Senate, Oct. 7, 1959.

capital investment in human resources, both in basic education for the rural youth and in vocational training for all rural people entering the nonfarm labor force, would no doubt prove to be a profitable investment for the nation.

### NEED FOR GREATER EMPHASIS ON INVESTMENT IN THE HUMAN AGENT

The existence of low incomes, or underemployed labor resources, in agriculture and the changing demand structure for labor in the non-farm sector serve to emphasize the importance of achieving an "investment balance" in capital allocated to material and human resource development.<sup>10</sup> Greater emphasis on investment in human resources is needed to overcome the historical concept — which is still predominantly held — that only physical resource development and material capital are essential to technological progress and economic growth. Emphasis on the need for a greater investment in the human agent by the National Science Foundation,<sup>11</sup> U. S. Department of Labor,<sup>12</sup> Galbraith,<sup>13</sup> Ginzberg,<sup>14</sup> and others,<sup>15</sup> has done much to bring about a better understanding of the need for and the relationship of capital investment in human resources to economic growth.

The necessity for a greater emphasis on capital investment in human resources grows out of (1) the need for obtaining a wider acceptance of the idea that capital expenditure in human resource development is an investment which yields returns to society in terms of a more productive and competent labor force, and (2) the inability of the market system to allocate capital between physical and human resource development activities in a manner that is conducive to maximum economic growth. The first aspect of the problem involves a historical attitude that places more value or importance upon physical capital investment — especially private — than upon investment in human resources. The second consideration grows out of the first, since

<sup>10</sup> John Kenneth Galbraith, *The Affluent Society*, Houghton Mifflin Company, Boston, Mass., 1958, pp. 270-80.

<sup>11</sup> *Scientific Manpower*, 1958, *op. cit.*

<sup>12</sup> *Occupational Outlook Handbook*, *op. cit.*

<sup>13</sup> Galbraith, *op. cit.*, pp. 270-80; see also an article by Galbraith, "Men and capital," *The Saturday Evening Post*, Mar. 5, 1960.

<sup>14</sup> Ginzberg, *op. cit.*

<sup>15</sup> A partial listing of the literature would include: Earl O. Heady, "Adaptation of extension education and auxiliary aids to the basic economic problem of agriculture," *Jour. Farm Econ.*, Vol. 39, No. 1, Feb., 1957, pp. 112-27; USDA, *Development of Agriculture's Human Resources — A Report on Problems of Low-Income Farmers*, Washington, April, 1955; Arthur Moore, "Underemployment in American agriculture, a problem in economic development," *Nat. Planning Assn. Pamphlet No. 77*, Jan., 1952; Theodore W. Schultz, "Reflections on poverty within agriculture," *Jour. Polit. Econ.*, Vol. 58, Feb., 1950; E. L. Baum and Earl O. Heady, "Some effects of selected policy programs on agricultural labor mobility in the South," *The Southern Econ. Jour.*, Vol. 25, Jan., 1959; C. E. Bishop, "The mobility of farm labor," *Policy for Commercial Agriculture — Relation to Economic Growth and Stability*, Joint Economic Committee Report of the Subcommittee on Agricultural Policy, 85th Cong., 1st Sess., Washington, 1957.



investment in human resources does not command a direct market price. Therefore, such investment must be made outside the market system through the expenditure of public funds. Since capital investment in human resources is left to the area of public domain, there are few, if any, effective criteria for channeling adequate quantities of capital into human resource development. There is important need for a realistic accounting system that would clearly define the costs and gains from additional investment in education, i.e., a national balance sheet.

Historically, the United States has recognized the importance of education in developing an enlightened citizenry to better perform their civic and political responsibilities. However, the economic importance of education has not been fully recognized or related to economic benefits. Part of the explanation for the slowness of our society to appraise adequately the value of education and training, and to relate such benefits to national manpower problems and needs, has been our preoccupation with the assumption that adequate investment in education would be taken care of by the free market system. The free market system has not prevented the malutilization of the nation's human resources. In fact, it often has encouraged malutilization through discrimination and the creation of an imbalance in rewards between the profit (business) and nonprofit (public) sectors of our economy.

Although all signs point to an ever-increasing dependence of our economy on people with high orders of skills and competence, the public has been very slow to increase the share of our national income devoted to education. Inadequate investment in the educational preparation of Americans is not limited to illiteracy, which is an extreme example of neglect. Rather, it more nearly lies in the unwillingness of a large portion of our population to provide adequately primary and secondary education for the youth, especially in the Southeast. The significance of an inadequate investment in educational preparation of youths is dramatized by the rejection rates of registrants given mental tests by the Selective Service System from 1951 to 1958.<sup>16</sup> During 1953-54 one-third of all young men screened for military service were placed in Mental Groups IV or V, which means that because of their low intellectual achievement they were either rejected for service (V) or found unacceptable for advanced training (IV). Only 23 percent of the males from the western states were in these two lowest classes, while almost 53 percent of the selectees from the southeastern states were so classified.<sup>17</sup> These figures suggest that not only does the South have fewer high school graduates, but the quality of their schooling is inferior to other parts of the nation. The data on the expenditure per pupil for secondary and primary education by states suggest that the low level of such investments in the southern states is not entirely

<sup>16</sup> Lee R. Martin, "Investment in human resources: a solution to the low-income problem," Unemployment Problems, Hearings Before Special Committee on Unemployment Problems, United States Senate, 86th Cong., 1st Sess., 1960, Part 5, p. 2186, Table 6.

<sup>17</sup> Ginzberg, *op. cit.*, p. 57.

unrelated to the educational achievement and performance of youths in military service or in civilian employment.<sup>18</sup> Martin presented data on this subject in Chapter 4, Table 4.1.

The importance of education and its manpower implications is essentially twofold: (1) individuals acquire skills by building upon what they learn in school and environment; and (2) society and industry can make additional investments in individuals in the form of additional training, and hence, skills, if the initial investment in basic education has been made. The returns on the initial investment in primary and secondary education are not limited to the immediate income earned, but to the fact that secondary and higher order investments can be made by industry or society in additional training. The possibility of additional training means an expansion of the lifetime income opportunities for an individual. This additional investment opportunity means that industry can alter the make-up of its labor force to meet its changing demand for skills which results from technological advances and economic growth. In addition, a third benefit accrues to communities that have made adequate investment in primary and secondary education because business will be more easily attracted to the areas that have a well-educated labor force. One of the present difficulties encountered by many communities in the South in attracting industries is the low level of education of their labor force. Not all industries seek out surplus labor areas because of low wages; rather, low cost labor considerations may be incidental to labor productivity considerations.<sup>19</sup>

#### EDUCATION: AN ESSENTIAL REQUISITE FOR SUCCESS IN AGRICULTURE

The benefits of additional education are not limited to the nonfarm sectors. Agriculture, like other industries, is becoming more scientifically oriented, and is thus demanding greater competence of its labor force. The demands for an efficient farm organization, and all that this implies for increased technology, increased capital needs, and improved management to command and utilize land, labor, and capital resources, will continue to increase in importance. The implication of these factors is that agriculture is becoming more complex and business-oriented. As agriculture becomes more business-oriented, the manner in which capital, land, and labor are utilized and managed will materially affect the ability of individual farm firms to remain competitive. In this economic environment, education of farm operators will become increasingly important as a limiting factor in achieving desirable living standards. The relationship of educational attainment to income of farm operators in 1950 is clearly indicated by the

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<sup>18</sup> Martin, *op. cit.*, p. 2172.

<sup>19</sup> *Ibid.*

higher proportion of farmers in Economic Classes I and II who had graduated from high school than was true for lower income farmers (Table 22.3). Obviously then, with continuous national and regional economic growth, education will become an important factor governing the future success of individuals remaining in agriculture, or those leaving agriculture for nonfarm work. The implication of a low level of educational attainment for low-income commercial farmers — those who are being forced out of agriculture — is that these rural people will continue to experience great difficulty in competing for nonfarm jobs. Furthermore, education will become increasingly important to rural youths since the educational level and skills of the total labor force continue to rise. For example, in 1957, 38 percent of the people 25 to 34 years of age had completed high school, while only 14 percent of those who were 55 years of age and over had this much schooling. Two-thirds of the population 18 years of age in 1958 had completed high school, whereas only about 1 out of 15 in 1900 had done so.<sup>20</sup> Many factors have contributed to this rising educational level. One important factor has been the increasing complexity of skills demanded in modern industry. To meet such requirements, employers have raised

Table 22.3. Years of School Completed by Farm Operators by Economic Class of Farms for the United States, 1950<sup>a</sup>

Years of school completed	Total all farms	Commercial farms <sup>b</sup>					Total commercial farms	Part-time and residential
		I and II	III	IV	V	VI		
(percent distribution)								
	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>
None	2.7	0.4	0.8	2.0	3.0	5.9	2.6	3.0
Elementary:	<u>66.4</u>	<u>42.8</u>	<u>59.1</u>	<u>66.9</u>	<u>72.2</u>	<u>78.5</u>	<u>65.7</u>	<u>68.0</u>
1 to 4 years	14.9	4.0	5.5	10.3	19.0	27.3	13.9	17.3
5 to 6 years	13.8	5.6	8.2	12.7	16.1	17.9	12.7	16.3
7 years	10.8	7.4	8.8	10.5	11.5	13.3	10.5	11.6
8 years	26.9	25.8	36.6	33.4	25.6	20.0	28.6	22.8
High school:	<u>25.3</u>	<u>42.7</u>	<u>33.3</u>	<u>26.5</u>	<u>20.5</u>	<u>14.1</u>	<u>26.1</u>	<u>23.4</u>
1 to 3 years	14.3	16.4	16.0	15.5	12.6	10.7	14.1	14.9
4 years	11.0	26.3	17.3	11.0	7.9	3.4	12.0	8.5
College:	<u>5.6</u>	<u>14.1</u>	<u>6.8</u>	<u>4.6</u>	<u>4.3</u>	<u>1.5</u>	<u>5.6</u>	<u>5.6</u>
1 to 3 years	3.6	9.4	5.1	3.0	2.8	0.9	3.8	3.2
4 years or more	2.0	4.7	1.7	1.6	1.5	0.6	1.8	2.4

<sup>a</sup>Farms and Farm People—A special cooperative study by the U. S. Depts. of Com. and Agr., Bureaus of the Census and Agricultural Economics, Washington, D. C., 1953, p. 59.

<sup>b</sup>Commercial farms were classified by the 1954 Census of Agriculture into the tabulated economic classes in accordance with value of sales:

Economic class	Value of sales
I	\$25,000 or more
II	10,000 to 24,999
III	5,000 to 9,999
IV	2,500 to 4,999
V	1,200 to 2,499
VI	250 to 1,199

<sup>20</sup>Occupational Outlook Handbook, *op. cit.*, p. 13.

the educational qualifications for many jobs, especially for the more skilled occupations. The importance of increased educational requirements for the more skilled jobs is reflected in the data presented in Table 22.4 on educational attainment by occupational employment for those individuals working in 1959. These data indicate that the importance of education should continue to increase for rural farm youths seeking nonfarm employment opportunities.

The discussion thus far suggests the following means to improve incomes and investment in those human resources remaining in or leaving agriculture: (1) expansion of existing basic educational programs; (2) improvement of existing educational programs to include more vocational training and guidance, and other related services for the young and adult farm population leaving agriculture; (3) improved agricultural education programs for the adult farm population remaining in agriculture; (4) reallocation of present funds among existing program activities in line with changing demand for labor and employment opportunities; or (5) combinations of the above methods.

### OPPORTUNITIES FOR INVESTMENT

Generally, the essential features of a desirable national education program exist, but a critical review of our current programs with respect to objectives and needs should be undertaken to provide the basis for making the necessary adjustments and improvements in educational programs to meet existing and future production and manpower needs.

An expansion of existing educational, training, and service programs would involve a change in attitude on the part of society toward public expenditures (investments) before additional funds can be obtained. The belief that public expenditure for education is a consumption

Table 22.4. Educational Attainment by Occupation Group  
for Those Employed in the United States in 1959

Occupational group	Educational attainment levels			
	Average years completed	Percent with		
		Less than high school	High school graduation	Some college
Professional and technical	16.2	6	19	75
Proprietors and managers	12.4	38	33	29
Clerical and sales	12.5	25	53	22
Skilled	11.0	59	33	8
Semi-skilled	9.9	70	26	4
Service	9.7	69	25	6
Unskilled	8.6	80	17	3
Farmers and farmworkers	8.6	76	19	5

Source: Manpower Challenge of the 1960's, U. S. Dept. of Labor, U. S. Govt. Print. Off., 1960.

item will have to be replaced by a recognition of it as an investment item. Also, the belief that sufficient funds for development of human resources can be obtained through the market system will have to be replaced with a recognition that such capital investments are in the area of the public domain, and therefore, need separate investment criteria.

One of the reasons why this nation is faced with an inadequate investment in human resources resulting from outdated concepts has been the lack of sufficient research on the economic impacts of education on the nation. More research has probably been done on the benefits of education to the individual than on the total economic return to the nation in terms of its effect upon total national income. The effects of education upon labor mobility in agriculture have been pointed out<sup>21</sup> as well as the effect of education on income level,<sup>22</sup> or income potential for all individuals.<sup>23</sup> The lifetime earnings, for example, for a 25-year-old college graduate have been roughly estimated to be about \$260,000, as compared with \$155,000 for a high school graduate, and only \$110,000 for those who have completed the eighth grade (Figure 22.3).<sup>24</sup> There is a need for more research on this subject so that an adequate assessment can be made of the possible total effects of increasing the educational level in the South on national income and economic growth. For example, the proportion of the population, ages 25 to 29 in 1950, that had completed high school was 35 percent for the United States, while only 25 percent or less had completed high school in each of the southern regions (Table 22.5). The low percentage of people completing high school in the southern region is not entirely due to the low percentage associated with the nonwhite population. The proportion of the white population graduating from high school in the South is consistently lower than for all other regions in the United States (37 percent for the United States and 28 percent or less for the southern regions). Increasing the educational attainment of the southern population would improve the quality of the labor force and affect regional economic growth. Such an effort would not only raise the income level of individuals in the South, but it would also enable underemployed labor resources to make a greater contribution to our total national product.

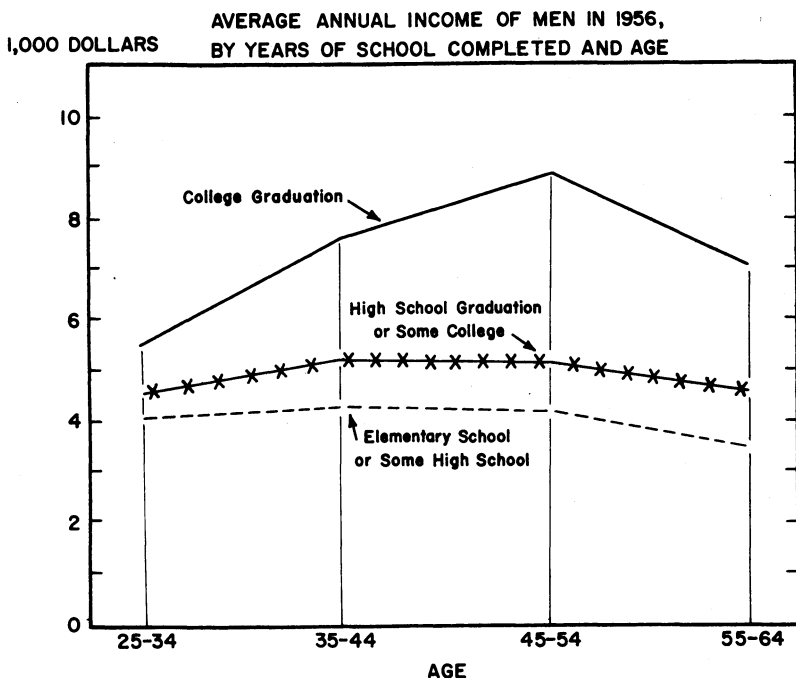
Another aspect of a long-run investment in human resources, such as education, is related to the relationship of basic education to

<sup>21</sup> USDA, Farm Population — Migration To and From Farms, 1920-1954, USDA, AMS-10, Dec., 1954; Gladys K. Bowles, "Farm population net migration from rural farm population, 1940-50," USDA, AMS, Stat. Bul. No. 176, June, 1956; C. Horace Hamilton, "Educational selectivity of rural-urban migration: preliminary results of a North Carolina study," Selected Studies of Migration Since World War II, New York: Milbank Memorial Fund, 1957 Annual Conf. Proc., pp. 110-22; also see *fn.* 15, this chapter.

<sup>22</sup> Herman P. Miller, *Income of the American People*, John Wiley & Sons, Inc., New York, 1955, p. 54, Table 25.

<sup>23</sup> Stuart Garfenkle, "Work-life patterns and educational levels," *Occupational Outlook Quarterly*, Vol. 2, No. 4, Dec., 1958, pp. 16-18.

<sup>24</sup> *Ibid.*, p. 16.



Source: U. S. Bureau of the Census, U. S. Dept. of Labor, BLS.

Fig. 22.3. Education is one of the factors affecting income.

subsequent training of individuals to acquire new or additional skills and competence. This built-in flexibility of the labor force enables industry to make short-run investments in training programs for individuals when technological advances alter the labor requirements of industry. Thus, the ability to alter specialized skills of our labor force to meet short-run changes in the demand for labor is directly related to the initial investments in human resources.

The need for a greater investment in human resources is being recognized by private industry. Many large corporations are initiating "continuing educational programs" for their personnel to improve the competence and skills of their labor force to meet the particular demands brought about by technological change. The need for this type of investment grew out of practical necessity for meeting current industrial demands for particular skills and for meeting future manpower needs that emerge from continuous technological progress and entrance of new workers into the labor force.

Another opportunity for increasing the investment in human resources is the improvement of existing educational programs by expanding certain program activities, such as vocational guidance and training, while leaving other activities, such as vocational agriculture, at their present levels. Still another possibility would be a reallocation

of funds, i.e., reducing expenditures for vocational agriculture and increasing expenditures for program activities such as "vocational trade and industry" and "vocational distributive occupations" training for the young adult population. In addition to similar vocational training and guidance programs for the rural adult population, other programs could be expanded, such as extended employment services unemployment compensation benefits, outlook services to better inform farm people about both farm and nonfarm income opportunities, and improved agricultural education programs for scientifically-minded farmers as well as low-income farmers.<sup>25</sup>

The above suggestions should lead to an improved investment in human resources and would, in effect, bring our educational and training efforts in line with needs and demands. In fact, the demand for vocational agricultural training has decreased more in the southern states than it has for the nation.<sup>26</sup> The proportion of farm youths of the male farm population in 1950 enrolled in vocational agriculture classes in twelve southern states was only 35 percent, while 41 percent were so enrolled for the United States in 1950. The fact that a smaller proportion of farm youths enrolled in vocational agriculture classes in the South than elsewhere, considering the preponderance of farming in the South, could mean that these youths have recognized the limited opportunities in agriculture to a greater extent than have our educational policymakers. In fact, many of the educational studies have assumed that vocational training for full-time agricultural occupations should be expanded. Insufficient thought has been given to (1) the limited opportunities for employment in agriculture, and (2) the relationship of agricultural employment to continued economic growth and improved farm technology.<sup>27</sup>

Trends toward the need for even fewer human resources in agriculture would signal the need for a reallocation of the federal and state expenditures (as shown in Table 22.6) between vocational agriculture and vocational trade and industry training. Specifically, the funds for vocational agriculture and home economics probably should be reduced and reallocated to vocational trade and industry and vocational distributive occupational training. These data indicate that a critical review of our present manner of investment in human resource development should be undertaken and adjustments made in the use of current public funds before attempts toward improvement by additional funds are explored.

The slowness of our nation to fully appraise the benefits of making additional investments in human resources is closely related to historical concepts and attitudes concerning the role of education. In the past our economic system was less complex and technical, and

<sup>25</sup> For a more detailed discussion on these points, see: Heady, *op. cit.*, pp. 119-27; Baum and Heady, *op. cit.*; Mackie and Baum, *op. cit.*

<sup>26</sup> USDA, Development of Agriculture's Human Resources - A Report on Problems of Low-Income Farmers, *op. cit.*, pp. 34-37.

<sup>27</sup> USDA, *ibid.*, p. 34.

Table 22.5. Educational Attainment of Population, Ages 25 to 29, in 1950 by Race for the United States and Selected Regions with Lowest Educational Attainment

Years of school completed	Percent in each group											
	United States			West South Central			South Atlantic			East South Central		
	White	Nonwhite	All	White	Nonwhite	All	White	Nonwhite	All	White	Nonwhite	All
Elementary school:	<u>21.9</u>	<u>53.9</u>	<u>25.2</u>	<u>29.7</u>	<u>62.5</u>	<u>34.7</u>	<u>31.9</u>	<u>68.9</u>	<u>40.0</u>	<u>39.9</u>	<u>69.9</u>	<u>46.3</u>
None	0.7	2.1	0.8	2.0	3.1	2.2	0.8	2.8	1.2	1.0	2.5	1.3
1 to 4 years	2.6	13.9	3.8	6.4	17.3	8.0	4.9	21.8	8.6	6.9	21.3	10.0
5 to 7 years	7.6	25.7	9.5	12.5	30.0	15.2	16.6	34.5	20.6	16.8	32.7	20.2
8 years (graduate)	11.0	12.2	11.1	8.8	12.1	9.3	9.6	9.8	9.6	15.2	13.4	14.8
High school:	<u>59.0</u>	<u>38.3</u>	<u>56.8</u>	<u>50.7</u>	<u>31.1</u>	<u>47.7</u>	<u>51.6</u>	<u>25.4</u>	<u>45.9</u>	<u>46.4</u>	<u>25.2</u>	<u>41.9</u>
1 to 3 years	21.8	22.5	21.9	22.4	20.9	22.2	25.3	17.6	23.6	20.4	16.8	19.6
4 years (graduate)	37.2	15.8	34.9	28.3	10.2	25.5	26.3	7.8	22.3	26.0	8.4	22.3
College:	<u>19.1</u>	<u>7.7</u>	<u>18.0</u>	<u>19.6</u>	<u>6.4</u>	<u>17.6</u>	<u>16.4</u>	<u>5.7</u>	<u>14.1</u>	<u>13.7</u>	<u>4.9</u>	<u>11.8</u>
1 to 3 years	10.9	4.9	10.3	11.5	3.9	10.3	9.2	3.2	7.9	8.0	3.1	6.9
4 years or more (graduate)	8.2	2.8	7.7	8.1	2.5	7.3	7.2	2.5	6.2	5.7	1.8	4.9

Source: U. S. 1950 Census of Population, Vol. II, "Characteristics of the population."



Table 22.6. Expenditures for Vocational Training for the United States and Low-Income Southern States, Fiscal Year Ending June 30, 1953

State	Total expenditures (\$1000)	Federal expenditures (percent)	Vocational			
			Agriculture (percent)	Home economics (percent)	Trades and industry (percent)	Distributive occupations (percent)
Total United States	145,951	17.4	32.5	29.5	34.6	3.3
Total Low-income southern states	39,864	18.5	45.3	34.7	17.2	2.8
Alabama	3,101	21.6	42.8	30.4	24.0	2.8
Arkansas	2,705	18.2	47.7	39.0	10.7	2.5
Georgia	5,052	14.3	45.9	39.6	11.7	2.8
Kentucky	2,190	31.1	47.0	33.3	17.5	2.2
Louisiana	3,748	13.1	45.3	37.9	14.0	2.9
Mississippi	2,900	21.2	49.5	34.9	13.7	1.9
Missouri	3,145	22.1	36.5	32.5	26.0	5.0
North Carolina	5,278	18.2	51.6	35.4	10.7	2.3
Oklahoma	3,612	12.2	50.9	27.8	18.1	3.2
South Carolina	2,895	17.0	45.7	34.2	17.4	2.6
Tennessee	3,536	20.2	39.9	36.0	21.7	2.3
West Virginia	1,702	24.3	31.1	29.9	36.4	2.5

Source: Digest of Annual Reports of State Boards for Vocational Education to the Office of Education, Division of Vocational Education, U. S. Dept. of Health, Education, and Welfare, June 30, 1953.

therefore, placed less emphasis on education than is true today. The importance of education in a society of increasing complexity cannot be overemphasized. In order to help bring about a rapid and more complete recognition of the importance of increasing our investment in human resources, greater research efforts will have to be undertaken. There is a real need for a greater research effort to develop appropriate investment criteria for human resource development and to provide more information on the basic relationships between physical and human resource development and economic growth. The need for a greater investment in human resources may become more important in the future than physical resource development since the extent to which the latter can be accomplished may depend upon the skills and imagination developed through investments in human resources. The results from such research efforts are needed to provide the basis for changing society's attitude toward investments in human resources, as well as criteria for increasing capital investment through program improvements.

# Discussion

THOMAS J. WHATLEY\*

Mackie gives top priority to a larger allocation of our national wealth toward a formal educational program which will provide an opportunity for the farm or rural youth of America at least to complete high school. Data presented indicate a positive relationship between formal educational attainment of individuals and their earning power. It is generally recognized that our formal educational system provides basic training upon which further specialized skills can be developed through in-service training in different occupations.

The Southeast is characterized as a region with low expenditures per pupil for secondary and primary education. Mackie indicates that during 1953-54 almost 53 percent of the young men screened for military service in the Southeast were either rejected for service or were found unacceptable for advanced training because of their low intellectual achievement. If additional capital investments in formal education will prepare the youth of the region with greater skills for agricultural, industrial, and governmental pursuits, why has education not received more emphasis? Perhaps the reasons are manifold. For example, an examination of the data presented in Chapter 22 shows that 45 percent of those employed in the Southeast were engaged in agriculture in 1940. This means that a large share of the burden of rearing and educating children now entering our labor force rests on a segment of the economy in the Southeast where capital resources are limited and incomes are low. As late as 1959, the average net cash farm income per farm in Tennessee was only \$1,504.<sup>1</sup> Long and Dorner estimated in 1949 that the average contribution toward rearing and educating farm children up to the age of 15 years by a farm family in Tennessee having less than \$1,250 annual net income was \$3,134.<sup>2</sup> The capital resources invested in rearing and educating two children amounted to approximately one-half the total investment available on an average Tennessee farm. It is easy to see why the farm sector in the Southeast has been faced with a definite limitation on its contribution toward education, especially since 1930 or 1940.

Elective administrative officials have found themselves in somewhat of a dilemma in trying to allocate scarce tax dollars among education, other public services, and physical resource development in areas where outmigration has been the highest — such as many areas of the Southeast. In order to keep or attract people and/or industries to

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<sup>1</sup> The Farm Income Situation, AMS, USDA, Washington, D. C., Feb., 1960, p. 21.

<sup>2</sup> E. J. Long and P. Dorner, "Excess farm population and the loss of agricultural capital," *Land Econ.*, Vol. 30, Nov., 1954, pp. 363-68.

communities, it is essential to provide roads, libraries, sanitation and recreational facilities, and many other services found in other areas where alternative employment opportunities exist. These items are often provided in lieu of increased investments in education. From a national viewpoint, the marginal productivity of these tax dollars may be higher if invested in education; however, from the standpoint of local groups providing the tax dollars and faced with area stagnation, the alternative uses for capital may result in less emphasis on education. Therefore, there is a definite need for further studies on ways to strengthen our formal educational program.

Vocational training and guidance programs should also be expanded to implement the movement of surplus young adults out of agriculture. Many of us are prone to look at our current farm population and state that we are faced with a tremendous job in shifting perhaps 50 percent or more of our current farm operators out of agriculture into industry, especially in the Southeast region. Henderson found in a study of adjustment potentials of 506 rural households in 8 counties in upper east Tennessee that 59 percent of the household heads were limited, due to age, physical handicap, or other similar factors, as to the adjustment they could make either in agriculture or toward industrial employment.<sup>3</sup>

Improved agricultural education programs must be provided for the adult farm population remaining in agriculture if our resources are to be used wisely and efficiently. Such programs must place emphasis on developing and blending the proper mixture of managerial know-how, labor with acquired skills, land, and other forms of capital into a complex business-oriented agriculture. The problem of keeping the proper mixture of resources yielding high incomes is difficult even in highly commercialized agriculture, but is compounded many times in areas such as the Southeast where many skills are undeveloped and physical resources are limited on existing farms.

More consideration should be given by both borrowers and lenders of capital to the returns which it will produce when mixed with other resources in a farming system. Agricultural education programs should provide farm operators with tools for decision-making, such as how to evaluate alternative farm enterprises and how these enterprises can be incorporated into alternative farming systems which maximize income and satisfaction. Technical assistance through expanded outlook information and farm and home planning by the Agricultural Extension Service plus the services furnished by the Production Credit Associations, Farmers Home Administration, agricultural bank representatives, professional farm management organizations, and other private and governmental agencies can be used to develop the human resources in agriculture.

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<sup>3</sup> H. A. Henderson, Resources and Incomes of Rural Upper East Tennessee People, Tenn. Agr. Exp. Sta. Bul. 312, Mar., 1960.