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THE CENTRAL ASIAN TIGER: EXPORT SPECIALIZATION IN UZBEKISTAN: OPPORTUNITIES FOR ECONOMIC DIVERSIFICATION AND DEVELOPMENT

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Abstract:
As expansion along the Silk Road is flourishing this research examines export specialization in Uzbekistan through a time series analysis of RCA and RSCA with a discussion on how export diversification has led to economic development since 2017. International trade in Uzbekistan and the region of Central Asia is first explored through history before the most recent data is examined. Specialized sectors (silk, cotton, edible fruits and vegetables, copper, etc.) are explored through the analysis, policy initiatives, and extant literature within a comprehensive discussion. Finally, policy recommendations are provided. This research is the first to explore export specialization in Uzbekistan through RCA and RSCA. It highlights the efforts of the current Uzbek administration to diversify and develop its economy by harnessing the power of international trade. Other Central Asian and developing economies could learn from this case.

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INTRODUCTION

Internationalization and investment through China's 'One Road, One Belt' initiative have driven change along the Silk Road. Additionally, America's withdrawal from Afghanistan and COVID-19 have added tumult within the region of Central Asia. Furthermore, Russia's war in Ukraine has further troubled the region as most Central Asian economies rely on Russian imports (Mottaleb *et al.*, 2022). This dynamism demands attention from researchers to better understand the implications of all the variations. Uzbekistan sits along the Silk Road. It is in the midst of domestic policy changes and infrastructure investments to expand economic diversification and development (Jololova *et al.*, 2022). After the death of its famed post-Soviet leader Karimov, the country has made great strides toward economic diversification, harnessing the power of trade for economic development, albeit, this remains an untold story. East Asian nations harnessed trade for economic development in the 20th century; it seems Uzbekistan is following those policies by investing in higher-order production of its exports (Review UZ 2021).

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The impacts should include economic diversification and higher standards of living for all citizens; however, it is necessary for researchers to confirm the state of trade and economic development in Uzbekistan along this path to development and broad integration into the global economy.

This research explores the trade situation in Uzbekistan since the death of Karimov. Firstly, an exploration of extant literature and policy was conducted through a literature review. Then a quantitative study including time series data from 2017 to 2020 was conducted using the most commonly employed methods for reviewing comparative trade advantages, RCA and RSCA. The findings indicate dramatic economic changes that could be a model for other Central Asian economies expected to develop in the 21st century. In 2017, the modernization and freeing up of financial exchanges made it possible for international trade to succeed. The government of Uzbekistan has carefully implemented policy initiatives to strategically diversify and encourage exports. By investing in small local businesses and farmers the government has helped to bolster the competitiveness of Uzbek exports. Additionally, the government has focused on higher-order production in order to strengthen the standard of living for the average citizen. These initiatives serve as a model for what should be done to make a nation competitive amid the challenges of the 21st century.

Although much has been done to improve Uzbekistan's trade competitiveness, more can be done. Investment in marketing efforts and the standardization of regulations are just a few examples. Additional points are further described in the policy recommendations section of this article. Following this introduction is a literature review that delves into the literary rationale for the quantitative analysis utilizing RCA and RSCA in the theoretical underpinnings. An exploration of the history and the current trade scenario is considered afterward. The utilization and calculation of comparative advantage are explained in the methodology. The analysis provides the results while the discussion explicates and provides reasoning for the findings. Finally, the conclusion summarizes the contributions and suggests potential opportunities for future studies.

LITERATURE REVIEW

Theoretical underpinnings

Research regarding international trade should continuously evaluate the comparative advantages of a country's exports in order to fully comprehend its trade scenario and formulate appropriate policy for continued economic growth and development. Furthermore, analyzing exports through revealed comparative advantage is an appropriate means of following a nation's economic progress, aimed to develop better trade policy (Costinot *et al.*, 2015). Analysis of revealed comparative advantage has been utilized to compare industries in a single country and to compare a single industry in multiple countries (Startiene and Remeikiene, 2013; Rossato *et al.*, 2018). Theories concerning international trade, more specifically, export specialization, include prominent economic literature: Smith (1776), Ricardo (1817), and Heckscher-Ohlin (1925). Smith (1776) initially described export specialization through absolute advantage theory; Smith (1776) suggested that a country would develop export specialization because it was the source of the very best products in the industry. For example, France would export wine because France produced the very best wine. This theory was well-accepted until one notes that products were not actually traded as outlined by absolute advantage theory; Smith's theory of absolute advantage did not explain how countries could specialize in exporting products that were not of the very best quality. Ricardo (1817) developed the theory of comparative advantage, indicating that costs play

more of a role in export specialization (Costinot *et al.*, 2012). Throughout the 19th century, comparative advantage theory remained a mainstay for comprehending export specialization. Heckscher-Ohlin (1925) sophisticated comparative advantage theory through factor endowment theory. Accordingly, specific factors of production (land, labor, and capital) were determined to impact export specialization (Heckscher-Ohlin 1925). Porter (1980) extended the comparative advantage theory by further explaining that the cause of trade specialization is industry-based factors in addition to factors of production. According to Porter (1980), a range of factors will lead to explaining why a country may specialize in exporting any product; furthermore, those factors could include Heckscher-Ohlin's factors or industry-specific factors that have helped to create a competitive advantage for the country's exports. It is important to note that comparative advantage is different from competitive advantage. Comparative trade advantages refer to a country's specialization in exporting a product type (Balassa 1965).

Comparative advantage can be quantitatively measured; moreover, several methods for analyzing export specialization have arisen (Laursen, 2015). Relative comparative advantage (RCA) and symmetrical relative comparative advantage (RSCA) are both frequently used measures of comparative advantage (Laursen, 2015; Pitoňáková, 2020; Stephens and Kasamanli, 2020). Based on these quantitative methods for comparative advantage, it is possible to visualize a country's trade specialization at given periods of time in various industries. This method empowers a researcher to specify a country's trade specialization and make policy recommendations for improving economic growth and development (Balassa, 1965; Laursen, 2015). Ultimately trade policy can be catered to the developmental plan of a country (Costinot *et al*., 2015).

Trade in Uzbekistan

History of the Great Silk Road

Central Asia was the blood vessel of trade in the old world where Samarkand, Bukhara, Khiva, Kokand, and other Central Asian cities – most of which still exist and flourish today – were the historical intersection of the Silk Road (UNTAD, 2014). The Silk Road may have first connected trade between the Far East and Europe during the Han Dynasty (ruled China from 206 B.C. to 220 A.D) when the Han emperor Wu sent an imperial envoy Zhang Qian to make contact with cultures in Central Asia in 138 B.C. (Taseer, 2020).

The Greek word for China is "Seres" translated literally, it means, "land of silk". Although the Silk Road is quite famous for carrying silk between Asia and Europe, it was also an important conduit for sharing culture, language, arts, crafts, and religion among other commodities. Indeed, trade routes frequently become centers of both trade and cultural exchange as is even witnessed today amid the proliferation of globalization. Trade between the East and the West was abundant during the Roman Empire and intensified through the first millennium. Although some trade was rerouted by sea around the Horn of Africa, much trade continued even through the 19th century. Islamic empires continued to share culture and commodities between Asia and Europe even after Western powers proved sea routes could connect the East with the West. Uzbekistan's history lies amid this significant historical context.

Soviet Era (1924-1991)

The Soviet era was a distinct period for Central Asia and those areas along the Silk Road. Soviet policy primarily emphasized the expropriation of raw materials and unprocessed agricultural goods from within Uzbekistan (Axmedov, 2014). Such commodities included cotton and to a lesser extent oil and gas (Gaibnazarova *et al.*, 2020). Such exploits were particularly profitable because of cheap labor or frequently free forced labor (Scarborough, 2021). The Soviet era was also marked by development and economic change within the region including the proliferation of state schools and healthcare. Additionally, regarding religion, the governance was secularized and assimilated into a Soviet-style of governance that is still evident even today. While the Soviet satellite economies of Central and Eastern Europe made great strides toward economic development through much of the 20*th* century, the economies of Central Asia remained much less developed (Scarborough, 2021). This could be due to misunderstood culture and mismanaged social relationships between central Soviet leaders and Central Asian leadership (Newton, 1976).

Better consideration of local customs and local leadership might well have witnessed better economic development within Central Asia. Nevertheless, development materialized before and amid Soviet occupation. Before the Soviet era, much of Central Asia could be characterized as feudalistic (Taseer, 2020). During the Soviet era, from the 1920s onward, industrialization did proliferate, especially in urban areas. Soviet schools, agriculture, factories, and other institutions were established throughout Central Asia changing both the landscape and society of Central Asia. Unfortunately, Soviet-era development mostly led to stagnant economic development within Central Asia that more enriched leadership while leaving common people with low standards of living. Commodities were exported to the entire Soviet Union; yet, industrial development remained weak. Commodities were meant to be harvested within Central Asia, not developed or processed; moreover, economic development of higher-order factories or manufacturing was not encouraged; thus, the region remained commodity-centered with agriculture dominating exports.

Late Soviet policy changes (Perestroika, or restructuring introduced by Gorbachev in the 1980s) toward a mixed economy were particularly devastating for Uzbekistan and greater Central Asia; moreover, economic restructuring led to massive losses in employment and economic changes that later paved the way for the downfall of the entire Soviet Union.

Post-Soviet Era (1991-2016)

The breakup of the former Soviet Union in 1991 dramatically transformed the political and economic landscape of the modern Silk Road. The post-Soviet era was marked by both the transition from a planned economy to a market economy and the leadership of Islam Karimov, a much loved, albeit authoritarian leader of Uzbekistan. Karimov's carefully balanced Russian ambitions in Central Asia and U.S. interests by maintaining a comfortable distance from both powers.

Although privatization did proliferate in Uzbekistan and Central Asia, it was unfortunately marred by corruption. Early privatization efforts saw 54,000 firms change by the end of 1994: 34% were private firms, 48% were join-stock, 16% into collective firms, and 1% into rental firms (Yuldashev *et al.*, 2016). As a result, 97% of agricultural products and 44% of industrial products were produced in the private sector by 1995; moreover, 82% of traded goods were from the private sector (Yuldashev *et al.*, 2016). The government reduced imports through foreign exchange controls and launched an import substitution program in 1996 (Rosenberg and Zeeuw, 2000).

Policies devised to stimulate exports between 1991 and 2015 lead to a significant change in exports. The share of primary exports such as cotton fiber, decreased from 59.7% to 7.7%; fuel exports took over, and their share in exports increased from 17.1% to 25.5% (Nodirkhanov, 2020).

Liberalization and economic diversification (2016-present)

Major economic liberalization transpired following the death of Karimov paving the way for a wider economic growth and an improved standard of living for the people of Uzbekistan primarily through economic diversification and careful government lead policies. The government announced wide-scale economic reforms, including those in the area of foreign trade (Normatov, 2018). As South Korea and Japan drove the economic growth and development in the 20th century by harnessing international trade, it seems that Uzbekistan also followed and implemented similar policy changes (Review UZ, 2021). Under Karimov, currency exchange was greatly regulated, limiting trade and international business, so that there were three exchange rates: the black market, the stock exchange rate, and the central bank's rate. Average citizens and smaller companies were greatly restricted from foreign exchange transactions. In 2017 that changed abruptly through the liberalization of currency exchange (Act Number UP-5276 2017). This allowed increased interaction with foreign partners (Nodirkhanov, 2020).

Uzbek governance has had a role in most economic initiatives within the country since the Soviet era; lately, that governance has been more considerate of the standard of living for common citizens through social projects. Additionally, Uzbekistan has carefully focused on the expansion of exports as a means of economic development; indeed, the expansion and diversification of exports is a priority area for policy (Khodiev and Shodmonov, 2017). As a result of policy changes, Uzbekistan is the most diversified economy within Central Asia (Abdullaev, 2019).

Top Exports* & *Imports

The latest import and export data from Uzbekistan was gathered and published by trademaps.org. Two tables were created to illustrate the top exports and imports of Uzbekistan utilizing the Standard International Trade Classification System: Table 1: Top Exports and Table 2: Top Imports. Raw numbers and percentages of total exports/imports are provided from 2017 – 2020. Top export sectors include in descending order of significance: precious stones, cotton, copper, and products made of copper, fuels such as gas and oil, edible fruits, unspecified exports, apparel, edible vegetables, plastics, and milling products. Top exports sometimes correspond to trade specialization; however, within the results section of this literature, one can see that not all top exports correspond to trade specialization. In descending order, top imports include machinery, vehicles, iron, and products made of iron, electronics, pharmaceuticals, fuel, plastics, optical products, cereals, and wood. Notably, a few sectors make both lists: plastics and fuels. That is likely a result of intensive modifications of a product in that sector and then export of that changed product. For example, crude oil could be exported to Kazakhstan refined into gasoline then sent back to Uzbekistan. Based on the percentages and raw numbers, there is a lot of change within the export sectors. However, there is not as much change among the import sectors. This likely indicates strategic policy changes for exports.

Table 1. Top Export Categories

		2017		2018		2019		2020	
Exports		**Exports**	**Percent**	**Exports**	**Percent**	**Exports**	**Percent**	**Exports**	**Percent**
'All	Total	10,079,210	100%	10,920,700	100%	14,344,696	100%	13,127,295	100%
'71	Pr. stones	22,310	0%	21,401	0%	47,145	0%	5,950,196	45%
'52	Cotton	1,176,078	12%	1,029,933	9%	1,293,369	9%	1,200,138	9%
'74	Copper	535,649	5%	622,597	6%	707,942	5%	729,061	6%
'27	Fuels	1,607,636	16%	2,666,756	24%	2,524,918	18%	642,287	5%
'08	Edible fruit	417,236	4%	543,935	5%	643,679	4%	577,825	4%
'99	Not spec.	3,645,206	36%	3,237,880	30%	5,404,450	38%	544,624	4%
'61	Apparel	251,363	2%	269,764	2%	323,401	2%	459,262	3%
'07	Edible Veg.	217,701	2%	307,714	3%	468,064	3%	400,431	3%
'39	Plastics	444,955	4%	454,842	4%	403,013	3%	324,422	2%
'11	Milling ind.	46,394	0%	70,111	1%	104,891	1%	219,476	2%

Note: *All values are in 1,000s of U.S. Dollars.*

Table 2. Top Import Categories

Import		2017		2018		2019		2020	
Categories		**Imports**	**Percent**	**Imports**	**Percent**	**Imports**	**Percent**	**Imports**	**Percent**
'All	Total	12,035,209	100%	17,312,259	100%	21,855,139	100%	19,955,151	100%
'84	Machinery	2,681,095	22%	4,477,873	26%	5,611,790	26%	4,756,685	24%
'87	Vehicles	1,145,198	10%	2,032,755	12%	2,136,459	10%	1,838,323	9%
'72	Iron	878,031	7%	1,287,524	7%	1,428,432	7%	1,238,456	6%
'85	Electronic	579,475	5%	895,151	5%	1,335,519	6%	1,196,202	6%
'30	Pharm.	811,459	7%	852,112	5%	926,824	4%	1,152,949	6%
'27	Fuel	742,065	6%	879,508	5%	928,080	4%	1,093,771	5%
'39	Plastic	449,753	4%	573,903	3%	811,724	4%	705,103	4%
'90	Optical	286,659	2%	292,441	2%	583,825	3%	634,510	3%
'10	Cereals	191,691	2%	305,595	2%	411,323	2%	592,386	3%
'44	Wood	466,794	4%	621,118	4%	611,903	3%	566,792	3%

Note: *All values are in 1,000s of U.S. Dollars.*

Top Trade Nations

The top nations receiving Uzbek exports can be reviewed in Table 3: Top Nations Receiving Uzbek Exports. Export numbers and percentages of total exports from Uzbekistan can be reviewed by year from 2017 – 2020. Similar data can be reviewed in Table 4 regarding top nations sending products to Uzbekistan. Much of Uzbek's exports remain mostly unspecified 49% with regard to where they are received. Additionally, the remainder of exports are received from countries nearby and within the geopolitical orbit of Central Asia and former Soviet republics in descending order: China, Russia, Turkey, Kazakhstan, Kyrgyzstan, Afghanistan, Tajikistan, Iran, Ukraine, and Pakistan. Origins of imports tend to be slightly more diverse and from a broader area of the world: China, Russia, Kazakhstan, South Korea, Turkey, Germany, Lithuania, Czech Republic, India, and Turkmenistan – all in descending order.

Table 3. Top Nations Receiving Uzbek Exports

Top Importer	2017		2018		2019		2020	
	Exports	Percent	Exports	Percent	Exports	Percent	Exports	Percent
World	10,079,210	100%	10,920,700	100%	14,344,696	100%	13,127,295	100%
Area Nes.	3,645,206	36%	3,237,880	30%	5,629,420	39%	6,465,204	49%
China	1,313,428	13%	2,120,927	19%	1,767,642	12%	1,282,105	10%
Russia	1,453,672	14%	1,636,681	15%	2,067,207	14%	1,161,766	9%
Turkey	833,514	8%	865,828	8%	1,149,658	8%	949,066	7%
Kazakhstan	977,256	10%	1,219,611	11%	1,237,315	9%	732,315	6%
Kyrgyzstan	167,796	2%	251,150	2%	635,158	4%	712,544	5%
Afghanistan	507,912	5%	467,087	4%	454,350	3%	570,571	4%
Tajikistan	75,348	1%	136,940	1%	190,305	1%	284,257	2%
Iran	258,296	3%	164,373	2%	208,515	1%	135,877	1%
Ukraine	99,748	1%	92,674	1%	108,799	1%	119,322	1%
Pakistan	7,452	0%	29,337	0%	93,753	1%	97,380	1%

***Note**: Area Nes = Area not specified; All values are in 1,000s of U.S. Dollars.*

Table 4. Top Nations of Origin for Uzbek Imports

Top Exporter	2017		2018		2019		2020	
	Imports	Percent	Imports	Percent	Imports	Percent	Imports	Percent
World	12,035,209	100%	17,312,259	100%	21,855,139	100%	19,955,151	100%
China	2,700,379	22%	3,539,417	20%	5,052,269	23%	4,425,626	22%
Russia	2,563,885	21%	3,382,752	20%	3,974,225	18%	4,079,758	20%
Kazakhstan	975,267	8%	1,509,389	9%	1,878,388	9%	2,091,366	10%
Korea, South	1,156,709	10%	1,936,163	11%	2,524,435	12%	1,934,612	10%
Turkey	594,443	5%	1,096,622	6%	1,296,689	6%	1,072,526	5%
Germany	574,056	5%	699,749	4%	884,310	4%	691,915	3%
Lithuania	257,749	2%	276,609	2%	441,907	2%	471,193	2%
Czech Rep.	78,926	1%	63,595	0%	147,432	1%	456,151	2%
India	282,034	2%	252,030	1%	319,162	1%	420,144	2%
Turkmenistan	105,423	1%	237,798	1%	388,801	2%	395,080	2%

METHODOLOGY

Revealed comparative advantage

Revealed comparative advantage (RCA) is a measure of the comparative trade advantage of exports for any given country (French, 2017); it was first proposed by Balassa (1965). The calculation of RCA, also known as the Balassa Index, is described in Figure 1: Revealed Comparative Advantage Model. Regarding RCA, several authors have noted both the simplicity for calculating comparative advantage and, simultaneously, its lack of mathematical symmetry (Yeats 1985; Vollrath 1991). Despite this weakness, it remains the most commonly utilized measure of comparative advantage when examining export comparative advantage (Laursen, 2015); furthermore, RCA has been adopted by widely known international organizations such as the UN and the OECD (UNIDO, 1986; OECD, 2011). When RCA is applied through time-series, it can be applied to better understand the impacts of catastrophic events in time such as the impacts of an epidemic or pandemic (Stephens and Gyun, 2018) or more modestly, the export specialization of a nation (Pitoňáková, 2020; Stephens and Kasamanli, 2019).

According to Balassa (1965) and French (2017), RCA is calculated through as a series of ratios (illustrated in Figure 1): (ratio 1) the total exports in a sector for a country (defined by the Standard International Trade Classification) are divided by the total exports of the country, (ratio 2) the global exports for a sector divided by the total exports of all sectors globally, in other words global exports, (ratio 3) finally, the product of the first ratio is divided by the product of the second ratio to produce RCA.

Revealed Comparative Advantage Equation:

$$RCA^{Uzbekistan} = (X_i^{Uzbekistan} / X^{Uzbekistan}) \,/\, (X_i^{World} / X^{World})$$

Customarily, values above 1 indicate a comparative advantage while values below 1 indicate no comparative advantage (Balassa, 1965). It is now normal to categorically examine RCA through intervals, weak, moderate, and strong comparative advantage (Hinloopen and Marrewijk, 2008). RCA values between 1 and 2 indicate weak comparative advantage; yet, values between 2 and 4 suggest moderate comparative advantage, and values above 4 specify strong comparative advantage (Hinloopen and Marrewijk, 2008). As RCA is a mainstay for comparative advantage research, it is adopted for this study.

Symmetrical revealed comparative advantage

Although RCA is commonly utilized in comparative advantage research, it is frequently noted for its lack of symmetry (Yeats, 1985; Vollrath, 1991). Another measure has emerged for a symmetrical value of RCA, symmetrical revealed comparative advantage (RSCA). The equation for calculating RSCA is in Figure 2: Symmetrical Revealed Comparative Advantage Equation. RSCA is calculated as another ratio. RCA plus 1 is divided by RCA minus 1 to return a symmetrical decimal between 1 and -1. RSCA values above 0 are considered to indicate a comparative advantage while values below 0 indicate no comparative advantage. The benefit of examining values in a symmetrical style allow the researcher to better visualize the degree of advantage symmetrically. Unfortunately, there are no categories for defining RSCA values.

Symmetrical Revealed Comparative Advantage Equation:

$$RSCA^{Uzbekistan}=(RCA^{Uzbekistan}-1) / (RCA^{Uzbekistan}+1)$$

RESULTS

Data

The data for this research was collected from trademaps.org, a compilation of trade data compiled by the UN, the WTO, and the EU. Trademaps.org is the most widely used source for trade data regarding export analysis research. The data is collected and corroborated first by nations and secondly by prestigious international organizations (UN and WTO). Finally, the data is shared on the website for researchers and organizations. The data for this research includes both exports from Uzbekistan and the entire world from 2017 through 2020. Data before 2017 was not reported for Uzbekistan; it is suspected that that is because of the nontransparent nature of the previous regime. Therefore, the data for this research exhibits data for the years 2017 through 2020.

The results of the RCA and RSCA analysis can be reviewed in Table 5: Results of the Analysis. Although all coded industries were analyzed, only industries with comparative advantages are listed in order to maintain a concise and neat table for presentation. Based on the numbers, several industries maintained comparative advantages over the period. Some industries improved their comparative advantages while others diminished over time. According to the numbers, COVID-19 also likely impacted the comparative advantages of exports as well. A discussion of the analysis and implications are examined in the discussion following section.

Comparative advantage by industry

Initially, this analysis examines the results of RCA in light of the intervals recommended by Hinloopen and Marrewijk (2008). Based upon their recommendation, several industries had a strong comparative advantage in 2017: cotton (35.96), silk (25.81), zinc (18.93), not specified commodities (16.04), raw hides and animal skins (6.88), copper (6.40), edible fruits and nuts (6.15), lacquers, gum, and resins (5.50), edible vegetables, roots and tubers (5.21), and vegetable planting materials not elsewhere included (4.44). Industries with moderate comparative advantages in 2017 include, carpets and floor-coverings (3.75), salt and sulfurs (2.45), and knitted fabrics (2.50). Finally, more industries maintained weak comparative advantages in 2017: apparel (1.96), stone (1.92), waddling (1.70), and plastics (1.30). Note, metals not specified do not have a comparative advantage in 2017 but do maintain a comparative advantage in 2018 (1.53), 2019 (1.07), and 2020 (1.43). Indeed, all industries have variations year by year. Those variations are meant to be interpreted through the lenses of significant events, policy changes, industrial changes, etc. A discussion of the changes is in the following section with recommendations for policymakers and practitioners afterward.

Table 5 Results of the Analysis

Export		2017		2018		2019		2020	
Code	Product	RCA	RSCA	RCA	RSCA	RCA	RSCA	RCA	RSCA
`07	Veg., roots	5.2126	0.6781	7.5563	0.7663	8.3929	0.7871	6.9684	0.7490
`08	Fruits…	6.1471	0.7202	7.7703	0.7719	6.5661	0.7357	5.7760	0.7048
`13	Gum, resins	5.4976	0.6922	5.1595	0.6753	5.4794	0.6913	5.8475	0.7079
`14	Veg. Mat…	4.4449	0.6327	0.7381	-0.1507	0.5017	-0.3319	0.3280	-0.5060
`25	Salt, sulf….	2.4602	0.4220	0.7869	-0.1193	4.6656	0.6470	0.9662	-0.0172
`39	plastics	1.2991	0.1301	1.2281	0.1024	0.8425	-0.0855	0.7032	-0.1743
`41	Raw hides	6.8832	0.7463	9.0459	0.8009	3.1806	0.5216	2.8342	0.4784
`50	Silk	25.8122	0.9254	40.6736	0.9520	47.0343	0.9584	80.1514	0.9754
`52	Cotton…	35.9687	0.9459	30.1689	0.9358	30.1596	0.9358	33.5722	0.9422
`56	Wadding…	1.6882	0.2560	1.7287	0.2670	1.3119	0.1349	1.3735	0.1574
`57	Carpets…	3.7549	0.5794	3.3293	0.5380	2.6783	0.4563	2.5946	0.4436
`60	Knitted fab….	2.4975	0.4282	3.1334	0.5161	3.0347	0.5043	5.9876	0.7138
`61	Apparel…	1.9599	0.3243	2.0002	0.3334	1.7705	0.2781	2.8351	0.4785
`68	Stone…	1.9184	0.3147	0.1866	-0.6855	0.4427	-0.3863	0.3218	-0.5131
`74	Copper…	6.4039	0.7299	6.8002	0.7436	6.3217	0.7268	6.4439	0.7313
`79	Zinc…	18.9341	0.8997	16.7659	0.8874	15.2399	0.8768	12.8134	0.8552
`81	Metals…	0.8256	-0.0956	1.5341	0.2108	1.0721	0.0348	1.4293	0.1767
`99	Not Specified	16.0394	0.8826	13.8657	0.8655	12.0807	0.8471	2.3077	0.3954

DISCUSSION

Several sectors were found to have comparative advantages. A discussion on the dynamics and how each sector develops specialization is explored within this discussion. The primary driver for nearly all industry reform in Uzbekistan throughout the last 30 years remains the state which is expected considering the dominant role of the state throughout the soviet-era (Niyazmetov *et al*., 2021). This discussion identifies the role that the state has played in developing each competitive industry. Most research regarding Uzbekistan remains devoted to agricultural reforms with little describing industrial developments and nothing pertaining to export specialization.

Silk

Silk is an industry that the Uzbek government has actively developed in order to diversify its exports (Act Number PP-3910 2018). Silk in Uzbekistan was previously a challenge as its poor quality could only catch half the international price of other silk sold around the world (Axmedov, 2014); however, that has changed through investment in silk production and quality improvements. Silkworms and the trees require an infrastructural investment in order to be profitable as an export (Axmedov, 2014). Without proper infrastructure, production costs are too high and quality is poor (Axmedov, 2014). Since 2018 the Uzbek government has invested in silk by encouraging the planting of mulberry trees on the edge of farms and in neighborhoods (Act Number PP-3910 2018). Additionally, silkworms require special temperatures in order to grow well (Axmedov, 2014); the government has invested in facilities to mass produce the silkworms. The Uzbek government devised a program to encourage local silkworm care; the government distributes silkworms to rural people that are underemployed or unemployed. Those individuals keep the worms for a few months in order to develop silk cocoons. The care for silkworms is labor intensive requiring daily care; moreover, there is a learning curve associated with quality care for quality silk (Axmedov, 2014). An individual must harvest mulberry leaves each day and bring them to the worms in their home; additionally, they must clean up after the worms. Rural people are given some instruction but it is generally not considered sufficient by those that have been instructed. Ultimately, when the cycle is complete, the silkworm farmer will return the silk cocoons to the government for money. This entire process has been well-thought-out by the government and supported to improve Uzbek silk quality and productivity. Silk production and export specialization was bolstered through the careful planning and execution of the Uzbek government to improve its production. This is a successful example of government-led economic reform.

Cotton and textiles

Wheat and cotton are the two largest agricultural sectors in Uzbekistan with cotton covering 31% of agricultural land and wheat constituting 35% (World Bank Group, 2019). Najjar, *et al*., (2022) describe a fifth stage of development in agriculture since 2016 especially marked by growth in productivity and specialization. That same period witnessed expanded productivity with volatility in land ownership among smaller farmers (Najjar *et al*., 2022); furthermore, cotton and textiles exhibited significant expansions outside of agriculture (Fischer-Daly, 2019). In 2016 a new presidential decree was made regarding cotton and textiles (Act Number PP-2687 2016); the government decided to further develop and diversify the products produced from cotton by encouraging not only the export of cotton but the export of products produced by cotton.

Selling cotton alone does not help to develop the economy; moreover, the jobs associated with agriculture alone do not substantially improve the standard of living; rather, improvements in agriculture only allow farmers to subsist (Djanibekov and Finger, 2018). The government decided to keep raw cotton inside Uzbekistan and develop its value through value-added processes by exporting textiles and apparel instead of raw cotton.

Special accommodations were made for businesses investing in the textile and apparel industry; an exemption from customs payments were allowed for companies that were importing equipment and materials for the further development of the textiles and apparel industry (Act Number PP-2687 2016). International marketing efforts were subsidized by the government in order to boost exports of textiles and apparel abroad. Additionally, tax benefits were offered for companies that exported products including, ready-made cotton fabrics, finished blended fabrics, finished silk fabrics, ready-made clothes, headdresses, hosiery, textile haberdashery, fittings for garment industry (Act Number PP-2687. 2016).

According to Act Number PP-230 (2019), 271 businesses were intended to be launched between 2019 and 2021 in order to develop the textile industry, thus creating additional 88,800 new jobs in the same time frame. The government decided to support local cotton and textile production (Yoldashev 2021); according to the Cotton Textile Cluster Association website, 96 new cotton textile clusters have been created to build up the industry from cotton seed production to growing plants to finished products in order to enhance export quality and quantity.

Metals: copper and zinc

Act Number PP-3768 (2018) encouraged the export of manufactured items produced from copper, especially, components of electronics. About 60% of copper was sold as a raw material but the export of raw copper does little for economic development. The government designed several policies to encourage the higher-order manufacturing of copper-based products. Tax exemptions were offered to companies that invested in copper-based manufacturing. Additionally, a 6% subsidy was offered to cover costs associated with exporting any product that includes copper. Previously, there was a 20% VAT on manufactured copper products but that tax was reduced in 2019 to 0% in order to encourage the manufacturing and exporting of copper-based products (Act Number PP-3768).

In 2019 Uzbekistan began to actively develop the sectors that mine metals including zinc. In Uzbekistan, only 21% of zinc is actually used to make products in Uzbekistan. Products produced from metal could be produced in Uzbekistan, but they were not (Gazeta UZ 2021). In order to improve the local production of metal-based products, the Uzbek government has given tax incentives to companies that invest in the production of metal-based products.

Fruit and vegetable exports

Land policy changes were adopted to modernize and diversify the agriculture of Uzbekistan, especially for food (Act Number PP-5853 2019). In order to maintain the prices of fruit and vegetables the government of Uzbekistan optimized the export of such foods; this explains the reason for a lack of export specialization in later years according to our data. The government hopes to increase agricultural productivity through the adoption of new technologies and to further develop processing and packaging capabilities to add value to domestic and export products.

Dried fruits encouraged the export of higher order exports that have added value; additionally, by drying fruits farmers were encouraged to preserve fruits, not waste an abundant harvest (UNCTAD, 2021). Ultimately, the export of dried and fresh fruits have been concentrated in neighboring countries approximating an additional 123 thousand tons; moreover, exports to those countries excelled amid the pandemic (National Statistics of Uzbekistan, 2021).

Precious stones

Uzbekistan has several precious stones; however, this area had not been well regulated in 2017 before a new resolution was adopted (Act Number PP-778, 2017). Previously it was nearly impossible to get permission to mine precious stones; in 2017 a presidential decree streamlined the process for getting approval to mine precious stones (Act Number PP-778, 2017). Additionally, tax exemptions were offered to companies that invested in this area (UZ Daily, 2017). By 2020 several companies began to extract and sell precious stones to the international market, which accounts for the dramatic increase in precious stone exports in 2020.

Trade Policy Recommendations

Uzbekistan has made great strides toward diversifying its economy and harnessing the power of international trade for economic growth and development as is evidenced in this paper. Uzbek leaders will want to continue their support for sectors through trade policy and industry initiatives. It will be important to encourage higher-order production of several export goods in order to develop economically; for example, instead of exporting raw copper, copper wiring and pots or pans made of copper earn more in international markets. Further encouragement of higher-level production will continue to provide higher-paid jobs and improve the standard of living for all citizens. Uzbekistan has followed through with some of that; however, careful examination of other sectors could reveal where else this strategy could be deployed.

Marketing products to the international marketplace is difficult for small and medium-sized enterprises (SMEs). Uzbek companies could benefit from government-organized trade shows. Additionally, support to bring local products or companies to trade shows internationally could help such SMEs. Bringing a product to an international marketplace is not easy for local SMEs; there are costs and know-how that must be overcome. Government-led marketing efforts could help make international marketing more accessible for SMEs hoping to participate in international trade.

Standardization for food safety should be developed in order to establish better quality food exports. Although there has been significant progress in recent years, even with adequate knowledge there remains a gap between what is required by the European Union and the services provided by Uzbek laboratories (UNCTAD 2021). If Uzbekistan were to standardize the safety regulations of food, it could export more to Europe and the US. If the Uzbek government were to standardize and regulate the chemical content of foods it could make its food exports more attractive.

In summary, government-led support of SMEs and farmers could make Uzbek exports much more competitive in the global marketplace. Careful attention to standards and marketing could also go a long way toward improving the quality of Uzbek exports.

CONCLUSIONS

This research is the first to analyze Uzbek trade with RCA and RSCA; moreover, this article explores, through quantitative analysis, the advancing trade scenario in Uzbekistan. Since 2017, Uzbekistan can be held up as a model for trade policy that forwards economic diversity, growth, and development. This article explores that and provides evidence to that effect. Local policymakers in nearby nations with similar backgrounds could benefit by following these steps. The 'One Road, One Belt' initiative by China will likely have an impact on trade in this area and for Uzbekistan in the coming years. This study should be a good foundation for how trade sits currently but where it may change as borders are opened and crossroads are formed.

There are several limitations to this research. Although one researcher is familiar with local in-depth knowledge from a personal perspective, they are only one expert. Qualitative analysis by interviewing or meeting with additional experts might reveal additional perspectives. This time series data is limited to a few highly dynamic years. COVID-19 and the years just after Karimov were marked by extraordinary periods of change and challenges in Uzbekistan. This study would be valuable to be extended to several years after COVID-19. Further studies utilizing other measures of trade might reveal different findings regarding trade specialization and Uzbek economic development. It will be necessary for both qualitative and quantitative studies to continue into the future to thoroughly understand how both Central Asia and Uzbekistan develop in the future.

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SREDNJOAZIJSKI TIGAR: SPECIJALIZACIJA IZVOZA U UZBEKISTANU: PRILIKE ZA EKONOMSKU DIVERSIFIKACIJU I RAZVOJ

Rezime:

Sa ekspanzijom duž Puta svile koja cveta, ovo istraživanje ispituje specijalizaciju izvoza u Uzbekistanu kroz vremensku analizu RCA i RSCA uz raspravu o tome kako diversifikacija izvoza vodi ekonomskom razvoju od 2017. godine. Međunarodna trgovina u Uzbekistanu i regiji Srednje Azije najprije je istražena kroz istoriju prije nego što se razmatrali najnoviji podaci. Specijalizirani sektori (svila, pamuk, jestivo voće i povrće, bakar itd.) istraženi su kroz analizu, političke inicijative i postojeću literaturu unutar sveobuhvatne rasprave. Na kraju, pružene su preporuke za politiku. Ovo istraživanje prvo je koje istražuje specijalizaciju izvoza u Uzbekistanu kroz RCA i RSCA. Ono ističe napore trenutne uzbekske administracije da diversificira i razvija svoju ekonomiju koristeći snagu međunarodne trgovine. Ostale srednjoazijske i razvijajuće ekonomije mogle bi naučiti iz ovog slučaja.

Ključne reči:
Uzbekistan,
specijalizacija izvoza,
RSCA,
RCA,
ekonomski razvoj.