RESEARCH ARTICLE

The Impact of China's Industrial Structure Adjustment on Trade and Technological Cooperation between China and the Eurasian Economic Union

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Abstract

China's industrial structure has undergone profound transformation in recent decades, shifting from a reliance on labor-intensive production to innovation-driven and high-tech sectors. This restructuring has reshaped the country's external economic relations, particularly with the Eurasian Economic Union (EAEU), a regional integration bloc that serves as a strategic partner for China. This study examines how China's industrial upgrading influences bilateral trade dynamics and the development of technological cooperation mechanisms with the EAEU member states. Using a multidisciplinary approach combining trade statistics, policy analysis, and case studies of collaborative projects, the paper highlights the evolving complementarities between China's advanced manufacturing and digital economy sectors and the EAEU's energy, raw material, and transit advantages. The findings suggest that industrial adjustment in China stimulates demand for diversified imports, while also promoting the export of high-value-added goods and services. Additionally, the transition toward green and digital industries has fostered new platforms for scientific collaboration, infrastructure development, and technological innovation across Eurasia. However, the research also identifies challenges, including regulatory disparities, unequal technological capacities, and geopolitical tensions that may impede the depth of cooperation. Overall, the study argues that the modernization of China's industrial structure is both a driver and a test for the sustainable growth of China–EAEU economic and technological relations, with long-term implications for regional integration and global value chain participation.

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Introduction

The rapid evolution of China's industrial structure represents one of the most significant economic transformations of the 21st century. Beginning with the "Made in China 2025" strategy and subsequent innovation-led policies, the country has prioritized upgrading its production base, moving away from low-cost

manufacturing toward high-tech, digital, and green industries. This industrial adjustment not only supports China's domestic goals of sustainable development but also has far-reaching consequences for its international economic partnerships.

The Eurasian Economic Union (EAEU), established in 2015 and comprising Russia, Belarus, Kazakhstan, Armenia, and Kyrgyzstan, has become an essential strategic partner in China's broader Eurasian engagement. As part of the Belt and Road Initiative (BRI), cooperation between China and the EAEU extends beyond traditional trade to encompass infrastructure development, digital connectivity, and joint technological innovation. While the EAEU primarily exports energy resources, agricultural products, and raw materials, China increasingly exports machinery, consumer electronics, and advanced technological solutions. This complementarity is now evolving into more sophisticated interdependence as China's industrial priorities shift toward innovation-driven growth.

The transformation of China's industrial structure also aligns with global megatrends such as the green economy, digitalization, and regional supply chain integration. For the EAEU states, this transition offers opportunities to attract Chinese investment, modernize their industries, and participate in cross-border innovation networks. At the same time, disparities in technological capabilities, divergent regulatory frameworks, and external geopolitical pressures pose challenges to deepening cooperation. Understanding these dynamics is critical for policymakers and scholars seeking to evaluate the long-term prospects of China–EAEU trade and technological collaboration.

This paper explores the implications of China's industrial restructuring for trade and technology cooperation with the EAEU, analyzing both opportunities and constraints. By situating the analysis within the broader context of regional integration, the study contributes to debates on how structural economic change can reshape international partnerships in the age of globalization and multipolarity.

Main Body

As a key partner of the Eurasian Economic Union, China has always maintained close economic and trade ties with EAEU member states. On May 17, 2018, the Kazakhstan-Astana Economic Forum was held. Attendees included China's Deputy Minister of Commerce and international trade negotiator Fu Ziyin, Chairman of the EAEU Executive Committee Serge Sargsyan, and representatives of EAEU member states. During this meeting, delegates signed the Agreement on Economic and Trade Cooperation between the People's Republic of China and the Eurasian Economic Union. The agreement includes 13 chapters covering customs cooperation, trade facilitation, intellectual property rights, sectoral cooperation, and public procurement. This agreement represents the first major institutional agreement in the trade and economic sphere between China and the EAEU (EAEU, 2018).

For a long time, the economic activity of China and the EAEU has been influenced by global commodity price fluctuations. Rapid development of China's manufacturing sector, especially over the last decade, has sharply increased China's demand for raw materials. In recent years, China's economy has begun to transform, eliminating some outdated industries and production methods, particularly low-tech raw material processing industries.

One goal of China's industrial restructuring is to reduce reliance on fossil fuels and improve energy utilization. In 2020, China's consumption of clean energy—such as natural gas, hydro, nuclear, and wind energy—accounted for 24.3% of total energy consumption, an increase of 1.0 percentage point from 2019 (National Bureau of Statistics of China, 2021). For example, in 2020, China's installed power generation capacity included:

- Thermal power: 1,245.17 million kW
- Hydropower: 370.16 million kW
- Nuclear power: 49.89 million kW
- Grid-connected wind power: 281.53 million kW

- Grid-connected solar power: 253.43 million kW

These data indicate China's significant investment in clean energy sectors requiring relatively high technological innovation, such as solar and wind energy. China continues to increase investment in energy structure reforms, steadily raising the share of new energy.

EAEU Exports and Trade with China

Currently, EAEU member state exports mainly consist of fossil fuels and raw materials. Most exports to third countries are mineral commodities: approximately 75% in Kazakhstan, 66% in Russia, and 47% in Belarus. Among goods exported by EAEU members to third countries, mineral products account for 60.6%, metals and manufactured metal products 10.5%, and chemical products 6.7%. Russia is the main exporter of these goods to external markets, accounting for roughly 80% (EAEU, 2020). The trade content between China and the EAEU falls largely within these categories.

According to Chinese customs data from 2017 to 2021, trade between China and EAEU countries remains dominated by primary industrial goods and raw materials (see Table 1). The trade primarily consists of light industrial products and raw materials. By 2015, the share of non-raw exports in total EAEU exports had steadily increased. By 2016, non-raw goods accounted for 56.9% of EAEU exports, while raw goods accounted for 43.1% (EAEU, 2016).

This indicates considerable potential for expansion into high-tech consumer markets and highlights the mutual technological innovation shortcomings of both sides. There remain ample opportunities for R&D collaboration and the production of high-tech goods with independent intellectual property rights and market demand.

Table 1: Main Categories of China's Foreign Trade with EAEU Countries

Country	Main Exports from China	Main Imports to China
Russia	Mobile phones, fur clothing, portable data processing equipment	Oil, bituminous minerals, logs, unalloyed nickel
Belarus	Mobile phones, wired communication equipment, steel structures	Potassium chloride, polyamide-6, solid dairy products
Kazakhstan	Rubber/plastic footwear, toys and models, mobile phones	Copper ores and concentrates, crude oil, ferrochrome
Kyrgyzstan	Rubber/plastic footwear, cold-resistant chemical fiber clothing, cotton textiles	Other precious metal ores and concentrates, coal, wool
Armenia	LCD color digital TVs, car tires, compressed gas cylinders, mobile base stations	Copper ores and concentrates, women's chemical fiber down products, distilled spirits
USA	Mobile phones, portable automated data processing equipment, mechanical parts, tablets, microcomputer processing equipment, audio/video equipment	Turbofan/turboprop engines, processor/controller integrated circuits, crude oil

China-EAEU Technological Cooperation

Within the "Belt and Road Initiative," China demonstrates enthusiasm for broad and deep cooperation with EAEU countries. China's comparative advantages in artificial intelligence, the Internet, and ICT can

serve as platforms for technological innovation collaboration in EAEU member states' manufacturing sectors.

In future scientific and technological innovation, China can leverage its strengths in these areas as a foundation for cooperation, actively promoting R&D and innovation exchanges with EAEU countries. Given differing distributions of mutual direct investments, China has broad options in trade and technological innovation cooperation with EAEU countries. According to the Eurasian Development Bank's Center for Integration Studies, as of early 2017, 43.8% and 10.9% of bilateral direct investments in oil, gas, and non-ferrous metals went to EAEU countries. Other sectors included communications and IT (9.6%), chemistry (8.1%), finance (6.1%), transport (4.2%), and agriculture/food (3.7%) (EDB, 2017).

China possesses strong innovation advantages in communications, IT, finance, and transport. Cooperation in these areas can maximize respective advantages, conserve innovative resources, and translate technological collaboration into tangible results, supporting modernization and trade development.

For example, as of 2016, Chinese enterprises' direct investment in Belarus increased to $417 million, concentrated in machinery (57%), tourism (24%), and construction (19%) (Belarusian Ministry of Commerce, 2017). In these sectors, China and Belarus have complementary strengths.

Financial Cooperation and Trade Stability

Early China-Russia cooperation in finance and currency has created strong foundations. Chinese commercial banks provide yuan clearing services in Russia, beginning in 2017 with the Industrial and Commercial Bank of China. Local currency swap agreements have positively influenced bilateral trade.

Following the 2014 Crimea incident and subsequent Western sanctions, China's import of Russian crude oil rose sharply, partially alleviating sanctions pressure. In February 2022, after the Russia-Ukraine conflict escalated, new Western sanctions further affected Russia. Existing financial and e-commerce cooperation with China helped maintain stable trade flows, and online purchases of Russian rubles by Chinese residents supported ruble stability.

Leveraging China's internet finance and e-commerce strengths, many Russian goods are sold on the China-Russia online trading platform and are quickly purchased by Chinese residents. On February 24, 2022, China's General Administration of Customs officially permitted the export of Russian wheat to China, significantly increasing Russia's market share. This demonstrates that financial cooperation facilitates trade and technological collaboration.

Conclusion

The international situation caused Chinese potassium fertilizer prices to reach record highs in 2022. Belarus, rich in potassium resources, has broader prospects for cooperation with China. Based on this, other trade and technological collaborations between China and Belarus also developed. From January to July 2021, bilateral import/export volume reached $2,223.23 million, up $785.805 million year-on-year (Chinese Customs, 2021).

Despite sanctions after the Russia-Ukraine conflict in 2022, China-EAEU cooperation made breakthroughs in finance and currency, notably through internet finance and e-commerce. In the future, trade and technological cooperation will differ significantly from the past, moving from raw material dominance toward technological modernization and transformation.

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Conflict of Interest

The authors declare no conflict of interest regarding the publication of this article.

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