

How much do Central Asian countries participate in regional value chains?

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Abstract

This paper estimates Central Asian countries' participation in regional value chains (RVCs) and global value chains (GVCs) using data from the Eora multi-region input-output table. The contribution of foreign value-added to gross exports is low, both absolutely and when compared to baseline estimates for benchmark Southeast Asia. Moreover, despite their geographic, cultural, and historic closeness, Central Asian countries tend to be more integrated into GVCs, whereas RVCs are at a rudimentary stage. The high trade costs and uncertain trading environment at border-crossing points are some of the reasons for underdeveloped RVCs in Central Asia.

Keywords: regional value chains, global value chains, international trade, Central Asia

Introduction

Global and regional value chains are economic drivers for developing countries. Since the 1960s, global value chains have increasingly become economically essential for international companies searching for low-cost and capable suppliers offshore. Since the 1990s, these international value chains have grown exponentially, affecting all sectors of the global economy, from manufacturing to food production and all types of services (Gereffi, 2014). Value chains that involve only regional production partners constitute regional value chains (RVCs) but are considered global when they involve extra-regional partner countries (Hanzl-Weiss et al., 2018). Among the most developed RVCs are those established among EU countries, the North American regional value chains, and the major trading countries in Southeast Asia.

Given that the international production organisation is predominantly regional in scope (Baldwin, 2011), RVCs are particularly important. Expanding global production networks has resulted in increased geographical fragmentation of production in regional economies, part of a critical change in how low- and middle-income economies have industrialised and developed over the past three decades (Vandenberg & Kikkawa, 2015).

Increased regionalisation of value chains was a response to the 2008-09 economic crisis that encouraged leading firms in developing countries to regionalise their supply chains as end markets shifted from the north to the south to minimise the production costs (Kaplinsky & Farooki, 2011). In sub-Saharan Africa, for instance, South African clothing manufacturers entered neighbouring countries, such as Lesotho and Swaziland, which led to the establishment of RVCs driven by South African retailers. In Southeast Asia, the success of RVCs and the active participation of Southeast Asian

countries in GVCs supported countries in speeding industrialisation in this region (Vandenberg & Kikkawa, 2015). As of 2021, the Southeast Asian region is among the global trading regions maintaining high RVC and GVC development standards.

On the other hand, in Central Asia¹, anecdotal evidence suggests that the development of GVCs and RVCs has been almost absent apart from some somewhat fragmented success stories of Kyrgyzstan's exports of kidney beans and clothing, mainly due to bazaars as entrepôts for inputs imported from China, as well as Kazakhstan's grain cluster: wheat flour and products that are relatively successful in the Central Asian context. The reasons for the apparent failure of Central Asia to establish strong RVCs and GVCs are poorly researched, and the countries' participation in value chains is minimally understood. The motivation of this paper is to explore the evolution of GVC and RVC over time and why participation in global and regional value chains remains relatively low in most sectors in the Central Asian region. The results presented in this paper show substantially changed patterns of GVC compared to RVC over time and considerable heterogeneity across the countries in the sample. Overall, this paper provides rigorous quantitative evidence of the level of Central Asia's participation in RVCs and GVCs that adds greater insight into the region's economic activity.

The following section provides an overview of international trade policies and reviews trade costs and trade facilitation measures in the Central Asian countries. In section 3, following the exposition of the Leontief inverse approach to the trade-in-value added decomposition, the paper estimates to what extent Central Asia is integrated into global and regional value chains. The findings confirm that despite cultural and ethnic similarities, common historical backgrounds, and functional interdependencies among Central Asian countries, regional value chains are almost non-existent. The paper concludes by outlining the major factors contributing to the limited integration of Central Asian countries in RVCs and GVCs, and ways to address these obstacles.

Background

Trade liberalisation processes in Central Asia

After the collapse of the Soviet Union, and despite a short period of disintegration from the early to mid-1990s, many regional trade agreements were signed, and Kyrgyzstan became a World Trade Organization (WTO) member in 1998. Nevertheless, the Central Asian countries were reluctant to pursue regional and multilateral trade policies. In the 1990s, Central Asian governments' suspicions of international obligations, which placed constraints on their policy autonomy, were among the reasons for postponing their accession to global organisations. While hesitant to join the WTO in the early 1990s, which would have provided some certainty in the trading environment, the Central Asian countries signed a number of bilateral trade agreements with other former Soviet republics, which sometimes overlapped with participation in various regional trade agreements. The agreements were often ineffective and often existed on paper only (Pomfret, 2005).

The Eurasian Economic Union (EEU) is the most critical regional agreement. However, the economic benefit from the participation of the Central Asian countries in the EEU remains questionable, as, apart from the large volumes of trade with the

¹ Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan

Russian Federation, Kazakhstan's and Kyrgyzstan's trade with other EEU members is insignificant. By joining the EEU in 2015, Kyrgyzstan was obliged to increase and renegotiate its import duties with WTO member countries. Thus, despite some facilitated trade between Kazakhstan, Kyrgyzstan, and Russia, new barriers were created across Central Asia because the other countries, as non-members, face the EEU's higher external tariffs.

Furthermore, even though joining the EEU reduced the trade costs between the member countries marginally, long delays have continued on the Bishkek-Almaty road (CAREC, 2020). According to the Central Asia Regional Economic Cooperation (CAREC) Program (2020), during March and April 2019, the Kazakhstan Revenue Committee initiated random checks at Kyrgyz-Kazakh border crossing points with thorough checks of Kyrgyz trucks carrying goods from China. As the checks included detailed verification of documents and cargo, the process frequently led to long lines and waiting times. In addition, the Kyrgyz Freight Operator Association reported the extortion of unofficial payments.

As of 2022, Kazakhstan, Kyrgyzstan and Tajikistan are members of the WTO. Uzbekistan re-activated the negotiation process in 2018. Turkmenistan submitted its request for observer status in May 2020, indicating its intent to initiate negotiations for WTO accession within five years (WTO, 2020). Despite some scepticism and cautiousness at the earlier stages, participation in the WTO, and other global and regional trade agreements, has pushed the Central Asian governments to work towards improving national institutions and aligning industries with international standards. All countries, however, have been limited in their endeavours by a lack of budgetary resources, weak infrastructure, and the insufficient expertise of state agencies, which combine to hinder trade policy reforms in the Central Asian region (FAO, 2018).

Trade facilitation

By 2017, three Central Asian countries had become members of the WTO and joined the Trade Facilitation Agreement (TFA), which aims to improve efficiency and decrease the costs of customs procedures. Under WTO regulations, Kazakhstan, Kyrgyzstan, and Tajikistan committed to streamlining customs procedures and harmonising regulations in the transport sector.² Uzbekistan is also interested in the implementation of trade facilitation measures.

Under the TFA framework, countries receive grants and training from the WTO, with the primary capacity-building efforts coming from other WTO members. In return, grant and training recipients are obliged to enhance the transparency of cross-border requirements, remove regulatory and procedural barriers, and strengthen the business's capability to comply with trade formalities and standards.

Uzbekistan, while not a member of the WTO, is also receiving trade facilitation assistance from the WTO and through the Global Trade Facilitation Programme (GTFP). GTFP is the first joint initiative between the State Secretariat for Economic Affairs of Switzerland (SECO) and the World Customs Organization (WCO).³ Uzbekistan is being assisted further by the United Nations Economic and Social

² <https://www.giz.de/en/worldwide/62251.html>

³ <http://www.wcoomd.org/en/media/newsroom/2019/november/uzbekistan-customs-welcomes-the-global-trade-facilitation-programme.aspx>

Commission for Asia and the Pacific (UNESCAP) through the Framework Agreement on Facilitation of Cross-border Paperless Trade in Asia and the Pacific, a UN treaty designed to accelerate the implementation of digital trade facilitation measures (UNESCAP, 2019). Officials from all five Central Asian countries meet yearly in the CAREC Customs Cooperation Committee.

At the domestic level, to facilitate trade, all Central Asian countries, except Turkmenistan, have set up export promotion agencies and strategies, started to create networks abroad to facilitate trade and information flows between domestic companies and buyers or investors abroad, and created public export banks and financial programs (OECD, 2018)

Examples of value chains in Central Asia

As noted, there are few examples of global and even fewer regional value chain linkages in Central Asia. However, thanks to geography, more liberal trade and an ‘almost duty-free regime’, Kyrgyzstan has become a significant importer and re-exporter of products made available through its two huge bazaars – Dordoi and Kara-Suu. These bazaars are more extensive but typical of the permanently enclosed marketplaces where goods and services are traded in Central Asia and play an essential role in regional and national production and distribution chains, with well-integrated national networks for exchanging and moving the available goods (Kaminski & Mitra, 2012).

Furthermore, since the 2000s, the Kyrgyz apparel industry has shown significant export-driven growth. Exports of clothing from Kyrgyzstan to the Russian Federation and Kazakhstan increased ten-fold between 2002 and 2012 (Jenish, 2014). The fabric used in clothes production was primarily imported from China, but a small share of clothing was made of more costly, higher-quality fabric imported from Korea, Turkey and the United Arab Emirates. Notably, Kyrgyzstan does not import the fabric from neighbouring Uzbekistan and Tajikistan due to lower quality and higher prices. Relatively large Kyrgyz diasporas are among the reasons for the popularity of the country’s garments in the Russian Federation and Kazakhstan.

However, despite these examples, there is little evidence of Central Asian countries participating significantly in regional and global value chains. The following sections contribute to the literature by providing quantitative evidence of the limited extent of Central Asia’s value chain linkages.

Method

Input-output modelling is used with the Eora global database, which consists of a multi-region input-output (MRIO) table to analyse the integration of Central Asian countries into global and regional value chains. With 26 sectors, Eora provides a relatively detailed sectoral classification and is consistent across all countries covered.

Table 1.: Sector classification in Eora26

1	Agriculture	14	Construction
2	Fishing	15	Maintenance and Repair
3	Mining and Quarrying	16	Wholesale Trade
4	Food & Beverages	17	Retail Trade
5	Textiles and Wearing Apparel	18	Hotels and Restaurants
6	Wood and Paper	19	Transport
7	Petroleum, Chemical and Non-Metallic Mineral Products	20	Post and Telecommunications
8	Metal Products	21	Financial Intermediation and Business Activities
9	Electrical and Machinery	22	Public Administration
10	Transport Equipment	23	Education, Health and Other Services
11	Other Manufacturing	24	Private Households
12	Recycling	25	Others
13	Electricity, Gas and Water	26	Re-export & Re-import

Source: Eora documentation (<https://worldmrio.com/documentation/>)

The methodology follows the decomposition of trade in value-added based on the Leontief inverse as set in Aslam, Novta, & Rodrigues-Bastos (2017). Gross export value was divided into domestic origin value-added, regional value-added (aggregated for five Central Asian countries), and value-added from other countries (all countries outside the focus region). The general formula for GVC participation can be presented as follows, the larger ratio indicates greater intensity of involvement of a particular country in GVCs:

$$(1) \quad GVC \text{ participation} = \frac{FVA + DVX}{Gross \text{ exports}}$$

where *FVA* (foreign value-added) is the imported intermediate input content of exports, also referred to as a measure of “backward participation”, since it measures imported intermediate inputs that are used to generate output for export. *DVX* is the indirect domestic value-added that counts the portion of exports used as inputs by another country in the production of its export goods. *DVX* is a measure of “forward participation”. A sector is more integrated into GVCs the higher the proportion of global value added in gross exports. Similarly, it is more integrated into RVCs the higher the proportion of regional value added in gross exports.

The analysis was performed for 2000 and 2015, the latest year available in the database, to understand how participation in GCV and RVC was evolving in Central Asia over time. Additionally, setting up the benchmark for the analysis, the participation of Southeast Asia in GVC and RVC was also estimated.

Results and discussion

For better representation, computations are presented graphically for each of the five Central Asian countries and the region as a whole. The estimates for RVC and GVC participation are provided for Central Asia (Figure 1) and for Southeast Asia (Figure 2)

to provide a benchmark for comparison. Both the Southeast Asian countries and those of Central Asia had to deal with complex, although vastly different, histories and economic crises in the 20th century. Over the past 30 years, the countries of Southeast Asia, however, have developed well-functioning RVCs and became well-integrated into GVCs, while Central Asia has made comparatively little progress.

Besides history and culture, other apparent differences between the two regions affect their economic potential, such as access to ocean shipping in Southeast Asia, which allows for lower transport costs. In contrast, the landlockedness of the Central Asian region may increase the costs of trading internationally. However, the landlockedness could have potentially pushed the Central Asian countries to trade more with each other and develop RVCs, but that has not happened due to various reasons discussed later.

In Central Asia (Figure 1), the results show very little regional value chain (*Intra-regional* component of Figure 1) development in any sector compared to the Southeast Asian countries (Figure 1). The results demonstrate significant regional value-added in Southeast Asian exports, varying from a low of 5% in mining and quarrying and reaching up to 65% in construction exports (Figure 2). Whereas, in Central Asia, the most significant proportion of gross exports accounted for by regional value-added is 4% in the electricity, gas and water sector. The next largest proportion is only 3% in “others”, and 2% in transport equipment. All other sectors have 1%, or less, of the value of gross exports coming from regional non-domestic value-added, which is a deficient level of RVC integration.

Notably, the Central Asian region appears to be more integrated into GVCs (*Inter-regional* component of Figure 1). In the Southeast Asian region, the largest inter-regional value-added of 10% is in construction exports. In Central Asia, on the other hand, trade with inter-regional partners, especially the Russian Federation and China, are relatively stronger in many cases than trade with neighbours. Inter-regional value-added accounts for 24% of gross exports in the petroleum, chemical and non-metallic mineral products sector and just over 20% of gross exports in transport equipment and metal products. However, 95% of agriculture exports come from domestic value-added, indicating limited integration into RVCs and GVCs.

Figure 1: Central Asia (all five countries). Value added in gross exports by origin, 2015 (%).

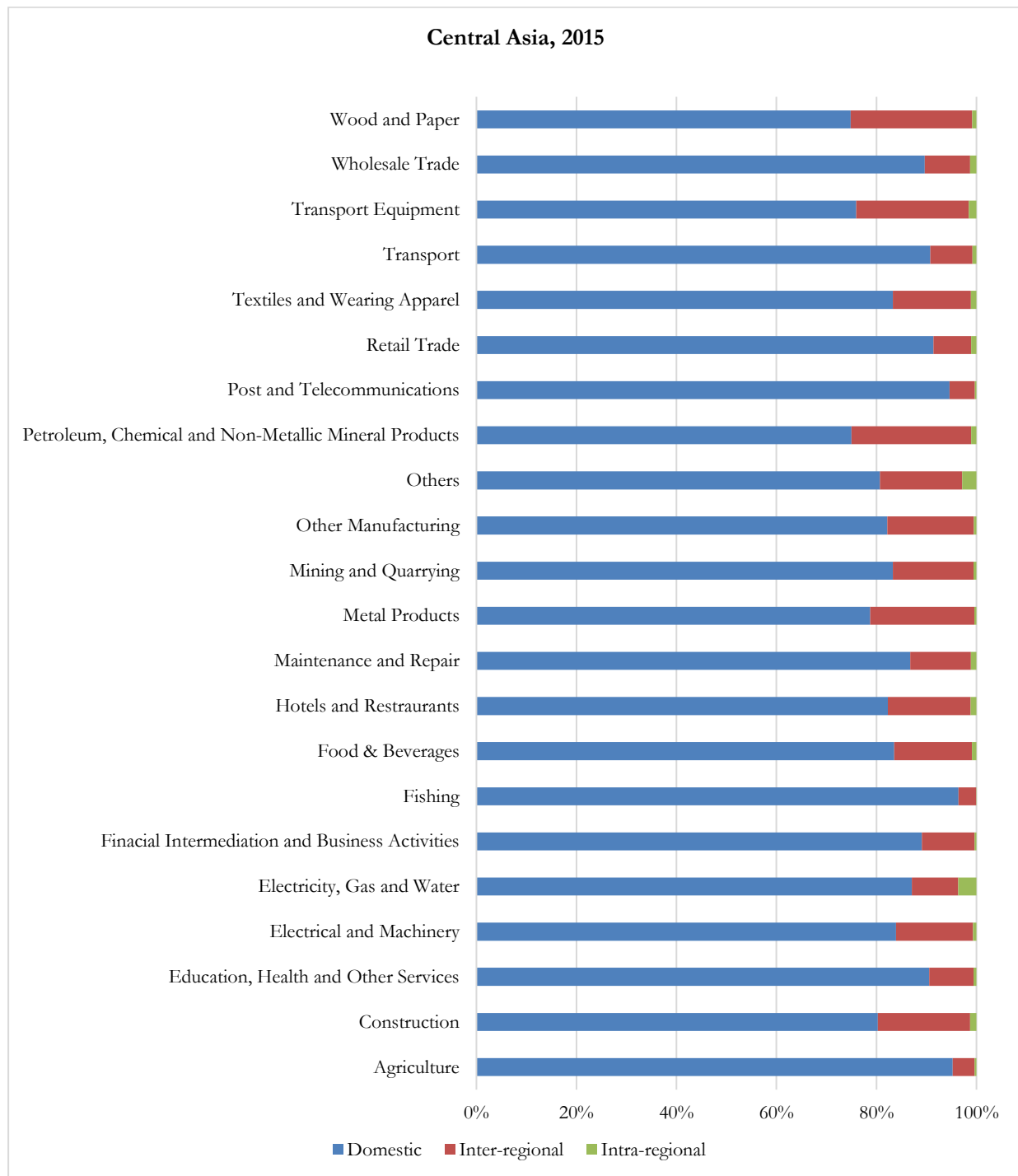
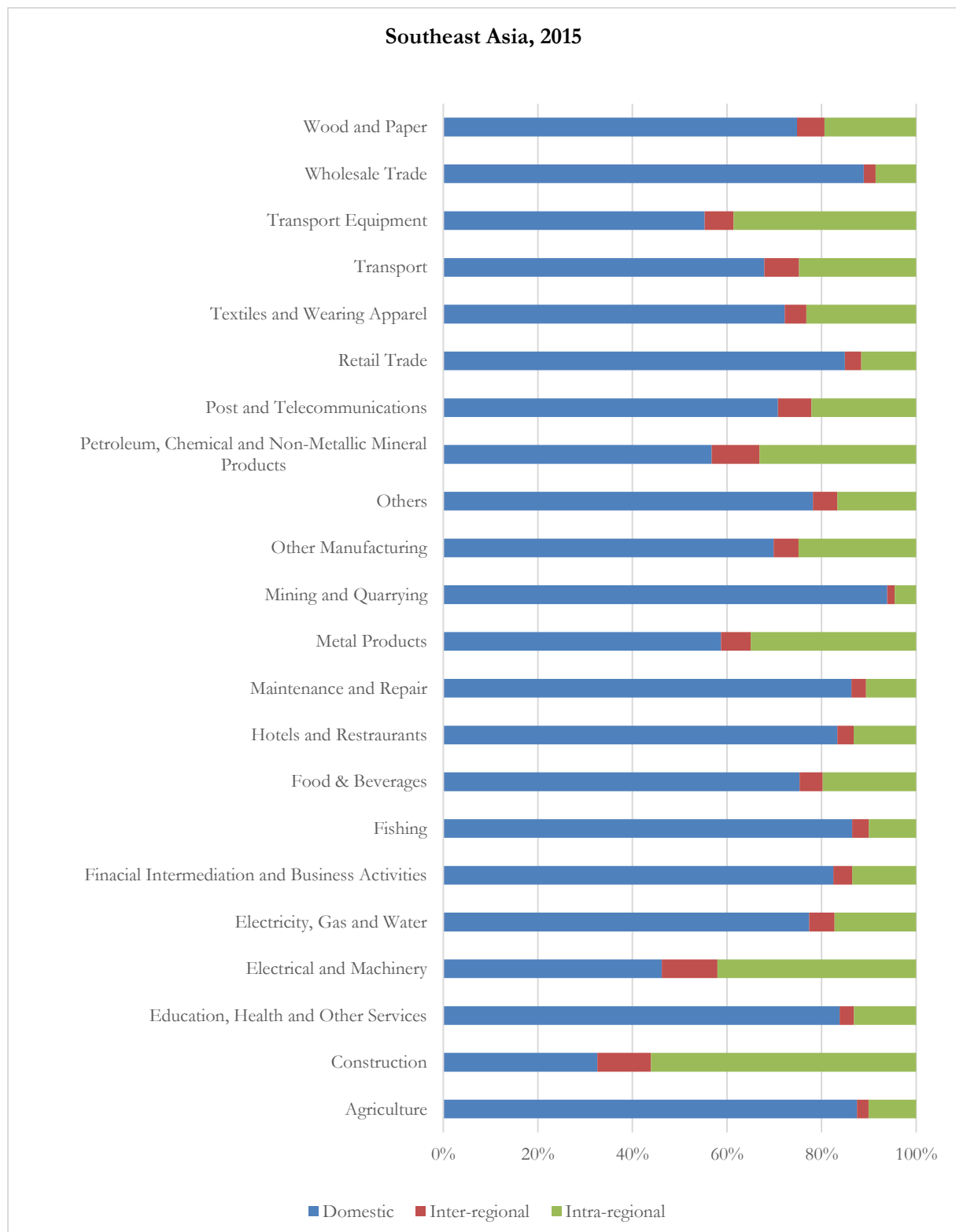


Figure 2: Southeast Asia (ten countries⁴). Value added in gross exports by origin, 2015 (%)

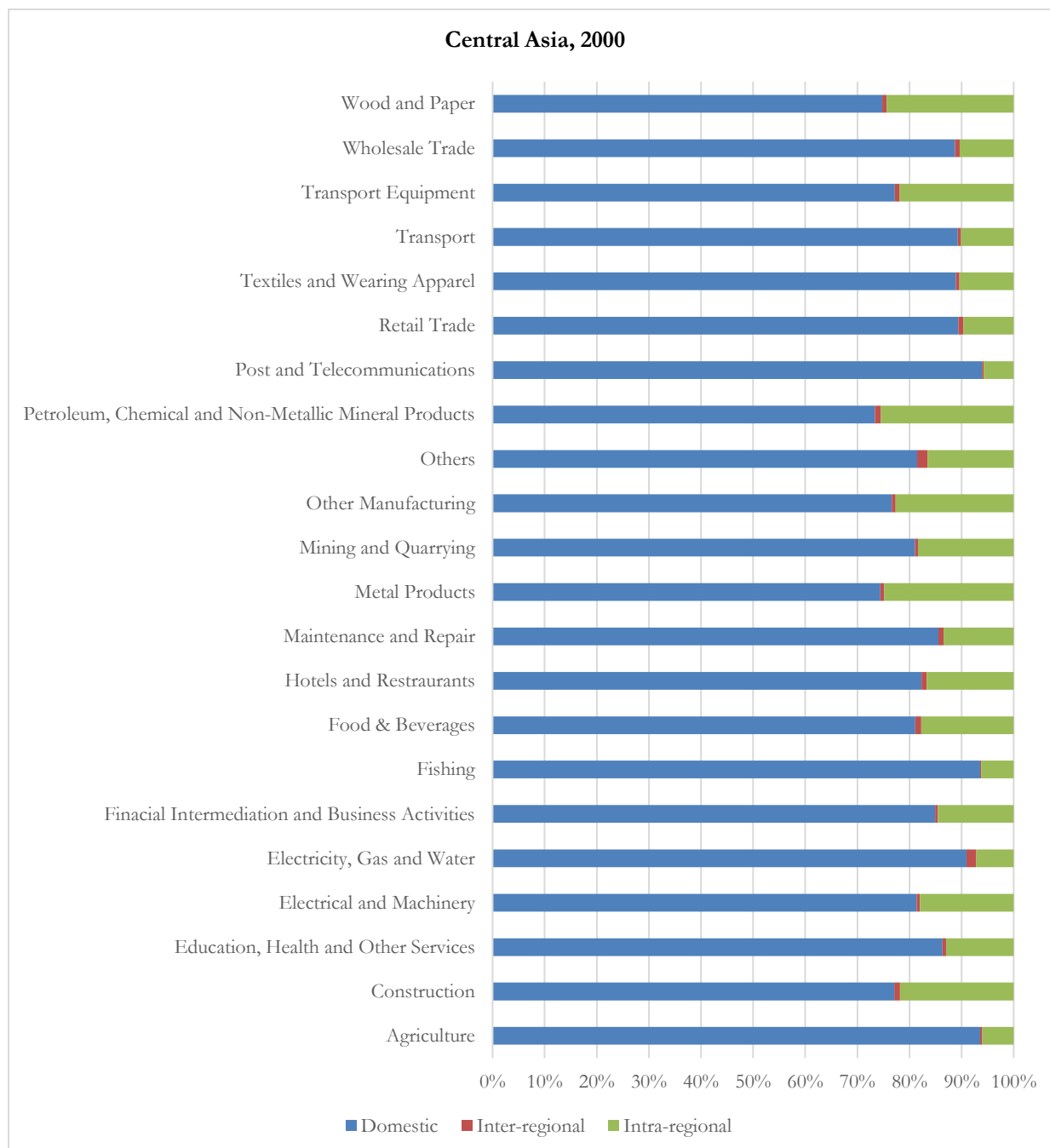


The estimations are repeated for 2000 to analyse how the RVCs evolved in Central Asia over time. Figure 3 demonstrates that since 2000 the regional value-added in the

⁴ Brunei, Burma (Myanmar), Cambodia, Indonesia, Laos, Malaysia, Philippines, Singapore, Thailand, Vietnam; no data for Timor-Leste

region's exports has significantly declined, whereas the role of GVCs after 2000 has increased. The most notable drop in regional value-added between 2000 and 2015 is in all manufacturing industries, including food and beverage exports, textiles and apparel, and construction exports. The re-orientation of the trade from outside of the region is a result of the growing trade with China and the Russian Federation and engaging with new trading partners globally.

Figure 3: Central Asia (all five countries). Value added in gross exports by origin, 2000 (%).

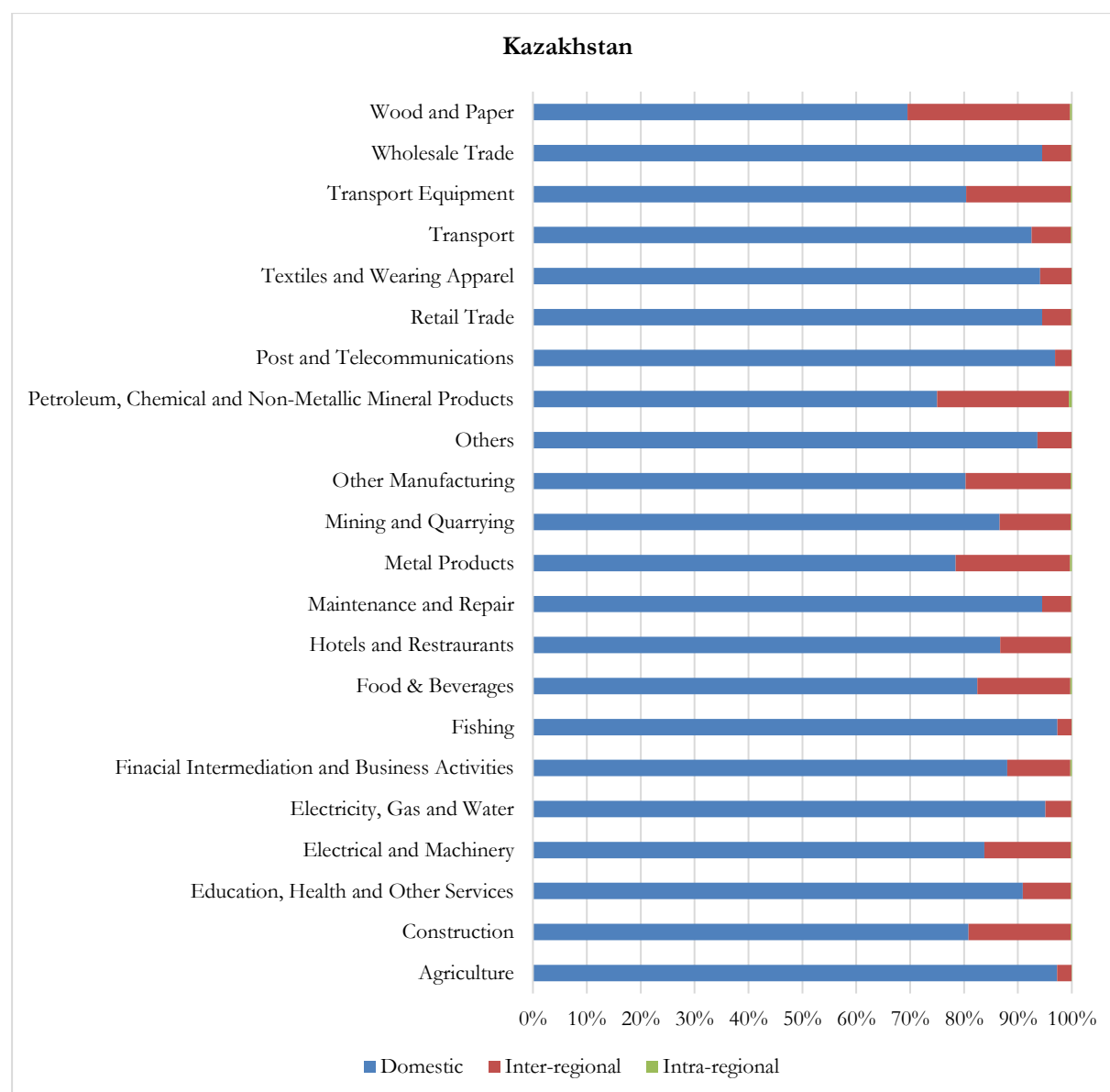


The next step is to analyse the RVC and GVC participation for each region's countries. Kazakhstan, the region's largest economy, is the least integrated country into regional value chains. Figure 4 confirms that the majority of products are exported raw rather

than as processed commodities.⁵ The output of most industries is 70% to 95% domestic in origin. The share of regional value-added in the exports of petroleum and chemical products is minimal.

Value chain activity takes place much more significantly with extra-regional value-added. Wood and paper and petroleum and chemical products are the industries that have the highest proportion of non-domestic and non-regional value added in gross exports, 30% and 25% accordingly. Notably, Kazakhstan's agriculture is the sector least integrated into GVCs and RVCs, with less than 5% of inter-regional value-added in exports.

Figure 4: Kazakhstan. Value added in gross exports by origin, 2015 (%).



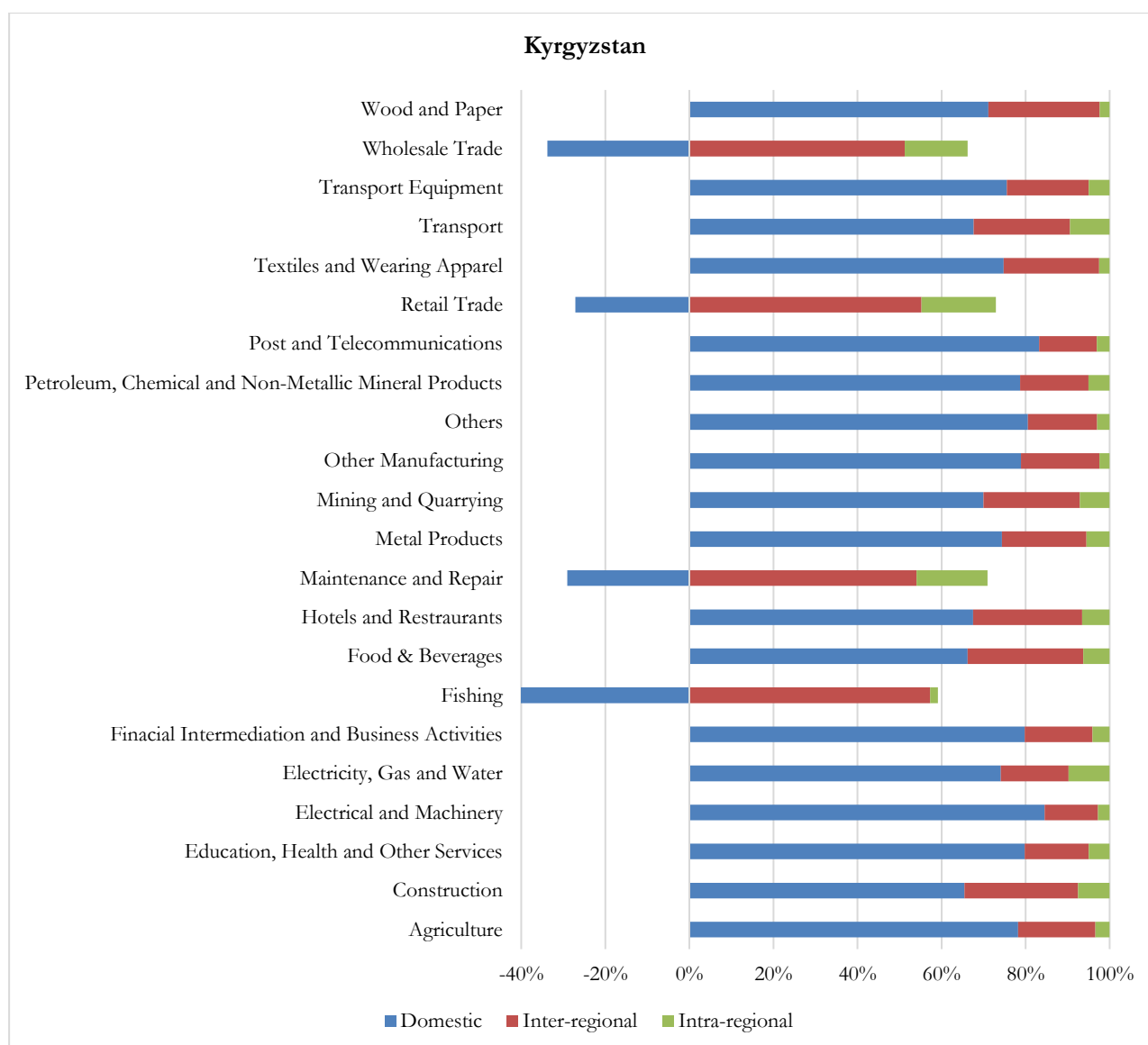
With the largest share of regional value-added in its gross exports compared to other countries, Kyrgyzstan demonstrates its greater integration into regional and global value chains. The estimates for Kyrgyzstan (Figure 5) reflect the country's more liberal

⁵ Sawyer, Sprinkle, & Tochkov (2010) calculated very low trade-weighted intra-industry trade (IIT) index in the SITC 3 category (fuels and lubricants) for Kazakhstan, and Turkmenistan, which are dominated by oil and gas, as these commodities are exported in exchange for imports of manufactured goods in both countries.

trade regime. Nevertheless, participation is on a small scale. Notably, there are some negative values for domestic components in gross exports recorded for Kyrgyzstan, which might reflect the absence of production in particular industries (e.g. fishing).

Other negative values reflect the country's entrepôt position, allowing for the influx of Chinese goods re-exported to neighbouring countries. Wholesale trade is substantially integrated into GVCs (45% of external value-added in total exports) and RVCs (10%), while the domestic proportion takes a negative value.⁶ The results demonstrate that Kyrgyz export services, such as construction, finance business and hospitality services, also consist of 20% to 30% of external value-added.

Figure 5: Kyrgyzstan. Value added in gross exports by origin, 2015 (%).

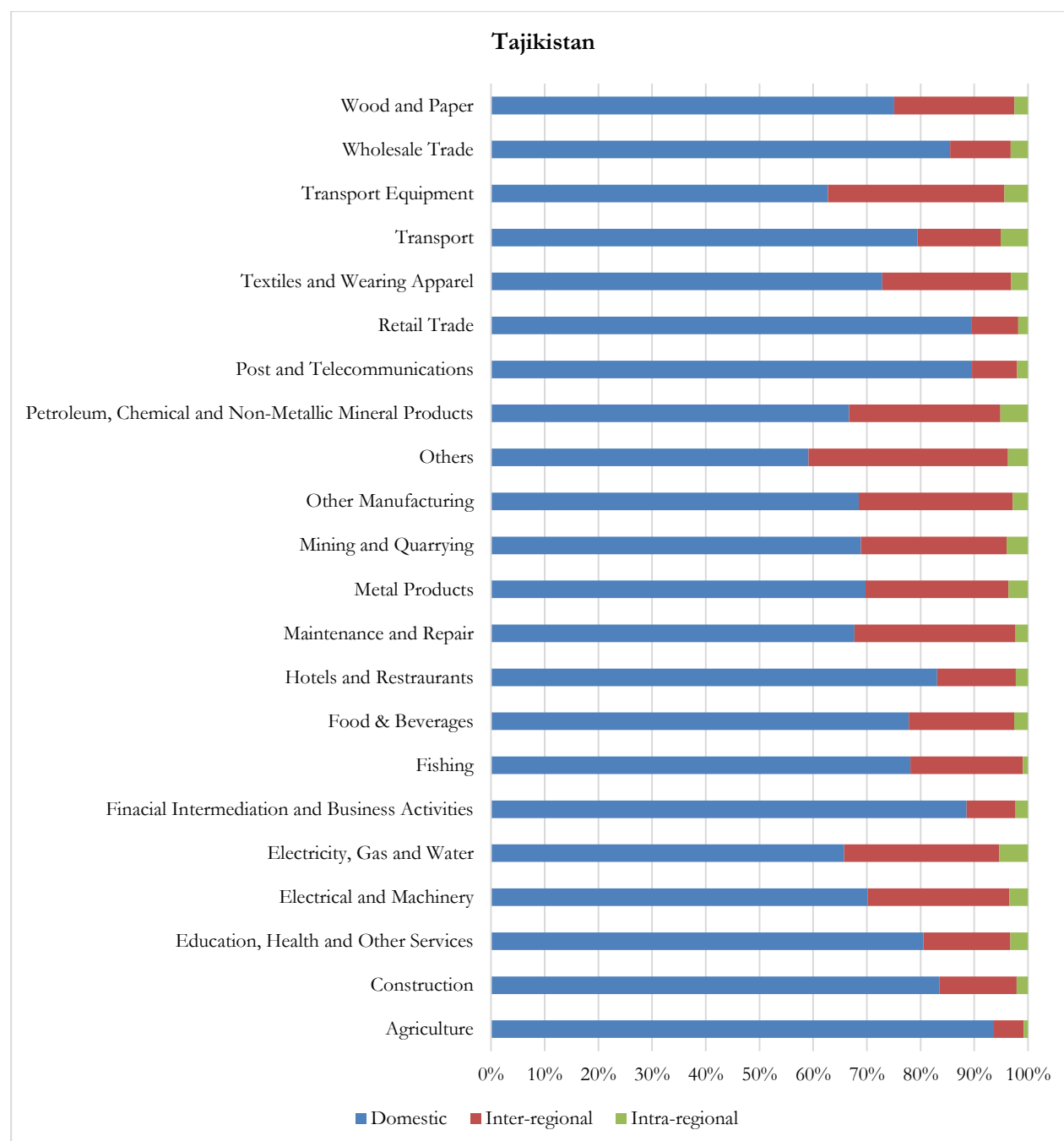


Similarly, results for Tajikistan (Figure 6) offer little evidence of regional value-added in exports, with the highest proportion of 5% in exports of petroleum and chemical products and the transport, electricity and gas sectors. The highest inter-regional value added is in transport equipment and maintenance and repair, accounting for 30% of

⁶ Negative values for retail trade and maintenance and repairs may also be related to the country's entrepôt position. However, these results should be regarded with caution due to data discrepancies; particularly for small economies such as Kyrgyzstan, Eora data is in some cases estimated rather than directly observed.

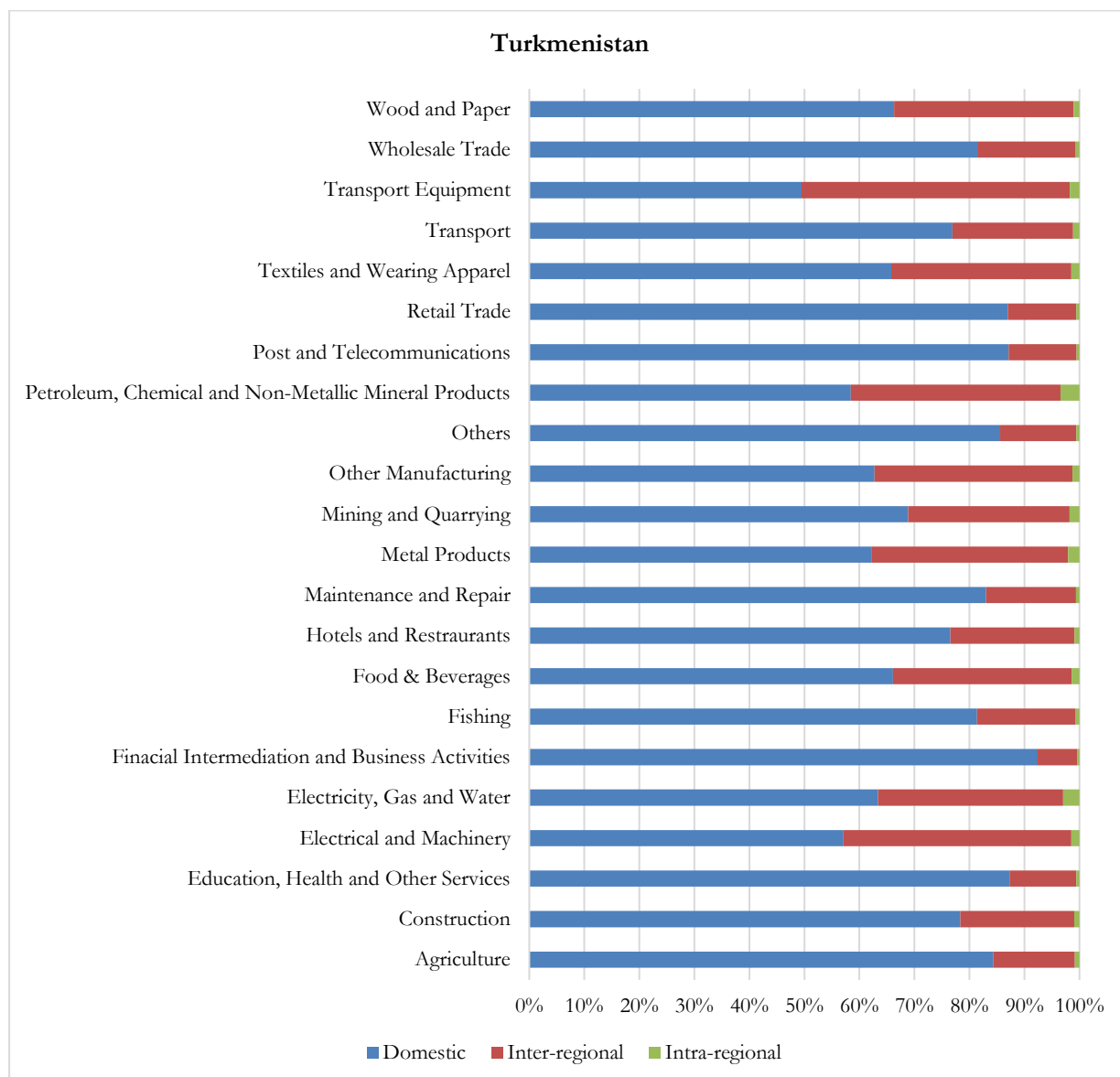
total exports. Agricultural exports show the slightest evidence of external value chain linkages, with 95% of the value-added being of domestic origin.

Figure 6: Tajikistan. Value added in gross exports by origin, 2015 (%).

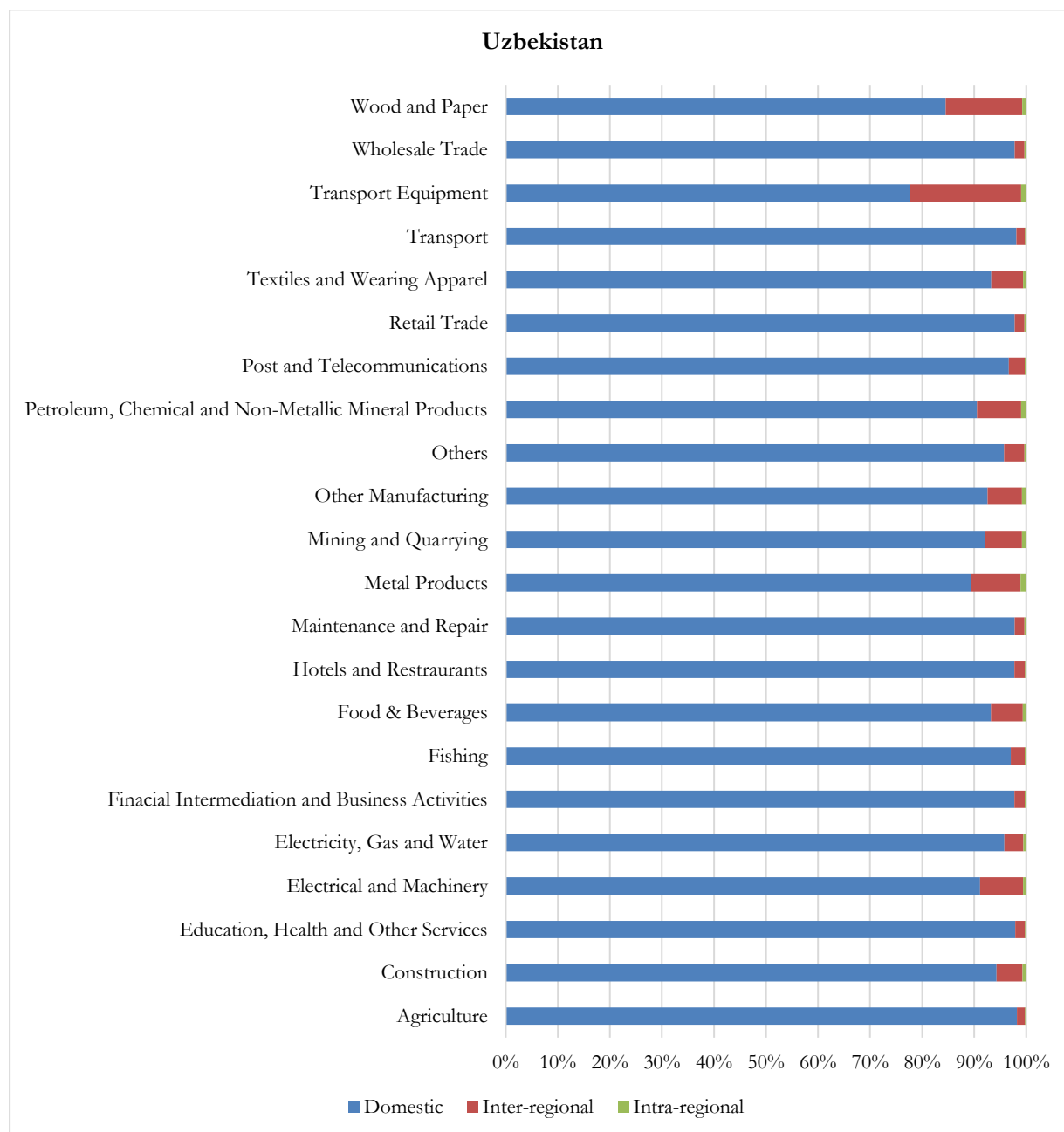


Turkmenistan also has little regional value-added in its exports, although, despite its closed and least liberal trading regime, it demonstrates the highest proportion of external value added in its exports (Figure 7). For example, Turkmenistan's exports of transport equipment and electrical and machinery goods contain 50% and 45% of inter-regional value-added. Also, the country's agriculture contains a non-domestic value-added of 15%, which is among the highest in the region. It should be noted that these results could be a reflection of Turkmenistan's high number of imports because of its small economy. The country does not have a large domestic production of goods, and sectoral measures of value-added in gross exports involve minimal export values for any product except natural gas.

Figure 7: Turkmenistan. Value added in gross exports by origin, 2015 (%).



Uzbekistan, the region’s second-largest economy, is the least integrated country in regional or global value chains. In Figure 8, the highest proportion of non-domestic value added is in gross exports of transport equipment, reaching up to 22%, followed by wood and paper, where external value-added was 15% in 2015. Agricultural exports are among the least integrated into regional and global value chains, with domestic value-added of up to 98%. The pattern reflects the non-liberal and closed economy that was in place in 2015. Since 2017, the country has been rapidly liberalising its international trade policies. Thus, calculations for more recent years could show a substantially different pattern.

Figure 8: Uzbekistan. Value added in gross exports by origin, 2015 (%).

Overall, the findings provide empirical support of previous literature indicating that the Central Asian countries are poorly integrated into global and regional value linkages. Most striking are the near absent value chain linkages in the region's largest economies, Uzbekistan and Kazakhstan. Heavy dependence on commodities is one of the critical reasons for the low RVC development in the region, which supports rent-seeking behaviour resulting in high corruption and indifferent governance. Moreover, being landlocked and commodity-dependent can result in higher-than-average transit and transport costs (Collier, 2008), although that should not deter regional trade within Central Asia.

In Central Asia, high trade costs in monetary terms, but most often due to time delays and uncertainty, appear to be among the key reasons for the lack of regional integration. Underdeveloped soft and hard infrastructure, policy limitations, and uncertainty at border crossing points increase the reluctance to enter regional value

chains. There are often spontaneous border closures and other obstacles created by customs officers, all of which reduce the incentives for cross-border trade. Grafe, Raiser, and Sakatsume (2008) found that national borders do not significantly impact relative prices across different regions in Central Asia. In contrast, within-country barriers to trade are substantial and include more than just transportation costs related to the distance between two locations.

A broad range of impediments prevents Central Asia from enhancing its participation in RVCs and GVCs. Among factors key to participation in regional or global value chains, according to UNCTAD (2015), are human capital, infrastructure, the business environment, trade and investment policy and institutionalisation. In Central Asia, for example, anecdotal evidence suggests that the lack of trained staff at the customs facilities has led to the limited use of the modern technologies that have been introduced (FAO UN, 2017).

Moreover, a lack of incentives for private sector development in some countries in the region also contributes to low levels of regional and inter-regional value added in countries' exports. For example, the absence of effective institutions and centralised economic management in Uzbekistan has undermined the potential of its cotton sector (UNCTAD, 2015). State control throughout the industry makes the cotton sector less competitive by eliminating innovation incentives for Uzbek cotton producers. Central Asian countries' participation in RVCs and GVCs requires that policymakers focus on increasing the competitiveness of national firms rather than entire industries (UNCTAD, 2015).

RVCs may also be discouraged by the participation of the Central Asian countries in the EEU, and the value of EEU membership remains questionable, as noted earlier. Since most of the trade happens with the Russian Federation, Kazakhstan's and Kyrgyzstan's trade with other Central Asian neighbours, non-EEU members, became more challenging; the membership in the EEU, to some extent, created new barriers across Central Asia because the other countries, as non-members, face the EEU's higher external tariffs.

The invasion of Ukraine by Russia in February 2022, along with the devastating humanitarian crisis, led to economic sanctions imposed on the Russian Federation, supply shortages of grain and other staple products due to the Russian ban on exports to EEU, closure and blockade at the Black Sea ports and hence disruptions in export and import in the region, and a number of other unfolding macroeconomic issues. The Central Asian countries should consider this situation as an opportunity to strengthen regional cooperation and improve the regional value chains while minimising reliance on trade with the Russian Federation. Central Asian countries may attract the international companies that shut their facilities in Russia, which would benefit developing regional value chains.

The large regional economies, Kazakhstan and Uzbekistan, which are at the centre of the region's trade flows, must adopt policies leading to industrial change that fosters closer cooperation among the region's countries. A comprehensive approach to reform is essential to benefit from globalisation and participation in RVCs and GVCs, with industrial policies accompanied by enhancements in trade, education, transport and other policies (Memedovic et al., 2008).

To overcome the existing issues and improve regional and global linkages, Vandenberg and Kikkawa (2015) argue that Central Asia needs to attract investment while improving performance in all aspects of regional and global trade management. Convergence of the regulatory environment across the region would enhance regional trade and support greater integration into regional and global supply chains (Kalyuzhnova & Holzacker, 2021). The following section discusses the advances since 2015 that have the potential to enhance value chain linkages in Central Asia.

Prospects

Since data availability restricts the estimates to 2015, and different regional and country-specific changes have emerged since that year, it is relevant to analyse further prospects for developing the regional and global value chains. Uzbekistan, since 2017, for example, has substantially liberalised its trading regime, which could positively impact the country's participation in the GVCs and RVCs. In 2015, Kazakhstan devalued its currency to promote international trade, and at the end of the resources boom around 2014, the countries began to diversify exports.

The CAREC program continues as a regional initiative encouraging and supporting greater involvement among the Central Asian countries in global trade.⁷ The six transport corridors constructed by CAREC link the Central Asian region's key economic hubs to each other and connect the countries to other Eurasian and global markets. Although currently underdeveloped, the six CAREC corridors offer a network of roads and railways spanning the region and are intended to expand trade and improve competitiveness while augmenting regional economic cooperation. Overall, the CAREC program aims to turn the region from a group of isolated, landlocked countries into a collection of land-linked economies by reducing trade costs and improving access to distant markets (ADB, 2014).

Despite some advances, however, intraregional trade and market integration in CAREC has not improved significantly over the last few years (Kim & Mariano, 2020). The share of intraregional trade as a percentage of total trade was 3.2% in 2017 compared to 3.1% in 2010, implying that the CAREC countries continue to benefit more from trade outside the region than from trade within. Among the reasons for low intraregional trade are similar production structures, low export diversification, preference to trade with partners with closer historical and cultural links, and geographic features that pose physical barriers to trade (Kim & Mariano, 2020).

A rail land bridge connecting China to Europe through Kazakhstan has been established since 2011. In 2011, 2000 containers passed through Kazakhstan, travelling from China to Europe; in 2015, this number had increased to 42,000 containers; in 2020, throughput reached almost 550,000 (Pomfret, 2021). The land bridge was already flourishing before the Belt and Road Initiative (BRI) launch.

⁷ The Asian Development Bank began the CAREC program in 1997 to foster economic cooperation and integration in Central Asia. The 11 current member countries of the CAREC Program are Afghanistan, Azerbaijan, Georgia, and the People's Republic of China (specifically the Inner Mongolia Autonomous Region and the Xinjiang Uygur Autonomous Region), Kazakhstan, the Kyrgyz Republic, Mongolia, Pakistan, Tajikistan, Turkmenistan, and Uzbekistan. Most CAREC investments are dedicated to improvement of transportation infrastructure, while trade facilitation is mainly funded by technical assistance.

The Chinese Belt and Road Initiative, with the emergence of the New Silk Road, builds on the existing infrastructure and could open other windows of opportunity for the region to streamline trade between the major economic centres of Asia and Europe (Pomfret, 2017), as well as create an enabling environment for countries' participation in GVCs and RVCs.

The BRI, announced by Chinese President Xi Jinping during a visit to Central Asia in 2013, and launched in 2017, is supported by funding from the Asian Infrastructure Investment Bank and aspires to turn Central Asia from landlocked to land-linked. With a total budget of more than \$1 trillion, the BRI covers more than 65 countries, intending to enhance connectivity between China and the rest of Asia, the Middle East, Africa, and Europe (Bird et al., 2020).

Central Asia is one of the largest beneficiaries of the infrastructure investments that are strategic transit paths for China. Bird et al. (2020) have estimated a real income gain of around 3% of GDP from BRI projects in Central Asia, with gains for some countries exceeding 5%. Another study found that if border delays were reduced by half due to the BRI initiative, shipment times could be around 25.5%, and trade costs would fall by 21.6% for the China-Central Asia-West Asia Economic Corridor (De Soyres et al., 2018).

These large effects are not surprising, given the significant bottlenecks affecting trade among the Central Asian countries and the importance of trade facilitation. Yuan et al. (2021) found that both economic and environmental inefficiency trended downward from 2000 to 2017 in the Belt and Road countries.

Finally, with the recent war in Ukraine, and given the isolation of Russia from Western markets, Central Asian countries, and especially EEU members Kazakhstan and Kyrgyzstan, might have an opportunity to develop GVCs that would take advantage of the lack of Western imports into Russia.

Conclusion

Overall, the estimates presented in this paper suggest:

1. Central Asia's RVCs were at a rudimentary level as of 2015.
2. Central Asian countries' participation in regional value chains in 2015 was low compared to that of Southeast Asian economies.
3. The share of regional inputs in exports in 2000 was substantially bigger compared to 2015.

There are various reasons behind the low level of RVCs in Central Asia, including the role of domestic policies in distorting decisions and the quality of hard and soft infrastructure. Other factors, like the functioning of intraregional transport markets, may also disrupt the development of the regional value chains. Central Asian countries need to cooperate to improve their RVCs, which would facilitate exports, and provide access to inputs so that countries can participate and enhance their participation in both GVCs and RVCs, and become a land-linked region, despite being landlocked geographically.

It should be highlighted, though, that the development of the RVCs and GVCs in the region should go in parallel with sustainability goals and follow best sustainable practices in fostering industrial, technological, and human capital development.

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