

# POLICY BRIEF

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## Comparative Analysis of Industrial Development in Central Asian Countries

by Dmitry Erokhin

### EXECUTIVE SUMMARY

This paper presents a comparative analysis of industrial development in Central Asian countries. Central Asian countries have made significant strides in industrial development, with some nations showing remarkable progress. However, challenges persist in the industrialization process for some countries in the region. To drive industrial growth in Central Asia and compete on the global stage, policymakers should prioritize strategic investments in critical areas. Enhancing human capital through education and training, increasing R&D investment for innovation, and improving infrastructure are crucial for Central Asian countries to increase competitiveness in the global market. Stimulating SMEs will foster entrepreneurship and diversify the industrial sector, creating more job opportunities. Pursuing technology transfer and regional cooperation will leverage advanced economies' knowledge and shared resources.

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## Introduction

Industrialization has been a catalyst for remarkable societal and economic advancements throughout history and remains highly relevant in contemporary times (Szirmai et al. 2013). By shifting from agrarian economies to industrial ones, countries can experience increased productivity, technological advancements, and job creation, which in turn enhance living standards and overall prosperity (Franck & Galor, 2015). The establishment of a diversified and resilient industrial base fosters self-sufficiency, reduces dependency on imports, and strengthens a nation's competitiveness in the global market (Bell, 1995).

Industrialization is often linked with urbanization, drawing people from rural areas to cities in search of better opportunities (Scott, 1986). This mass migration, though posing challenges, can lead to the creation of vibrant urban centres that drive innovation and cultural exchange (Concilio et al., 2019; Clark et al., 2002).

This study aims to shed light on a wide range of indicators that indicate the level of industrialization in the Central Asian region. By analysing these metrics, we can gain valuable insights into the progress and challenges faced by each country in their quest for industrial growth. In addition, the study draws a comparison between the industrialization efforts of Central Asian countries and those of two significant neighbours – Russia and China. The geographical proximity of these nations not only influences their trade dynamics but also fosters interdependence in various economic spheres. The period from 2000 to the present day was chosen for analysing manufacturing development in Central Asia because it encapsulates the region's transition

from post-Soviet planned economies to market-oriented systems, along with significant economic reforms, globalization trends, infrastructure investments, and changing geopolitical dynamics, all supported by a more robust dataset during this timeframe. This period allows for a comprehensive assessment of Central Asia's manufacturing evolution in a dynamic and interconnected world. The World Bank and the International Labor Organization (ILO) were chosen as data sources due to their established credibility and expertise in collecting and analysing global economic and labour-related information. Their extensive track record of rigorous data collection methodologies and comprehensive coverage of international economic and labour market trends make them trusted and reliable sources for our research.

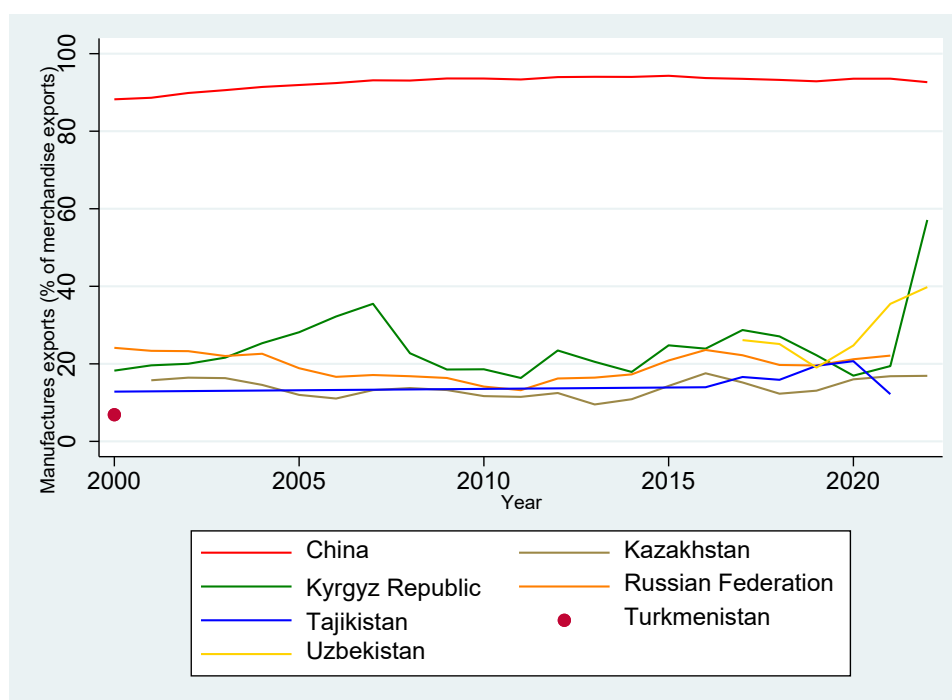
## Manufacturing Development in Central Asia

Based on the observations provided, China has an exceptionally high share, over 80% to close to 90%, of manufactures exports as percentage of merchandise exports<sup>1</sup> (see Fig. 1), indicating that manufacturing is a dominant force in its economy. The share held by Russia is slightly above 20%.

Among the Central Asian countries, the Kyrgyz Republic and Uzbekistan have experienced notable growth in manufacturing exports, with that of the Kyrgyz Republic increasing from 20% to 60% and that of Uzbekistan rising from slightly over 20% to 40%. On the other hand, Kazakhstan and Tajikistan have maintained a relatively steady share of 20%. Turkmenistan, however, only has one available observation, indicating a manufacturing export share of about 7%.

<sup>1</sup> The indicator "Manufactures exports (% of merchandise exports)" measures the percentage of a country's total merchandise exports that come from the manufacturing sector (World Bank, 2023a). A higher value indicates that manufacturing plays a significant role in the economy, while a lower value suggests a lesser reliance on manufacturing for export.

**Figure 1: Manufactures exports (% of merchandise exports)  
(constructed by the author based on data from World Bank (2023a))**



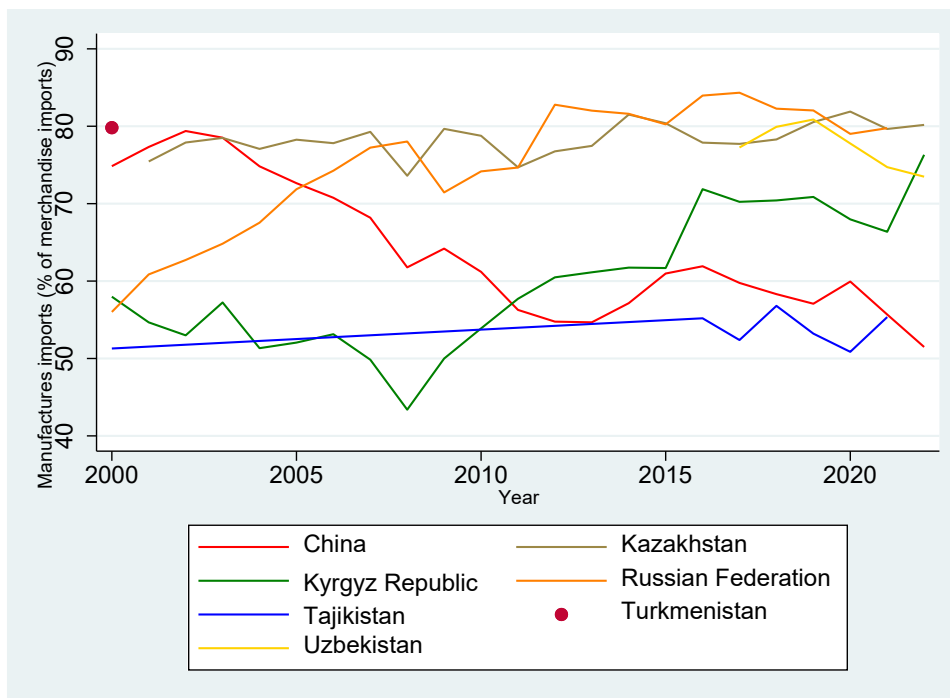
From the observations provided, it can be seen that the Chinese share of manufactured imports as a percentage of merchandise imports<sup>2</sup> decreased from 80% to 50%, indicating a decline in China's dependence on foreign manufactured goods. In contrast, Russia's share of manufactured imports increased from about 60% to 80%, suggesting an elevated reliance on foreign manufactured products (see Fig. 2).

Among the Central Asian countries, Kazakhstan's share of manufactured imports

was consistently high, moving between 70% and 80% and reaching 80% by the end of the observation period. Uzbekistan's share decreased from 80% to 75%, indicating a slight reduction in their dependence on foreign manufactured goods. The Kyrgyz Republic's share, on the other hand, increased from 60% to 75%, suggesting a higher reliance on imports of manufactured products. Tajikistan also experienced an increase in its share, from 50% to 55%. Turkmenistan had only one observation available, showing a high share of 80% in manufactured imports.

<sup>2</sup> The indicator "Manufactures imports (% of merchandise imports)" measures the percentage of a country's total merchandise imports that consist of manufactured goods from foreign sources (World Bank, 2023b). A higher value indicates a greater dependence on imported manufactured goods, while a lower value suggests a reduced reliance on foreign manufactured products.

**Figure 2: Manufactures imports (% of merchandise imports) (constructed by the author based on data from World Bank (2023b))**



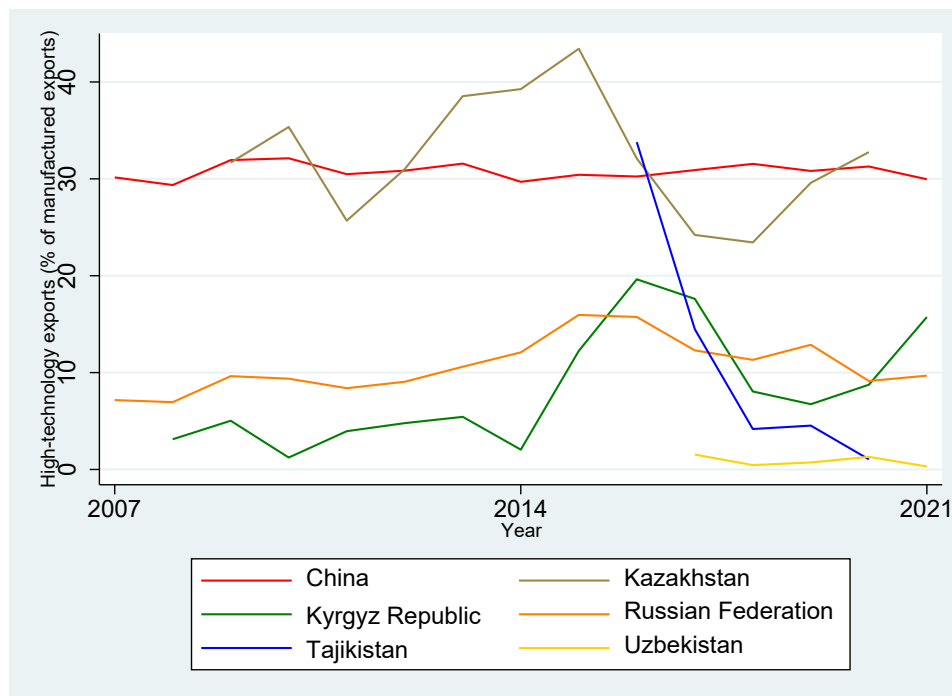
Based on the observations provided, China's share of high-technology exports as a percentage of manufactured exports<sup>3</sup> remains constant at around 30%, suggesting a consistent presence in the global market for such products (see Fig. 3). Russia's share is currently slightly below 10%, indicating a moderate but lower involvement in exporting high-technology goods.

Among the Central Asian countries, Kazakhstan has the highest share of high-technology exports, exceeding 30%, indicating a

relatively strong presence in the high-tech manufacturing sector. The Kyrgyz Republic's share is 15%, suggesting a moderate involvement in exporting high-tech products. However, Tajikistan's share has experienced a significant decline from over 30% to less than 5%, indicating a notable reduction in its high-tech manufacturing and export capabilities. Uzbekistan's share is close to 0%, suggesting minimal participation in the global high-technology export market. No data is available for Turkmenistan.

<sup>3</sup> The indicator "High-technology exports (% of manufactured exports)" measures the proportion of a country's manufactured exports that fall under the category of high-technology products (World Bank, 2023c). High-technology products typically involve advanced research, development, and innovation, and their export indicates a country's capability in producing and trading sophisticated technological goods.

**Figure 3: High-technology exports (% of manufactured exports)  
(constructed by the author based on data from World Bank (2023c))**

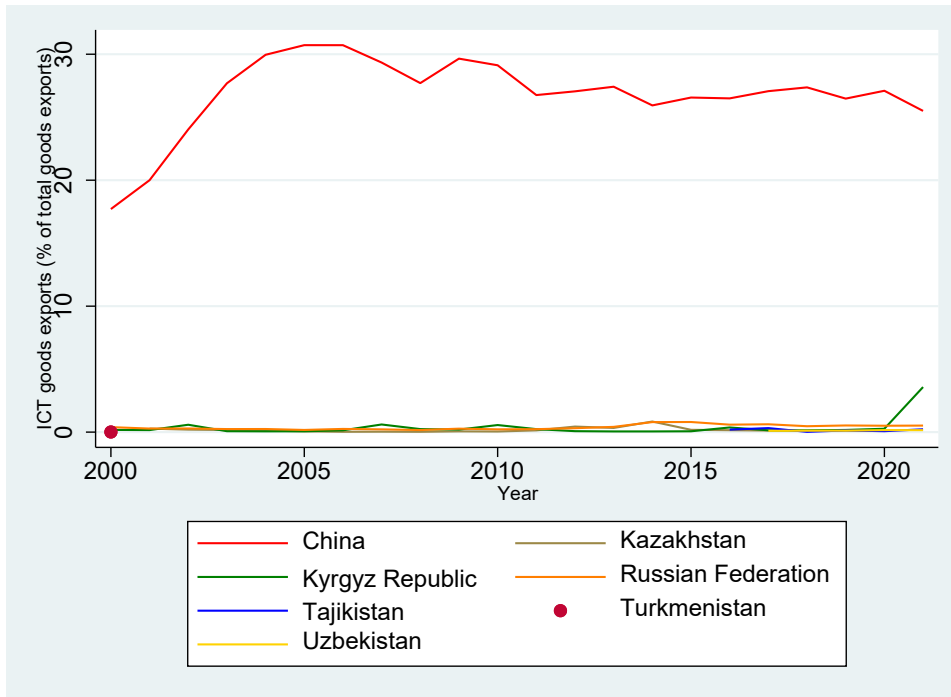


From the observations provided, China has a share of 25% in ICT goods exports as percentage of total exports,<sup>4</sup> indicating a significant contribution of the ICT sector to its total exports (see Fig. 4). In contrast, Russia's share is much lower, at 0.5%, suggesting a relatively minor role of the ICT goods sector in its export portfolio.

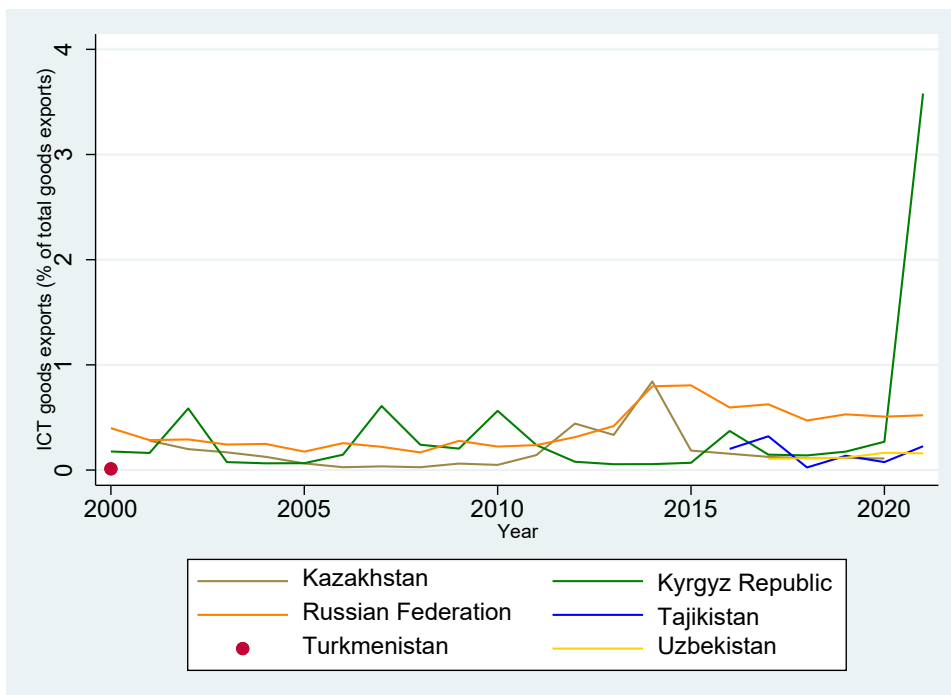
Among the Central Asian countries, the Kyrgyz Republic has shown substantial growth in ICT goods exports, increasing from slightly above 0% to 3.5% (see Fig. 5). This growth suggests a notable development in the ICT sector's export capabilities in the Kyrgyz Republic. However, all the other Central Asian countries have a very low share of ICT goods exports, close to 0%, indicating limited participation in the global market for ICT products.

<sup>4</sup> The indicator "ICT goods exports (% of total exports)" measures the percentage of a country's total exports that come from the Information and Communication Technology (ICT) goods sector (World Bank, 2023d). ICT goods include products related to information technology, telecommunications, and other communication technologies.

**Figure 4: ICT goods exports (% of total exports) (constructed by the author based on data from World Bank (2023d))**



**Figure 5: ICT goods exports (% of total exports) excluding China (constructed by the author based on data from World Bank (2023d))**

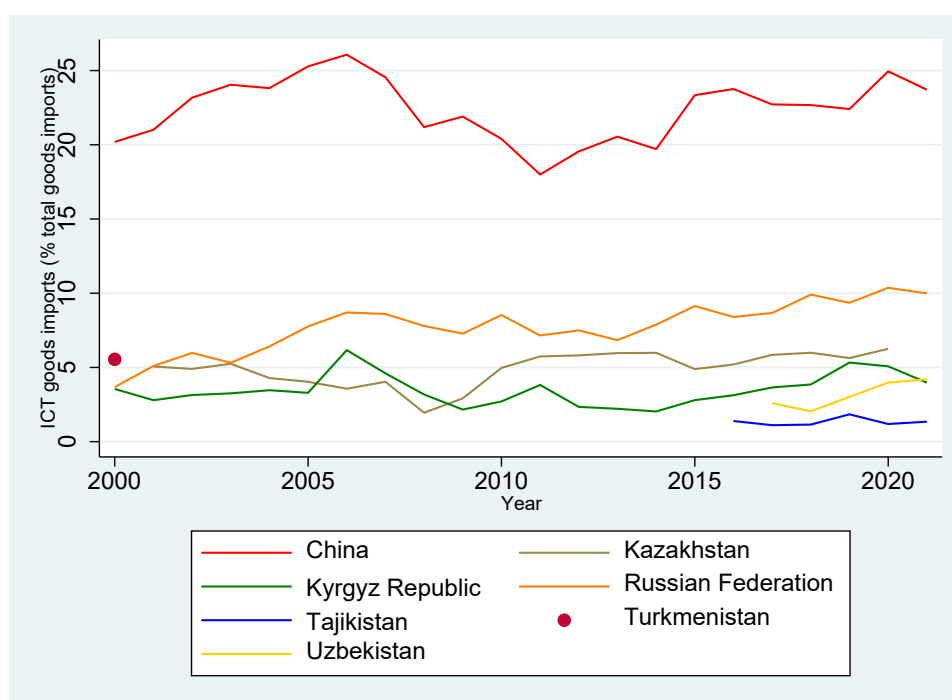


From the observations provided, China's share of ICT goods imports as a percentage of total goods imports<sup>5</sup> is approximately 25%, indicating a significant reliance on imported ICT products to meet its domestic needs (see Fig. 6). Russia's share is 10%, suggesting a notable but relatively lower dependence on ICT goods imports.

Among the Central Asian countries, the Kyrgyz Republic has a share of slightly less than 5% in ICT goods imports, implying a

moderate reliance on imported ICT products. Tajikistan's share is slightly above 0%, indicating minimal involvement in importing ICT goods. Uzbekistan's share is about 5%, reflecting a modest level of dependence on imported ICT products. Turkmenistan has only one observation of 5%, providing limited information on its ICT goods imports. Kazakhstan's share is slightly above 5%, indicating a moderate reliance on imported ICT products similar to that of the Kyrgyz Republic.

**Figure 6: ICT goods imports (% of total goods imports) (constructed by the author based on data from World Bank (2023e))**



Based on the observations provided, China's share of manufacturing value added as a percentage of GDP is slightly below 30%, indicating a significant contribution of the manufacturing sector to its GDP (see

Fig. 7).<sup>6</sup> Russia's share is slightly below 15%, suggesting a relatively lower but still substantial contribution from the manufacturing sector.

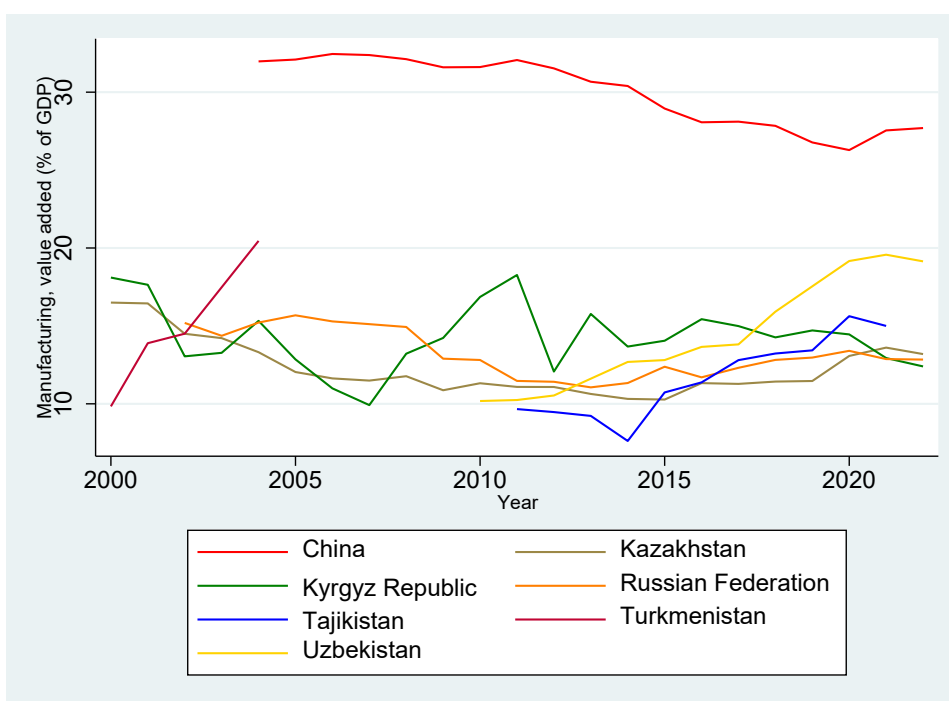
<sup>5</sup> The indicator "ICT goods imports (% of total goods imports)" measures the percentage of a country's total goods imports that come from the Information and Communication Technology (ICT) goods sector (World Bank 2023e). ICT goods include products related to information technology, telecommunications, and other communication technologies.

<sup>6</sup> The indicator "Manufacturing, value added (% of GDP)" measures the contribution of the manufacturing sector to a country's GDP (World Bank 2023f). It represents the share of value added by manufacturing activities in the overall economic output of a nation.

Among the Central Asian countries, Kazakhstan and the Kyrgyz Republic have shares close to Russia's, both at around 15%, implying a similar level of importance of manufacturing in their respective economies. Uzbekistan and Tajikistan have experienced growth in their manufacturing value added shares, with

Tajikistan's share increasing from 10% to over 15%, and Uzbekistan's share rising from 10% to 20%. Turkmenistan's share was slightly above 20%, but the lack of updates over a long period makes it challenging to draw accurate conclusions about its current manufacturing sector's contribution to GDP.

**Figure 7: Manufacturing, value added (% of GDP) (constructed by the author based on data from World Bank (2023f))**



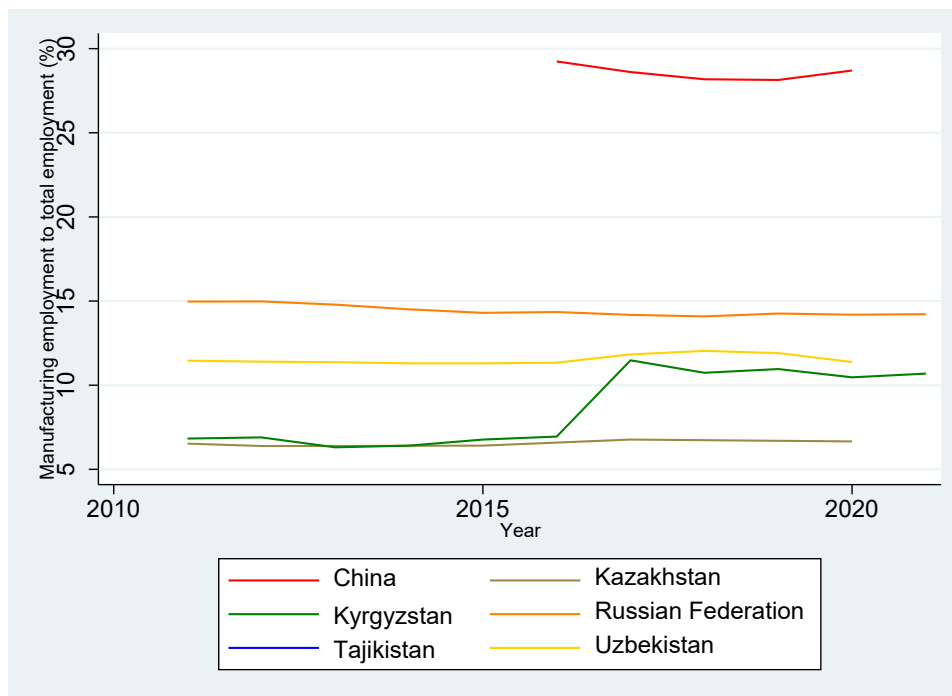
From the observations provided, China's manufacturing employment as a proportion of total employment<sup>7</sup> is around 30%, indicating that a substantial number of workers are employed in the manufacturing sector (see Fig. 8). Russia's share is 15%, suggesting a lower but still significant proportion of total employment in manufacturing.

Among the Central Asian countries, Uzbekistan's share is about 12%, signifying a notable presence of manufacturing jobs in its economy. Kyrgyzstan's share has shown an increase from 7% to over 10%, indicating a positive trend in manufacturing employment. Kazakhstan's share is around 7%, suggesting that a relatively smaller proportion of the total workforce is engaged in manufacturing activities.

<sup>7</sup> The indicator "Manufacturing employment as a proportion of total employment (%)" measures the percentage of the total workforce that is employed in the manufacturing sector (International Labor Organization 2023). It reflects the significance of manufacturing jobs in a country's economy and provides insights into the sector's role in providing employment opportunities.



**Figure 8: Manufacturing employment as a proportion of total employment (%) (constructed by the author based on data from International Labor Organization (2023))**



## Discussion

This section delves into a comprehensive discussion of industrial development in Central Asia providing a more detailed analysis of the key factors influencing the region's industrial landscape.

Central Asia is endowed with abundant natural resources, including oil, gas, minerals, and metals (Pomfret, 2012). While these resources can be a blessing, they also pose challenges, including the resource curse. The resource curse refers to the paradox where resource-rich countries may experience slower economic growth, increased corruption, and political instability.

In Central Asia, Kazakhstan, Turkmenistan, and Uzbekistan are notable resource-rich nations. Kazakhstan, for instance, boasts vast oil and gas reserves, while Turkmenistan possesses substantial natural gas resources. These countries have had to grapple with the resource curse, as heavy reliance on resource exports can hinder diversification and industrial development.

To address this issue, Central Asian countries have implemented various strategies. Kazakhstan, for example, has pursued a policy of economic diversification through its Nurlı Zhol program (Atakhanova, 2021), aimed at reducing dependence on oil and gas exports and promoting non-resource sectors like manufacturing and agriculture. Turkmenistan has sought to attract foreign investment in the manufacturing and textile industries to diversify its economy (Kwon & Mah, 2021). Central Asian countries' competitiveness on the global stage plays a pivotal role in their industrial development. While they excel in certain sectors due to comparative advantage, such as energy and mineral resources, the challenge lies in expanding competitiveness beyond their traditional strengths.

Each Central Asian country exhibits unique strengths and weaknesses in terms of sectoral competitiveness. For instance, Kazakhstan has made significant strides in the mining and metallurgy sectors, capitalizing on its rich mineral resources. Kyrgyzstan has shown

potential in the agri-food industry, benefiting from fertile lands and agricultural know-how. Uzbekistan, with its large population and textile industry, has emerged as a regional hub for textile production.

Global competitiveness requires Central Asian nations to focus not only on resource-based industries but also on value-added production. To enhance global competitiveness, these countries must invest in education, technology, infrastructure, and regulatory reforms. The development of human capital and innovation ecosystems is crucial to fostering competitive industries.

## Conclusion

In conclusion, the data presented highlights significant variations in manufacturing development. China stands out as a global manufacturing powerhouse, with a dominant presence in both manufacturing exports and imports, as well as high-technology exports and ICT goods. On the other hand, Russia lags behind China but still maintains substantial manufacturing contributions to its economy. The Central Asian countries are still in the process of developing their manufacturing sectors, with varying degrees of success. These disparities underline the importance of targeted policies and investments to foster manufacturing development and enhance economic growth in the region.

## Recommendations

Central Asian countries have made progress in their industrial development, but significant challenges persist. To address these challenges, the following policy recommendations can be adopted to leverage industrialization efforts for sustained economic growth, job creation, and social development:

- 1. Invest in technical and vocational education:** Given the importance of skilled labour in driving industrialization, Central Asian countries should prioritize investments in technical and vocational

education and training programs (Mogilevskii, 2020). These initiatives will help equip the workforce with the necessary skills to meet the demands of modern industries and increase overall productivity.

2. **Promote research and development:** Policymakers should encourage public and private sector collaboration in research and development (R&D) activities (Pillai et al., 2018). Supporting R&D initiatives can lead to technological advancements, innovation, and the development of high-value products, thereby enhancing the competitiveness of Central Asian industries.
3. **Facilitate access to finance for SMEs:** Small and medium-sized enterprises (SMEs) play a crucial role in industrial development (Ghassibe et al., 2019). To support their growth, governments should work to improve access to finance, providing affordable loans and financial incentives to encourage SME participation in industrial activities.
4. **Enhance infrastructure development:** Central Asian countries should prioritize investments in infrastructure, including transportation, logistics, and energy networks (Pomfret & Anderson, 2001). Well-developed infrastructure will facilitate the efficient movement of goods and raw materials, reducing production costs and enhancing the overall competitiveness of industries.
5. **Diversify export markets:** Central Asian countries should actively explore and diversify their export markets to reduce their reliance on a limited number of trading partners (Myant & Drahokoupil, 2008). Diversification will enhance economic resilience and open new opportunities for industrial growth.
6. **Support technology transfer and partnerships:** Encouraging technology transfer and international partnerships can help Central Asian industries gain access to advanced technologies and markets (Kalyuzhnova & Holzhaecker, 2021). Governments should facilitate collaborations between local industries and foreign entities to promote knowledge exchange and innovation.
7. **Promote cross-Border cooperation:** Given the interconnectedness of the economies in the region, Central Asian countries should foster cross-border cooperation and regional partnerships (Paswan, 2013). Collaborative efforts can lead to shared benefits, knowledge exchange, and improved industrial competitiveness.

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