

GVC Linkage of Materials, Parts, and Equipment Industries in China, Japan and Korea



Hyung-Gon Jeong

Ph.D. Senior Research Fellow

Japan and East Asia Team, Advanced Economies Department

China, Japan and Korea (CJK) have been cooperating in many fields in the material, parts and equipment industries due to their geographical proximity and similarity in industrial structure. Over the past 20 years, CJK's industries in these sectors have grown significantly and led a major change in the global value chain (GVC).

The spillover effects of all three countries to each other increased in these industries, and China's influence has continued to rise throughout the past 20 years. All three nations show deeper GVCs linkage of production technology, focusing on key export products. This confirms that a horizontal division of labor is being established not only in the global market but in partner markets as well. On top of that, Korea's GVC linkages with China and Japan are becoming relatively deeper than that of China and Japan.

CJK's GVC linkage was verified through a survey conducted by KIEP recently. The results of the survey once again confirm the importance of

China and Japan for the Korean economy, and highlight the need to resolve certain limitations within the supply chain of the materials, parts and equipment industries in Japan and China caused by COVID-19 and diplomatic issues. The results also indicate it will be difficult for a new form of GVCs to replace Japan and China for the time being.

The importance of Japan and China as trading partners is still high, and there is low possibility of changing sources of procurement from Japan or China. In the end, despite many restrictions due to non-economic issues, Japan and China remain important partners for Korea's materials, parts and equipment companies. Therefore, the government needs to take this situation into account and actively engage in diplomatic efforts for a win-win approach with China and Japan.

However, CJK represent one of the most sensitive regions to non-economic shocks such as natural disasters and disputes between the United States and China. Therefore, it is necessary to shift from the existing cost- and efficiency-based management of GVCs to more rational GVC management based on supply chain stabilization.

As the trend of strategic weaponization of industries is expected to continue gaining strength in the areas of core materials, parts and equipment, it is necessary to move away from monopolistic supply chains and pursue a strategy for multi-polarization of the supply chain, and reasonable decoupling from countries where potential risks exist.

In addition, domestic self-reliance should be promoted in fields with high foreign dependence, such as the semiconductor display equipment industry. Also, most companies in the materials, parts and equipment industries are small and medium-sized enterprises (SMEs) greatly lacking in terms of technology development and market dominance, meaning that measures are urgently needed to address this concern.

Finally, considering the pace of development in China's materials, parts and equipment industries over the past 20 years, the gap in competitiveness of the materials, parts and equipment industries in CJK will be greatly reduced, and the GVCs of China-centered materials, parts and equipment industries are expected to show significant advances. It will be necessary to prepare countermeasures by the government and companies accordingly. The materials, parts and equipment industries in Korea should transit from a general-purpose technology to more specialized and advanced technology. **KIEP**