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HOW TO THINK ABOUT ECONOMIC GROWTH AND JOB CREATION IN CENTRAL ASIA

A Comparative Analysis on Economic Dynamics in the Post-Soviet Space

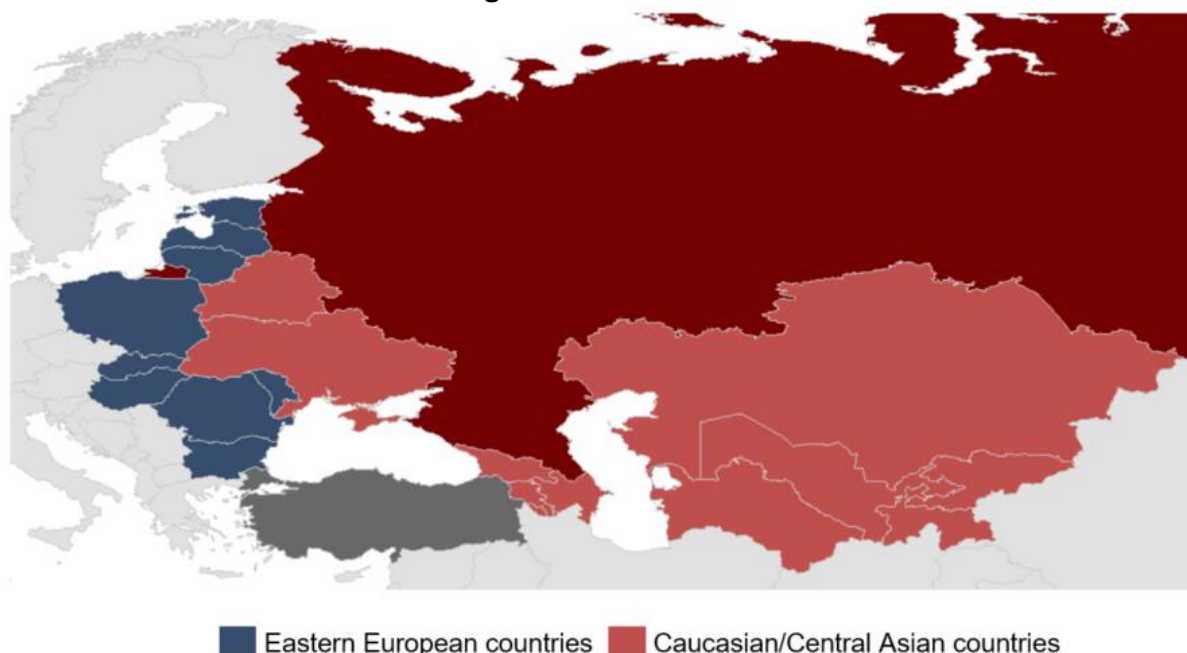
After the dissolution of the Union of Soviet Socialist Republics (USSR), the newly emerged countries can be broadly divided into two main groups: Eastern European (EE) and Caucasus/Central Asian (CCA) countries². Country categorization was done according to these countries' economic, specifically trade, relations with EU-27 and the Russian Federation.

EE and CCA countries have taken divergent paths in terms of their economic development in the past three decades. The EE countries experienced substantial improvements in medium tech sectors such as automotive, machinery, electronics, and chemicals. On the other hand, the CCA countries have not shown the same level of performance in these sectors. Instead, their industrial development skewed towards resource-based sectors with low value-addition and limited know-how, such as mineral fuels, iron and steel, and precious stones.

¹ <https://www.tepav.org.tr/en/ekibimiz/s/1434/Berat+Yucel>

² Imports and exports of these countries with Russia in 1996, 1997, 1998 are calculated. If Russia is in the top 3 in the country's total exports or imports, or if the export or import volume with Russia is greater than 10% of the total imports or exports of the country, that country is included in our analysis as a CCA country. CCA countries consist of Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, Uzbekistan, Ukraine. Mongolia is excluded from the analysis because it is outside of our sphere of the analysis. On the other hand, EE countries are all countries in the post-Soviet and former Iron countries that are not identified as CCA countries and consist of Bulgaria, Estonia, Hungary, Lithuania, Latvia, Moldova, Poland, Slovakia, Romania. The ideas expressed in this work are solely the opinions of the author(s) and do not necessarily represent the opinions of TEPAV. © TEPAV, All rights reserved unless otherwise stated.

Figure 1 – Two main groups that emerge after the dissolution of the USSR according to EU and Russian economic linkages



In addition to the economic structures inherited by individual countries, their connections to specific value chains have played a crucial role in shaping their overall productive knowledge. The EE countries, which have integrated into EU³ value chains, have been able to benefit from technological transfers and knowledge exchange, leading to advancements in their productive capabilities. On the other hand, the CCA countries, which remain within the sphere of geoeconomic influence of the Russian Federation, face challenges and have not experienced the same level of progress as their counterparts in the West. This can be attributed to various factors, including limited access to advanced value chains, resulting in a narrower range of productive knowledge and a focus on resource-intensive sectors.

This paper examines trade and investment trends in two regions (CCA and EE) from 1996 to 2021⁴. The study reveals several key findings that shed light on the productive capacities of these regions, which are summarized below:

- CCA countries showed a decline in economic complexities, indicating lower comparative productive capabilities. EE countries maintained stable productive capabilities.
- EE countries have higher export shares to EU member countries compared to CCA countries. Russia, China, and Turkey dominate trade in CCA countries, except for Azerbaijan and Ukraine, which primarily export agricultural products to the EU.
- Similarly, CCA countries have a lower Trade Complementarity Index (TCI) for the EU market compared to EE countries and their TCI value for the EU market markedly declined since 1996.

³ The analysis is based on EU -27 countries.

⁴ When 2021 data was not available, 2019 and 2020 data was used.

- CCA countries experienced a decrease in the share of manufacturing exports in their total exports, except for Tajikistan and Georgia. EE countries integrated into the EU-27 (excluding Bulgaria) and witnessed a significant increase in manufacturing exports.
- EE countries shifted their export composition to high-value added sectors, while CCA countries saw a significant increase in mineral fuel exports since 1996.
- EE countries received twice the FDI compared to CCA countries. They also received two and a half times more medium-high and high technology investments. These technology investments mainly come from EU-27 countries. Only 11.34% of CCA countries' FDI falls under medium-high or high-level technology categories, while it constitutes 25% of FDI in EE countries. Over half of the FDI in CCA countries goes to resource-based industries, with major investors being the United States, Russia, and the UK.

Know-how and productive capability: Economic Complexity

The primary economic goal for developing countries has often been identified as achieving rapid structural transformation from an agrarian-based economy to a modern industrial one. This goal entails increasing savings and investment to accumulate capital, utilizing the agricultural sector to finance the process of industrial transformation, and adopting import protection and substitution to be prepared for potential market failures and allow for state intervention when necessary (Worldbank, 1991).

As the economy develops and reaches maturity, several factors contribute to a country's productive strength. These include the specific characteristics of its industries, the ability to produce across diverse industrial sectors and a wide range of products, the presence of a favorable business environment, and the establishment of a robust social infrastructure to support the well-being of communities.

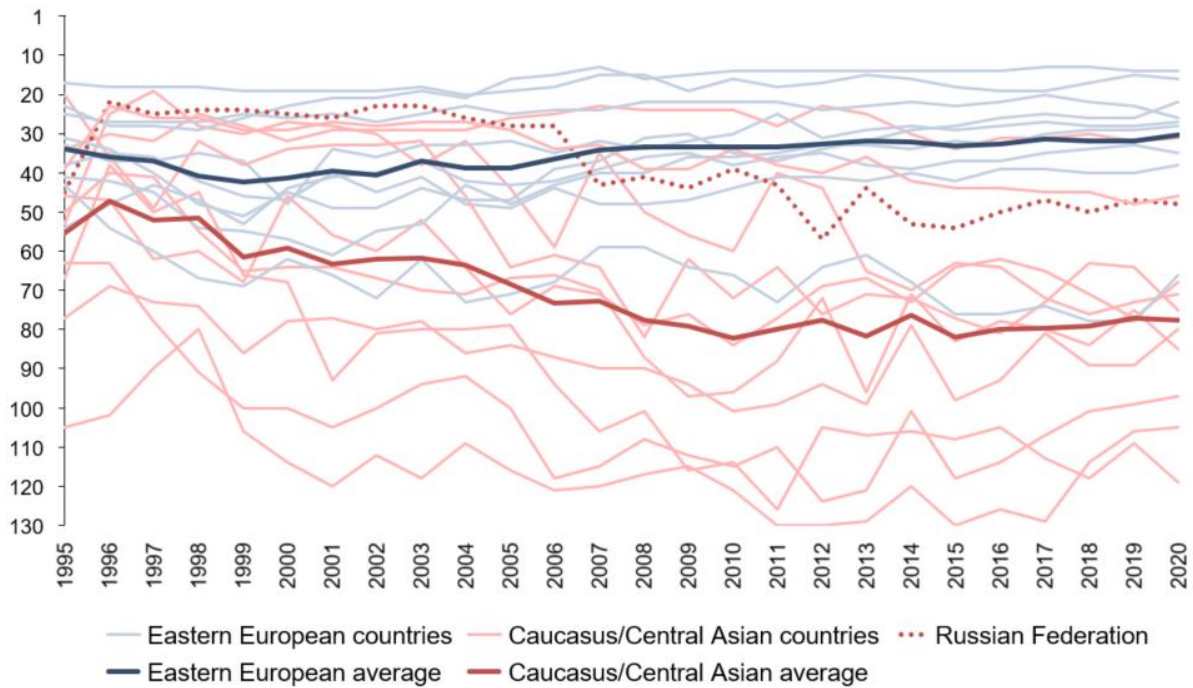
While conventional economic indicators such as GDP or GDP per capita provide valuable insights into a country's producing power and well-being, they have limitations when it comes to capturing a country's productive capabilities comprehensively. Productive capabilities encompass the diversity of a country's production basket, and the level of know-how the country possesses. The inability of conventional indicators to assess a country's productive capabilities poses a significant challenge in comprehending its economy, as what is produced holds equal, if not more, importance than the quantity produced for achieving a sustainable growth path.

In addressing this issue, "the economic complexity" literature developed by César A. Hidalgo and Ricardo Hausmann (2009) provides a valuable toolset. Their economic complexity index serves as a fine proxy for determining the comparative level of productive capabilities among countries⁵.

Following the dissolution of the Soviet Union (USSR), a clear decline in economic complexities has been observed in the Caucasus/Central Asian (CCA) countries. In contrast, the newly established countries in Eastern Europe, which were previously part of the Iron Curtain, have been successful in maintaining their productive capabilities, as shown in Figure-2.

⁵ A low complexity outlook reflects that a country has few products that are a short distance away, so will find it difficult to acquire new know-how and increase their economic complexity. For more information check: <https://atlas.cid.harvard.edu/>

Figure 1 - Economic complexity index rankings of post-Soviet and former Iron Curtain countries, 1995-2020



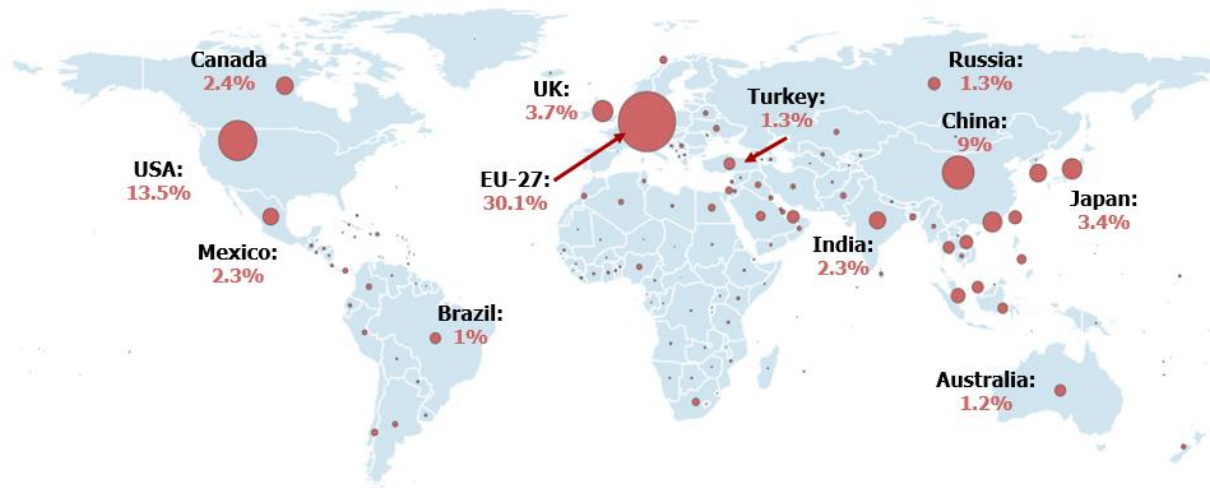
Source: The Growth Lab at Harvard University, 2019, "Growth Projections and Complexity Rankings", authors' calculations

The disparity between the two post-Soviet blocks can be attributed to various interconnected factors. One of the key factors is the integration of Eastern European countries into more advanced value chains, mainly within Europe. On the other hand, CCA countries have aligned themselves with Russian trade and investment networks, resulting in limitations in their productive capabilities.⁶

Export partner composition: Access to large markets

Both composition of products and trade partners play crucial roles in the economic growth of countries. Access to larger markets is a key factor in achieving export diversification. According to Parteka and Tamberi (2013), countries that are geographically distant from the world's economic core often exhibit limited manufacturing export diversification, further compounded by trade barriers. In contrast, ease of accessing large markets, both domestic and foreign, facilitates diversification.

⁶ We grouped post-Soviet countries in two according to their integration with their trade partners, thus in the remaining of article countries in Western value chain indicates Hungary, Czechia, Slovakia, Poland, Romania,

Figure 3 - Share of global import, 2021

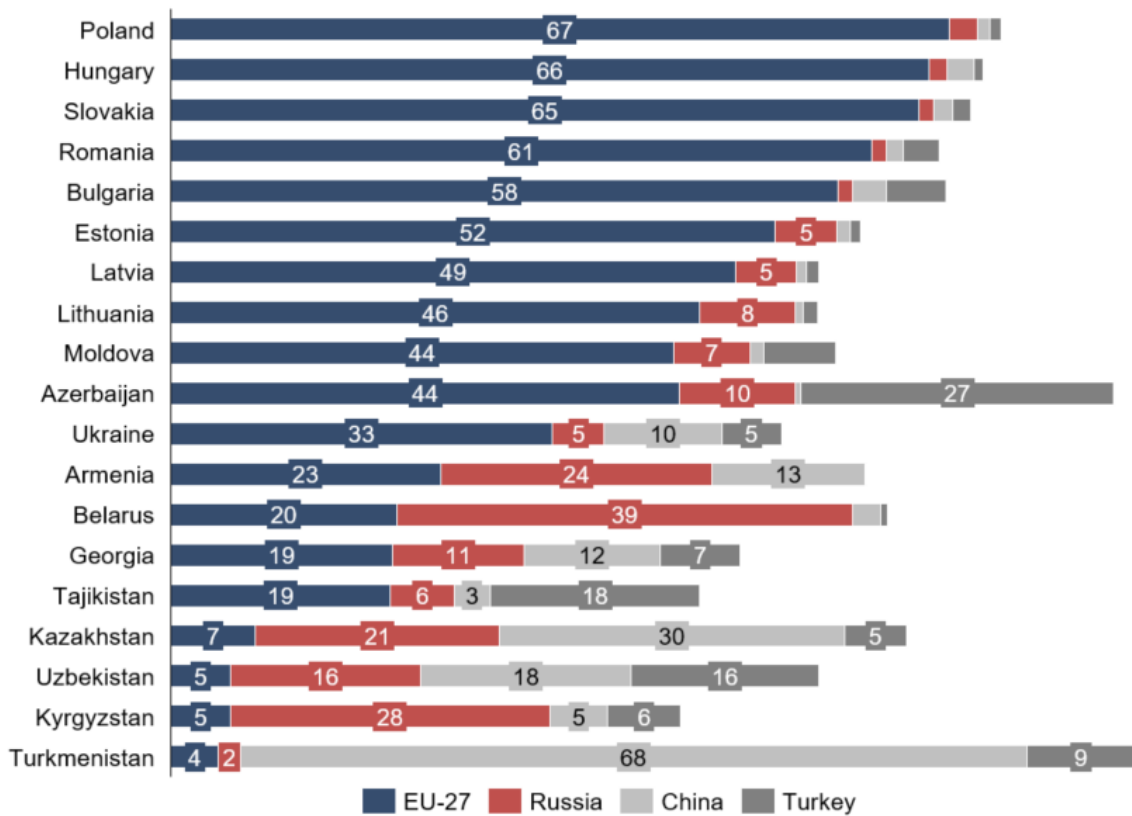
Note: Circle sizes represent share in global import

Source: CEPII BACI, TEPAV calculations

The landlocked geography of CCA countries, their relatively distant location from EU trade routes, and their strong economic ties with Russia, present challenges in integrating with the EU, which is the largest trade block in terms imports globally (Figure 3). Conversely, Eastern European countries enjoy relatively easier access to connect with EU markets and value chains whether through FDIs or trade. As a result, technical capabilities from EU countries can more readily transfer to Eastern European countries, contributing to their growth and development.

Figure 4 illustrates the export partner composition of the analyzed EE and CCA countries, excluding gold and crude oil exports. The analysis reveals that EE countries have higher export shares to EU member countries compared to the CCA countries. Russia, China, and Turkey hold the largest shares in trade for all CCA countries with the exceptions of Azerbaijan and Ukraine. As of 2021, Ukraine accounts for around 8% of the EU's total agricultural product imports. In the case of Azerbaijan, its primary trade items with the EU, excluding energy, are chemicals and agricultural products, constituting 55% and 23% of the total export share, respectively. The integration of Ukraine and Azerbaijan, which have the highest exports to the EU among the CCA countries, is primarily centered around agricultural products such as sunflower seed oil, corn, nuts and chemicals such as petroleum resins, acyclic alcohols, and fertilizers. However, they have not experienced significant benefits from integration into EU markets to develop their manufacturing sectors.

Figure 4 - Share of exports of post-Soviet and Iron Curtain countries, %, 2021



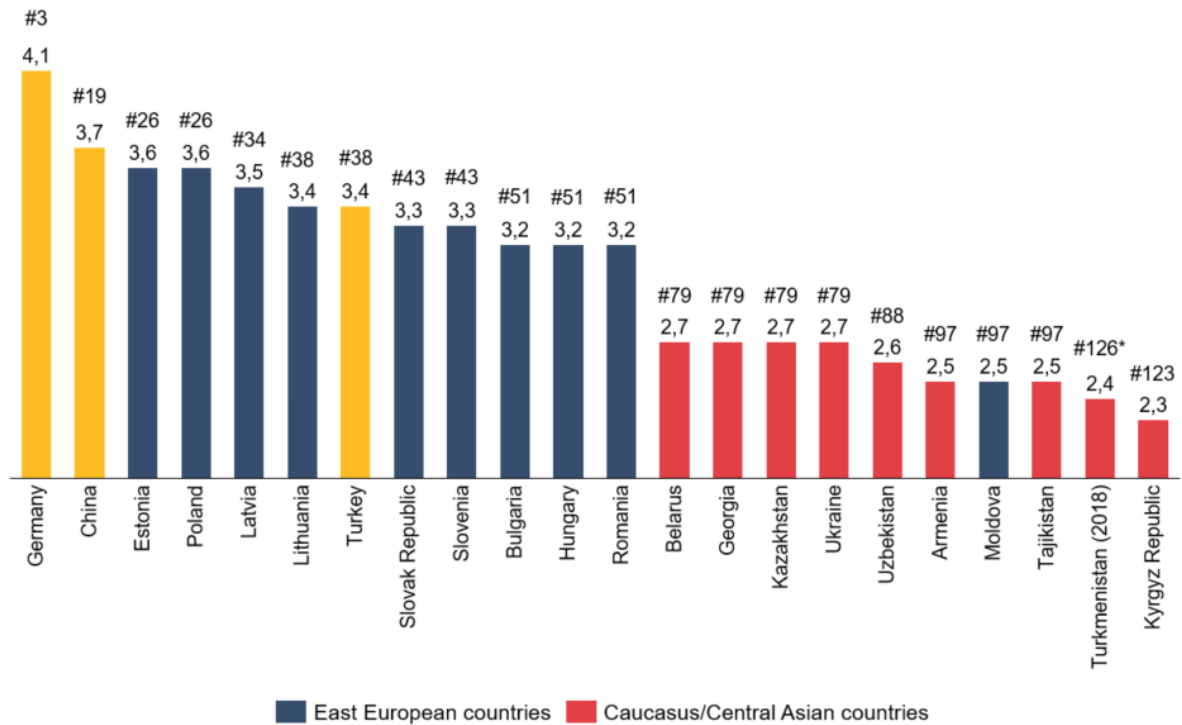
* Gold and crude oil exports are excluded

Source: CEPII BACI, Authors' calculations

One possible reason for the low export shares to the EU in the CCA countries is the geographical distance between these countries and the EU, coupled with challenges related to transportation and logistics along the route. According to the World Bank Logistics Performance Index (LPI), CCA countries to some extent, perform poorly in terms of connectivity. Specifically, the effective utilization of the Caspian Sea for transportation purposes remains limited due to infrastructure issues both physically and in terms of software. Inadequate physical infrastructure in Caspian Sea ports, the absence of an efficient railway network on both sides of the Caspian, differences in rail gauge (rail spacing)⁷ along the route, as well as factors such as tariffs, border crossing procedures, national regulations/legislation, and other software dimensions of trade all contribute to high costs during the transportation process.

⁷ Central Asian and South Caucasian countries use the 1.520m gauge, a legacy of the Soviet era, while China, Turkey and the EU use the 1.435m, known as the standard gauge.

Figure 5 - Logistics Performance Index, 2023



*Since Turkmenistan has no data for 2023, 2018 data has been used. Azerbaijan is not included in the figure due to lack of data.

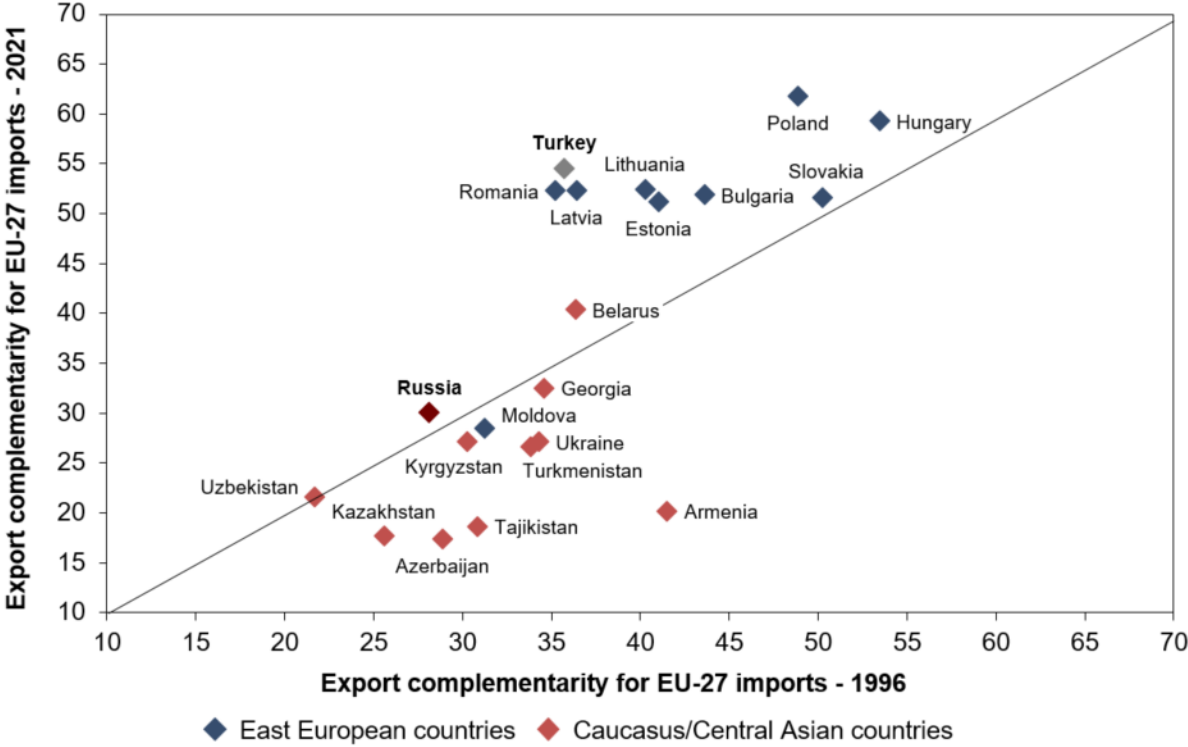
Source: Worldbank Logistics Performance Index (LPI)

Export partner composition: Trade complementarity

As previously stated, integration into larger markets has been identified as a significant factor for economic growth. When comparing the export composition of the countries with the import composition of the EU, consistent results align with our previous findings. In 1996, the CCA countries, influenced by the Russian value chain and socioeconomic factors, had a lower Trade Complementarity Index⁸ (TCI) value for the EU-27 market in comparison to the EE countries (Figure 5). Over the years, this TCI value has further declined for the CCA countries, while it has increased for the EE countries that have successfully integrated into European value chains (Figure 5). These results indicate that in order to access European markets similarly to their Eastern European counterparts, the CCA countries need to enhance the diversity of their export baskets.

⁸ The Trade Complementarity Index (TCI) measures the compatibility or similarity of trade patterns between two countries or regions. It assesses how well the export structure of one country matches the import structure of another. A higher TCI indicates greater complementarity in trade patterns, suggesting opportunities for trade cooperation and specialization.

Figure 6 - Trade complementarity of post-Soviet and former Iron Curtain countries with EU-27, %

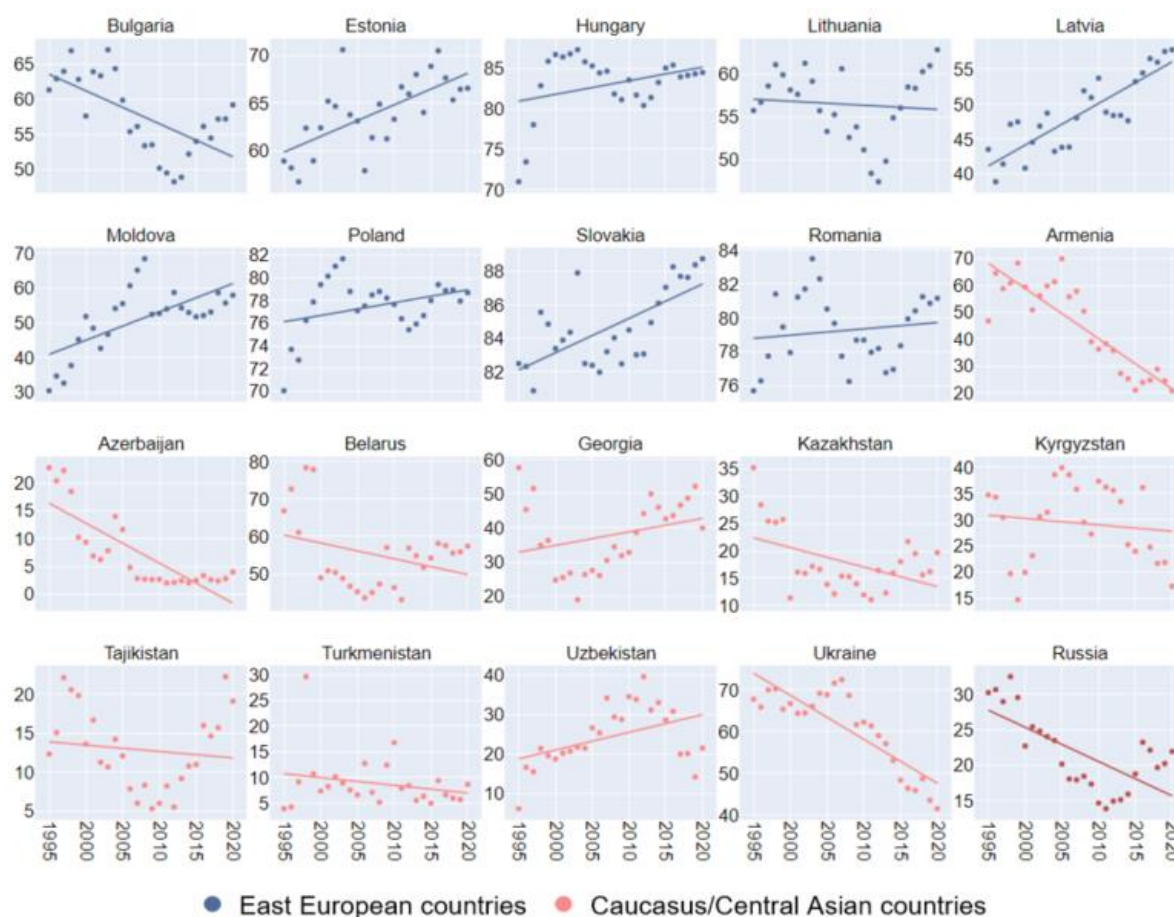


Source: CEPII BACI, authors' calculations

Share of manufacturing exports in total exports

There has been a notable divergence in manufacturing export trends between the two groups of countries between 1995 and 2019 (Figure 6). Specifically, EE countries that have effectively integrated into the EU-27 (excluding Bulgaria) demonstrate a significant increase in the proportion of manufacturing exports within their total export composition. The CCA countries show a contrasting trend, with the majority experiencing a decrease in the share of manufacturing exports in their total exports since 1995. However, the share of manufacturing exports in their total exports started increasing in Tajikistan after 2010 and in Georgia after 2000 reaching their 1995 levels by 2020.

Figure 7 - Share of manufacturing exports of Post-Soviet and former Iron Curtain countries, 1995-2019

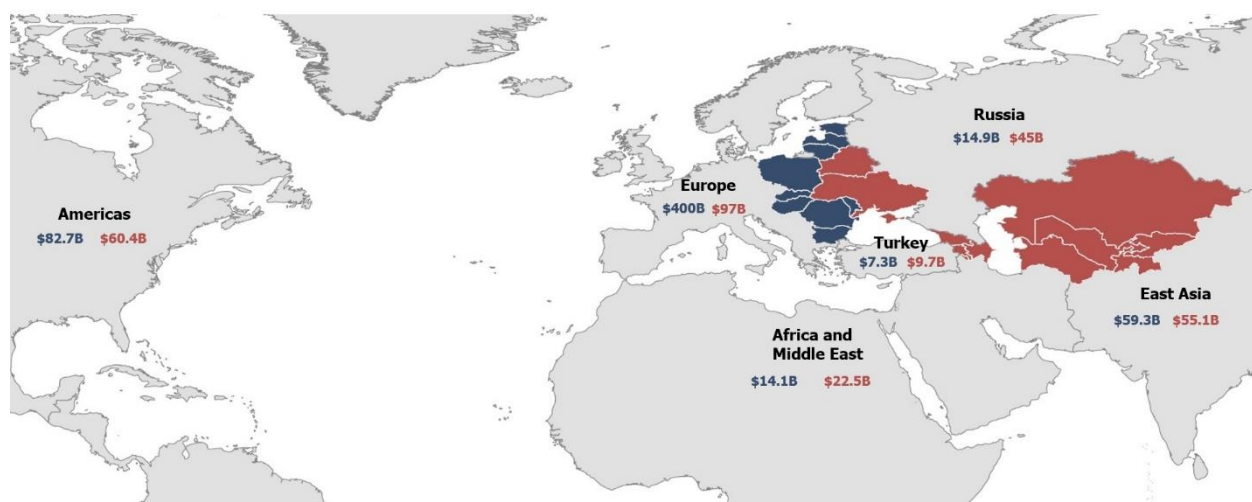


Source: The Growth Lab at Harvard University, 2019, "International Trade Data (HS, 92)", Worldbank, authors' calculations

Note: According to the World Bank definition, manufacturing exports consist of chemicals, basic manufactures, machinery and transport equipment and miscellaneous manufactured goods (excluding non-ferrous metals) in "standard international trade classification" (SITC).

Export composition patterns

According to Hausman et al. (2005), assuming all other factors remain constant, an economy is better off producing goods that are exported by wealthier countries. Figure-7 above provides a good and a bad example of trade diversification. In the EE countries, we observe transformation in the export product composition in favor of high value added sectors. The export share of machinery, vehicles, electronics and chemicals has increased from 33.7 percent in 1996 to 58.6 percent in 2021. In the CCA countries we see the exact opposite progress. There has been a significant increase in the export of mineral fuels over the course of 26 years, reaching 32% of the total exports in 2021. Moreover, the share of machinery, vehicles, electronics and chemicals in total exports has decreased by 6 percent. The dominance of petroleum products, which crowd out sectors requiring high value-added and advanced know-how, dampens the economic progress in the CCA countries.

Figure 9 – Source of the FDI for Post-Soviet countries, 2003-2019

Note: Values colored in blue and red show the amount of FDI to EE and CCA countries respectively

Source: FDI Markets, authors' calculations

The table presented in the appendix provides information on the sectoral distribution of FDI by the host and the originator countries. The data, sourced from the FDI Market dataset, covers the period between 2003 and 2019 for selected countries and was aggregated by sector. The technological levels of sectors are determined by the OECD methodology. From the table, several key points can be observed:

- Firstly, EE countries have received nearly twice the amount of FDI compared to the CCA countries. About 60 % of FDI to these countries originates from EU-27 countries.
- Secondly, the EE countries receive two and a half times more medium-high and high technology investments than CCA countries. Medium-high and high technology investments such as semiconductors, biotechnology and aerospace industries predominantly originate from EU-27 countries.
- Thirdly, only 11.34 percent of the FDI received by the CCA countries falls within the medium-high or high-level technology categories whereas these constitute 25 percent of FDI that goes to EE countries.
- Fourthly, more than half of FDI that goes to CCA countries is directed towards resource-based industries. The largest investors to the CCA countries in these sectors are the United States, Russia and the UK.

FDI patterns show some resemblance to the export basket composition and provide an explanation for the relatively low effectiveness of FDI in promoting economic growth in CCA countries.

Final remarks

Historically, Post-Soviet countries embarked on their economic journeys with varying capabilities and possibilities. However, differences that emerged over the years, may provide insights into a path forward for those lagging behind. Integration into more sophisticated value chains, distributing/reallocating resources to more viable, cross-cutting and efficient sectors, and fostering inclusive institutions and social infrastructure will help contribute to sustainable economic growth and job promotion vis-à-vis developing a skilled workforce, increasing access

to capital, promoting investment, and developing value-added domestic products. Turkey's role in the region, particularly in connecting CCA countries with European, more sophisticated value chains, deserves further analysis.

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Appendix-1

Foreign Direct Investment (FDI) patterns

Sectors	EU-27		Russia		Other		Total			Technology Level
	EEC	CACC	EEC	CACC	EEC	CACC	EEC	CACC	Total	
Real Estate	94.222	8.254	244	996	49.255	18.144	143.721	27.394	171.115	Services
Coal, Oil and Natural Gas	32.193	7.347	4.849	16.615	14.630	81.842	51.672	105.804	157.476	Medium-Low Technology
Alternative/Renewable energy	43.473	7.179	1.201	1.242	11.895	7.822	56.569	16.243	72.812	Medium-Low Technology
Automotive OEM	22.915	1.256	1.536	2.325	15.144	4.929	39.595	8.510	48.105	Medium-High Technology
Metals	9.418	5.204	434	8.104	7.477	17.152	17.329	30.460	47.789	Medium-Low Technology
Transportation	14.944	3.762	3.085	2343	7.198	10.717	25.227	16.822	42.049	Services
Automotive Components	22.598	530	0	2	17.446	807	40.044	1.339	41.383	Medium-High Technology
Financial Services	13.940	7.111	878	4.275	4.745	6.719	19.563	18.105	37.668	Services
Communications	12.095	3.421	109	4.413	7.867	2.108	20.071	9.942	30.013	Services
Food & Tobacco	6.956	3.279	288	723	11.987	4.568	19.231	8.570	27.801	Low Technology
Chemicals	5.847	1.531	976	1.030	3.103	10.919	9.926	13.480	23.406	Medium-High Technology
Building & Construction Materials	9.010	3.454	107	741	4.143	4.646	13.260	8.841	22.101	Low Technology
Electronic Components	7.045	438	0	75	12.619	404	19.664	917	20.581	High Technology
Software & IT services	7.522	1.086	480	300	9.411	1.559	17.413	2.945	20.358	Services
Hotels & Tourism	6.305	2.094	1	449	2.859	3.923	9.165	6.466	15.631	Services
Rubber	6.295	413	0	116	5.231	571	11.526	1.100	12.626	Medium-Low Technology
Paper, Printing & Packaging	6.846	505	0	0	3.655	531	10.501	1.036	11.537	Low Technology
Consumer Electronics	3.139	656	0	11	4.880	2.053	8.019	2.720	10.739	High Technology
Industrial Machinery, Equipment & Tools	4.498	1.804	6	118	3.387	702	7.891	2.624	10.515	Medium-High Technology
Wood Products	7.010	1.107	0	0	1.563	59	8.573	1.166	9.739	Low Technology
Plastics	2.689	499	89	593	3.252	1.348	6.030	2.440	8.470	Medium-Low Technology
Consumer Products	4.308	352	12	0	3.324	322	7.644	674	8.318	Medium-High Technology
Ceramics & Glass	2.224	952	55	17	3.110	1.565	5.389	2.534	7.923	Medium-Low Technology
Business Services	1.929	609	8	158	2.196	946	4.133	1.713	5.846	Services
Warehousing & Storage	2.311	646	273	80	722	1.132	3.306	1.858	5.164	Services
Textiles	2.997	193	0	56	414	1.483	3.411	1.732	5.143	Low Technology
Pharmaceuticals	1.062	419	35	141	2.453	747	3.550	1.307	4.857	High Technology
Business Machines & Equipment	175	113	0	3	3.868	107	4.043	223	4.266	Medium-High Technology
Beverages	1.530	758	25	43	1.182	591	2.737	1.392	4.129	Low Technology
Aerospace	1.659	219	65	31	1.731	167	3.455	417	3.872	High Technology
Non-Automotive Transport OEM	1.076	395	109	33	845	930	2.030	1.358	3.388	Medium-High Technology
Leisure & Entertainment	1.585	344	0	0	432	242	2.017	586	2.603	Services
Medical Devices	1.346	44	17	0	805	15	2.168	59	2.227	High Technology
Minerals	175	862	5	2	248	679	428	1.543	1.971	Medium-Low Technology
Semiconductors	607	0	0	0	900	382	1.507	382	1.889	Medium-High Technology
Healthcare	1.157	18	0	0	372	248	1.529	266	1.795	Services
Engines & Turbines	664	107	93	0	360	134	1.117	241	1.358	Medium-High Technology
Biotechnology	24	46	0	0	297	7	321	53	374	High Technology
Space & Defence	91	26	0	0	118	75	209	101	310	High Technology
Total	363.880	67.033	14.980	45.035	225.124	191.295	603.984	303.363	907.347	

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