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## **COMPARATIVE ANALYSIS OF GLOBAL COMPETITIVENESS OF ECONOMIES OF CENTRAL ASIAN COUNTRIES**

### **Abstract**

This study offers a comprehensive analysis of the determinants of economic competitiveness in Central Asia, emphasizing the role of regional cooperation and the potential establishment of an integration framework. Advancing and refining the methodology for building sustainable competitive advantages in the region constitutes a promising scholarly direction, carrying both theoretical significance and practical relevance. The research seeks to uncover latent reserves for strengthening cooperative linkages among Central Asian states and to evaluate prospects for deeper economic integration. By developing alternative scenarios for regional economic interaction, the study identifies pathways to enhance competitiveness not only for Kazakhstan but also for neighboring countries. Particular attention is devoted to assessing Kazakhstan's sustainable competitive advantages in the context of emerging global challenges, with a focus on the implications of shifting patterns in the world economy for regional cooperation and the international division of labor. The anticipated contribution lies in providing a robust theoretical foundation for reinforcing trade and economic relations, expanding and diversifying transport and logistics networks, and protecting national economic interests amid global uncertainties. These outcomes are expected to advance regional resilience through closer cooperation and integration of economic systems. From an academic standpoint, the research enriches existing knowledge by systematizing prior findings, identifying gaps in theory and practice, and proposing a methodological framework for the formation of sustainable competitive advantages. From an applied perspective, it generates concrete policy recommendations aimed at fostering regional cooperation, ensuring long-term competitiveness, and supporting the strategic development of Central Asian economies.

**Keywords:** competitive advantages, sustainable economic development, regional cooperation, regionalization, integration, competitiveness, strategic partnership.

## Introduction

The relevance of the scientific research is that at the current stage of globalization, characterized by increasing instability in the development of the world economy, the long-term economic development of countries is based not only on the effectiveness of the formation of sustainable competitive advantages of national economies, but also with increased competitiveness based on the creation of integration associations.

The existing theoretical groundwork in the new geoeconomic conditions allows us to begin developing a new methodology for the formation and development of national competitive advantages of the country, using regional processes of cooperation and international division of labor. This will allow us to increase the efficiency of the economic systems of the Central Asian region.

The absence of such a methodology acts as a serious obstacle to achieving high national and international competitiveness of member states and repeated attempts at integration association in general.

In this context, research aimed at improving the methodology for the formation of sustainable competitive advantages of Central Asian states is a relevant and promising scientific direction that has important theoretical and applied significance. The main goal of the scientific project is to study the impact of modern challenges of the global economy on regional processes of cooperation and international division of labor in the Central Asian region.

The main objective of the study is to conduct a comparative analysis of the export competitiveness of the Central Asian countries over the period 2014–2023, identifying key structural characteristics, sources of resilience, and potential directions for diversification and sustainable economic development in the region.

During the scientific research, it is planned to develop various options (scenarios) for cooperation and integration of economic systems of the Central Asian region.

Such an adequate response to the modern challenges of global economic development will have a fundamental theoretical and real practical result for improving the activities of the relevant government bodies and structures.

## Materials and methods

This study is based on a comparative analysis of export dynamics and structural indicators of the five Central Asian countries – Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan – for the period 2014–2023. The selected time frame was determined by the availability of consistent statistical data across international databases; data for 2024 weren't yet published at the time of research, which represents a natural limitation of the study. Therefore, the conclusions and comparisons reflect the state of export competitiveness in the region as of the end of 2023.

The research relies exclusively on secondary statistical data obtained from authoritative and publicly accessible sources, including the World Bank, the Observatory of Economic Complexity (OEC), UNCTAD, and the national ministries of economy and trade of the respective countries. These sources were selected for their methodological comparability and international recognition. To ensure consistency across datasets, all monetary values were expressed in U.S. dollars, and, where possible, indicators in constant 2015 prices were used to eliminate the effects of inflation and exchange rate fluctuations.

The methodological framework combines descriptive and comparative analysis. The descriptive method was applied to summarize and interpret quantitative data on the volume and structure of exports, while the comparative approach was used to identify similarities and differences among the selected countries. The analysis included both quantitative indicators (total exports, export share in GDP, commodity composition, share of high-technology goods and services) and qualitative characteristics (degree of diversification, innovation potential, and economic complexity).

To provide a deeper assessment of competitiveness, internationally recognized indices were employed – specifically, the Economic Complexity Index (ECI) and the Export Concentration Index (based on the Herfindahl-Hirschman Index). These indicators allow the evaluation of export diversification, dependence on raw materials, and the technological intensity of national economies.

The methodological consistency of these indices ensures comparability among countries with different statistical and institutional systems.

Data validation was carried out through cross-verification between sources. In cases of discrepancies – for instance, between World Bank and OEC data – preference was given to the most recent and transparent datasets, primarily those derived from the World Bank's national accounts. The interpretation of results was complemented by a contextual analysis of national industrial and diversification strategies, particularly in Kazakhstan and Uzbekistan, as well as the analysis of resource dependence patterns in Kyrgyzstan, Tajikistan, and Turkmenistan.

Nevertheless, this study has several limitations. The most significant constraint is the absence of data for 2024, which restricts the research to a retrospective rather than real-time perspective. Moreover, the availability and reliability of statistics vary considerably across countries, especially for Turkmenistan and Tajikistan, where official reporting remains incomplete. The study does not include import indicators or balance-of-payments data, which could have provided a more comprehensive assessment of trade competitiveness. Additionally, non-economic factors such as governance quality, institutional capacity, and political stability, though recognized as important determinants, were not quantitatively analyzed due to the lack of standardized datasets. Minor discrepancies between data sources may also exist due to methodological differences.

Despite these limitations, the applied methodology ensures a systematic, transparent, and comparable assessment of export performance in Central Asia. The combination of quantitative and qualitative approaches enables the identification of regional trends, common challenges, and potential directions for sustainable economic diversification. The findings of the study may serve as a reliable empirical basis for developing policy recommendations aimed at enhancing export competitiveness and strengthening regional integration in the post-2023 period.

## Results and discussion

Among the five Central Asian countries, the largest country in the region, Kazakhstan, demonstrates the highest rates of participation in international trade. The main indicators of the dynamics and structure of exports of goods and services from Kazakhstan over the past decade are shown in table 1 [5].

Table 1 – Key indicators of the dynamics and structure of Kazakhstan's exports for 2014–2023

billion USD or %	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Exports of goods and services (in current US dollars)	87,11	52,58	43,71	54,04	67,48	66,2	52,23	66,32	93,74	90,36
Exports of goods and services (at constant 2015 prices, US dollars)	54,83	52,58	50,22	54,23	59,44	60,63	53,78	55,01	60,62	61,78
Export of goods and services (% of GDP)	39,3	28,5	31,8	32,4	37,6	36,4	30,5	33,64	41,57	34,51
Fuel exports (% of goods exports)	76	68	61	63	70	67	58	66	68	59
Export of ores and metals (% of goods exports)	9	12,7	15,6	16,2	12,3	14,8	12,2	12,4	9,1	14,6
Export of high-tech products (% of industrial exports)	39	43	32	24	24	29	34	27	32	34
High-tech exports (in current US dollars)	3,39	2,86	2,07	1,79	1,77	2,22	2,03	2,12	3,76	5,15
ICT goods exports (% of total goods exports)	0,84	0,19	0,16	0,13	0,11	0,12	0,11	1,12	1,85	-
Export of commercial services (in current US dollars)	6,74	5,91	5,87	6,26	7,07	7,48	5,01	5,73	7,96	10,42

Note: Compiled by the authors based on data from the World Bank [5].

According to table 1, Kazakhstan's export performance between 2014 and 2023 demonstrates both resilience and gradual diversification. Total exports of goods and services declined sharply during 2015–2016 due to the global oil price collapse but recovered after 2017, reaching about 90 billion USD in 2023. In real terms (constant 2015 prices), exports increased moderately, suggesting that the growth was driven not only by higher prices but also by physical expansion. The share of exports in GDP dropped from 39% in 2014 to 34 percent in 2023, indicating the strengthening of the domestic economy. Fuel exports continued to dominate, though their share fell from 76 to 59% of total goods exports, showing a slow move toward diversification. Metal and ore exports fluctuated around 10–16%, while high-technology products accounted for 24–34% of industrial exports, reflecting unstable innovation capacity. High-tech exports in monetary terms more than doubled, from 3.4 to 5.1 billion USD, although their overall contribution remained small. ICT goods exports stayed below 2%, emphasizing limited digital competitiveness. By contrast, exports of commercial services expanded steadily – from 6.7 to 10.4 billion USD – becoming an increasingly important component of Kazakhstan's external trade. Overall, the data reveal a transition from raw-material dependence toward a more balanced export structure supported by services and technological segments.

Kazakhstan's exports are vulnerable and low competitive due to the predominance of raw materials in its structure – fuel (59% of goods exports, 2023), ores and metals (14.6%). According to the Ministry of Energy of Kazakhstan, oil exports from the Republic in 2021 amounted to 67.6 million tons. [6] Exports of high-tech products account for 33% of industrial exports (2020), while exports of ICT goods account for only 0.1% of total goods exports.

According to data published on the OEC website, in 2021, Kazakhstan ranked 52nd in the world in terms of GDP (at current prices), 55th in terms of total exports, and 57th in terms of total imports. In the ranking of countries according to the Trade ECI index for 2021, Kazakhstan, with a score of -0.28, is in 77th place out of 131 countries [7]. Kazakhstan's main export items are crude oil (40.2% of exports), gold (7.45%), refined copper (4.25%), ferroalloys (4.8%) and copper ore (3.41%). OEC experts conclude that over the past 20 years, Kazakhstan's economy has become relatively less complex, moving up from 34th to 77th place in the ECI ranking [8].

According to the export concentration index, Kazakhstan was in 47th place among 213 countries in 2021 with an index of 0.48 (for comparison, Iraq was in 2nd place with an index of 0.91, Turkey was in 212th place with an index of 0.06) [4].

In general, Kazakhstan's exports are characterized by a low level of economic complexity and average quality. A study by American researchers notes that export growth depended on the same products with a low level of export survival. Two-thirds of export growth over the past decade was due to increased sales of the same products to the same destinations, with less than 1% of the growth coming from sales to new markets (both old and new products). Kazakhstan's export survival is low and lower than most comparable countries. Manufacturing exports have the lowest survival rates among major export commodities [9].

The predominance of natural resources (fuel, ores and metals) in the country's export structure is a widely known problem of the Kazakh economy. Back in 2017, World Bank analysts noted that "Kazakhstan's main export was crude oil, which is considered a low-complexity mineral, making the country extremely vulnerable to shocks. To achieve high-income status, Kazakhstan needs to move up the value chain and find new sources of growth" [10].

Over the past two decades, the country's government has developed state programs and taken various measures to overcome the raw materials orientation of exports and diversify the economy. An important step along this path is the Law of the Republic of Kazakhstan "On Industrial Policy" adopted in 2021. Article 3 of this law states that "the goal of industrial policy is to ensure sustainable development of the manufacturing industry by increasing the production of competitive, high-tech, export-oriented products and moving away from the raw materials model of development" [11]. Today, there are specialized state institutions in the country to support non-resource exports: JSC Kazakhstan Center for Industry and Export Qazindustry, JSC KazakhExport and JSC Center for Trade Policy Development QazTrade. According to QazTrade calculations, non-resource exports of Kazakhstani goods by the end of 2022 amounted to \$26.5 billion (+31% compared to the previous year), including high-value products worth approximately \$8 billion [12].

However, the transformation of Kazakhstan's economy in the direction of economic diversification and overcoming the raw materials structure of exports remains a difficult problem to solve, requiring

the search for and implementation of measures to integrate Kazakhstani business into global value chains. Currently, as a country producing and exporting raw materials, Kazakhstan occupies a place at the initial links of global value chains, while higher incomes are received by participants at the final links. In order to move towards the production and export of technologically complex and innovative industrial products, it is necessary to ensure conditions for the formation in the country of the determinants named in M. Porter's theory that form the country's competitive advantages.

Table 2 – Key indicators of the dynamics and structure of Kyrgyzstan's exports for 2014–2023

billion USD or %	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Exports of goods and services (in current US dollars)	2,8	2,35	2,44	2,64	2,41	3,13	2,44	3,31	5,62	5,60
Exports of goods and services (at constant 2015 prices, US dollars)	2,49	2,35	2,26	2,4	2,33	2,71	1,97	2,30	3,66	3,55
Export of goods and services (% of GDP)	37,4	35,2	35,8	34,3	31,6	35,2	31,3	35,81	46,34	36,89
Fuel exports (% of goods exports)	8	5	3	5	8	6	4	4	9	6
Export of ores and metals (% of goods exports)	4	3,2	6,6	12,3	15,4	13,9	10,2	12,6	11,7	10,1
Agricultural raw material exports (% of goods exports)	2	2	2	2	2	2	2	2	2	1
Export of high-tech products (% of industrial exports)	2	12	20	18	8	7	9	16	11	18
High-tech exports, billion USD (in current US dollars)	0,01	0,04	0,07	0,09	0,04	0,03	0,03	0,09	0,14	0,20
ICT goods exports (% of total goods exports)	0,06	0,07	0,37	0,15	0,14	0,18	0,27	3,58	4,67	-
Exports of commercial services (current US\$)	0,89	0,85	0,83	0,82	0,81	1,08	0,43	0,52	1,37	-

Note: Compiled by the authors based on data from the World Bank [13].

According to table 2, Kyrgyzstan's export performance between 2014 and 2023 reveals modest but steady development with significant fluctuations due to external and internal economic factors. Total exports of goods and services remained relatively low compared to regional peers, ranging from 2.3 to 5.6 billion USD. After a decline in 2015–2016, exports showed moderate recovery, particularly in 2022 when they reached 5.62 billion USD, supported by increased demand and commodity prices. In real terms, exports grew slightly, although the overall trend indicates limited structural transformation. The share of exports in GDP varied between 31% and 46%, with the highest level in 2022, reflecting the country's heavy reliance on external trade. The export structure is dominated by ores and metals, accounting for 10–15% of goods exports, while fuel exports remain minimal at 3–9%, showing Kyrgyzstan's limited energy production base. Agricultural raw materials consistently contributed around 2%, maintaining their traditional role. High-technology exports, though small in absolute value, increased from 0.01 to 0.2 billion USD, and the share of high-tech products in industrial exports rose to 18% by 2023, signaling emerging technological capacities. Overall, Kyrgyzstan's export profile remains resource-based but shows early signs of diversification and integration into higher-value sectors.

According to OEC data for 2021, Kyrgyzstan's main export items are gold (\$908 million, 38.3% of total exports), float glass (\$186 million, 7.84%), precious metal ores (\$101 million, 4.84%), dried legumes (\$74.9 million, 3.16%) and refined petroleum (\$68 million, 287%). In 2021, Kyrgyzstan

ranked 142nd in the world in terms of GDP (in current US dollars), 141st in terms of total exports, and 104th in terms of total imports. In the Trade Economic Complexity Index (Trade ECI) ranking for 2021, Kyrgyzstan is ranked 69th out of 131 countries with a score of -0.12 [14].

The structure of Kyrgyzstan's exports of goods is also provided by data from The World Integrated Trade Solution (WITS), according to which in 2020 the share of raw materials in the country's exports amounted to 18.07%, intermediate goods – 62.51%, consumer goods – 14.22% and fixed assets – 4.94% [15]. The EDB study on the Central Asian economy notes that Kyrgyzstan's income from gold supplies in 2012–2021 averaged \$701 million, which corresponds to approximately 40% of the nominal volume of exports and 9% of GDP [1]. The high share of one type of product in the country's exports and a decrease in the economic complexity index characterize the relatively low competitiveness of the Kyrgyz Republic in the world market. According to the export concentration index, Kyrgyzstan ranked 62nd in 2021 with an index value of 0.44 [4].

The World Bank's study «Kyrgyz Republic country economic memorandum» on Kyrgyzstan's exports notes that, like other countries rich in natural resources, the Kyrgyz Republic has integrated into the global economy through the export of raw materials, which account for more than a third of the country's total exports. Exports of gold, precious stones, and glass increased from 6.7% of total exports in 2008 to 52.2% in 2017. Gold, other metals, minerals, and fuels together account for 71.1% of Kyrgyzstan's exports, a very high share for a country with modest natural resource endowments.

The Kyrgyz Republic lags behind other countries in the Europe and Central Asia (ECA) region and other relevant comparator countries in terms of the number of exported products and the number of trading partners. The Kyrgyz Republic, together with Tajikistan, is the least endowed with natural capital in the ECA region and is in the bottom 20% of all countries in the world in terms of natural capital per capita. However, gold, other metals and minerals account for 63% of exports, a share that has not changed since 2000. Together with fuel, these exports account for 72% of the country's total exports – similar to the share of raw materials in the exports of the six most resource-rich countries in Europe and Central Asia [16].

Table 3 – Key indicators of the dynamics and structure of Tajikistan's exports for 2014–2023

billion USD or %	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Exports of goods and services (in current US dollars)	0,836	0,811	0,923	1,13	1,12	1,24	1,41	2,16	1,75	2,10
Exports of goods and services (at constant 2015 prices, US dollars)	0,811	0,811	0,933	0,997	0,945	1,15	1,4	2,17	1,65	1,87
Export of goods and services (% of GDP)	9,2	9,8	13,2	14,9	14,4	15	17,3	24,18	16,35	17,19
Fuel exports (% of goods exports)	-	-	6	5	7	4	8	7	7	8
Export of ores and metals (% of goods exports)	-	-	51,5	62,3	58,8	56,9	47,6	40,4	62,4	52,8
Export of agricultural raw materials (% of export of goods)	-	-	15	14	16	17	20	14	12	16
Export of high-tech products (% of industrial exports)	-	-	34	14	4	5	1	0	2	-
High-tech exports, (in current US dollars)	0	0	0,04	0,02	0,01	0,01	0	0	0	0
ICT goods exports (% of total goods exports)	-	-	0,2	0,32	0,02	0,14	0,08	0,23	-	-
Exports of commercial services (current US\$)	0,31	0,25	0,23	0,25	0,24	0,24	0,14	0,14	0,13	0,24

Note: Compiled by the authors based on data from the World Bank [17].

Tajikistan, like other Central Asian countries, exports raw materials to world markets, relying on its main production factors – natural resources. The country differs from Kazakhstan in the absence of fuel in exports and is similar to the Kyrgyz Republic in the significant share of gold in the structure of commodity exports.

According to table 3, Tajikistan's export performance from 2014 to 2023 demonstrates gradual growth with notable fluctuations reflecting structural dependence on raw materials. Total exports of goods and services increased from 0.84 billion USD in 2014 to 2.1 billion USD in 2023, more than doubling over the decade. In constant 2015 prices, exports followed a similar trend, reaching 1.87 billion USD, indicating real growth rather than just price effects. The share of exports in GDP rose steadily from 9.2% in 2014 to 17.2% in 2023, highlighting increasing external trade orientation. The export structure remains dominated by ores and metals, which accounted for over 50% of total exports throughout the period, peaking at 62% in 2022. Fuel exports play a minor role, ranging from 4% to 8%, while agricultural raw materials have maintained a relatively stable share of 12–20%. High-tech exports are minimal, with only symbolic volumes in several years, showing the underdevelopment of technology-intensive industries. ICT goods exports also remain marginal. However, commercial services exports, though small, have shown modest stability at around 0.2–0.3 billion USD. Overall, Tajikistan's export profile remains heavily resource-based, with limited diversification, but the rising export-to-GDP ratio reflects progress in external sector integration and trade activity.

In the structure of Tajikistan's commodity exports, unlike Kazakhstan and Kyrgyzstan, there is practically no fuel, but the share of exports of ores and metals and agricultural raw materials is much higher. At the same time, as in other Central Asian countries, the basis for the export of these types of goods is again Tajikistan's endowment with natural resources. Data on the share of ores, metals and agricultural raw materials in exports in the World Bank database are presented only from 2016 to 2021. During this period, the share of ores and metals in the country's commodity exports fell from 51.5 to 40.4%, while the share of agricultural raw materials fluctuated between 14 and 20%. Together, both groups of raw materials account for approximately 54 to 76% of total commodity exports.

Over the period 2011–2021, the export of commercial services decreased more than 3 times, which means the country's competitiveness in international trade in services has weakened, while the importance of trade in services in the world is growing. The share of high-tech exports and their volumes in million dollars have also sharply decreased. The share of ICT goods in the total volume of exports is also very low – 0.1–0.3%. All these low indicators of exports of services, high-tech products and ICT goods demonstrate not an improvement, but a weakening of Tajikistan's competitive advantages in world markets.

According to OEC data, in 2021, Tajikistan ranked 141st in the world in terms of GDP (at current prices in US dollars), 145th in terms of total exports, and 138th in terms of imports. The country was ranked 165th in the world in terms of GDP per capita (in current US dollars) and 94th in the Economic Complexity Index (ECI). Over the past 20 years, Tajikistan's economy has become relatively less complex, moving from zero to 94th place in the ECI ranking [18].

The country's competitive advantages are manifested in the production and export of ores and metals. Thus, according to OEC data, in 2021 Tajikistan was the world's largest exporter of antimony (\$152 million). In 2021, Tajikistan's main export items are gold (\$781 million, 37.2% of goods exports), raw aluminum (\$231 million, 11%), raw cotton (\$205 million, 9.73%), antimony (\$152 million, 7.22%) and zinc ore (\$141 million, 6.7%). According to the export concentration index, the country ranks 125th with a score of 0.26, which is much better than the same index of Kyrgyzstan [4].

Positive changes in the development of industry and exports in Tajikistan in recent years are noted in the EDB report on the economy of Central Asia: non-ferrous metals (except aluminum) are exported in the form of ore concentrates, and cotton in the form of cotton fiber and yarn [1].

The least studied, due to insufficient statistical data, is Turkmenistan's position in world markets. The World Bank databases contain only a few indicators of Turkmenistan's dynamics, which make it virtually impossible to analyze the country's competitive advantages in world markets. According to table 4, Turkmenistan's export performance from 2014 to 2023 reflects strong dependence on commodity exports, particularly hydrocarbons, alongside noticeable volatility caused by global energy price fluctuations. Total exports of goods and services fell sharply from 20.36 billion USD in 2014 to 8.01 billion USD in 2016, following the global oil and gas price downturn. A gradual recovery began

in 2017, with exports rising to 12.19 billion USD in 2018 and stabilizing around 10–14 billion USD in the subsequent years. The share of exports in GDP declined from 46.8% in 2014 to 17.9% in 2020 but rebounded to 21.6% by 2023, indicating a partial recovery of external trade. This trend highlights the vulnerability of Turkmenistan's economy to energy market cycles, as gas exports constitute the primary source of foreign exchange earnings. Export growth in 2021–2022 was largely driven by rising global demand for natural gas and diversification of export routes. However, the absence of data on exports at constant prices and limited industrial diversification suggest that structural progress remains modest. Overall, Turkmenistan's exports show cyclical behavior tied to energy prices, with gradual improvement after 2020 but continuing dependence on the hydrocarbon sector for economic stability and growth.

Table 4 – Main indicators of the dynamics of Turkmenistan's exports for 2014–2023

billion USD or %	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Exports of goods and services (in current US dollars)	20,36	12,77	8,01	8,52	12,19	11,19	8,16	10,28	14,67	13,11
Exports of goods and services (at constant 2015 prices, US dollars)	-	12,77	-	-	-	-	-	-	-	-
Export of goods and services (% of GDP)	46,8	35,7	22,2	22,5	29,9	25,3	17,9	20,56	24,88	21,62
Exports of goods (in current US dollars)	17,5	10	6,96	7,46	9,76	10,54	6,54	9,35	-	-

Note: Compiled by the authors based on data from the World Bank [19].

More detailed data on Turkmenistan's exports is available on the OEC website [20]. In 2021, Turkmenistan ranked 108th in total exports, 153rd in total imports, and 86th in the Economic Complexity Index (ECI).

Turkmenistan's main export items include petroleum gas (\$4.88 billion, 67.8%), refined petroleum (\$808 million, 11.2%), nitrogen fertilizers (\$279 million, 3.88%), crude oil (\$211 million, 2.93%), and pure cotton yarn for non-retail trade (\$170 million, 2.36%) [20].

Turkmenistan has one of the highest export concentration indices in the world, amounting to 0.79, according to data cited by UNCTAD in its publication «Challenges, Policy, Options and the Way Forward. Economic Diversification in Selected Asian Landlocked Developing Countries (Bhutan, Kazakhstan, Mongolia and Turkmenistan)». Fuel is the most dominant export commodity in Kazakhstan (71.7%) and Turkmenistan (88.1%). The leading export commodity is natural gas, liquefied or not, which accounts for more than three-quarters (77%) of total exports.

Among the products of the manufacturing industry of Turkmenistan, textile exports are noted: Turkmen silk is of very high quality and is intended for both the domestic and international markets. At present, silk is exported to the Republic of Korea, the Islamic Republic of Iran, Dubai and India. Turkmen bed linen, carpets, silk products, scarves and a number of special fabrics such as velvet, ketene and viscose are known throughout the world for their good quality [20].

Uzbekistan has the second-largest economy among the Central Asian countries. According to table 5, Uzbekistan's export performance between 2014 and 2023 shows steady and broad-based growth supported by economic reforms and diversification efforts. Total exports of goods and services rose from 12.97 billion USD in 2014 to 25.07 billion USD in 2023, almost doubling over the period. In constant 2015 prices, exports also expanded significantly, reaching 22.92 billion USD, confirming real growth rather than inflationary effects. The share of exports in GDP increased from 16% in 2014 to 24.4% in 2023, illustrating the rising importance of foreign trade in Uzbekistan's economy. Fuel exports fluctuated between 4% and 25% of total goods exports, showing the country's gradual shift away from heavy reliance on energy products. Exports of ores and metals remained relatively stable, averaging around 8%, while agricultural raw materials contributed a small but consistent share. High-tech exports, though still low, grew modestly to 0.2 billion USD in 2023, and the share of high-tech products in industrial exports rose to 3%, reflecting early technological development. Meanwhile,

exports of commercial services more than doubled, reaching 5.42 billion USD. Overall, Uzbekistan's export structure demonstrates notable progress toward diversification, industrial modernization, and a stronger integration into global trade networks.

Table 5 – Key indicators of the dynamics and structure of Uzbekistan's exports for 2014–2023

billion USD or %	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Exports of goods and services (in current US dollars)	12,97	11,87	10,62	12,88	14,19	17,06	14,56	16,48	20,96	25,07
Exports of goods and services (at constant 2015 prices, US dollars)	11,62	11,87	12,38	14,21	15,66	18,23	14,56	16,42	19,54	22,92
Export of goods and services (% of GDP)	16,0	13,8	12,3	20,7	26,8	28,3	24,2	21,31	23,27	24,42
Exports of goods billion dollars (in current US dollars)	11,50	9,44	8,97	10,08	10,92	14,02	13,10	14,08		
Fuel exports (% of goods exports)	-	-	-	16	25	17	6	7	7	4
Export of ores and metals (% of goods exports)	-	-	-	8,2	7,6	8,4	8,3	14,0	11,3	8,4
Agricultural raw material exports (% of goods exports)	-	-	-	6	3	3	3	3	2	1
Export of high-tech products (% of industrial exports)	-	-	-	2	0	1	1	0	1	3
High-tech exports (in current US dollars)	0	0	0	0,04	0,01	0,02	0,04	0,02	0,08	0,20
ICT goods exports (% of total goods exports)	-	-	-	0,1	0,1	0,1	0,2	0,2	-	-
Exports of commercial services (current US\$)	2,34	2,34	1,89	2,23	2,73	3,11	1,70	2,29	4,31	5,42

Note: Compiled by the authors based on data from the World Bank [22].

The World Bank's study, «Toward a Prosperous and Inclusive Future: The Second Systematic Country Diagnostic for Uzbekistan» notes that Uzbekistan has demonstrated the greatest export diversity in the Central Asian subregion, a result of concerted industrial policies over the past two decades. Between 2003 and 2018, Uzbekistan exported 31 new products (mostly textiles, chemicals, metallurgy, and horticulture). Although Uzbekistan's exports have become more diverse, most of the new exports have minimal added value, as measured by product complexity.

This World Bank study also points out that Uzbekistan is rich in natural resources and is heavily dependent on them. The country ranks among the top 30 countries in energy and mineral reserves, including natural gas, gold, copper, uranium, and coal. Almost three-quarters of exports in 2019 were directly from natural resources: 46% from minerals (mostly gold); 18% from natural gas; and 9% from agricultural raw materials. The rest of the exports are mainly raw materials (e.g. food production) and energy-intensive industries [22].

According to OEC, in 2021, Uzbekistan ranked 71st in the world in terms of GDP (in current US dollars), 81st in total exports, and 78th in total imports. In terms of GDP per capita (in current US dollars), the country was in 143rd place in the world and in 79th place in the Economic Complexity Index (ECI) [23].

Uzbekistan's main export items are gold (\$4.53 billion, 30.8%), pure cotton yarn for non-retail trade (\$1.61 billion, 11%), refined copper (\$741 million, 5.05%), petroleum gas (\$722 million, 4.92%), and radioactive chemicals (\$407 million, 2.77%). In 2021, Uzbekistan was the world's largest exporter of silk waste (\$36.1 million). Also named as the top export commodity for 2021 is gold, worth \$4.53 billion [22].

According to the export concentration index, Uzbekistan is in 100th place with a score of 0.33 (next to countries with similar scores such as Bahrain, Bolivia, Sudan, Indonesia) [2].

Thus, an analysis of Uzbekistan's export data shows that the country's competitive advantages are determined by trade in minerals, mainly gold exports, like Kyrgyzstan and Tajikistan, natural gas and agricultural raw materials.

The comparative analysis of export statistics across the Central Asian countries from 2014 to 2023 reveals significant structural differences and varying levels of competitiveness. Kazakhstan leads the region in both total export volume and diversification, reaching about 90 billion USD in 2023 (figure 1), with a gradual shift from raw materials to services and technology-intensive goods.

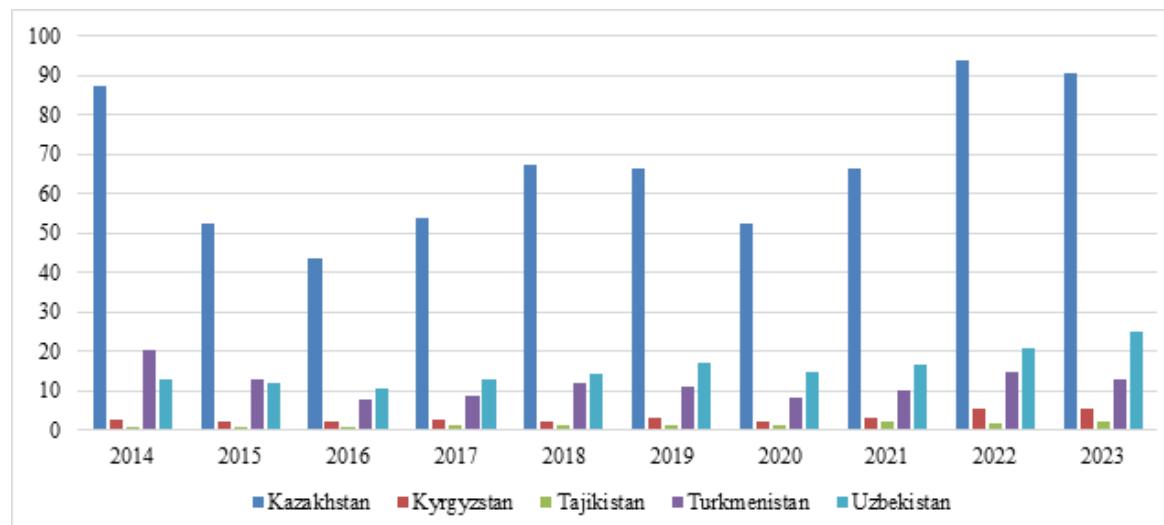


Figure 1 – Exports of goods and services (in current billion US dollars) of Central Asian countries, 2014–2023

Note: Compiled by the authors based on data from the World Bank [5, 13, 19, 22].

However, its export structure remains dominated by fuel (59%) and metals, demonstrating persistent dependence on resource sectors. Uzbekistan shows dynamic export growth from 13 to 25 billion USD – supported by industrial reforms and diversification policies; it achieved the highest export-to-GDP ratio (24.4%) and exhibits growing service and high-tech segments. Kyrgyzstan and Tajikistan, by contrast, remain heavily reliant on primary commodities – particularly gold, ores, and metals – with exports below 6 billion USD and limited technological advancement. Tajikistan's exports doubled over the decade but continue to depend on raw materials, while Kyrgyzstan shows early but fragile diversification. Turkmenistan's exports fluctuate with global gas prices, confirming high vulnerability to external shocks. Overall, the comparative evaluation highlights Kazakhstan and Uzbekistan as regional leaders in export modernization, while Kyrgyzstan, Tajikistan, and Turkmenistan lag due to low economic complexity and limited industrial diversification. Sustainable competitiveness in Central Asia requires coordinated policies promoting innovation, manufacturing, and regional integration to reduce dependence on raw materials.

Over the past three decades, the Central Asian countries have taken their place in world markets as participants in international trade and cross-border movement of capital and labor. The specifics of their participation in world markets were dictated by many prerequisites and conditions:

- ◆ the degree of openness of national economies and foreign trade barriers;
- ◆ geographical location and underdevelopment of transport and logistics infrastructure;
- ◆ availability of natural and labor resources;
- ◆ competitiveness of export products in world markets;
- ◆ investment climate and ability to attract foreign investment.

Currently, each of the five Central Asian countries occupies its own place in the world markets with different dynamics, commodity and country structures of foreign trade. The common feature of their participation in the world markets is the export of raw materials based on the extraction of

mineral raw materials. As many researchers of the Central Asian economies point out, the determining factors affecting the competitiveness of Central Asian countries in international trade are the lack of access to the sea and the underdevelopment of transport and logistics infrastructure. They reduce competitiveness in international trade in goods due to significant transport costs.

At the same time, from the standpoint of the geographical location of the region in the center of the Eurasian continent, the transit potential of the Central Asian countries is highly valued, predetermined by the possibilities of developing land routes with subsequent access to the sea ports of neighboring countries in the region. Realization of this potential through the development of transport and logistics infrastructure in the territory of Central Asian countries and beyond will contribute to the growth of trade flows within the Central Asian region and beyond. Today, the leading role in this direction for the Central Asian countries is played by the implementation of the PRC project "Silk Road Economic Belt", agreements on trade and economic cooperation between the governments of the Central Asian countries, leading to the development of existing and the creation of new trade and logistics infrastructure in border areas [1].

With the development of transport and logistics infrastructure and the reduction of costs of transporting goods, the diversification of the economy and exports of Central Asian countries is becoming increasingly relevant and urgent. Achieving these goals is inextricably linked with the rise and development of the manufacturing industry of Central Asian countries. The competitiveness of countries in world markets is manifested in their ability to produce and export industrial products with a high degree of processing and quality.

Analysis of a country's position in the competitive struggle for world markets involves studying the indicators of its participation in international trade. The world market is the market for international trade in goods and services, the totality of foreign trade of all countries in the world. In the world market, as in any market, supply and demand of countries trading with each other interact. The competitiveness of a product (service) in world markets is determined by the consumer and price parameters of the goods exported by countries. Along with the price factor, in today's competitive struggle in global markets, innovation and high quality of industrial goods are of primary importance. The driving forces of trade between countries are mutual benefits obtained as a result of specialization in the production of certain types of goods due to advantages in the costs of their production and transportation, on the one hand, and the differentiation of preferences (tastes) of consumers of trading countries, on the other. In the context of liberalization of international trade, businesses seek to take advantage of differences in supply and demand for goods and services between countries. At the same time, there are also political reasons that hinder or promote the active participation of business in international trade. The most common of these are various types of sanctions, international government treaties and the entry of countries into integration unions of states. Together, economic and political factors predetermine the ability of any country to effectively participate in the competitive struggle in world markets.

The assessment of a country's competitiveness in the world market is determined, first of all, by its export indicators. In this case, not only the volumes and growth dynamics of exports are important, but mainly the commodity structure of the country's exports. A diversified export structure reduces the risks of sharp price fluctuations on the world market and provides stability to export income. Of no less importance is the direct dependence of the level of income from export on the degree of processing of exported products.

According to M. Porter's theory, the competitive advantages of a country («national diamond») are formed by four determinants: factor conditions, conditions of domestic demand, the state of related and supporting industries, the strategy of firms and the level of competition in the domestic market. In the economies of the Central Asian countries, the leading role is played by the first determinant – factor conditions, and among these conditions, the main factors – natural resources – are in first place (in contrast to other types of production factors – developed, general and specific). Accordingly, the competitive advantages of Central Asian countries in the global market are determined by natural resources, which is reflected in the predominance of raw materials in their exports. In industrially developed countries, the possession of developed and specific factors that allow the production and export of complex, innovative and high-quality products to world markets is of primary importance in production and export.

One of the significant sources of information in assessing a country's competitiveness in international trade is data from the Observatory of Economic Complexity (OEC), whose website presents interactive visualizations of international trade statistics. The idea of economic complexity and the method for calculating the index were developed by Harvard and MIT scientists Hausman and Hidalgo. Economic complexity of a country is understood as its ability to produce more diverse and complex products. The Economic Complexity Index (ECI) of a country's economy is determined based on three indicators: trade complexity (ECI trade), patent data (ECI technology) and scientific publication data (ECI research) [2].

The trade sophistication index demonstrates a country's ability to produce and export complex products that require a high level of knowledge and skills. And the wider the range of exported goods, the higher the level of sophistication of the country's economy. In other words, economic complexity manifests itself in export competitiveness: "export... is a pure manifestation of competitiveness and competitive advantage" [3]. And what is very important is that the authors of the theory of economic complexity have identified a stable correlation between the level of GDP per capita and the index of economic complexity. Industrialized countries with high levels of GDP per capita produce and export complex, highly processed products based on advanced and knowledge-intensive technology. Goods that create high added value tend to sell at higher prices on world markets. Countries that produce more complex goods have higher rates of economic growth. Following the theory of economic complexity and the significance of the Trade ECI indicator, the competitiveness of each Central Asian country in the world markets can be assessed based on an analysis of the volume and structure of their foreign trade and, above all, export indicators.

The competitiveness of a country's exports is also reflected by a well-known indicator – the export concentration index (based on the Herfindahl-Hirschman index), which assesses a country's dependence on a limited group of goods as the main source of income in foreign currency.

A comparison of the contribution of natural resources to GDP around the world, ranging from 0 (perfect diversification) to 1 (concentration on one product), shows that countries rich in natural resources tend to have a less diversified export base [4]. For Central Asian countries, whose exports are dominated by raw materials, the concentration index indicator is of great importance in assessing the competitiveness of exports.

## Conclusion

Central Asian countries continue to occupy a place on world markets as suppliers of the main groups of raw materials – fuel, ores and metals, and agricultural raw materials. The competitive advantages of the Central Asian countries are still very weak in the world export of manufactured goods. The availability of natural resources in all five Central Asian countries, as well as in four of them, except Kazakhstan, with labor resources, today serves only as a general basis for the transition to a diversified structure of the economy and exports.

All Central Asian countries have significant potential for diversifying their economies through the production and export of products with higher added value in those sectors of the economy for which there is a good raw material base. These sectors include agriculture and manufacturing, which have the potential for export expansion and diversification in each country. In all recommendations developed by international economic organizations (World Bank, UNCTAD, etc.), it is indicated that in order to realize this potential, a number of improvements in micro- and macroeconomic policies and institutions are needed: expansion of the scope of market mechanisms, reduction of the regulatory role of the state, stimulation of the involvement of business companies in global value chains, improvement of financing mechanisms, etc.

At the same time, the comparative analysis shows that Kazakhstan and Uzbekistan have achieved the most tangible progress in export diversification and industrial development, supported by state policies promoting non-resource exports, manufacturing, and technological innovation. Kyrgyzstan and Tajikistan remain heavily dependent on gold, ores, and agricultural raw materials, while Turkmenistan's economy continues to rely predominantly on hydrocarbons, making it vulnerable to fluctuations in global energy prices. These structural imbalances reduce the region's overall competitiveness and resilience to external shocks.

In the long term, strengthening regional cooperation, developing transport and logistics corridors, investing in digital and technological infrastructure, and supporting human capital formation will be crucial for increasing competitiveness. Coordinated regional strategies and harmonized trade policies could help Central Asian economies shift from a raw material-based model to sustainable, innovation-driven growth. Only through deep integration, diversification, and technological modernization can the region enhance its position in the global economy and ensure long-term competitive resilience.

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## ОРТАЛЫҚ АЗИЯ ЕЛДЕРІ ЭКОНОМИКАЛАРЫНЫң ЖАҢАНДЫҚ БӘСЕКЕГЕ ҚАБІЛЕТТІЛІГІН САЛЫСТЫРМАЛЫ ТАЛДАУ

### Аннотация

Бұл зерттеу Орталық Азиядағы экономикалық бәсекеге қабілеттіліктің дөтөрнаннан жан-жақты талдауға арналған, онда аймақтық ынтымақтастықтың рөлі мен ықтимал интеграциялық бірлестік құру мәселелеріне баса назар аударылады. Өнірде тұрақты бәсекелік артықшылықтарды қалыптастыру әдістемесін өзірлеу мен жетілдіру теориялық тұрғыдан да, колданбалы тұрғыдан да маңызды ғылыми бағыт ретінде қарастырылады. Зерттеудің негізгі мақсаты – Орталық Азия мемлекеттері арасындағы кооперациялық байланыстарды нығайтудың жасырын резервтерін айқындау және олардың терең экономикалық интеграцияға ұмтылыс мүмкіндіктерін бағалау. Өнірлік экономикалық өзара іс-қимылдың балама сценарийлерін өзірлеу арқылы зерттеу Қазақстанға емес, көрші елдер үшін де бәсекеге қабілеттілікті арттыру жолдарын анықтайды. Арнайы көңіл қазіргі жаңандық сын-қатерлер жағдайында Қазақстанның тұрақты бәсекелік артықшылықтарын айқындауға болінеді, бұл ретте әлемдік экономиканың өзгермелі үрдістерінің аймақтық ынтымақтастыққа және халықаралық еңбек болінісіне ықпалына баса назар аударылады. Зерттеудің күтілетін үлесі – сауда-экономикалық байланыстарды нығайтудың, көлік-логистикалық желілерді кеңейтудің және әртараптандырудың, сондай-ақ жаңандық белгісіздік жағдайында ұлттық экономикалық мүдделерді қорғаудың берік теориялық негізін қалыптастыру. Мұндай нәтижелер өнірлік экономикалық жүйелердің ынтымақтастығы мен интеграциясын тереңдешту арқылы аймақтың тұрақтылығын арттыруға мүмкіндік береді. Ғылыми тұрғыдан алғанда, зерттеу жинақталған білімді жүйелуе, теория мен практиканың кемшіліктерін айқындау және тұрақты бәсекелік артықшылықтарды қалыптастырудың әдіснамалық негізін ұсыну арқылы ғылыми қорды байытады. Қолданбалы тұрғыдан алғанда, ол өнірлік ынтымақтастықты дамытуға, ұзақ мерзімді бәсекеге қабілеттілікті қамтамасыз етуге және Орталық Азия экономикаларының стратегиялық дамуын қолдауға бағытталған нақты ұсынымдар өзірлейді.

**Тірек сөздер:** бәсекелестік артықшылықтар, тұрақты экономикалық даму, аймақтық ынтымақтастық, аймақтандыру, интеграция, бәсекеге қабілеттілік, стратегиялық серікtestіk.

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## СРАВНИТЕЛЬНЫЙ АНАЛИЗ ГЛОБАЛЬНОЙ КОНКУРЕНТОСПОСОБНОСТИ ЭКОНОМИК ЦЕНТРАЛЬНОЙ АЗИИ

### Аннотация

Данное исследование представляет собой всесторонний анализ детерминант экономической конкурентоспособности в Центральной Азии с акцентом на роль регионального сотрудничества и потенциальное формирование интеграционного объединения. Разработка и совершенствование методологии формирования устойчивых конкурентных преимуществ в регионе рассматриваются как перспективное научное направление, обладающее как теоретической значимостью, так и практической актуальностью. Цель исследования заключается в выявлении скрытых резервов для укрепления кооперационных связей между государствами Центральной Азии и оценке перспектив их более глубокой экономической интеграции. Путем разработки альтернативных сценариев регионального экономического взаимодействия в работе определяются пути повышения конкурентоспособности не только Казахстана, но и соседних стран. Особое внимание уделяется выявлению устойчивых конкурентных преимуществ Казахстана в условиях новых глобальных вызовов с акцентом на последствия изменения в мировой экономике для регионального сотрудничества и международного разделения труда. Ожидаемый вклад исследования заключается в обосновании необходимости укрепления торгово-экономических связей, расширения и диверсификации транспортно-логистических сетей, а также защиты национальных экономических интересов в условиях глобальной нестабильности. Эти результаты будут способствовать повышению устойчивости региона за счет углубления сотрудничества и интеграции экономических систем. С академической точки зрения исследование обогащает существующую научную базу, систематизируя накопленные знания, выявляя пробелы в теории и практике, а также предлагая методологическую основу для формирования устойчивых конкурентных преимуществ. С прикладной позиции оно формирует конкретные рекомендации, направленные на развитие регионального сотрудничества, обеспечение долгосрочной конкурентоспособности и поддержку стратегического развития экономик Центральной Азии.

**Ключевые слова:** конкурентные преимущества, устойчивое экономическое развитие, региональная кооперація, регионализация, интеграция, конкурентоспособность, стратегическое партнерство.

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