

China's Manufacturing Development and Its Implications for Korea

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I. Introduction

Since 2015, the Chinese government has been strongly promoting its “Made in China 2025” initiative, which aims to accelerate the transformation of China from a “big manufacturing country” into a “world manufacturing power” by boosting manufacturing competitiveness through innovation and nurturing high-tech manufacturing industries. China’s “Made in China 2025” strategy is both a threat and opportunity for Korea. This study aims to analyze the development status of Chinese manufacturing industries and the policy of “Made in China 2025,” and to provide implications and countermeasures.

preferential benefits and financial support provided by “Made in China 2025” to local companies could be used to fund overseas technology and acquisitions, which could lead to difficulties in protecting domestic companies. Third, if “Made in China 2025” leads to excessive investment and redundant investment in specific technologies and industries, this could cause problems such as overproduction, overcapacity, and price collapses around the world. Fourth, if China adopts a policy to prevent foreign companies from entering the domestic market and nurture high-tech new industries through “Made in China 2025,” new trade disputes could increase and pose obstacles for foreign companies.

2. Opportunities for Korea

II. “Made in China 2025”

1. Threats for Korea

As a threat, first, “Made in China 2025” could hurt existing manufacturing powers such as Korea, an economy heavily dependent on Chinese exports, by promoting import substitution in the manufacturing industry and increasing global market share. Second, the

As for the opportunities presented by “Made in China 2025,” it can first of all create demand for software and equipment in a vast ICT field centering on the new growth high-tech industries: next-generation information technologies, new energy vehicles, high-performance machine tools and robots. Second, the expansion of open-door policy in “Made in China 2025” – such as negative list type foreign investment; safe, transparent and predict-

able management environment; trade facilitation; industrial adjustment of the steel, chemical, ship sectors through opening up; and support for overseas expansion of the high-speed railway, electric power equipment, and construction equipment sectors – could increase new business opportunities for foreign companies. Third, each region in China is promoting the “Made in China 2025” strategy and this could lead to international cooperation in several sectors based on regional differences in the level of manufacturing development, the industries each region specializes in due to their comparative advantage, and the core industries of “Made in China 2025” by region.

III. Recent Development of Chinese Manufacturing Industries

1. Industrial and trade data analysis

This study analyzes the Chinese manufacturing industry’s development status in terms of industrial structure and trade structure, using indicators related to China’s manufacturing industry, import and export data, and indicators of localization. First, the results of our industrial structure analysis show that the Chinese manufacturing industry has been actively developing under the Chinese government’s aggressive policy of promoting and investing in the high-tech manufacturing industry. The mid-high technology and high technology sectors’ sales ratio has increased over the past 10 years and R&D investment expenditure on high-technology has increased as well. Second, our analysis of the trade structure shows that the export comparative advantage of China has generally increased regardless of the technology level, but the high-tech sector has been stagnating recently. In addition, import substi-

tution has been progressing at a rapid pace due to the expansion of production and procurement of general intermediate products in China. These results provide the following implications. First, the development status of China’s manufacturing industry and “Made in China 2025” show that the mid-high and high tech industries and new industries related to the 4th industrial revolution are developing remarkably. Therefore, Korea can expect to be fully exposed to competition with China in these areas. Second, from the perspective of technology levels, China’s recent advancement in high-tech and medium-to-low technology industries is remarkable, but high-tech sectors are showing signs of being stalled or delayed. It is unclear whether China will be able to achieve the goal of developing its own technologies and product competitiveness in these sectors as rapidly as planned.

2. Global value chains (GVC) analysis

This study also analyzed the effect that the recent development in China’s manufacturing sector has had on Chinese global value chains (GVC), employing a GVC analysis based on WIOD and ADB data. As a result of the analysis, the proportion of intermediate goods in the Chinese domestic market has increased significantly in the areas of textile manufacturing, clothing and leather manufacturing, computers, electronics, and optical product manufacturing (by industry), and in mid-high manufacturing (by technology). The proportion of gross exports’ overseas value-added has declined gradually and dependency on foreign countries has decreased. We also confirmed that China has been shifting from a rear to front position in the GVCs, as its GVC participation based on vertical specialization has decreased. Also an analysis of China’s exports to Korea – mainly in the manufacturing of electrical and optical components, chemical

and chemical products, and primary metal and metal processing industries, which account for a large trade volume between Korea and China – shows that China's GVC participation rate decreased while Korea's position in GVCs has relatively increased as the overseas value-added portion of its intermediate goods declined. The increase in intermediate goods imports due to China's economic growth was greater than the import substitution of intermediate goods, which had no negative impact on Korea's intermediate exports to China

3. Intra-Asia trade network analysis

The study then confirms changes in the status of China's global value chains by analyzing the intra-Asia trade network using the international trade data of major industries. The results indicate a Chinese "centrality," in which most intra-regional trade relations were linked through export or imports from China, in the textile and apparel and mobile phone intra-regional trade networks. In other words, our results confirm that the scope of China's intra-regional specialization structure is gradually expanding upstream of the value chain. Meanwhile, in the automotive industry, China still has not become a leading player in GVCs. The centrality of China evidently weakened in 2007-2015 as other Asian countries formed new intra-regional trade relations that did not go through China. The implications of the analysis are as follows. First, there is a clear distinction between industries in the intra-regional trade network structure, and these inter-industry differences provide the implication that differentiated strategies for each industry will be needed to respond to the emergence of China. Second, the expansion of China's centrality and role in the value chain is being led by foreign capital firms. Third, the emergence of the new intra-regional trade network is the result of a reorganization in the

intra-regional specialization structure, as the Korea-China-Japan-based specialization structure centered on Northeast Asia expands to other regions in Asia such as Southeast Asia and South Asia.

IV. Korea's Countermeasures to China's Manufacturing Development

This study seeks the countermeasures of Korea in response to the above opportunity and threat factors. The countermeasures against the opportunity factor of "Made in China 2025" are as follow. First, we should pay attention to the huge demand that China will create by fostering new-growth industries in the "Made in China 2025" initiative. The Korean government should selectively support the technology development of small- and medium-sized companies that possess global competitiveness in the parts, materials and equipment sectors, and strive to secure their sales network in China. Second, it is necessary to actively seek Korean companies' entry into China by utilizing the internationalization of "Made in China 2025" and further opening up of the Chinese capital market. Innovative ICT venture entrepreneurs can increase their chances of success by cooperating with rich funding partners in the broad market of China. We can also consider entering into the Chinese market through preemptive mergers and acquisitions (M&A), equity investments, and joint ventures with promising Chinese companies in new growth industries. Third, Korea should select "key cooperation areas and fields" in each region of China and seek for entry through selection and concentration. In particular, it is necessary to seek strategic entry into regions with high demand for economic cooperation with Korea but with little com-

petition between domestic and foreign companies. The countermeasures against the threat factors of “Made in China 2025” are as follows. First, China’s import substitution and expansion of global market share are inevitable developments, but China still imports core parts and technology from overseas. Therefore, we need to steadily develop high technology, high quality and high value-added products and identify opportunities within China’s fostering of new growth industries and expansion into the global market. Second, there is the risk of domestic technology and companies becoming subject to China’s aggressive M&A strategies, but M&A can also be one of the ways for Korean companies to enter the Chinese market. Third, there is the possibility of global overproduction due to the concentration of resources in specific industries and technologies in accordance with “Made in China 2025.” Therefore, when the Korean government and industry establish their market supply forecast, facility investment plan, and future strategy, they should take into account the future supply of major industries supported and nurtured under “Made in China 2025” and study the impact on future global markets. Fourth, as the preferential benefits, financial support, and trade barriers provided to local companies under “Made in China 2025” could have a market distorting and deteriorating effect on the competitiveness of foreign capital companies, we will have to continue monitoring the various subsidies for local enterprises and other support measures by China to seek appropriate response measures. There is also a need for countermeasures against changes in China’s industrial and trade structure. First, China’s manufacturing industry has a wide development gap by industry and technology. Therefore, Korea should design differentiated responses by industry, product, and technology levels. Second, the Chinese manufacturing

industry has reached a certain limit in its global market share, especially in the high-technology sector. And this suggests that we need to understand the status of global market share and future market share forecasts for the Chinese manufacturing industry and formulate detailed countermeasures. Third, although import substitution is proceeding in line with China’s expansion of intermediate production and procurement, it should be noted that this trend also shows large variance in terms of industry and product, and thus requires a countermeasure strategy. In addition, as China’s core components and technologies are still highly dependent on foreign companies, it is necessary to maintain the mass exports of intermediate goods through the development of high-technology, high-quality and high value-added products. The countermeasures against the GVC phase change in Chinese manufacturing can also be considered as follows. First, we must develop new industries and new products through sustainable innovation, protect core technologies and technicians who possess competitiveness while maintaining differentiated technologies, and make China’s rise in GVCs an opportunity for us. Second, regional manufacturing GVCs are likely to be led by China, but the centrality levels of China show big differences depending on the characteristics of each industry and product. Therefore, we should study how GVCs centering on China will form in the new-growth industries of “Made in China 2025” and how Korea will participate in these industries. Third, the expansion of China’s role in the GVC does not necessarily indicate a central role being played by Chinese local companies or a shift to high value-added areas; the role played by foreign companies is still important. Thus companies should position themselves to utilize and benefit from China’s expansion. Fourth, with the Korea-China-Japan-based

specialization structure being expanded to other regions in Asia, such as Southeast Asia and South Asia, and the intra-regional specialization structure undergoing a reorganization process, a new intra-regional trade network has emerged that does not have China as its main axis. We should actively seek out third countries as our future production base and consumer market. Government policy to respond to development in the Chinese manufacturing sector is important. However, the policy-making process must be designed from the initial stage to be bottom-up, sector-specific, and one in which industry and industry experts participate. In addition, the government should prepare policies to foster long-term new growth industries for the next 30 years and cope with “Made in China 2025” and the 4th industrial revolution. It will be essential to establish a neutral and independent control tower that will consistently promote industrial policy, regardless of political changes. Related government departments, research institutes, and industry associations should participate in the project to act as a control tower where information is shared on China’s development status, policy changes, and future prospects, and appropriate countermeasures are taken. KIEP