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Abstract

This paper comprehensively reviews China's openness since 1978 from three aspects: trade, foreign investment and global production sharing. We point out that the economic development of China is now standing at a historic turning point. Specifically, economic changes in China are discussed from four dimensions: (i) from China being a world assembly line to a world manufacturing powerhouse; (ii) from China being a world capital receiver to a world investor; (iii) from China being a world factory to a world market; and (iv) from the situation of "made in China" to "innovated in China." At the same time, the global economic system has also reached a turning point. A "North America–Europe–Asia" tri-polar system has formed, in which the USA, Germany and China, respectively, serve as the regional core economies.

Key words: foreign direct investment, global production sharing, reform and opening-up policy, trade, turning point

JEL codes: F10, F15, O10

Following the implementation of the reform and opening-up policy in 1978, China's "growth miracle" continued for the next four decades, with remarkable changes in terms of economic size, economic structure as well as China's role in the world economy.¹

The growth miracle of China has long been a hot topic in economic research (Lin et al. 1996; Feenstra and Wei, 2012). The opening up of trade and investment has provided essential support for the development of China's economy. As depicted in the two-

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¹In this paper, "China" refers to "Chinese mainland."

gap model in Chenery (1967) and Chenery and Strout (1968), many developing countries suffer from either a shortage of domestic savings to provide finance for investment opportunities or a shortage of foreign exchange to pay for imports of capital and intermediate goods. China's opening-up policy has filled these two gaps simultaneously. Besides this, there have been additional gains through the inflow of new technologies, increased competition in the domestic market and more foreign market opportunities.

China seized the opportunities brought by the opening-up policy and entered the stage of high-speed growth. Today, China is the largest or the second largest country in the world in terms of GDP, trade, investment and consumption. China's role in the global economy has shifted from that of a big trading country to a major producer, capital investor, consumer and innovator. The economic development of China has reached a turning point.²

In the meantime, the global economic system has also changed dramatically. China has replaced Japan as the core economy of the Asian economic network. A new tri-polar world order has formed, comprising North America, Europe and Asia, for which the USA, Germany and China are at the core.

The present paper reviews China's high-speed growth in trade, foreign investment and global production sharing during the past 40 years. In particular, we emphasize the key changes in China's current economic development stage and the global economic system. Our paper proceeds as follows. Sections II, III, IV and V discuss structural changes in trade and production sharing, foreign direct investment (FDI), consumption and innovation, respectively. Section VI examines the changes in China's economic role in the global economic system. Section VII concludes.

The high-speed growth of international trade is an essential factor in promoting China's economic development. As shown in Figure 1, the growth of China's GDP and international trade is highly synchronous. After adopting the opening-up policy in 1978, China's GDP and trade volumes started to grow steadily. The growth miracle appeared

²Several recent papers also focus on the turning point of China's economic growth, such as Cai and Du (2011), Lemoine and Unal (2017) and Qian et al. (2017).

after two major turning points. One was former leader Deng Xiaoping's Southern Talk; another was China's World Trade Organization (WTO) accession. After the financial crisis in 2008, China's openness entered a transition period in which a series of turning points can be identified.

Figure 1. China's GDP and Total Trade Volume, 1968–2016

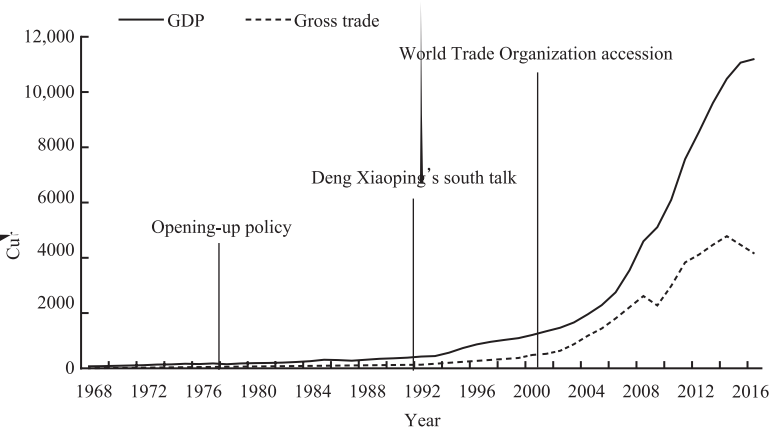
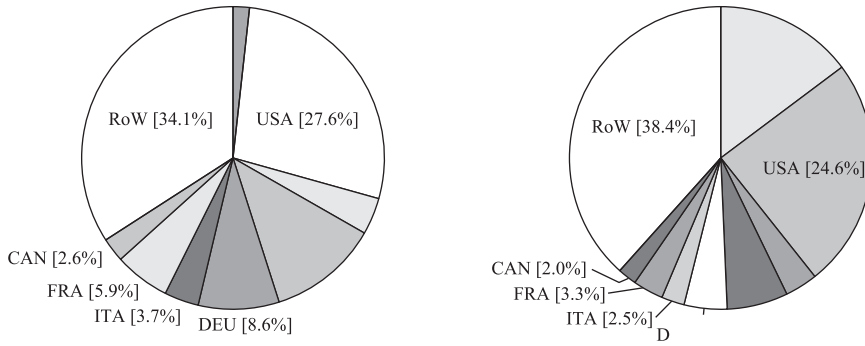


Figure 2. Composition of World GDP, 1978 and 2016



costs and preferential tax policies to engage in processing trade, providing the opportunity to participate in international trade. This policy shift, along with this also alleviated the shortage of domestic supply, leading to a significant trade surplus during the opening-up period. As shown in Figure 1, China's trade surplus was from processing trade, which was in deficit from 1995 to 2007, except for the year 2007.

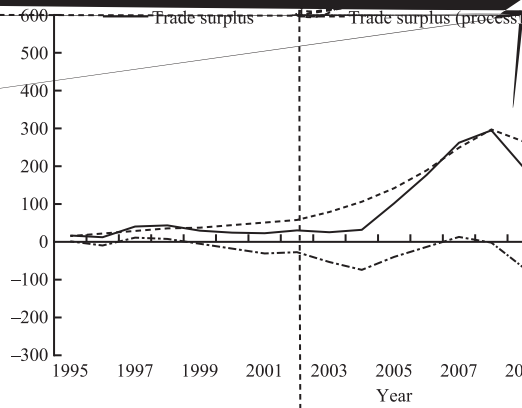
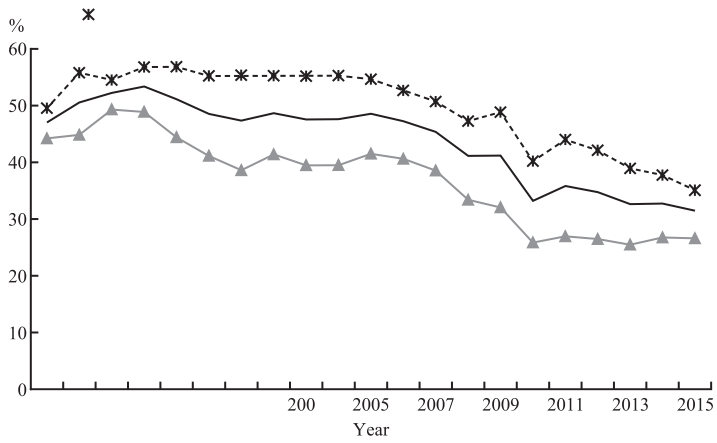


Figure 5. Processing Trade Share, 1995-2015



What accounts for the rapid development in processing trade? Processing trade is highly sensitive to the exchange rate. As shown in figure 7, the average annual income of China's urban units reached RMB40,000 in 2015, which was almost five times that in 2000.

Figure 7: Average Annual Income of Urban Units of China, 2000–2015 (Consumer Price Index, Year 2000 = 100)

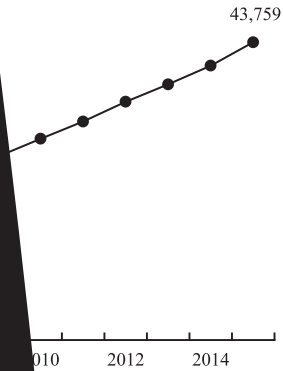
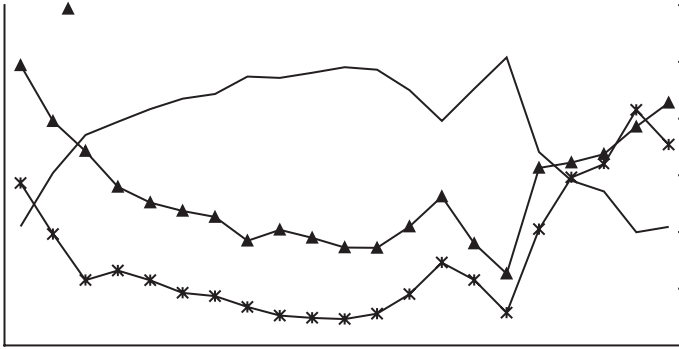


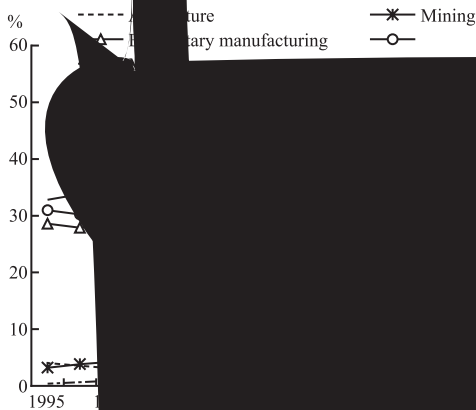
Figure 8. Regional Composition of Trade, 1995-2015



With the shrinking share of processing trade, China's foreign trade structure, especially the manufacturing trade structure, has changed rapidly. China is transforming from being a world assembly plant to a world manufacturing powerhouse.

As shown in Figure 10, almost synchronized with the turning point of the development of processing trade, the share of machinery manufacturing goods in total trade has been increasing since 1997, and reached the peak share of 57 percent in 2010, then remained stable at about 50 percent after a downward adjustment. Over the past 18 years, almost 17 percent of the foreign trade volume has shifted from elementary manufacturing and light manufacturing to machinery manufacturing goods. China's foreign trade has progressed from being labor intensive to being capital and technology intensive, and from primary manufacturing to high-end manufacturing. Similar findings are reported in Ju and Yan (2015). Their research also shows that China's export structure has undergone tremendous changes since 2002. The decreases in export shares are observed in consumption goods industries, such as textiles, leather products and toys, while the increases have mainly occurred in midstream high-technology industries.

Figure 10. Structural Changes in Trade, 1995–2015



However, in the sector of wearing apparel, beverages and other light manufacturing

Cross-border production sharing along the global value chain has become a key feature of economic development, with the share of intermediate goods in global trade constantly increasing. To maximize production efficiency, participants in the global value chain connect with each other through cross-border flows of intermediate goods and benefit from economic cooperation.

As shown in Figure 11, synchronized with the growth of gross trade, China's intermediate goods trade appears to have been fast growing. However, different from the long-term trade surplus of total trade, the trade of intermediate goods has always run a trade deficit.

Figure 11. China's Intermediate Goods Trade, 1995–2014

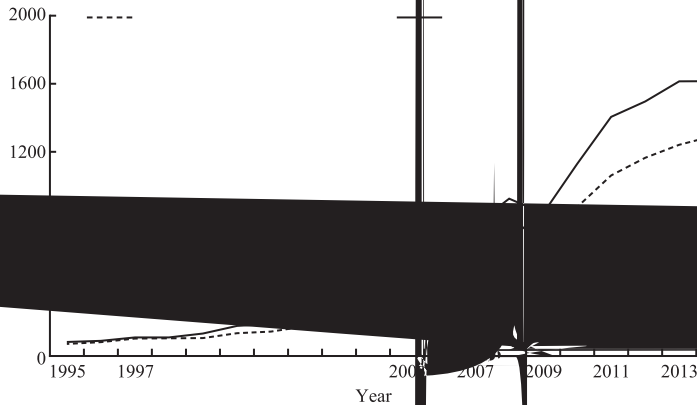
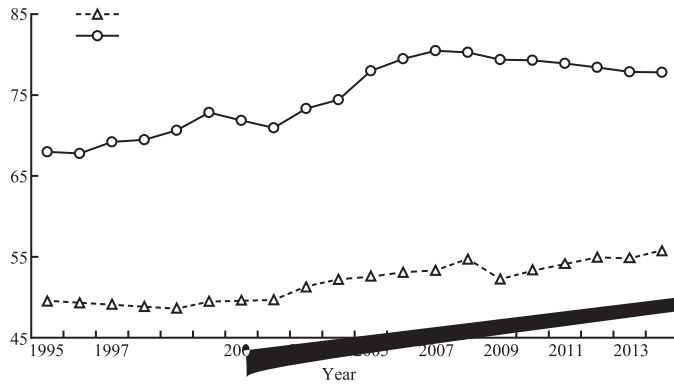
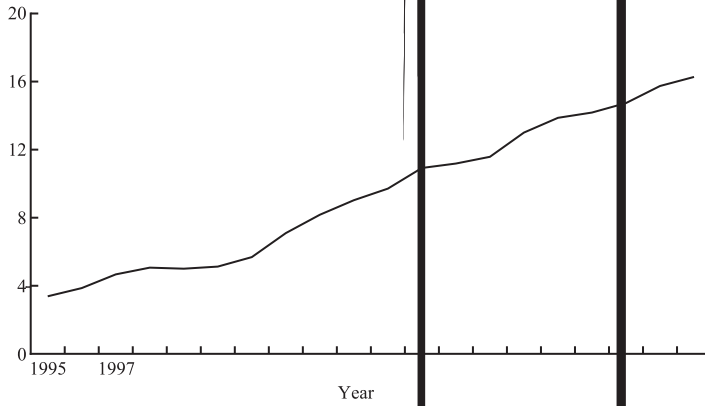


Figure 12. Share of Intermediate Goods in Gross Exports and Gross Imports, 1995–2014



Specifically looking at the US–China production linkage, Figure 14 shows that the share of US-imported intermediate goods from China is increasing rapidly.

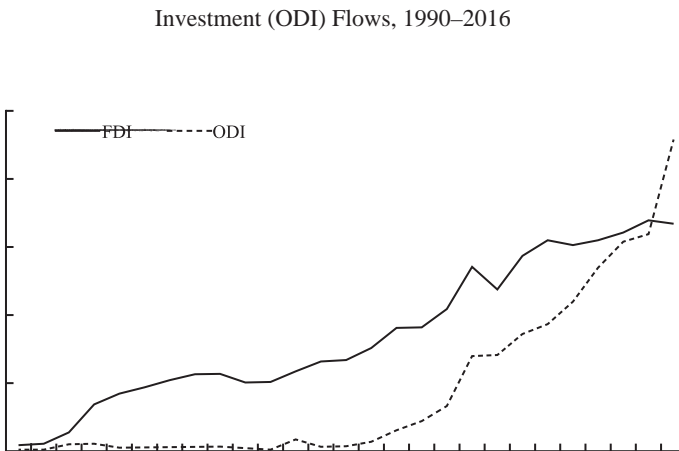
Figure 14. Share of US Imported Intermediate Goods from China, 1995–2014



To sum up, with the dual effects of increased labor costs and changes in trade policy, over the past 20 years, China's foreign trade structure has changed substantially, shifting from processing to machinery manufacturing.

The “growth miracle” of China is not only reflected in the high growth rate of international trade but also in the fastest growing level of FDI inflows and outflows. From the perspective of capital flow, China shifted its role from being a capital receiver to a capital investor, and realized net capital outflow in 2016. As shown in Figure 15, the development of China's foreign investment had a late start. Foreign investment started to grow rapidly around 2002. Compared with the fast growth of FDI commencing around 1992, the development of outward direct investment (ODI) was nearly 10 years behind. However, the speed of the ODI growth after 2002 was much higher than that of FDI growth. It took only 15 years for ODI to catch up with FDI.

Figure 15. China's Foreign Direct Investment (FDI) and Outward Direct Investment (ODI) Flows, 1990-2016



China's FDI outflow started to grow later but grew much faster than its FDI infow. In 2000, China's FDI outflow ranked only 33th in the world, but in 2016, it moved to 2nd place in the world.

Table 3. Top 3 Economies of Foreign Direct Investment (FDI) Inflows and Outflows

	FDI infow			FDI outflow		
		Country	% of world total		Country	% of world total
1990	1	USA	23.6	1	Japan	20.8
	2	UK	14.9	2	France	15.7
	3	France	8.1	3	USA	12.7
	11	Chinese mainland	1.7	21	Chinese mainland	0.3
2000	1	USA	23.1	1	UK	1.5
	2	Germany	14.6	2	France	3.3
	3	UK	8.5	3	USA	2.7
	7	Chinese mainland	3.0	33	Chinese mainland	0.1
2010	1	USA	14.3	1	USA	20.0
	2	Chinese mainland	8.3	2	Germany	9.1
	3	Brazil	6.1	3	Chinese Hong Kong	6.2
				5	Chinese mainland	5.0
2016	1	USA	22.4	1	USA	20.6
	2	UK	14.5	2	Chinese mainland	12.6
	3	Chinese mainland	7.7	3	Netherlands	12.0

Sources: UNCTAD (2017) and authors' calculation.

As shown in Figure 16, China's FDI inflow share reached a peak in 1994 and experienced a rapid downfall during the Asian financial crisis. A rebound occurred after the crisis and the share has remained around 8 percent. However, the growth pattern of China's FDI outflow has been significantly different. Since joining the WTO in 2001, China's FDI outflow share has increased rapidly, with little downward fluctuation.

China's FDI flows are greater than those of other developing countries. As shown in Figure 17, China accounted for 20 percent of developing countries' total FDI infow. This share has remained relatively stable since the 1990s. Regarding the FDI outflow, China's relative importance has increased sharply in the past 10 years. In 2016, China's FDI outflow accounted for nearly half of the FDI outflow of developing countries.

Figure 16. China's Foreign Direct Investment (FDI) and Outward Direct Investment (ODI) Flows, 1990-2016 (% of World Total)

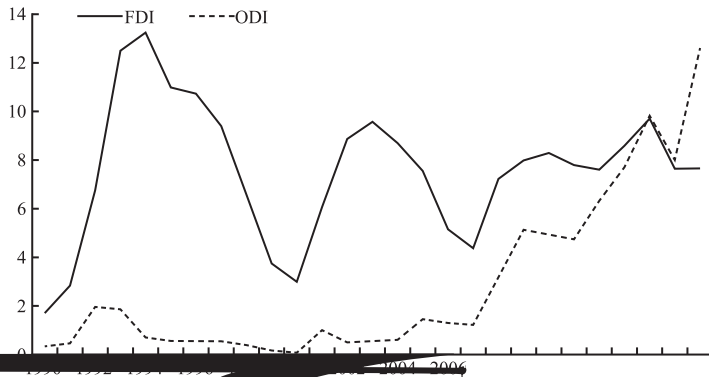


Table 4. Number of Non-financial Multinational Enterprises Ranked among the Top 100 from Developing and Transition Economies, Ranked by Foreign Assets, 2015

	Mining and agriculture	Manufacturing	Service	Total
Chinese mainland	4	5	8	17
Chinese Hong Kong	1	1	12	14
Chinese Taiwan	0	6	0	6
Total	5	12	20	37

Sources: UNCTAD (2017) and authors' calculation.

The trend of change from capital receiver to capital investor occurred in almost every sector. As shown in Figure 18, net FDI outflows increased in agriculture, mining, manufacturing and services. Among the four sectors, FDI outflows from service and manufacturing sectors rose at the fastest pace. The mining sector maintained long-term net capital outflow. The service sector and the agriculture sector realized their reversal from net capital inflow to net outflow in 2012 and 2013, respectively. In 2015, the manufacturing sector was still at the stage of net capital inflow, but the gap between ODI and FDI was narrowing rapidly. In the near future

Figure 19. Net Foreign Direct Investment (FDI) Outflows
(FDI Outflows Less FDI Inflows, US\$bn), by Destination, 2007-2016

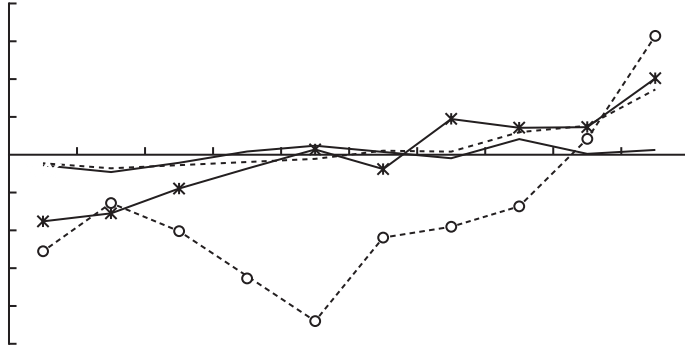
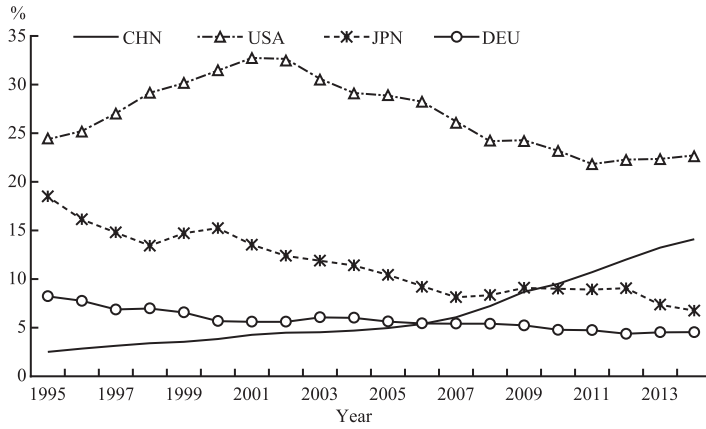


Figure 20. Who Consumes the Most in the World? 1995–2014



Source: Authors' calculation from OECD Inter-country Input–Output Tables.

Notes: CHN, China; DEU, Germany; JPN, Japan; USA, United States.

Table 5. Who Consumes the Most in the World?
(2014, by Sector, % in World's Total Consumption)

Agriculture			Mining			Service		
1	CHN	26.6	1	CHN	12	1	USA	25.1
2	IND	11.1	2	MEX	9	2	CHN	12.1
3	USA	4.1	3	NOR	7	3	JPN	7.1
4	RUS	3.7	4	USA	7	4	DEU	4.5
5	IDN	3.1	5	CAN	4	5	GBR	4.1
Manufacturing								
Elementary manufacturing			Light manufacturing					

Table 6. Who Relies on the Consumption Market in China?

			1995	2005	2014
Chinese mainland is the	Largest	Overseas market for	Chinese Hong Kong	Chinese Hong Kong	Australia, Korea, Malaysia, Thailand, Chinese Hong Kong and Chinese Taiwan
	Second largest	Overseas market for	—	Japan, Korea, Malaysia and Chinese Taiwan	Brazil, Costa Rica, Indonesia, Japan, Peru, Philippines, Singapore, Viet Nam, South Africa and Rest of World
	Third largest	Overseas market for	Chinese Taiwan	Australia and Philippines	Argentina, Canada, Chile, Israel, New Zealand, Russia and Saudi Arabia

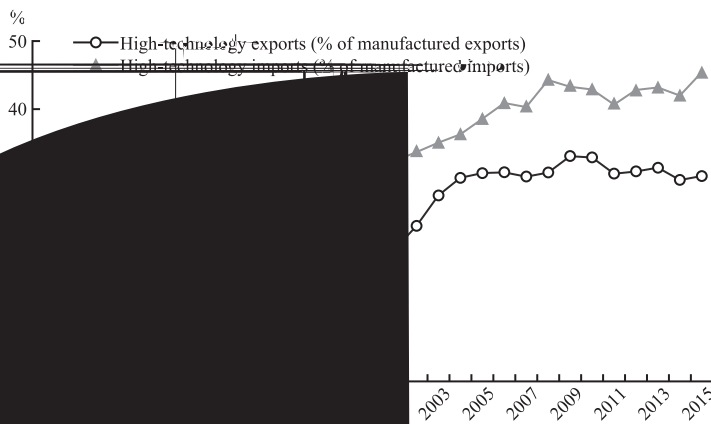
Source: Authors' calculation from OECD Inter-country Input–Output Tables.

With the dual pressure from population structural change and the rise of labor costs, China's economy has reached a key turning point. Whether China could successfully

When looking at other technology innovation indicators, Wei et al. (2017) point out that, for China's above-scale manufacturing firms, a large proportion of their technology improvement budget was shifting from importing and digesting foreign technologies to technologies from other domestic firms or financing independent R&D activities. In the meantime, China's growing R&D share in GDP, share of researchers in the population and number of patents, have all contributed to the improvement of China's innovation.

The return of overseas talent and the large investment in R&D had great impacts on China's technological development. According to the trade data shown in Figure 22, the share of high-technology products in trade has improved significantly in the past 20 years. By 2015, shares of high-technology imports and exports had improved, from 12.8 and 3.9 percent to 45.3 and 30.2 percent, respectively.

Figure 22. Share of High-technology Goods in Manufacturing Trade, 1985–2015



ing economies in Asia, as well as the Union, the global economic governance and global economic system, which was dominated by a block-structured tri-polar world order including the USA, Germany and Japan, which, respectively, consider the USA, Germany and Japan as the core of the world economy.

This section discusses the impact of trade, foreign investment and global

production sharing, break down the structure of trade, capital and intermediate goods flows, and investigate the role China played in establishing this regionalized world economic system.

Figure 23 shows the global trade structure in 1995 and 2015 (bilateral trade measured on import side). The three circles in the figure symbolize intra-EU, intra-NAFTA and intra-East/South-East Asia, respectively. A larger area reflects the higher volume of intra-regional trade. The darker shaded area in the circle and the number indicate the share of Germany-related, Japan-related or China-related trade in intra-regional trade. Taking the EU as an example, Germany-related trade is the sum of Germany's imports and exports from/to other EU countries. The circle in the center symbolizes the internal trade in the rest of world. Lines connecting areas represent trade among regions. Arrows point to importers. The numbers marked on lines are the share of trade in this direction as a percentage of total trade. This figure provides a complete breakdown of global trade, so the sum of share of intra-regional and inter-regional trade is 100 percent.

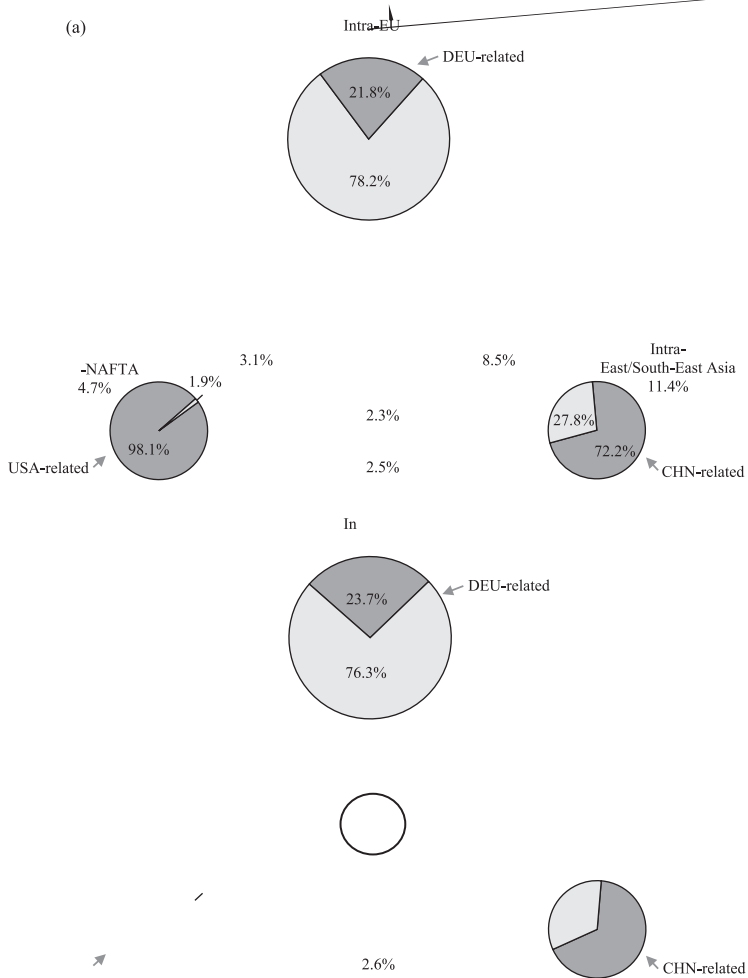
When comparing the trade structure of 1995 and 2015, we find the following:

First, the intra-East/South-East Asia trade share appeared to be expanded while the intra-EU and intra-NAFTA trade share was reduced. Second, the internal trade within each of the three major regions accounted for a significant proportion of international trade. In 1995 and 2015, the share of the three regions' total internal trade in global trade was 43.5 and 41.1 percent, respectively (Figure 23). Third, each block has a core economy. The EU and NAFTA have Germany and the USA as their cores, respectively. For East/South-East Asia, Japan was the core country in 1995.⁴ However, by 2015, China replaced Japan to be the core economy of East/South-East Asia. Finally, looking from the aspect of inter-regional trade, East/South-East Asia's exports to North America and the EU's trade with the rest of the world were both large. In addition, trade between East/South-East Asia and the rest of the world shows a large increase in the past 20 years. Overall, a block-structured tri-polar world order including North America, Europe and Asia, respectively, with the USA, Germany and China at the core, has already formed.

⁴According to our calculation, in 1995, Japan-related trade accounted for 74.5 percent of East/South-East Asia's internal trade, surpassing China-related trade which only accounted for 35.8 percent.

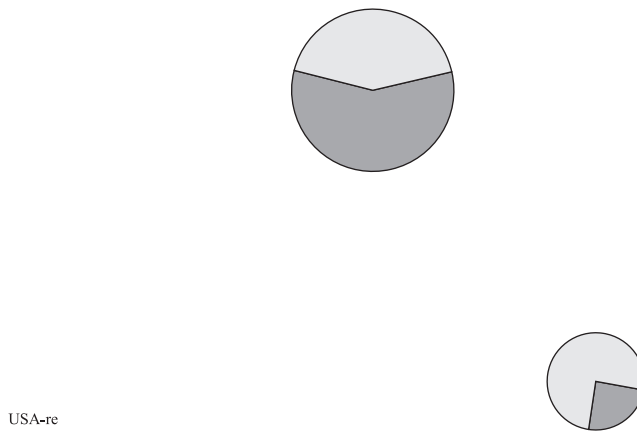
of out stock. Besides this, the NAFTA and the EU have a close bilateral investment relationship if we look at inter-regional investment.

Figure 24. Foreign Direct Investment (a) Instock and (b) Outstock Structure for the NAFTA, the EU and East/South-East Asia, 2012



intermediate goods flows (Figure 25), a block-structured tri-polar world order can also be observed. Similar to the trade structure, in the past 20 years, the share of intra-EU and intra-NAFTA intermediate goods trade fell while the share of intra-East/South-East Asia increased significantly. In 1995, the share of China-related intermediate goods trade was only 24.5 percent. However, in 2015, China-related intermediate goods trade share climbed to 62.9 percent, consolidating its core position in international production sharing.

Figure 25. Global Production Sharing Structure, 1995 and 2014



In summary, the tri-polar world order can be clearly observed from all three aspects, including trade, foreign investment and global production sharing.

The present paper, focusing on global trade, foreign investment and the Inter-country Input–Output Tables, systematically reviews the growth miracle of China since adopting the opening-up policy, and points out four major changes in China’s economic role.

Our analysis shows that, after experiencing 40 years of high-speed economic development, China has shifted from being a country of trade to a major producer, capital investor, consumer and innovator. From the supply side, China’s production structure is changing from being labor-intensive to technology and capital-intensive, from low-end manufacturing to middle-end and high-end manufacturing. At the same time, when China became a net capital exporter, its ability to utilize global resources greatly improved and China became an important part of the global production chain. From the demand side, China has become the second largest consumption market next to the USA and still has large space to grow in the future.

With the fast expansion of the global value chain, China not only fostered the flow of value-added along the value chain as a large country of trade but also efficiently allocated global resources and participated in the value chain as a large producer, capital investor and innovator. Then from the demand side, China as a big consumer, provided strong support to the world economic growth from the demand side.

Following its growth miracle, China, together with the USA and German, formed the core countries in the tri-polar world order including North America, Europe and Asia. However, in-depth regional cooperation agreements such as NAFTA and EU, have not been established in Asia yet. China, as the core economy in Asia, should carefully consider and lead the establishment of in-depth free trade areas to promote the fast and efficient development of regional economic cooperation. Following its economic rise, while enjoying the fruits of economic growth, China should also prepare to take greater responsibility in the global economic governance system.

Cai, F. and Y. Du, 2011, “Wage increases, wage convergence, and the Lewis turning point in China,”

- Movements and Economic Development*, London: Palgrave Macmillan, pp. 268–92.
- Chenery, H. B. and A. M. Strout, 1968, “Foreign assistance and economic development: Reply,” *American Economic Review*, Vol. 58, No. 4, pp. 912–16.
- Feenstra, R. C. and S. J. Wei, 2010, *China's Growing Role in World Trade*, Chicago: University of Chicago Press.
- Ju, J. D. and X. D. Yu, 2015, “Productivity, profitability, production and export structures along the value chain in China,” *Journal of Comparative Economics*, Vol. 43, No. 1, pp. 33–54.
- Lemoine, F. and D. Unal, 2017, “China's foreign trade: A ‘New Normal’,” *China & World Economy*, Vol. 25, No. 2, pp. 1–21.
- Lin Y. F., F. Cai and Z. Li, 1996, *The China Miracle: Development Strategy and Economic Reform*, Hong Kong: Chinese University Press.
- Qian, X. F., Z. Liu and Y. Pan, 2017, “China's trade slowdown: Cyclical or structural?” *China & World Economy*, Vol. 25, No. 6, pp. 65–83.
- UNCTAD (United Nations Conference on Trade and Development), 2017, *World Investment Report*, Geneva: UNCTAD.
- Wei, S. J., Z. Xie, Z. and X. B. Zhang, 2017, “From ‘Made in China’ to ‘Innovated in China’: Necessity, prospect, and challenges,” *Journal of Economic Perspectives*, Vol. 3, No. 1, pp. 49–70.

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