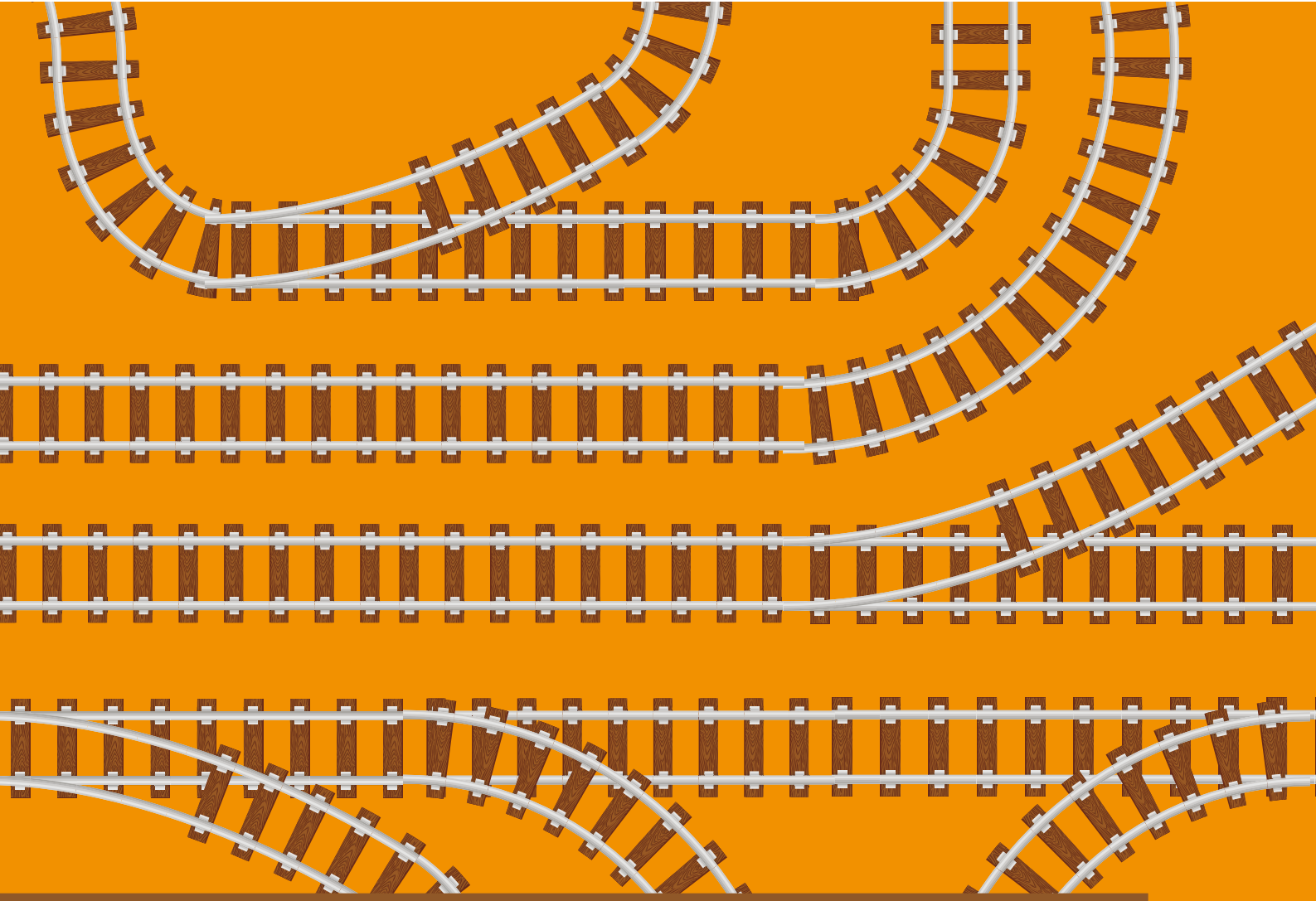

CAREC REGIONAL INTEGRATION INDEX (CRII)

February 2021

CAREC INSTITUTE

CAREC REGIONAL INTEGRATION INDEX: SOME PROGRESS, BUT NEW PUSH REQUIRED

CAREC INSTITUTE

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Disclaimer

The CAREC Regional Integration Index (CRII) report discusses the main results of updating the CAREC Institute's CRII using the latest available data by six dimensions and by country. The report also calls for elevating the cooperation of CAREC countries to new levels.

The CRII report is co-authored by Hans Holzhacker, Chief Economist at the CAREC Institute, Kamalbek Karymshakov, Economist at the CAREC Institute, and Shiliang Lu, Research Specialist at the CAREC Institute.

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Central Asia Regional Economic Cooperation (CAREC) Institute
No. 376 Nanchang Road, Urumqi, Xinjiang, the PRC
f: +86-991-8891151
LinkedIn
Weibo
km@carecinstitute.org
www.carecinstitute.org

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Abbreviations

ADB	Asian Development Bank
CAREC	Central Asia Regional Economic Cooperation
CRII	CAREC Regional Integration Index
FDI	foreign direct investment
GDP	gross domestic product
IMF	International Monetary Fund
PCA	principal component analysis
PRC	People's Republic of China

Foreword

New economic relations on the Eurasian continent, especially the fast development of its Asian part, new technologies and the reorganization of global value chains, accelerating digitalization, better connectivity, and new forms of foreign investment and international governance open new opportunities for CAREC countries to increase their role in the global economy. At the same time, decarbonization and green transition; the need to invest more in human capital, upgrade technology and national innovation systems; and heightened international competition pose new challenges to the region. The COVID-19 pandemic has accelerated many trends and has underlined the need for resilient health systems and to protect vulnerable parts of the population, including migrant workers that are an important part of intra-CAREC exchange.

In 2017, the CAREC Institute ventured to design the CAREC Regional Integration Index (CRII) to measure progress in regional economic cooperation and integration among the 11 member countries of CAREC. The CRII traces 26 indicators that describe CAREC integration along six dimensions: trade and investment, money and finance, regional value chains, infrastructure and connectivity, free movement of people, and institutional and social integration. A first report was presented in 2019. The current 2021 report is an update based on the latest available data.

The main conclusion of the current report is similar to that of the previous report. There has been progress in CAREC integration, but it has been only moderate. All in all, integration in the region has remained rather low.

Utilizing the evolving new opportunities and living up to the new challenges will be crucial for the well-being of the CAREC region's people in the years to come. Regional cooperation, economic integration, exchange of views and ideas, and learning from each other will be profoundly important to achieve success. There are several initiatives in the region to support better regional cooperation, including the CAREC Program. The CAREC Institute is eager to support these initiatives by shedding light on regional integration processes by research, and by capacity building and knowledge-sharing activities related to the CAREC agenda. We hope that this report about the CRII will promote discussion about how best to serve CAREC integration and cooperation.

Dr. Liang Ziqian
Deputy Director One
CAREC Institute

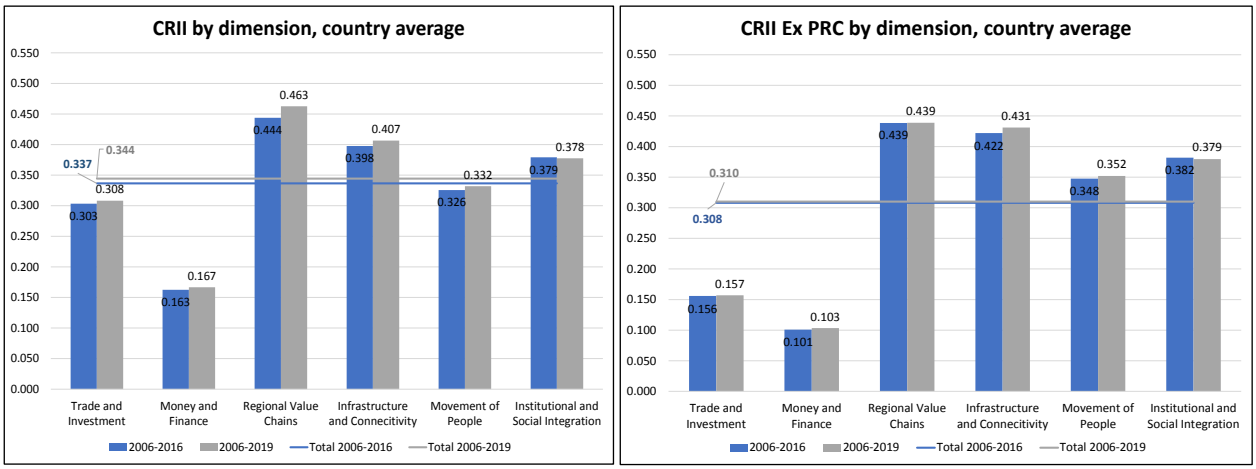
CAREC INTEGRATION: SOME PROGRESS, BUT NEW PUSH REQUIRED

This report discusses the main results of updating the CAREC Institute's CAREC Regional Integration Index (CRII) by the latest available data, mostly until 2019. The CAREC Institute designed the CRII based on the Huh and Park Asia-Pacific Regional Cooperation and Integration Index (ARCII) in 2017 to measure the depth and breadth of regional economic cooperation among the 11 member countries of CAREC. The main conclusion of the updated report—confirming similar conclusions of previous reports—is that there has been some progress in CAREC integration over the past decade and a half, but only very moderate. The report begins with a short summary and then presents a detailed discussion by the six dimensions of the CRII and by country. The final chapter argues that it might be time to advance CAREC integration more decisively and calls for elevating cooperation among CAREC countries to new levels.

I. SHORT SUMMARY

The CAREC[1] Regional Integration Index (CRII) points to progress in integration in the region over the past 15 years—a very moderate one, however. The CRII[2] averages 0.344 over the 2006-2019 period based on the latest available data,[3] marginally up from 0.337 for 2006-2016 (Figure 1), the period covered by the CAREC Institute's previous CRII report.[4] There is an increase in all six dimensions of the CRII, except for 'institutional and social integration,' which shows a marginal decrease.[5]

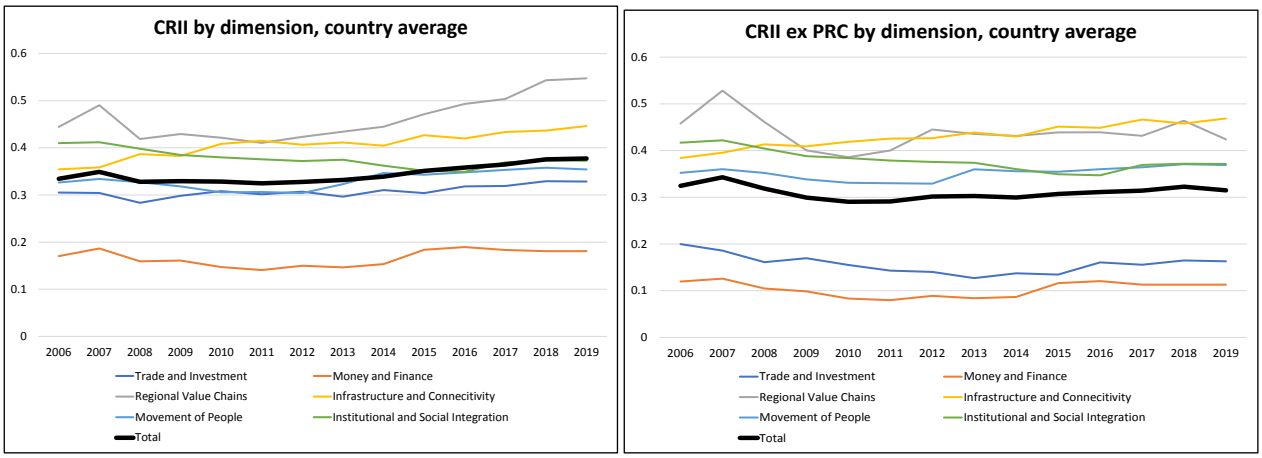
Figure 1 and 2: Progress in integration, but a very moderate one[6]



1. The CAREC Institute provides research support to the Central Asia Regional Economic Cooperation (CAREC) Program. The program is a partnership of 11 countries: Afghanistan, Azerbaijan, the People's Republic of China, Georgia, Kazakhstan, Kyrgyz Republic, Mongolia, Pakistan, Tajikistan, Turkmenistan, and Uzbekistan.
2. The CRII ranges from 0 to 1, with 0 representing lowest integration, 1 highest.
3. For several indicators data is available only through 2018. Nevertheless, to provide a full picture 2018 data was used also for 2019.
4. However, it was down from the value of 0.373 for 2006-2016 in the previous report owing to data revisions. Ex PRC, the value was 0.380 for 2006-2016 in the previous report. https://www.carecinstitute.org/wp-content/uploads/2019/12/CI-CRII-Interpretation-and-Policy-Perspective-27-Dec-2019.pdf
5. When interpreting the CRII, one has to keep in mind that many indicators are relative ones: for example, trade within CAREC compared to trade outside CAREC. In some cases, integration scores can decline not because there is less interaction within CAREC, but because there is more interaction with the outside world.
6. See Annex 2 for data sources.

Excluding the PRC,[7] results in index values of 0.310 for 2006-2019 and of 0.308 for 2006-2016, there is also some marginal integration progress (Figure 2). Ex PRC, the CRII scores are significantly lower than those including the PRC, underlining the fact that the PRC is an important factor for the CAREC region's integration.

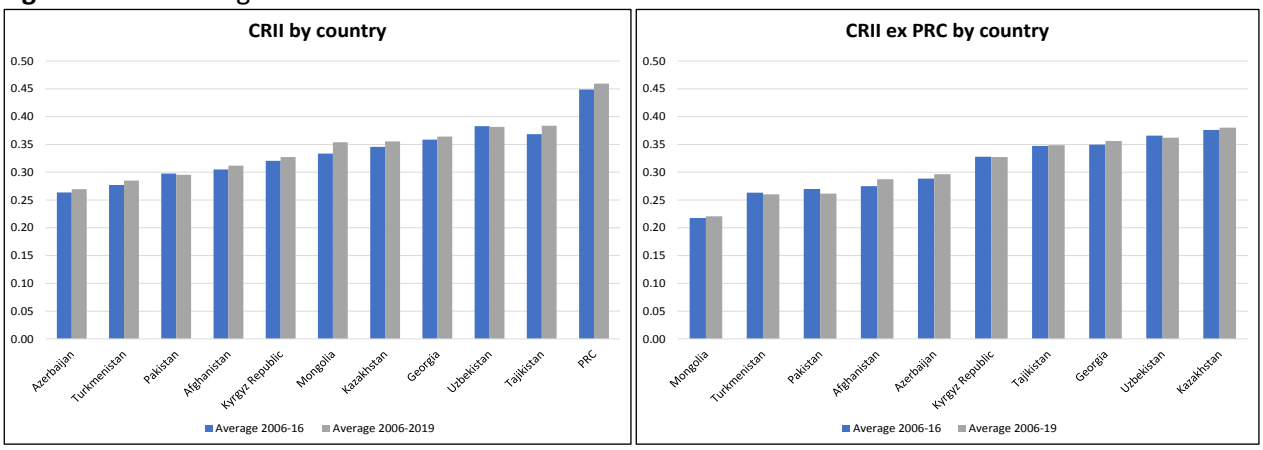
Figure 3 and 4: Acceleration in integration since about 2013, mostly owing to regional value chains and connectivity



There is some acceleration in integration since about 2013, mostly thanks to 'regional value chains' and 'infrastructure and connectivity.' Integration is highest, and increasingly so since 2011, in 'regional value chains' (Figure 3). Excluding the PRC, integration is highest and slightly increasing in 'infrastructure and connectivity,' along with 'regional value chains' (Figure 4). Lowest integration is observed in the dimensions 'money and finance' and 'trade and investment,' including as well as excluding the PRC.

For most CAREC countries CRII scores increased marginally between 2006-2016 and 2006-2019.[8] There are slight declines for Pakistan and Uzbekistan (Figure 5), and, excluding the PRC, also for Turkmenistan (Figure 6). The reason is that for Pakistan there was a fall in 'infrastructure and connectivity' scores, but from relatively high levels. Uzbekistan and Turkmenistan saw some decline in 'regional value chains' because trading partner product diversification grew faster than their own.

Figure 5 and 6: Marginal increases in scores for most countries between 2006-2016 and 2006-2019



7. Because of the PRC's specific role in the CAREC integration process, this report often refers to results including as well as excluding the PRC.

8. The CRII country ranking has changed from the previous 2006-2016 report, with Afghanistan moving up the rank, whereas integration scores for most other countries fell (including the PRC, the scores of Georgia, Uzbekistan, Tajikistan, PRC remained roughly the same, Afghanistan's rose, all others decreased; ex PRC, Afghanistan remained the same, all others decreased).

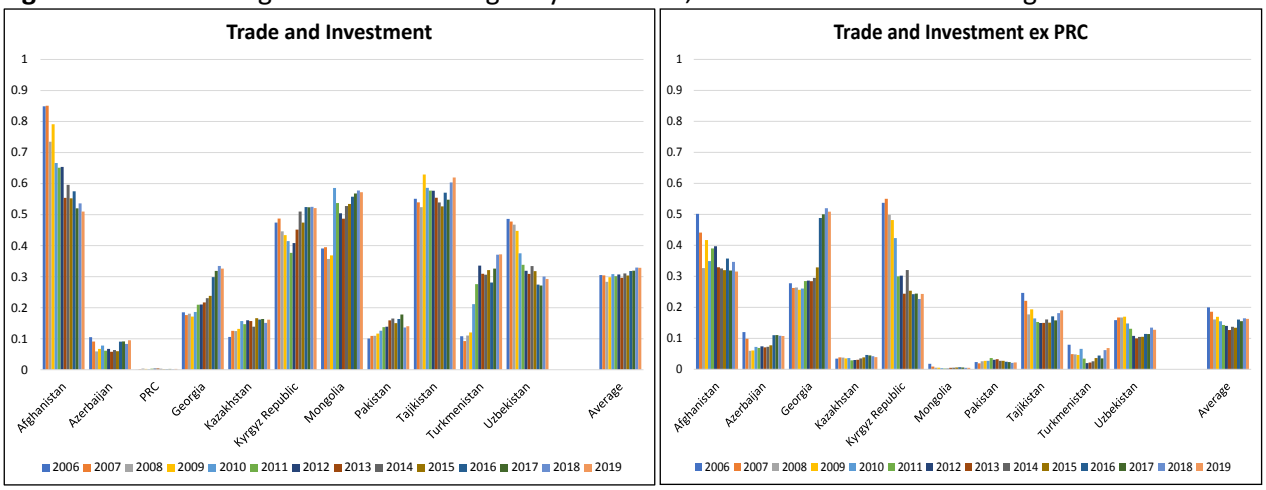
II. DETAILED DISCUSSION BY DIMENSION AND COUNTRY

The CRII is composed of six dimensions that summarize the 26 indicators from which they are built.[9] The weights of each dimension in the compound index are determined by principal component analysis (PCA). The weights of the indicators grouped into each dimension are determined by separate PCA.[10] The following section presents CRII results for each of the six dimensions by country and over time. It also shows and briefly discusses the indicators from which the dimension scores are derived.

Trade and Investment[11]

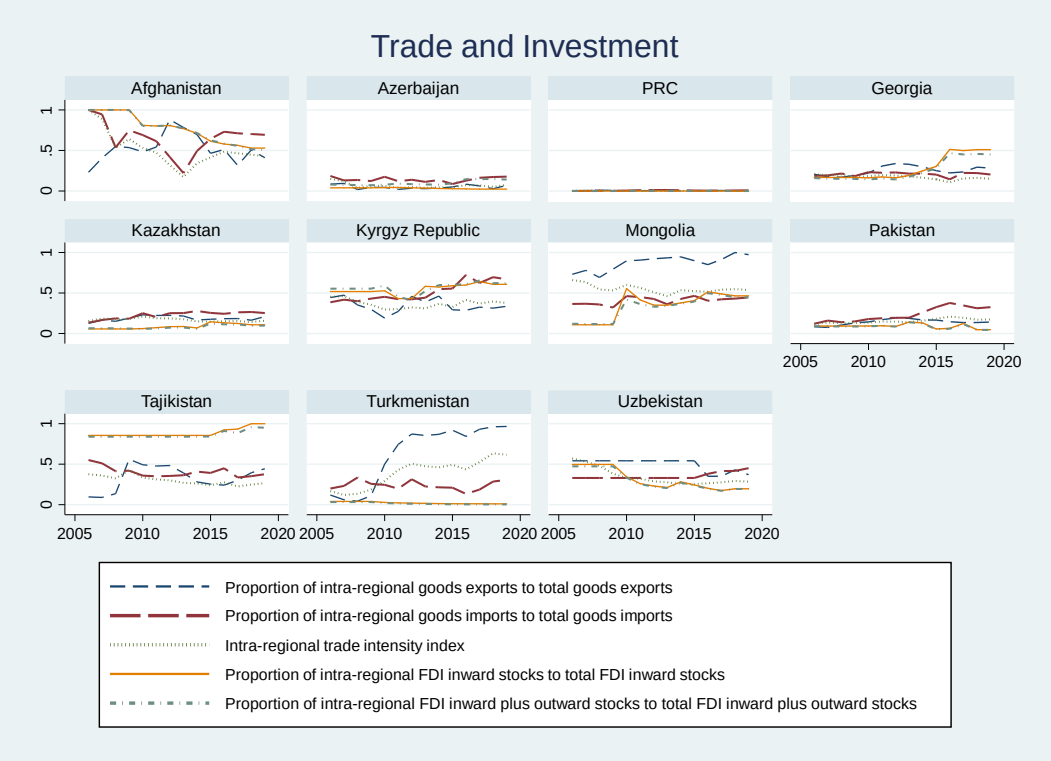
Average scores rose slightly over the 2006-2019 period in 'trade and investment.' They have done so less clearly excluding the PRC, but also increased from 2013 on. Afghanistan scores highest, although falling over time, and the PRC scores lowest, reflecting that the CAREC region is a comparatively small business partner for the PRC (Figure 7). Excluding the PRC, Afghanistan, Georgia, and the Kyrgyz Republic are most integrated into the CAREC region (Figure 8). 'Trade and investment' integration scores are generally lower than when including the PRC. The reason for this is that the PRC's share in other CAREC countries' trade and investment is substantial and rising, but the PRC's trade and investment relations with other regions of the world, which are larger and more advanced economically, are nevertheless more important for the PRC.

Figure 7 and 8: Average scores have marginally increased, from 2013 on also excluding the PRC



9. The CRII is largely built based on ADB's Asia-Pacific Regional Cooperation and Integration Index (ARCII; https://aric.adb.org/database/arcii), but some indicators were changed by the designers of the CRII because of data limitations in the CAREC region.
The CAREC Institute is currently working on a reform of the CRII, to use new indicators where sufficient data have become available meanwhile, and on modifying the dimensions to make the CRII more precisely reflect the state of CAREC integration.
10. Annex 1 shows the weights.
11. The dimension '**trade and investment**' is measured by variables:
1.1 Proportion of intra-regional goods exports to total goods exports
1.2 Proportion of intra-regional goods imports to total goods imports
1.3 Intra-regional trade intensity index
1.4 Proportion of intra-regional inward FDI stocks to total inward FDI stocks
1.5 Proportion of intra-regional outward FDI stocks to total outward FDI stocks

Figure 9: For smaller countries, intra-region trade and investment relations are more intense[12]



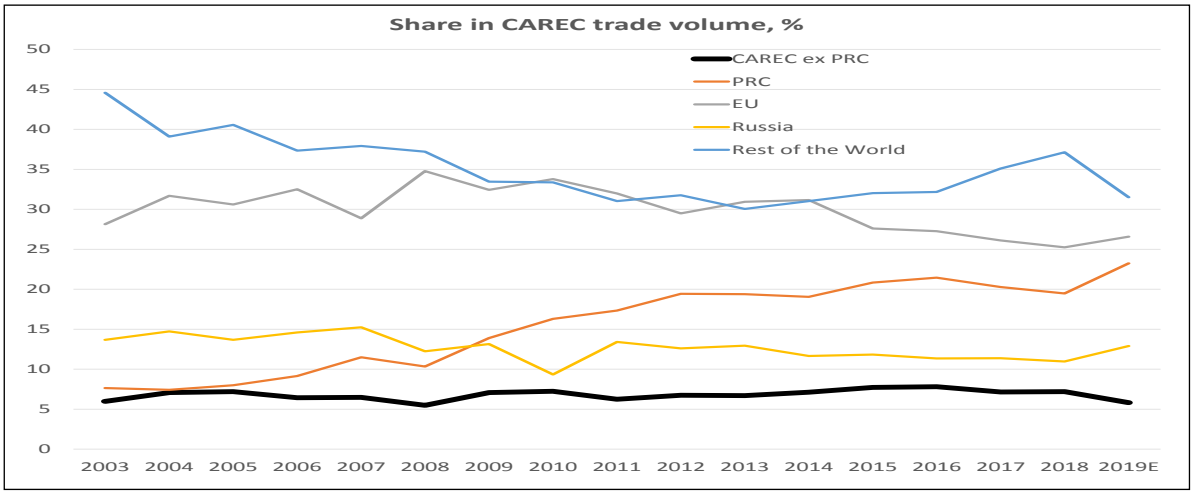
For smaller countries, mutual trade and investment within the CAREC region are generally relatively more important than for the larger CAREC countries. Azerbaijan, and in part Georgia, are an exception; owing to their relatively distant geographic location from CAREC, they are less integrated. For Mongolia and Turkmenistan intra-regional CAREC exports are essential, especially to the PRC. For Tajikistan intra-regional foreign direct investment (FDI) is of high importance (Figure 9). For Afghanistan this is also the case, although scores are falling, and are thus responsible for the overall fall in Afghanistan's score in the 'trade and investment' dimension. Georgia recently saw an increase in regional FDI compared to total FDI.

For the PRC, Kazakhstan, and Pakistan, trade and investment relations to the outside world are much more important than such relations within the CAREC (excluding the PRC) region. However, the larger, more developed countries already play—and may increasingly play—an important role for smaller countries as consumers of their exports, as aggregators for the transit of their goods to major economic centers on the Euro-Asian continent, and as investors. Uzbekistan scores midway in the 'trade and investment' dimension but, as a relatively large country in the center of the CAREC region, it has a strong potential for contributing to regional integration.

The findings of the CRII, that CAREC trade integration is largely stagnant if the PRC is excluded, is also confirmed by separate trade analysis. Figure 10 shows that the share of intra-CAREC (excluding the PRC) trade in overall CAREC (excluding the PRC) trade has not significantly increased for almost 20 years. The most dynamic development in CAREC's trade is the increase in trade with the PRC.

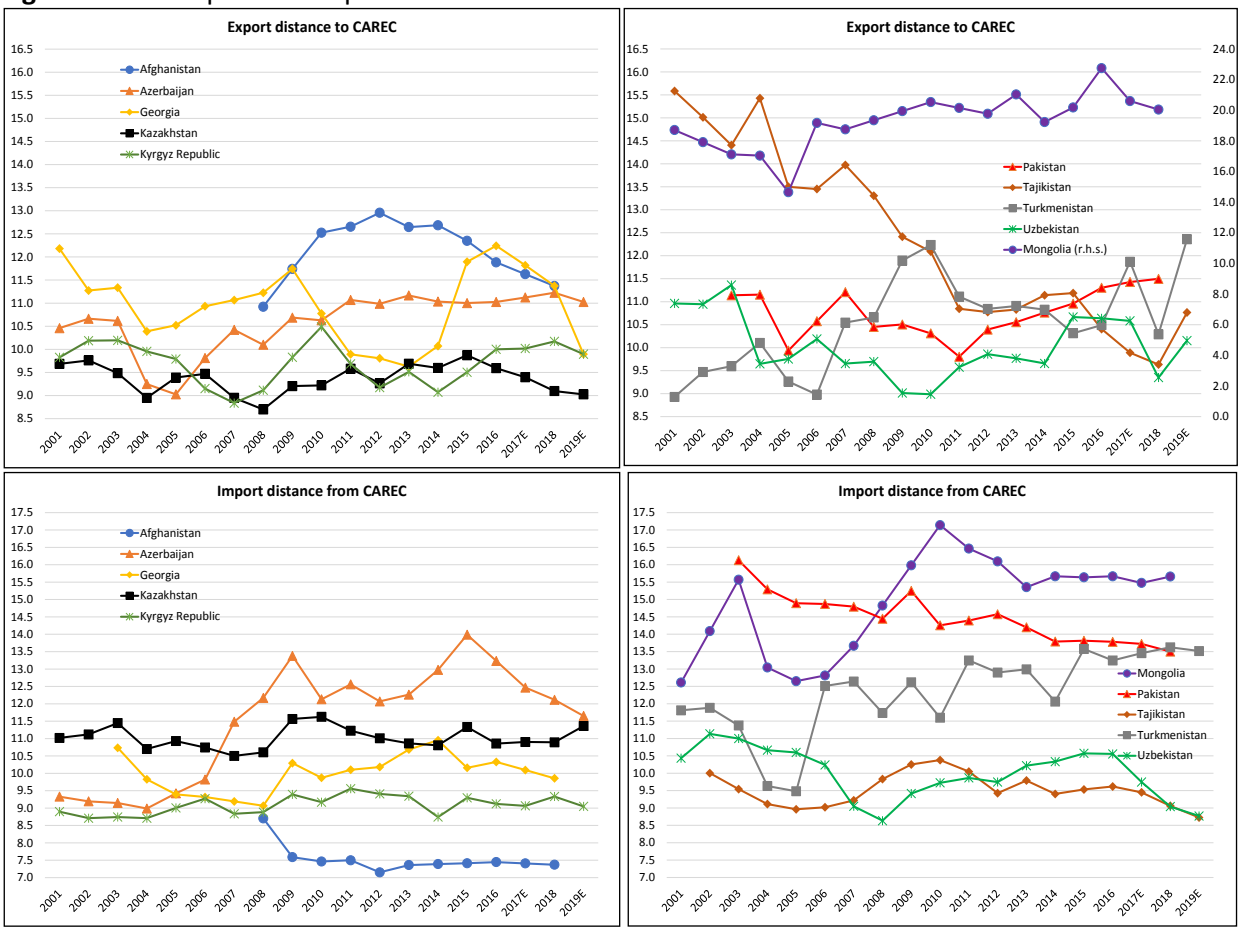
12. The values of indicators are normalized to between 0 and 1, to make them comparable and prepare them for appropriate use in PCA.

Figure 10: The share of CAREC in CAREC trade has remained by and large unchanged



Source: Trademap, World Development Indicators, author's calculations

Figure 11 - 14: Export and import distances between individual CAREC countries and CAREC



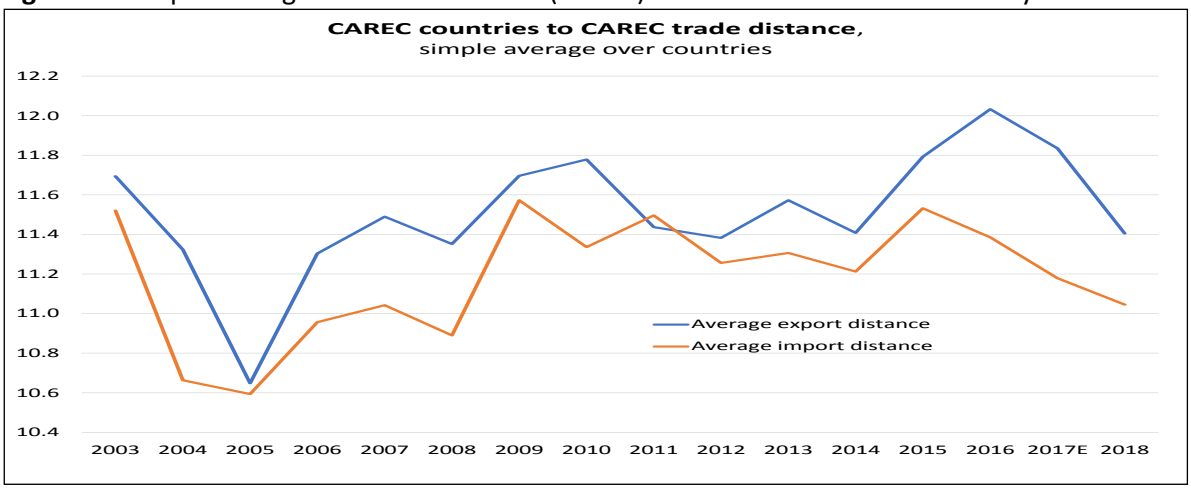
Source: Trademap, World Development Indicators, author's calculations

Developments vary for various countries. Figures 11 to 14 depict 'export and import distances'[13] of individual CAREC countries to the CAREC (excluding the PRC) region. Mongolia is not very close to CAREC

13. The formula is Dij=ln((Yi/Tij)*(Yj/Tji)) where Dij is the 'trade distance' between country I and J, ln is the natural logarithm, Yi is the GDP of region I, Yj the GDP of region J, and Tij=Tji the mutual trade volume. The formula slightly resembles the formula used in gravity models ln(Tij)=a1*ln(Yi)+a2*ln(Yj)-a3*ln(Dij)+C, where Dij is the geographic

(excluding the PRC) in trade terms. Tajikistan strongly shortened its export distance, probably because exports to Russia go through CAREC countries and are recorded there. Afghanistan's trade connection to CAREC is the most distant on the export side, but the closest on the import side thanks to low distances to Pakistan, Turkmenistan, and Uzbekistan. Pakistan has a relatively short export distance thanks to its closeness to Afghanistan. On the import side, Pakistan is also not too far away from Afghanistan, but far away from other CAREC countries, and farthest from Mongolia. However, Pakistan has a close trade relationship with the PRC.

Figure 15: Simple average of CAREC to CAREC (exPRC) trade distances: no full recovery after 2009



Source: Trademap, World Development Indicators, author's calculations

On average, CAREC countries (excluding the PRC) have not come much closer to each other in trade terms. The simple averages of the export and import distances depicted in Figures 11 to 14 are shown in Figure 15. There is largely a sideward movement. The volatility in this movement can be largely attributed to mineral fuel prices. All in all, there was little trade intensification within CAREC (excluding the PRC) over the last two decades.

The CAREC Program's Integrated Trade Agenda 2030 calls for a set of measures to advance intra-CAREC trade:

'(i) More open trade policies and deepening of customs cooperation by measures to liberalize tariffs, eliminate nontariff barriers to trade, make border and behind the border procedures more efficient, improve logistics services, enhance transit systems, and limit or avoid resorting to trade distorting measures and protectionist tendencies.

(ii) Greater diversification through supporting reforms, providing financing, and linking CAREC countries with the global and regional value chains by measures to improve access to trade finance, adopt consistent and open foreign direct investment policies, develop domestic financial markets, strengthen support services, promote skills upgrading, and embrace innovation.

(iii) Better coordination of sectoral policies and priorities by measures for collaborative policy formulation and implementation, alignment of national and regional planning, and regulatory convergence in the region, including by increasing the participation of think tanks and the private sector.'[14]

distance between country I and J, C is a constant, and a1, a2, a3 are the coefficients to be estimated. In more sophisticated gravity models, Dij can represent more than just the geographic distance—that is, overall obstacles to trade—and is also called trade costs. If the equation is reversed, the 'distance' or trade costs are modeled as a function of GDP and the trade volume. The expression 'distance' here is inspired by the gravity equation. However, the coefficients are not estimated but given by definition. The actual meaning of the formula used here is mutual trade openness or mutual trade volumes adjusted for GDP.

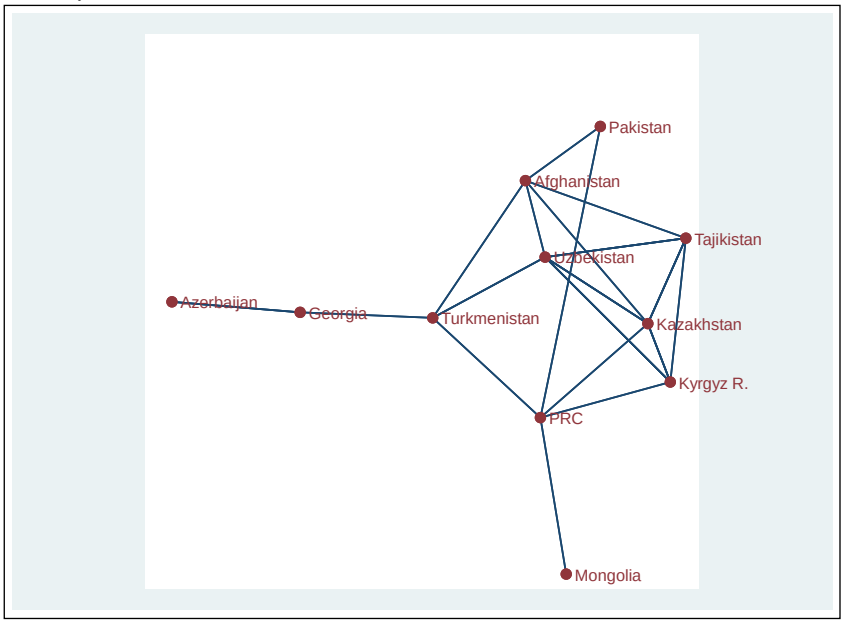
14. https://www.carecprogram.org/uploads/CAREC-Integrated-Trade-Agenda-2030.pdf (somewhat shortened by the authors).

Table 1: Mutual trade distances between CAREC countries

Exporters / Importers	Afghan-istan	Azer-baijan	PRC	Georgia	Kazakh-stan	Kyrgyz Repub.	Mon-golia	Paki-stan	Tajiki-stan	Turkmen-istan	Uzbek-istan
Afghanistan		12.1	13.3	24.4	9.5	17.6	N/A	8.1	10.2	8.6	8.1
Azerbaijan	29.2		14.7	10.2	12.1	18.5	24.2	18.1	24.7	12.0	14.5
PRC	19.6	17.7		15.7	11.0	17.2	8.3	14.1	16.7	9.0	11.8
Georgia	N/A	8.1	12.2		13.9	17.2	15.0	19.0	20.3	10.1	16.5
Kazakhstan	19.0	15.2	9.9	14.3		10.1	19.1	15.8	9.6	17.6	9.4
Kyrgyz Rep.	21.6	17.0	8.2	13.4	8.2		22.0	20.8	12.6	18.9	9.5
Mongolia	N/A	N/A	11.1	18.8	13.0	16.9		23.3	28.3	N/A	19.2
Pakistan	10.7	23.8	9.6	25.2	23.1	23.5	35.9		17.0	17.5	21.1
Tajikistan	14.8	15.9	10.8	15.9	8.5	10.2	N/A	17.1		11.9	10.1
Turkmenistan	20.5	15.0	15.5	13.2	13.8	17.2	N/A	23.7	20.6		10.5
Uzbekistan	19.0	17.1	10.7	12.4	8.1	9.7	22.1	17.8	9.7	10.5	

Source: Trademap, World Development Indicators, author's calculations

Figure 16: Netplot of the short trade distances between CAREC countries of Table 1



Source: Trademap, World Development Indicators, author's calculations

To achieve progress, countries that are in the center of intra-CAREC trade will have to play a special role as aggregators and trade facilitators. Table 1 depicts the matrix of mutual distances of the CAREC countries. The columns show export distances from the point of view of the country headings above the table, the rows show import distances from the point of view of the country headings left of the table. Values below 10.502, the value above which three quarters of the entries in Table 1 lie (the first quartile), are given as red figures. They indicate close relationships. Figure 16 depicts close distances, the red ones in Table 1, as a netplot. With five connections each, Uzbekistan and Kazakhstan have the highest number of short trade distances to the other CAREC countries. The PRC also has five connections, but two of them are with Mongolia and Pakistan, countries which are less connected than the ones Uzbekistan and Kazakhstan have connections with. This reflects the crucial position Uzbekistan and Kazakhstan have in intra-CAREC trade. However, the PRC of course plays a major role in the integration processes in the region owing to its economic weight, fast growth, and strategic position in global and regional value chains. Pakistan is also a major player thanks to its size, and Gwadar and its other ports offer important logistic opportunities for the landlocked countries of Central Asia.

The PRC is the largest investor in the CAREC region among CAREC countries by far, other mutual FDI is very limited. Investment from the PRC accounted for US$19.3 billion out of a total of US$24.5 billion in CAREC region inward FDI stocks in 2018, the latest year for which detailed data are available (Table 2). Azerbaijan's investment in Georgia (mostly by the national oil and gas conglomerate SOCAR) is also sizable at US$4 billion, but the rest of mutual direct investment in the CAREC region is rather tiny, although it might have increased somewhat since 2018. Besides, anecdotal evidence points to the fact that much of it is in trade rather than production.

Table 2: Inward FDI stocks, US$ million, 2018

Investor / Recipient	Afgha-nistan	Azer-baijan	PRC	Georgia	Kazakh-stan	Kyrgyz Rep.	Mon-golia	Paki-stan	Tajiki-stan	Turkme-nistan	Uzbeki-stan	Sum
Afghanistan		-	387.8	-	-	-	-	46.0	-	-	-	**433.8**
Azerbaijan	1.5		176.8	98.1	81.3	1.9	0.1	4.2	3.8	1.3	15.9	**384.7**
PRC	5.2	2.3		1.0	57.5	10.5	28.6	66.2	1.1	1.0	1.5	**174.9**
Georgia	0.1	3,997.8	688.6		176.4	26.4	-	1.0	1.3	2.5	8.8	**4,902.9**
Kazakhstan	0.042	38.5	8,268.6	87.7		9.2	0.1	11.6	1.4	0.0	12.3	**8,429.5**
Kyrgyz Republic	1.8	0.5	1,345.1	-	183.1		-	36.3	1.5	-0.1	2.4	**1,570.5**
Mongolia	-	2.9	4,916.6	0.2	21.2	2.9		0.9	0.0	0.1	1.7	**4,946.6**
Pakistan	1.5	-	1,043.6	-	-	-	-		-	-	-	**1,045.1**
Tajikistan	2.4	-	1,436.9	-	54.1	1.5	-	8.9		-	0.018	**1,503.8**
Turkmenistan	-	0.2	189.7	-	0.2	-	-	1.7	-		-	**191.9**
Uzbekistan	-	10.8	845.1	-	73.1	-	-	-	-	-		**928.9**
Sum	**12.6**	**4,053.1**	**19,298.7**	**187.1**	**646.8**	**52.3**	**28.8**	**176.9**	**9.1**	**4.7**	**42.6**	**24,512.8**

Source: IMF, Coordinated Direct Investment Survey (CDIS)

Higher intra-CAREC FDI must be part of establishing more sophisticated regional value chains and the related management and technology transfer. *Exporting and going abroad helps firms to develop faster while more advanced firms are more likely to do so, modern trade theory and empirical evidence based on company data shows. Another option for higher mutual investment is third-country companies investing in more than one CAREC country from a local center in order to utilize production possibilities. However, the CAREC region is in initial stages here, and cooperation both between governments and private sector companies will have to be strengthened to achieve more sizable progress.*

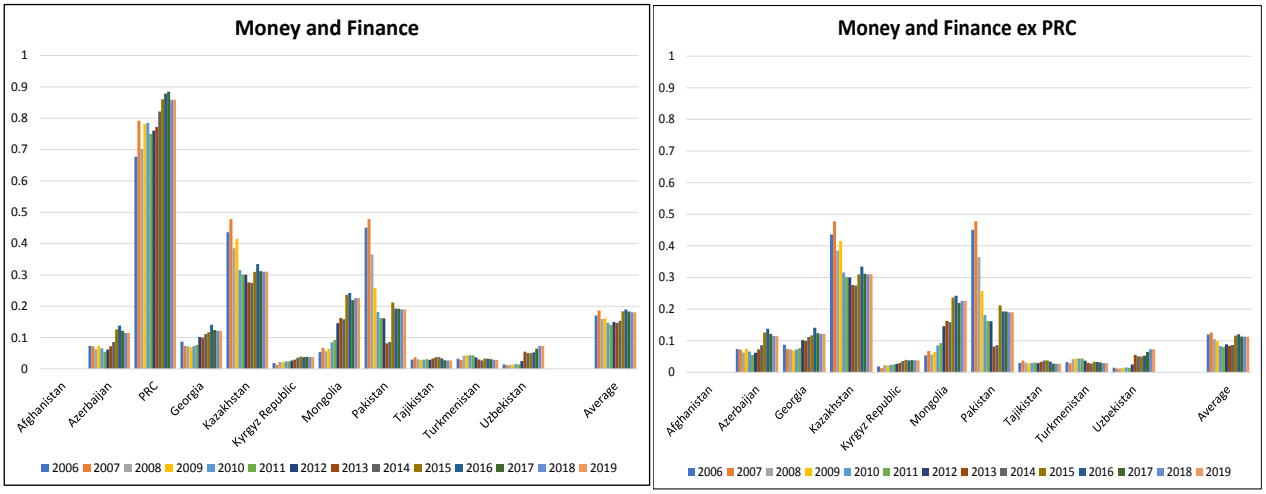
Money and Finance[15]

The PRC, Mongolia, and Uzbekistan show by and large an upward tendency in the 'money and finance' dimension; for other countries the pattern is more complicated, and also average scores have no clear trend. Indicators used by the CRII to measure this dimension—because of data limitations for other indicators—do not directly reflect cross-border activities between the CAREC countries. They reflect the development of the financial sector in the respective countries. Therefore, excluding the PRC does not result in different country scores in the 'money and finance' dimension, for example. However, a highly developed financial sector is a precondition for more extensive cross-border financial flows, and in this sense the

15. The dimension '**money and finance**' is measured by the variables:
2.1 Financial Institutions Depth Index: compiles data on bank credit to the private sector in percent of GDP, pension fund assets to GDP, mutual fund assets to GDP, and insurance premiums, life and non-life to GDP
2.2 Financial Markets Access Index: compiles data on percent of market capitalization outside top 10 largest companies and total number of issuers of debt (domestic and external, nonfinancial and financial corporations) per 100,000 adults
2.3 Financial Markets Depth Index: compiles data on stock market capitalization to GDP, stocks traded to GDP, international debt securities of government to GDP, and total debt securities of financial and nonfinancial corporations to GDP
2.4 Financial Markets Efficiency Index: compiles data on stock market turnover ratio (stocks traded to capitalization)

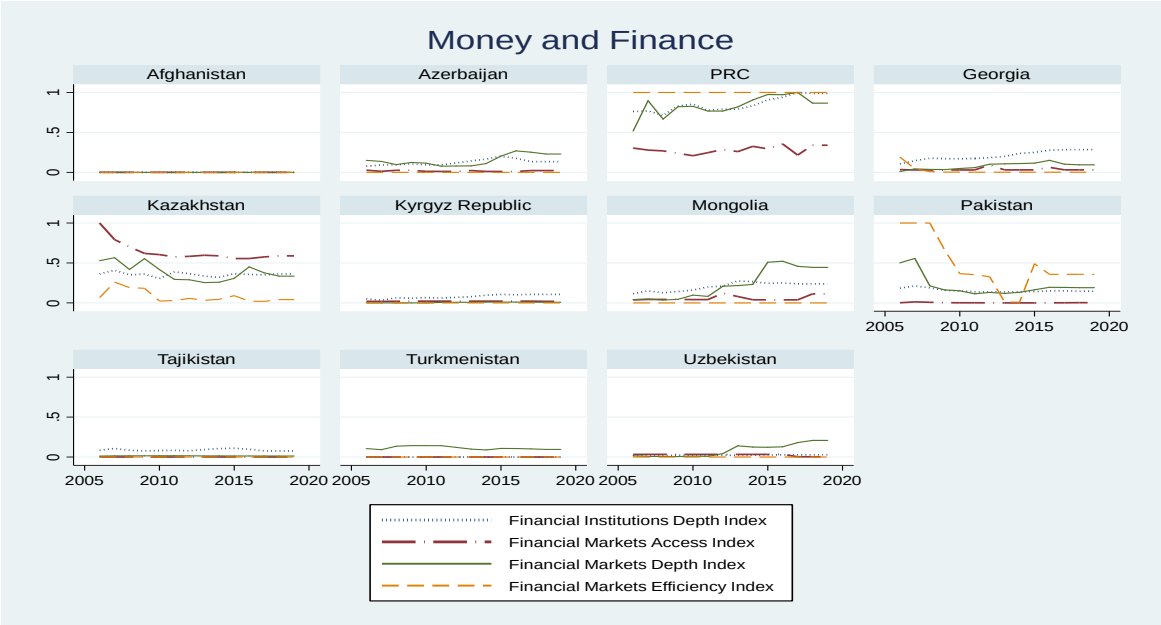
dimension measures CAREC regional integration. The PRC and Kazakhstan, followed by Mongolia and Pakistan, have the most advanced financial sectors in the region and score highest (Figures 17 and 18).

Figure 17 and 18: The PRC and Kazakhstan score highest, followed by Mongolia and Pakistan



Despite a series of initiatives, stock markets and market-based pension funds and insurance are not very highly developed in most CAREC countries. Figure 19 reflects this. This underdevelopment is the main reason why the 'money and finance' dimension scores low in the CRII. Credit to the private sector is better developed but has suffered in a number of countries from the 2008-2009 global financial crisis. Credit over GDP has not returned to levels seen in some countries before this crisis, notably in Kazakhstan, whereas other countries saw a quite substantial expansion, notably the PRC.

Figure 19: For smaller countries, trade and investment relations within the region are more intense

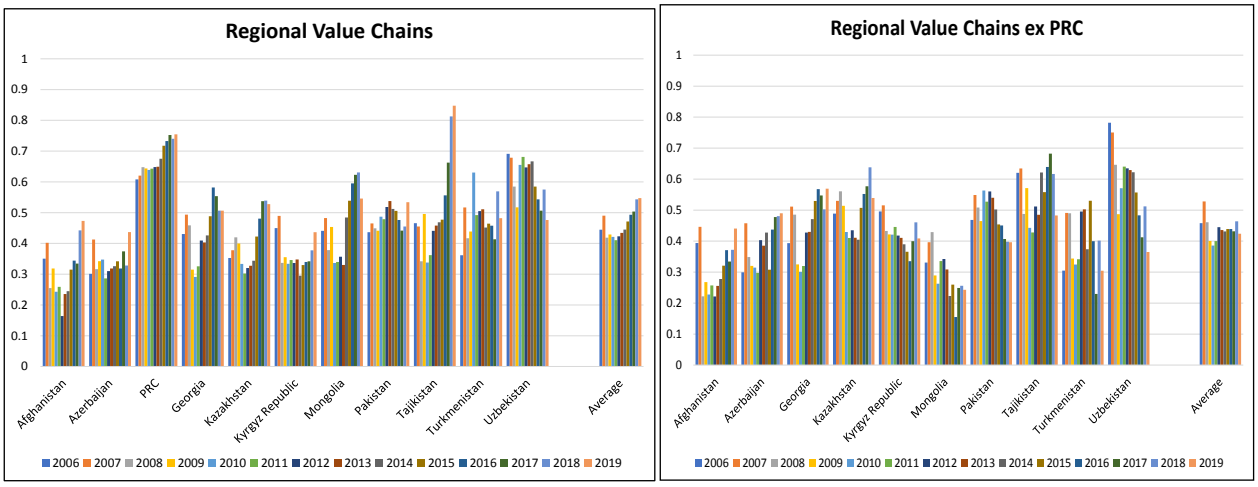


Financial markets development is a critical issue not only for the overall development of CAREC countries, but also an important precondition for tighter mutual financial relations. *Improvement is needed for equity and bond markets, and for banking as well. Banking sector and capital market reform in Uzbekistan and Mongolia, the development of the Astana International Financial Center in Kazakhstan, and other initiatives under way are about to contribute to substantially improve the situation.*

Regional Value Chains[16]

For most countries, scores in this dimension have increased in recent years.[17] However, excluding the PRC worsens the picture for countries with a high weight of the PRC in their trade such as Mongolia, Pakistan, and Turkmenistan. For these countries, integration scores are substantially lower excluding the PRC compared to including the PRC (Figures 20 and 21).

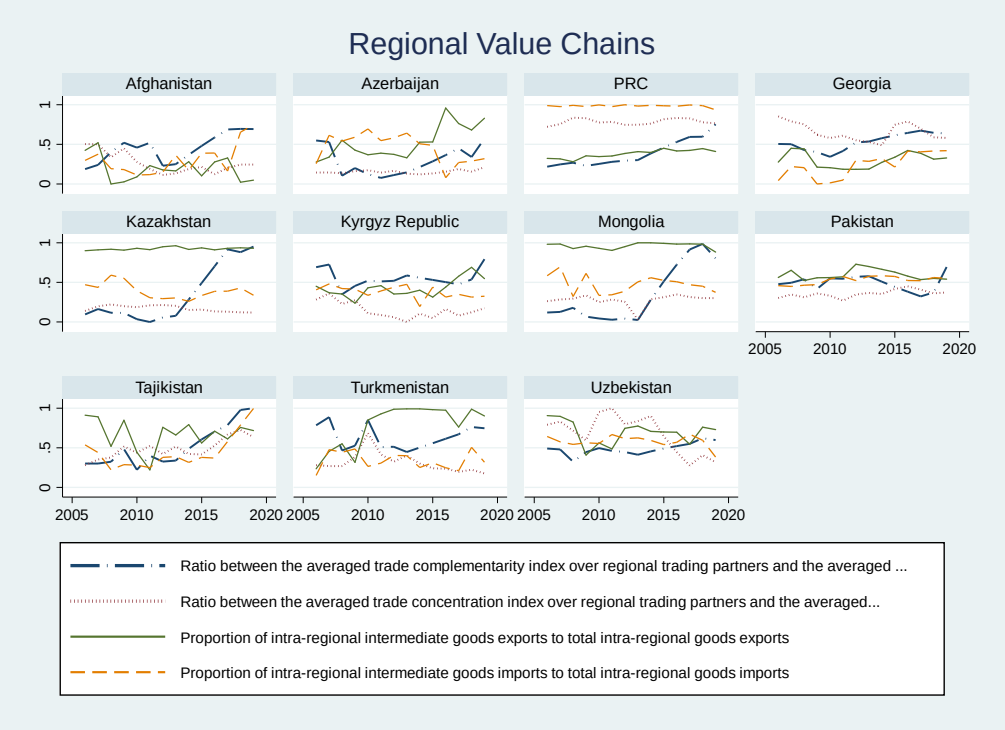
Figure 20 and 21: The PRC and Kazakhstan score highest, followed by Mongolia and Pakistan



In a number of countries, the score increase in 'regional value chains' is owed to improved trade complementarity (Figure 22)**.** High complementarity means that exporters can meet the import profile of their partner countries well. Kazakhstan, Mongolia, and Turkmenistan have also high scores in the intermediate goods exports variable, the PRC in the intermediate goods imports variable. However, given the high share of fuels, wheat, and other raw food in intra-CAREC trade, CAREC regional value chains are mostly forward, not backward, linkages[18]. Backward linkages meant that the CAREC countries have managed to cooperate closely through division of labor for providing joint products to the outside world, forward linkages much less so.

16. The dimension '**regional value chains**' is measured by the variables:
3.1 Ratio between the averaged trade complementarity index over regional trading partners and the averaged trade complementarity index over all trading partners. (The TC between countries k and j is defined as: TCij = 100(1 – sum(|mik – xij| / 2)), where xij is the share of good i in global exports of country j and mik is the share of good i in all imports of country k. The index is zero when no goods are exported by one country or imported by the other and 100 when the export and import shares exactly match.)
3.2 Ratio between the averaged trade concentration index over regional trading partners and the averaged trade concentration index over all trading partners. (It is defined as: DXj = (sum |hij – xi|)/2, where hij is the share of commodity i in the total exports of country j and xi is the share of the commodity in world exports.)
3.3 Proportion of intra-regional intermediate goods exports to total intra-regional goods exports
3.4 Proportion of intra-regional intermediate goods imports to total intra-regional goods imports
17. But probably not in 2020 owing to COVID-19.
18. 'Forward GVC participation corresponds to the ratio of the "Domestic value added sent to third economies" to the economy's total gross exports. It captures the domestic value added contained in inputs sent to third economies for further processing and export through value chains. Backward GVC participation refers to the ratio of the "Foreign value added content of exports" to the economy's total gross exports. This is … where an economy imports intermediates to produce its exports.' https://www.wto.org/english/res_e/statis_e/miwi_e/Explanatory_Notes_e.pdf

Figure 22: For smaller countries, trade and investment relations within the region are more intense[19]



Although the 'regional value chains' dimension contributes substantially to overall CRII scores, and it is largely responsible for the increase over time, more is required to increase the CAREC region's weight in global trade. *For this, smart diversification and cooperation in the region, and more regional backward linkages are needed, based on each country's specific capabilities and comparative advantages.*

Infrastructure and Connectivity[20]

For most countries and also for the CAREC region as a whole there is substantial progress in the dimension 'infrastructure and connectivity.' Georgia has the highest scores, and Afghanistan the lowest. In particular, Uzbekistan, Turkmenistan, Tajikistan, and Kazakhstan, but also Azerbaijan and the PRC show a clear upward tendency (Figures 23 and 24). However, a significant part of the improvement in the CRII scores comes from the World Bank's Ease of Doing Business Index[21] (Figure 25), which reflects regulation and related costs, and time and procedures in a broad range of business areas. Trade costs and logistics have developed less well, except for the PRC.

19. There is not space enough in the legend to display the full names of the indicators. They can be found in the footnote where the dimension is first introduced.
20. The dimension '**infrastructure and connectivity**' is measured by the variables:
4.1 Ratio between the averaged trade cost over regional trading partners and the averaged trade cost over all trading partners
4.2 Ratio between the averaged liner shipping connectivity index over regional trading partners and the averaged liner shipping connectivity index over all trading partners
4.3 Logistics Performance Index
4.4 Doing Business Index
21. On August 27, 2020, the World Bank management announced reports of data irregularities in the *Doing Business 2018* report and the *Doing Business 2020* report. These irregularities affected the scores and ranking of Azerbaijan and the PRC, among CAREC countries. However, data along with scoring and ranking were revised subsequently. http://documents1.worldbank.org/curated/en/569901608154479291/pdf/Management-Review-of-Data-Irregularities-in-the-Doing-Business-Reports-from-2016-to-2020-Verification-Report.pdf

Figure 23 and 24: Scores in 'infrastructure and connectivity' increase

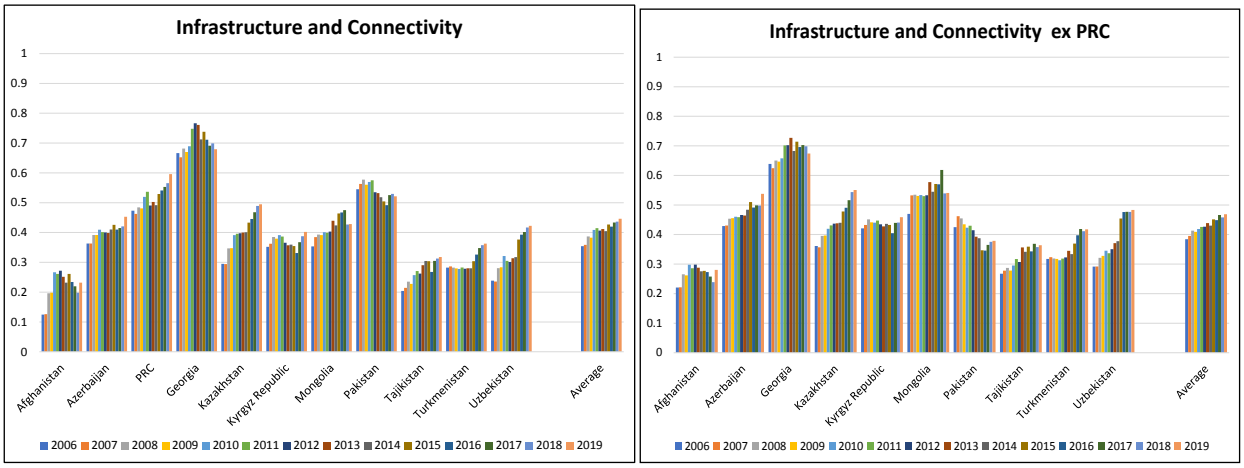
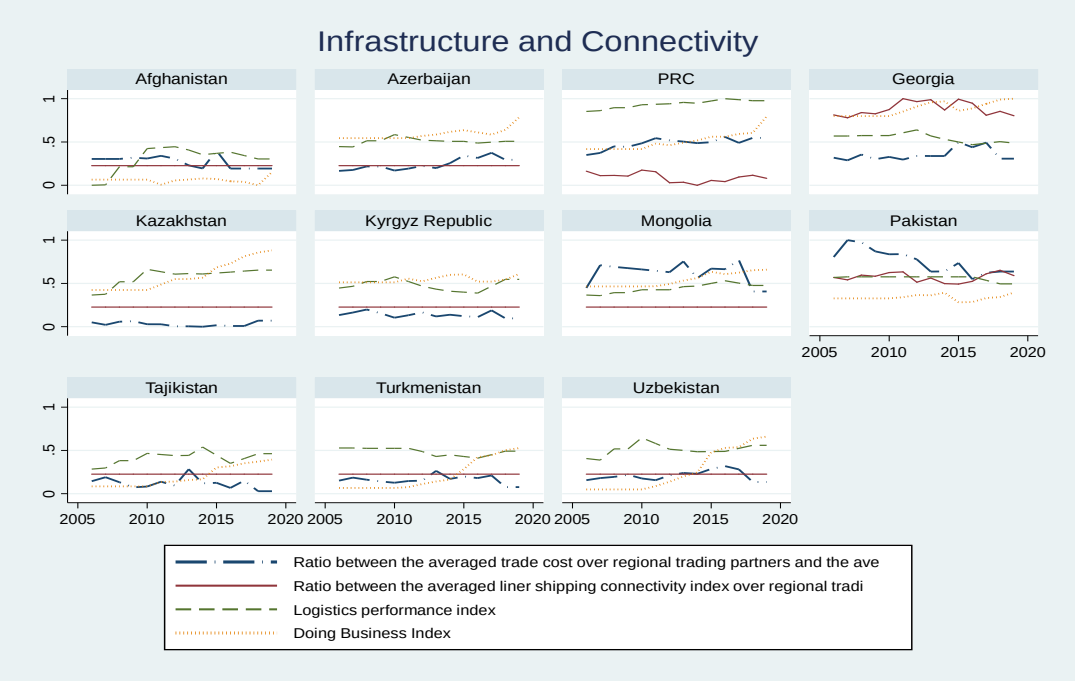


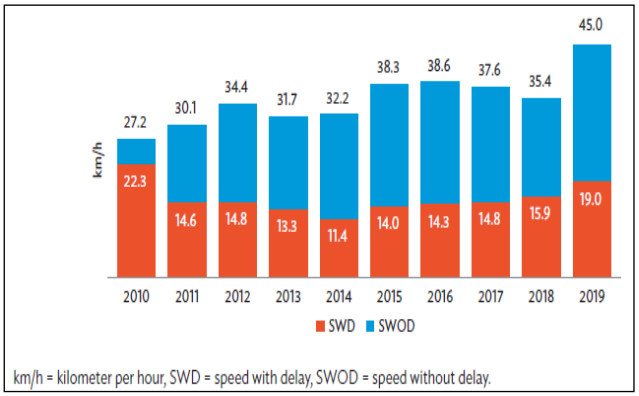
Figure 25: A significant part of the improvement comes from the Ease of Doing Business Index

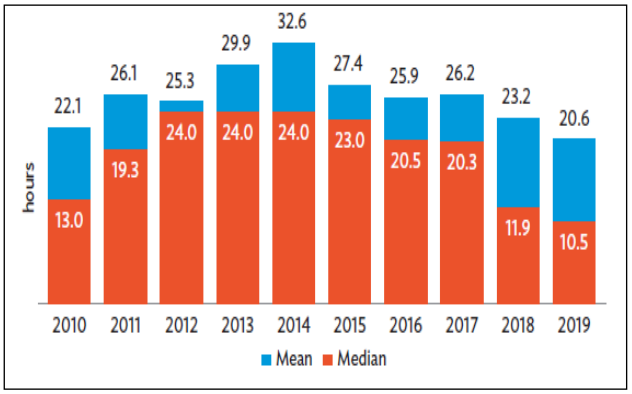


A lot could still be done to improve the connectivity infrastructure, especially soft infrastructure. Charts from the *CAREC Corridor Performance Measurement and Monitoring Annual Report 2019*[22] show that there have been improvements in rail transportation, especially since 2015 (Figures 26 and 27). The speed for rail transport to travel on CAREC corridors rose from 27.2 kilometers per hour in 2010 to 45.0 kilometers per hour in 2019, net of delays. Although, with delays of various kinds, the average speed for rail transport was only 19.0 kilometers per hour in 2019. The average time needed to cross a border for rail transport was 20.6 hours in 2019, a lot less than in 2014, but only slightly below the time of 22.1 hours in 2010.

22. https://www.adb.org/publications/carec-cpmm-annual-report-2019

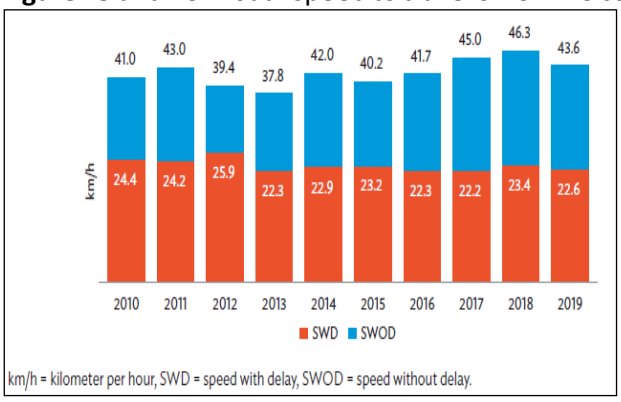
Figure 26 and 27: Rail: speed to travel on CAREC corridors, time for border-crossing clearance

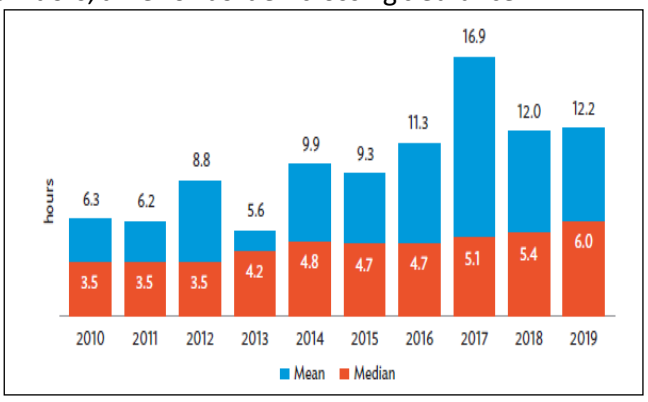




There was much less progress on road transportation (Figures 28 and 29). The speed for road transport to travel on CAREC corridors was at 43.6 kilometers per hour in 2019, only slightly above the 2010 figure of 41.0 kilometers per hour, and net of delays the speed slowed to 22.6 kilometers per hour in 2019 from 24.4 kilometers per hour in 2010. The average time needed to cross a border for road transport was 12.2 hours in 2019, up from 6.3 hours in 2010.

Figure 28 and 29: Road: speed to travel on CAREC corridors, time for border-crossing clearance





Improving connectivity has been at the core of the CAREC Program's projects. *From 2001 to September 2020, US$39.2 billion worth of CAREC-related investments have been made. Of these, transport accounted for 76% or about US$29.9 billion.*[23] *While there are still substantial investment needs in hard infrastructure, the focus must shift to soft infrastructure, procedures, and asset management to achieve more tangible and sustained connectivity improvements.*

Free Movement of People[24]

Index scores also increased in the dimension 'free movement of people,' on average, at least since 2013. Tajikistan and Uzbekistan score highest (Figure 30 and 31). Kazakhstan shows the clearest increase, but for most countries the trend is not very pronounced.

[23] https://www.carecprogram.org/?page_id=13630

24. The dimension '**free movement of people**' is measured by the variables:
5.1 Proportion of intra-regional outbound migration to total outbound migration
5.2 Proportion of intra-regional tourists to total tourists (inbound plus outbound)
5.3 Proportion of intra-regional remittances to total remittances
5.4 Proportion of other CAREC countries that do not require an entry visa

Figure 30 and 31: Scores increased on average, at least since the middle of the last decade

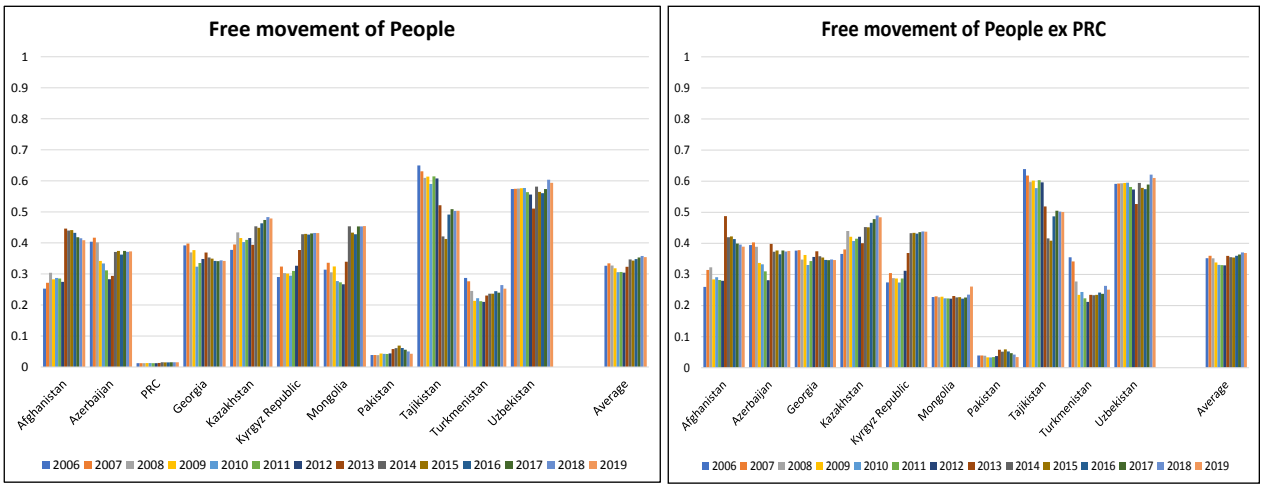
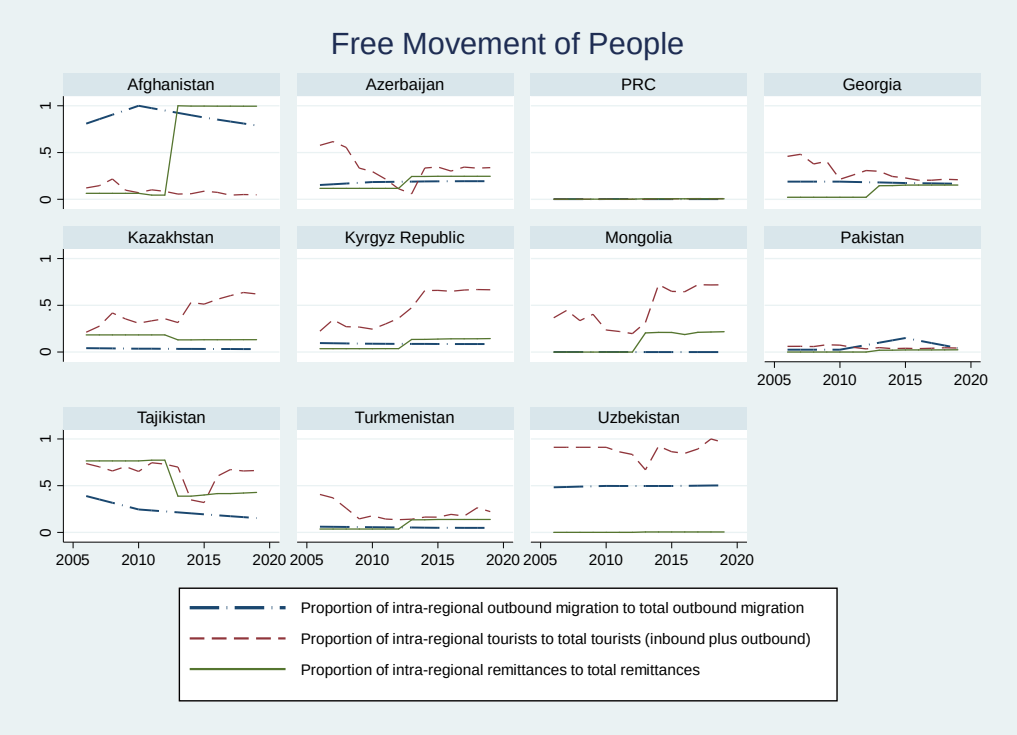


Figure 32: The increase is caused mainly by the 'tourism' indicator



The increase since 2013 is caused mainly by the 'tourism' indicator (Figure 32). Contrary to its name, this indicator reflects leisure tourism only a little; it shows mostly the traveling of migrant workers and shuttle traders. The 'tourism' indicator thus measures migration along with the indicator directly named 'migration,' which, however, reflects only official migration. For most CAREC countries, the 'tourism' indicator actually reflects migration better than the 'migration' indicator. An exception is Georgia, where international tourism is developing fast, and tourism from CAREC countries has not fully caught up with this development. The indicator therefore declines for Georgia. The 'remittances' indicator suffers from structural breaks in reporting, therefore there are some big jumps in Figure 32.

Table 3: Mutual migrant stock (mid-2020): destination and origin

Destination	Origin	Persons	Destination	Origin	Persons
Afghanistan	Pakistan	102,500	Mongolia	PRC	11,419
	Tajikistan	4,422		Kazakhstan	225
	Uzbekistan	219		Pakistan	21
Azerbaijan	Afghanistan	176	Pakistan	Afghanistan	1,598,223
	Georgia	48,815		PRC	311
	Kazakhstan	3,456	Tajikistan	Afghanistan	12,433
	Kyrgyzstan	2,438		Azerbaijan	168
	Tajikistan	236		PRC	46
	Turkmenistan	1,644		Georgia	664
	Uzbekistan	16,254		Kazakhstan	840
PRC	Pakistan	3,414		Kyrgyzstan	11,351
Georgia	Afghanistan	40		Pakistan	103
	Azerbaijan	6,023		Turkmenistan	446
	PRC	74		Uzbekistan	7,563
	Kazakhstan	1,718	Turkmenistan	Afghanistan	198
	Kyrgyzstan	249		Azerbaijan	7,596
	Mongolia	27		Kazakhstan	19,994
	Pakistan	86		Tajikistan	1,465
	Tajikistan	148		Uzbekistan	67,003
	Turkmenistan	203	Uzbekistan	Azerbaijan	20,201
	Uzbekistan	765		Kazakhstan	13,092
Kazakhstan	Azerbaijan	50,912		Kyrgyzstan	4,856
	PRC	2,274		Tajikistan	11,408
	Georgia	3,445		Turkmenistan	756
	Kyrgyzstan	7,085	Russian Federation	Afghanistan	5,090
	Tajikistan	16,644		Azerbaijan	766,918
	Turkmenistan	1,104		PRC	56,138
	Uzbekistan	296,511		Georgia	449,973
Kyrgyzstan	Azerbaijan	4,554		Kazakhstan	2,558,907
	PRC	262		Kyrgyzstan	591,025
	Georgia	3,183		Mongolia	21,132
	Kazakhstan	12,599		Pakistan	726
	Tajikistan	2,146		Tajikistan	466,252
	Turkmenistan	973		Turkmenistan	185,561
	Uzbekistan	8,940		Uzbekistan	1,146,175

Source: https://www.un.org/development/desa/pd/content/international-migrant-stock

Managing migrant flows to the benefit of all countries, and ensuring decent social rights and living conditions for migrant workers, must be one of the priorities in the cooperation of CAREC countries. *Facilitating intra-CAREC mobility—first of all migration, but also student exchange—is a key element of CAREC integration. Table 3 gives an overview of mutual migrant stock in the CAREC region (and for Russia as a major migration destination for reference). The COVID-19 pandemic has sharply underlined the need to improve policies for the protection of the most vulnerable parts of the population, including migrant workers. Cooperation across borders is a highly important element for improving such policies.*

Institutional and Social Integration[25]

In the dimension 'institutional and social integration' the tendency for most countries is stable or slightly falling. Mongolia and Pakistan are least integrated (Figures 33 and 34) and have relatively fewer institutional ties with most other CAREC countries compared to other countries with more diversified relations within CAREC. However, the dimension 'institutional and social integration' reflects only some specific treaties related to business (Figure 35), which do not give a full picture of social interaction. The same is true also for 'cultural proximity.' It is defined as trade in cultural goods such as books, newspapers, paintings, and music. But in Central Asia, for example, 'cultural proximity' would be buying books from Russia, not from each other. While there are indeed substantial institutional, social, and cultural differences among CAREC countries, there is also significant exchange, including of students, and for some countries there is a common Soviet past, which still has an impact.

25. The dimension '**institutional and social integration**' is measured by the variables:
6.1 Proportion of other CAREC countries that have signed FTAs with
6.2 Proportion of other CAREC countries that have an embassy
6.3 Proportion of other CAREC countries that have signed business investment treaties with
6.4 Proportion of other CAREC countries that have signed double taxation treaties with
6.5 Cultural proximity with other CAREC countries relative to that with all other countries

Figure 33 and 34: Institutional and social integration

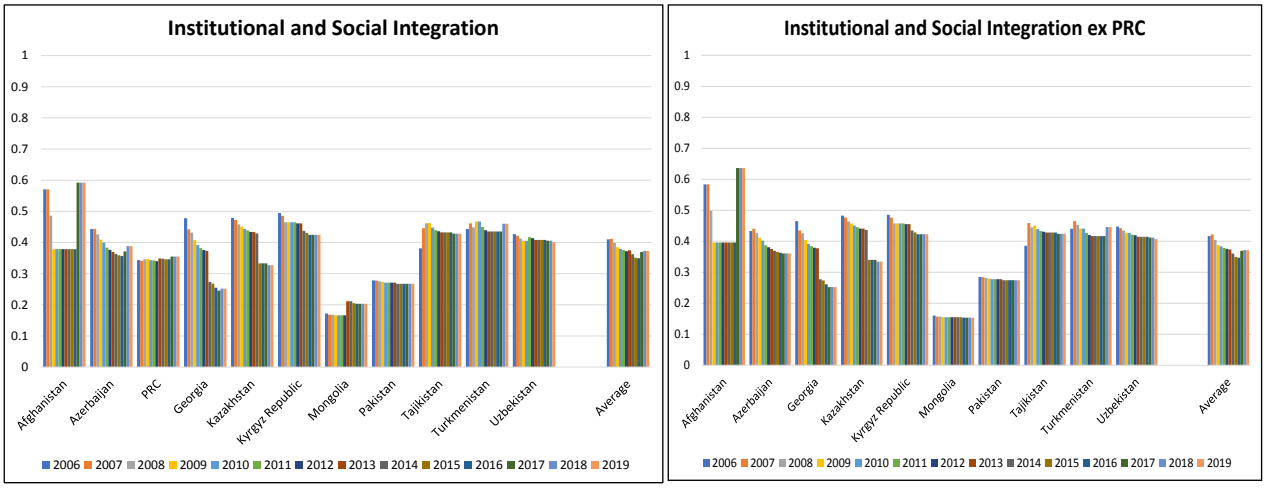
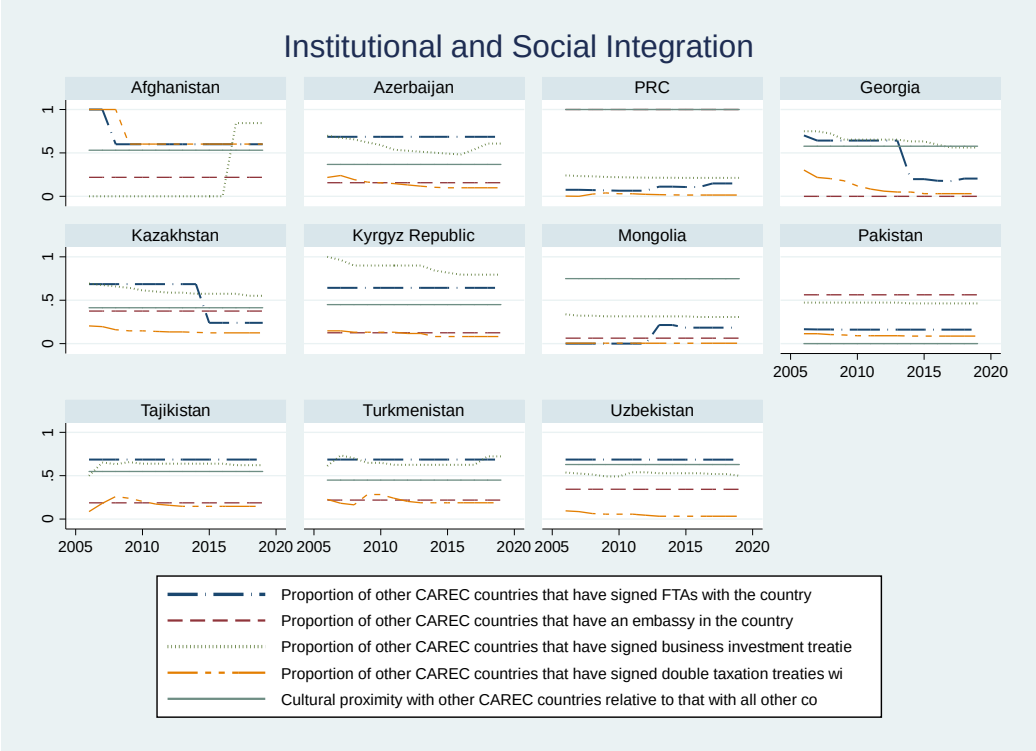


Figure 35: The dimension "Institutional and Social Integration" reflects mostly business treaties.



There is certainly much room for further improvement of institutional, social and cultural, scientific and technological exchange and cooperation. *There are a multitude of multilateral organizations and initiatives such as the EAEU, ECO, SPECA, SCO, and BRI that serve as integration mediators. CAREC is one of them.*

III. BUILDING THE FUTURE TOGETHER

While there has been some progress in CAREC integration and cooperation over the past decades, it has been limited, and it might be time for more. At the Second Consultative Meeting of the Heads of State of Central Asia held on 30 November 2019 in Tashkent, the President of Uzbekistan, Shavkat Mirziyoyev, said in his address to the meeting: 'Our rapprochement and expansion of cooperation in the region is a demanded and irreversible process. It is based on a firm political choice, has deep historical background and is not directed against anyone's interests. At the same time, strengthening unity and cohesion, we contribute to the establishment of a stable and sustainable region, which means a promising and predictable international partner.'[26] The President further urged the meeting participants to focus on the practical implementation of tasks in trade, investment, transport-communication, and energy.

It might be time to intensify efforts, and elevate CAREC cooperation to new levels of agreements, at least in some areas. Addressing the 19th CAREC ministerial conference held on 7 December 2020, Pakistan's Economic Affairs Minister, Makhdum Khusro Bakhtyar, highlighted that in order to expand trade between the CAREC countries, transit trade agreements among member countries leading to the Regional Free Trade Agreement (RFTA) may be considered.[27]

The COVID-19 pandemic is accelerating the change of how globalization works; it is accelerating technological shifts, and it has revealed serious shortcomings in social protection and in healthcare systems. Supply chains are being relocated more closely to home markets to make them more resilient, and because new flexible technologies such as 3D printing and higher digitalization allow this. Digitalization has been further boosted. At the same time, decarbonization and green transition are gaining momentum as Europe and the PRC have announced new targets and plans, and the USA is rejoining the Paris agreement. In 2019, the PRC broke the US$10,000 GDP per capita ceiling, and 2020 brought a further increase despite the pandemic. The PRC's middle class continues to develop. The PRC's industry becomes ever more advanced, and the 14th five-year plan to be adopted soon will additionally underpin this. As a result, imports are likely to shift quite rapidly towards more sophisticated, high-quality, specialized consumer and intermediary goods, such as higher-end food, apparel, pharmaceuticals, and electronics. The rest of Asia is also developing fast.

Smart diversification is of special importance for CAREC to adjust to the new global environment and to increase its global economic weight. CAREC countries adopted various plans for industrial and agricultural development, the development of the energy sector, tourism and other sectors. Success in shifting away from overconcentration on hydrocarbon exports is becoming increasingly urgent as efforts for a global green transition might reduce demand for largely unprocessed hydrocarbons from the CAREC region. CAREC countries need foster industries able to process downstream the region's rich endowments with natural resources such as metal ores, hydrocarbons, and arable land. CAREC countries need to rely on their comparative advantages and developed capabilities but move towards higher technology and more sophisticated value chains. CAREC countries have a lot to offer, from metals and rare earths to high-quality coking coal, fruit, grain, wine, and apparel. They are also interesting tourist destinations. And they are important for the east-west and the north-south transit on the Eurasian continent.

The main issue for CAREC countries is to find appropriate niches globally and within the region—and to cooperate on this. Advancing production and services to higher levels to meet the requirements of the new economic area is a complex task, which requires a whole set of measures, ranging from further improving the business and investment climate over advancing digitalization to trade facilitation, developing better channels for technology transfer, knowledge exchange, and much more. There has to be, and there already

26. https://m.mfa.uz/en/press/news/2019/11/22155/?VOICE=N
27. http://www.ead.gov.pk/NewsDetail/N2ZlN2Y3NWEtOGRiNC00YTFlLTgzZjktN2Y4MmViZWI4ZDAw

is, a dialog between governments of the CAREC region on this topic; however, it is not enough. Companies have to be involved in this dialog (and they increasingly are). The CAREC countries have their industrial policy plans, digitalization plans, infrastructure plans and so on. There should be coordination and exchange of views. Governments should not hesitate to ask for the opinions of companies and business associations of the other countries in the region about their planning and measures.

The CAREC region might need to exploit more decisively the opening up opportunities on the Eurasian continent and advance integration in all six dimensions of the CRII. Under the heading 'What does CAREC do?,' the CAREC Program's website states: 'As the reintegration of the Eurasian continent gathers speed, the CAREC countries are poised to reap substantial benefits. With the rapid economic expansion of the People's Republic of China and Japan to the east, the Russian Federation to the north, and India and Pakistan to the south, there is a real and growing demand for improved connections between Europe and Asia. This momentum provides CAREC countries with an unprecedented opportunity to emerge as a center for trade and commerce, to achieve higher levels of economic growth, and to reduce poverty. None of the region's economies will be able to fully capture this opportunity in isolation. But all will benefit from working together, and with their neighbors, to build on their strengths for mutual progress.'[28] The CAREC Program and the CAREC Institute are among the platforms that can be used to advance this cause.

28. https://www.carecprogram.org/?page_id=31

ANNEXES

Annex 1: Weights of the dimensions and indicators derived from t2-step PCA

Dimensions/Indicators	Weights	
Trade and Investments		**0.158**
Proportion of intra-regional goods exports to total goods exports	0.196	
Proportion of intra-regional goods imports to total goods imports	0.177	
Intra-regional trade intensity index	0.204	
Proportion of intra-regional FDI inward stocks to total FDI inward stocks s	0.211	
Proportion of intra-regional FDI inward stocks plus outward stocks to total FDI inward stocks plus outward stocks	0.212	
Money and Finance Integration		**0.193**
Financial Institutions Depth Index	0.306	
Financial Markets Access Index	0.147	
Financial Markets Depth Index	0.306	
Financial Markets Efficiency Index	0.241	
Regional Value Chain		**0.204**
Ratio between the averaged trade complementarity index over regional trading partners and the averaged trade complementarity index over all trading partners	0.251	
Ratio between the averaged trade concentration index over regional trading partners and the averaged trade concentration index over all trading partners	0.287	
Proportion of intra-regional intermediate goods exports to total intra-regional goods exports	0.166	
Proportion of intra-regional intermediate goods imports to total intra-regional goods imports	0.295	
Infrastructure and Connectivity		**0.174**
Ratio between the averaged trade cost over regional trading partners and the averaged trade cost over all trading partners	0.125	
Ratio between the averaged liner shipping connectivity index over regional trading partners and the averaged liner shipping connectivity index over all trading partners	0.320	
Logistics Performance Index (overall)	0.333	
Doing Business Index (overall)	0.222	
Free Movement of People		**0.162**
Proportion of intra-regional outbound migration to total outbound migration	0.255	
Proportion of intra-regional tourists to total tourists (inbound plus outbound)	0.278	
Proportion of intra-regional remittances to total remittances	0.195	
Proportion of other CAREC countries that do not require an entry visa/omitted owing to data inconsistency	-	
Institutional and Social Integration		**0.110**
Proportion of other CAREC countries that have signed FTAs with	0.212	
Proportion of other CAREC countries that have an embassy in	0.165	
Proportion of other CAREC countries that have signed business investment treaties with	0.253	
Proportion of other CAREC countries that have signed double taxation treaties with	0.269	
Cultural proximity with other CAREC countries relative to that with all other countries	0.100	

Annex 2: Data sources

Dimension	Indicator		Data Sources
I. Trade and Investment	I-a	Proportion of intra-regional goods exports to total goods exports	International Monetary Fund
	I-b	Proportion of intra-regional goods imports to total goods imports	International Monetary Fund
	I-c	Intra-regional trade intensity index	International Monetary Fund
	I-d	Proportion of intra-regional foreign direct investment (FDI) inward stocks to total FDI inward stocks	International Monetary Fund
	I-e	Proportion of intra-regional FDI inward stocks plus outward stocks to total FDI inward stocks plus outward stocks	International Monetary Fund, United Nations Conference on Trade and Development
II. Money and Finance	II-a	Financial Institutions Depth Index	International Monetary Fund
	II-b	Financial Markets Access Index	International Monetary Fund
	II-c	Financial Markets Depth Index	International Monetary Fund
	II-d	Financial Markets Efficiency Index	International Monetary Fund
III. Regional Value Chains	III-a	Ratio between the averaged trade complementarity index over regional trading partners and the averaged trade complementarity index over all trading partners	World Bank, United Nations Economic and Social Commission for Asia and the Pacific
	III-b	Ratio between the averaged trade concentration index over regional trading partners and the averaged trade concentration index over all trading partners	International Trade Centre
	III-c	Proportion of intra-regional intermediate goods exports to total intra-regional goods exports	United Nations International Trade Statistics Database
	III-d	Proportion of intra-regional intermediate goods imports to total intra-regional goods imports	United Nations International Trade Statistics Database
IV. Infrastructure and Connectivity	IV-a	Ratio between the averaged trade cost over regional trading partners and the averaged trade cost over all trading partners	United Nations Economic and Social Commission for Asia and the Pacific
	IV-b	Ratio between the averaged liner shipping connectivity index over regional trading partners and the averaged liner shipping connectivity index over all trading partners	United Nations Conference on Trade and Development
	IV-c	Logistics Performance Index (overall)	World Bank
	IV-d	Doing Business Index (overall)	World Bank
V. Free Movement of People	V-a	Proportion of intra-regional outbound migration to total outbound migration	United Nations Department of Economic and Social Affairs
	V-b	Proportion of intra-regional tourists to total tourists (inbound plus outbound)	United Nations World Tourism Organization
	V-c	Proportion of intra-regional remittances to total remittances	World Bank
VI. Institutional and Social Integration	VI-a	Proportion of CAREC countries that have signed FTAs with	Design of Trade Agreements (DESTA)
	VI-b	Proportion of CAREC countries that have an embassy	The Europa World Yearbook
	VI-c	Proportion of CAREC countries that have signed business investment treaties with	United Nations Conference on Trade and Development
	VI-d	Proportion of CAREC countries that have signed double taxation treaties with	Exchange of Information Database. https://eoi-tax.com/
	VI-e	Cultural proximity with CAREC countries relative to that with all other countries	Centre d'Etudes Prospectives et d'Informations Internationales. http://www.cepii.fr/

CAREC INSTITUTE

Central Asia Regional Economic Cooperation (CAREC) Institute
No. 376 Nanchang Road, Sha Yi Ba Ke District, Urumqi
Xinjiang Uygur Autonomous Region, the People's Republic of China
f: +86.991.8891151
km@carecinstitute.org
www.carecinstitute.org