

Social Network Analysis of Global Value Chain: Focused on Fabric Cotton

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Introduction: As globalization has facilitated the movement of goods and services between countries, companies try to maximize their efficiency by establishing optimal production networks that can perform all stages of production activities at competitive cost and quality around the world. In addition, as profits from divisional trade, which is the division of the production process, rapidly increase, companies expand their global value chain through outsourcing and offshoring. In Particular, the textile industry is usually considered one of the most globalized industry because many countries participate in textile or apparel production networks. In this study, we try to determine the structure of the international division of labor and the substance of the global value chain in the apparel industry using social network analysis.

Literature Review: Global Value Chain (GVC) is a trade mode in which the entire process including product planning, manufacturing, and sales is spread over various countries (Choi, 2016). The GVC trade accounts for 80% of world trade. Furthermore, GVC creates added value and contributes to the economic growth of participating countries by increasing the per capita income and creating jobs. The clothing industry is a typical start-up industry in export-oriented industrial countries because it has low fixed costs and a high proportion of labor-intensive manufacturing industries. Countries that enter the GVC invest in machinery and logistics to improve their end product production, productivity, and the speed of delivery, resulting in an economic upgrade from assembly to full package production. However, the structure of the GVC has changed as “multilateral textile agreements”, which impose quotas and preferential tariffs on clothing and textiles were phased out between 1995 and 2005. For example, Hong Kong, Korea, Taiwan, and China, which are major clothing exporters, subcontract to low-wage developing countries such as Bangladesh, Sri Lanka, and Vietnam that do not qualify for export quotas. However, the abolition of the quota system means that small exporting countries such as Mexico, Central America, and Caribbean countries are ousted from the GVC (Gereffi, 1999).

Method: We selected the cotton fabric (hs code 5208, 5209) as the item to be analyzed because it is produced on the basis of less developed countries, which gives insight to understand the division of labor structure and the global value chain and determines how the GVC has changed. Data for analysis were

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collected from UN COMTRADE and the WTO, and we created a matrix using 2005 and 2015 trade data about the top 10 trading partners in the import and export countries and analyzed them. We adopted social network analysis as an analysis method as it can well identify aspects of international trade flow.

Result and Conclusion: According to the results, China was the largest exporting country, and exports of cotton fabrics in the US and Italy have plummeted. In terms of the export of cotton fabrics in 2015, India and Pakistan emerged as major cotton exporters. This result shows that rise in Indian cotton prices has increased international demand for Pakistani cotton. Furthermore, in 2007, the free trade agreement with China greatly increased its exports to China. Comparing the betweenness centrality and closeness centrality of 2005 and 2015 for exports of cotton fabrics, India and China are playing their role as mediating countries. Thailand has high betweenness centrality (4024.683) for cotton exports in 2015; however, Pakistan's mediation role reduced between 2005 (6843.604) and 2015 (2911.267). China, Hong Kong, the United States, and Italy are major importers of cotton fabric, but such imports had fallen sharply in 2015 compared to 2005 in Hong Kong and China. Instead, Vietnamese cotton imports have increased significantly. The increased wages of workers and the strengthening of environment-related regulations have increased the number of cases of converting textile apparel production from China to Vietnam. Hong Kong also moved their production bases to Southeast Asian countries and China due to increased production costs and stronger environmental regulations. Meanwhile, the role of mediators in the importation of cotton fiber was continued by China, the United States, and European countries such as Germany and Italy.

Discussion: In this study, we identified the part of the fashion industry structure by investigating the international trade patterns of cotton fabric. It is meaningful to determine the substance of the global value chain using social network analysis, which has not been widely used in the field of clothing science. In future studies, it is expected that such studies will be very meaningful for many countries participating in the GVC if they analyze the GVC structure of various items.

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