

CENTRAL ASIA: BETWEEN THE EURASIAN ECONOMIC UNION AND ONE BELT ONE ROAD INITIATIVE

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Abstract: The post-soviet Central Asian economies are surrounded by two natural trading partners, Russia and China. This article aims at comparing, which of those partners plays a more significant role as importer of the key export articles from the Central Asian economies. Revealed comparative advantage (RCA) approach is used to determine the key export industries. Subsequently, shares of items produced at a comparative advantage, together with shares of medium and high-skill products imported by Russia and China is compared, in order ascertain, which of those regional powers offers superior chances to develop domestic export industries. Based on the conducted analysis, China is more significant partner for larger countries, i.e. for Kazakhstan, Turkmenistan and Uzbekistan, while Russia remains more significant for Kyrgyzstan and Tajikistan.

Index terms: Central Asia, China, Russia, export, comparative advantage

I. INTRODUCTION

Post-soviet Central Asian countries, i.e. Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan have gained independence in 1991, however, the Russian political influence remained present and symbolically embodied by the membership in the Commonwealth of Independent States (Turkmenistan demoted its full membership to associate state in 2005). With economic rise of nearby China in early 2000's and especially after initiation of the One Belt One Road Initiative in 2013, promoting the Chinese influence in the region, Central Asian countries were given a choice and opportunity to readjust their political and economic ties to a different political power. In this paper, economic ties of Central Asian economies, will be analyzed. The aim of this paper is to determine the key economic sectors, which are successful and competitive abroad and to determine whether the crucial markets for those industries currently lie rather in the Russian Federation, in China, or in a third country. Analyzing the export markets is relevant especially for Kazakhstan, Kyrgyzstan, Tajikistan and Turkmenistan, as those economies demonstrate long term external imbalances, i.e. negative balance of the current account (World Bank, 2018), which can be balanced by cultivating trade relations with a significant partner. Competitive economic sectors will be identified on the basis of the theory of revealed comparative advantages (RCA), a modification of the classical theory of comparative advantages, published by David Ricardo (1815). Apart from the industries that demonstrate a revealed comparative advantage, relevant medium, high-skill and technology-intensive manufactures, based on UNCTAD (2018) methodology, will be highlighted. After the key industries are identified, export shares directed to both regional powers will be determined, in order to find out, whether any of them plays a

significant role as a selling market, contributing to development of the particular economy.

II. METHODOLOGY

The original Ricardian model (Ricardo, 1815), explains international trade flows as a result of different factor endowments in each particular economy. Because labour productivity differs among particular economies, each economy could specialize itself on the production of a good, it manufactures relatively more efficiently and subsequently achieve the gain through goods exchange in the international market. Ricardo used in his model just two countries and two goods, however the idea that international trade could identify sector(s), where the particular economy is relatively more productive, remains to be a part of overwhelming consensus. In order to identify and quantify the comparative advantage of an economy, we have to determine the relation between economic conditions as a source of comparative advantage on the one side and usable and quantifiable indicator on the other side. This relation was described by Balance (Balance et al., 1987) and is indicated by the following diagram (1):

$$EC \rightarrow CA \rightarrow TPC \rightarrow RCA \quad (1)$$

“According to (1), economic conditions (EC) that vary across countries determine the international pattern of comparative advantage (CA), which lies under the pattern of international trade, production and consumption (TPC). As long as we are not able to determine exact autarkic prices and autarkic production costs within an economy as would be necessary for determination of the comparative advantage based on Ricardo, we have to rely on Central Asia: Between the Eurasian Economic Union and One Belt One Road Initiative International Conference on Economics and Finance Research, 27th -28th May Osaka 2 available trade data from the

past to identify a revealed comparative advantage (RCA) as the second-best alternative. RCA describe the pattern of CA, which is based on TPC. In other words, CA determines TPC and available combinations of TPC are recorded by RCA (Vollrath, 1991). RCA should be supplemented with other data to distinguish whether the export volume is caused by comparative advantage or not, which could increase the explanatory value of RCA. Especially government policies could alter country's original comparative advantage, as e.g. Clarida and Findlay (1992), suggest. However, RCA could still "certainly be used for the descriptive purpose of identifying in which sectors a country exports more or less than average" (Deardorff, 2011). Given that international trade conforms the comparative advantage, the country, which exports more particular goods than the benchmark, produces this good more efficiently and disposes of the comparative advantage in its production. As many indicators as there are combinations of post-trade variables (Balance et al. 1987) could measure RCA. This paper focuses on the normalized RCA index (NI), which patterns on the most common Balassa's revealed comparative advantage index (BI). BI is straightforward and easily applicable as export data are generally available and calculation is simple. However, BI provides us only with the information, whether a country has a comparative advantage in production of particular commodity, or not (Yeats, 1985). Results of BI are incomparable across time and space, due to its asymmetry, as BI reaches values from one to infinity. That is why different indicators have emerged. In order to overcome shortcomings of BI, alternative indicator has to fulfil four conditions. It has to demonstrate stable mean across time and space, symmetry around mean or median, independence of classification and stable distribution across time and space (Hoen and Oosterhaven, 2006). In fact, we still do not have such an indicator. "Some researchers expressed RCA using a hypothetical state: they used a deviation of the actual data from the value that would have been in the comparative-advantage-neutral (CAN) point" (Sanidas and Shin, 2010). CAN point represents "one possible norm against which a country's actual trade could be compared" (Bowen, 1985). This approach is incorporated in the Normalized Revealed Comparative Advantage Index (NI), calculated according to Yu et al., (2009) by the following formula (2), where X_{ij} stands for exports of commodity j by country i , X_i stands for total export of country i , X_{wj} stands for world's exports of commodity j , whereas X_w represent world's total exports.:

$$NI_{ij} = \frac{X_{ij}}{X_w} - \frac{X_{wj} \cdot X_i}{X_w \cdot X_w} \quad (2)$$

NI value falls in between -0.25 and 0.25, comparative advantage neutral point (export value expected in the

CAN state) equals to 0. Because normalization proceeds by the total amount of the world export, NI value tends to be very small. As recommended by Yu et al., (2009), NI values in this paper will be scaled by 10000. NI is perfectly comparable across time and space, mean value and NI sum remains stable. "This explains well the notion of zero sum imbedded in comparative advantage: if a country gains comparative advantage in one sector, then a country loses comparative advantage in other sectors; and if one country gains comparative advantage in a sector, then other countries loses comparative advantage in a sector" (Sanidas and Shin, 2010). NI is capable of comparing the size of the comparative advantage in time, cross sectors and also among economies. This is why NI is used in this paper.

III. TRADE ANALYSIS

In general, neither China, nor Russia present a dominant purchasing market for goods from postsoviet Central Asian economies, as table 1 demonstrates. Only Turkmenistan and Uzbekistan export more than 1/5 of their goods to China, Russian share for all the selected countries remain well below 15%.

Country	China	Russia
Kazakhstan	11,46%	9,54%
Kyrgyzstan	6,56%	13,94%
Tajikistan	8,64%	11,67%
Turkmenistan	49,02%	3,21%
Uzbekistan	22,07%	10,36%

Table 1: share of goods exported to China and Russia on the overall export performance.

Source: own calculations based on UNCTADstat (2018)

Revealed comparative advantages (RCAs) of the analyzed economies, measured by the normalized revealed comparative advantage index (NI) are shown in the following tables 2-6. Items in bold represent export articles predominantly (larger share than 30%) purchased by China, items in italics demonstrate articles predominantly exported to Russia. All the data is taken from UNCTAD (2018) and refer to year 2016, unless stated otherwise.

Product	NI
[333] Petroleum oils, oils from bitumin. materials, crude	12,521
[682] Copper	1,214
[525] Radio-actives and associated materials	1,148
[671] Pig iron & spiegeleisen, sponge iron, powder & granu	0,910
[343] Natural gas, whether or not liquefied	0,824

[334] Petroleum oils or bituminous minerals > 70 % oil	0,497
[041] Wheat (including spelt) and meslin, unmilled	0,442
[673] Flat-rolled prod., iron, non-alloy steel, not coated	0,404
[681] Silver, platinum, other metals of the platinum group	0,377
[686] Zinc	0,358

Table 2: Comparative advantage Kazakhstan
Source: own calculations based on UNCTADstat (2018)

China and Russia are the 2nd and the 3rd largest export markets for Kazakhstan, outperformed only by Italy, mainly due to petroleum oil. Out of items identified as comparative advantages, China purchases 40-50% of exported copper, radio-actives (high-skill product), pig-iron, and approximately 1/3 of exported zinc. Out of the medium-skill exports, China buys 1/5 of exported civil engineering equipment and 5% of personal motor vehicles. Russia purchases only 14% of exported radio-actives, 1/3 of flat-rolled iron products, 10% of natural gas, wheat and zinc. On the other hand, Russia buys 80% of exported electrical machinery and 95% of ball bearings, which both belong to medium-skill exports.

For Kyrgyzstan, Switzerland is the most important export partner, predominantly because of gold, Russia being the 3rd and China the 6th. China dominates Kyrgyz exports of precious ores (70%) and leather (99%), regarding other comparative advantages as well as medium and high-skill products plays China rather meagre role. Russia is an important importer of non-ferrous metal waste (50%) and cotton (43%). Moreover, the Russian Federation is a dominant importer of medium-skill products: electrical machinery (53%), pumps for liquids (78%) and other machinery for particular industries (80%). Russia also purchases 95% of exported data processing machines, which belong to high-skill and technology intensive manufactures.

Product	NI
[971] Gold, non-monetary (excluding gold ores and concentrates)	0,293
[289] Ores & concentrates of precious metals; waste, scrap	0,039
[287] Ores and concentrates of base metals, n.e.s.	0,036
[054] Vegetables	0,033
[288] Non-ferrous base metal waste and scrap, n.e.s.	0,030
[782] Motor vehic. for transport of goods, special purpo.	0,027
[263] Cotton	0,016
[611] Leather	0,011
[334] Petroleum oils or bituminous minerals > 70 % oil	0,009
[664] Glass	0,010

Table 3: Comparative advantage Kyrgyzstan

Source: own calculations based on UNCTADstat (2018)

The most important importer of Tajik goods is Turkey, followed by Russia. China as the 5th largest importer, dominates only exports of non-ferrous metal waste (38%) and partially also ores of base metals (28%). Russia is the largest customer for Tajik fruits (71%) as well as almost the only buyer of aircraft (99%), which belong to high-skill and technology intensive products.

Product	NI
[684] Aluminium	0,196
[263] Cotton	0,102
[287] Ores and concentrates of base metals, n.e.s.	0,060
[971] Gold, non-monetary (excluding gold ores and concentrates)	0,029
[873] Meters & counters, n.e.s.	0,019
[057] Fruits and nuts (excluding oil nuts), fresh or dried	0,012
[283] Copper ores and concentrates; copper mattes, cemen	0,010
[652] Cotton fabrics, woven	0,008
[288] Non-ferrous base metal waste and scrap, n.e.s.	0,007
[034] Fish, fresh (live or dead), chilled or frozen	0,007

Table 4: Comparative advantage Tajikistan
Source: own calculations based on UNCTADstat (2018)

Turkmenistan is highly specific due to its close export cooperation with China (table 1), which is based mainly on exports of natural gas (65% heading to China) and sulphur (85%). Apart from raw materials, China also purchases 58% of exported inorganic chemical elements, which belong to highskill and technologically intensive manufactures. Since 2009, when China opened a new gas pipeline, Turkmenistan became highly dependent on gas exports to China, as chart 1 depicts. Till 2008, Turkmenistan exported majority of its products to Ukraine, Turkey, EU and USA.

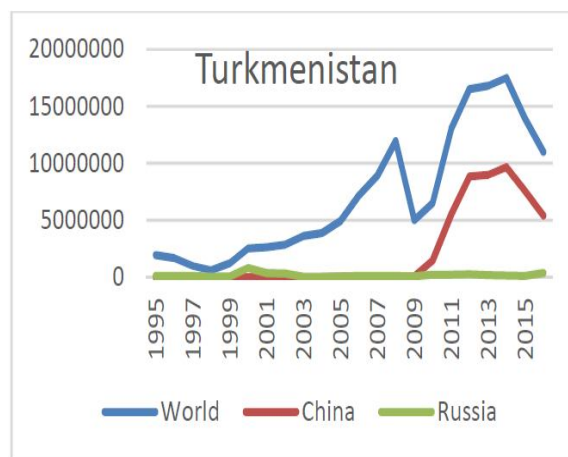


Chart 1: Turkmenistan exports (th. USD)
Source: UNCTADstat (2018)

Russia currently occupies the 6th place among Turkmen export partners. Despite the relatively lower share, it needs to be stressed out, that Russia purchases plastics (36%), which belong to high skill products and represents almost the only external market for the Turkmen ships (92%).

Product	NI
[343] Natural gas, whether or not liquefied	5,230
[333] Petroleum oils, oils from bitumin. materials, crude	0,402
[263] Cotton	0,317
[334] Petroleum oils or bituminous minerals > 70 % oil	0,237
[651] Textile yarn	0,142
[793] Ships, boats & floating structures	0,115
[575] Other plastics, in primary forms	0,067
[652] Cotton fabrics, woven	0,061
[274] Sulphur and unroasted iron pyrites	0,039
[322] Briquettes, lignites and peat	0,033

Table 5: Comparative advantage Turkmenistan
Source: own calculations based on UNCTADstat (2018)

Uzbekistan demonstrates also relatively high exports to China. Its largest export partner, however, remains Switzerland, due to purchases of gold. Russia follows at the 3rd place. Since 2009, when the gas pipeline from Turkmenistan, which also crosses the territory of Uzbekistan, became operational, China started gradually building up its position as Uzbek export partner, overtaking Russia in 2013 (chart 2).

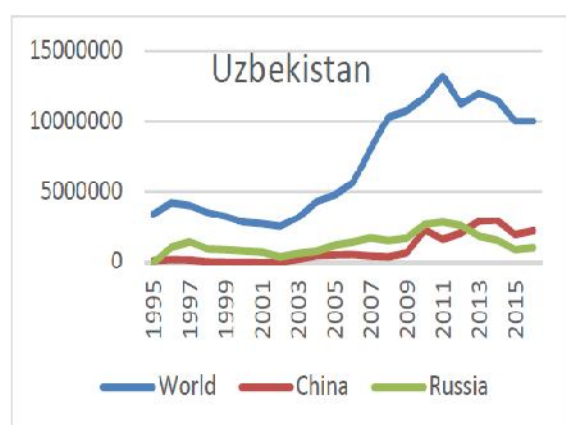


Chart 2: Uzbekistan exports (th. USD)
Source: UNCTADstat (2018)

China dominates Uzbek exports of gas (85%), textile yarn (41%), as well as polymers of ethylene (44%) and radio-actives (70%), which both belong to high-skill and technology intensive products. Russia imports a significant amount of textile yarn (34%), regarding other articles produced at comparative advantage, Russia demonstrates only a limited share (below 16%).

Product	NI
[971] Gold, non-monetary (excluding gold ores and concentrates)	2,526
[343] Natural gas, whether or not liquefied	0,712
<i>[651] Textile yarn</i>	<i>0,416</i>
[682] Copper	0,376
[057] Fruits and nuts (excluding oil nuts), fresh or dried	0,318
[571] Polymers of ethylene, in primary forms	0,286
[525] Radio-actives and associated materials	0,258
[263] Cotton	0,204
[054] Vegetables	0,139
[873] Meters & counters, n.e.s.	0,112

Table 6: Comparative advantage Uzbekistan
Source: own calculations based on UNCTADstat (2018)

IV. INVESTMENTS

Apart from being an export market for local goods, both the regional powers can contribute to economic development of the Central Asian countries by investing into local long-term projects (Foreign Direct Investments). Ever since 1999, when China launched its Going Global Strategy, focusing among others also on increasing outward FDI, Chinese relevance as a source of capital increased. Since 2011, the amount of Chinese FDI stock abroad overtook the Russian and while Chinese investments abroad are soaring, Russian investments are decreasing after annexation of Crimea in 2014 (chart 3).

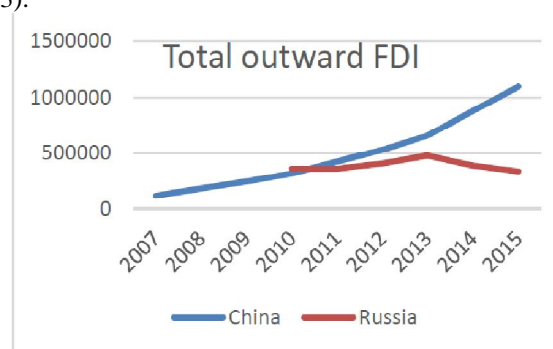


Chart 3: Total outward FDI stock (mio. USD)
Sources: Bank of Russia (2016), Ministry of Commerce of PL Cet al (2016)

This fuels expectations also in the Central Asian region, where the increasing Chinese investment potential is viewed as an opportunity to improve among others the neglected local infrastructure. Neither for Russia, nor for China is Central Asia a priority area for outward investments. While Russia invests predominantly in the EU (Cyprus, Netherlands, Austria) and British Virgin Islands, China focuses on Hong Kong, Cayman Islands, British Virgin Islands and United States. In Central

Asia, China outpaced Russia in terms of the total FDI stock (chart 4), which holds for all the post-soviet countries, including Kazakhstan, which receives almost 70% of Russian investments in the region and can therefore be viewed as a priority country for Russia.

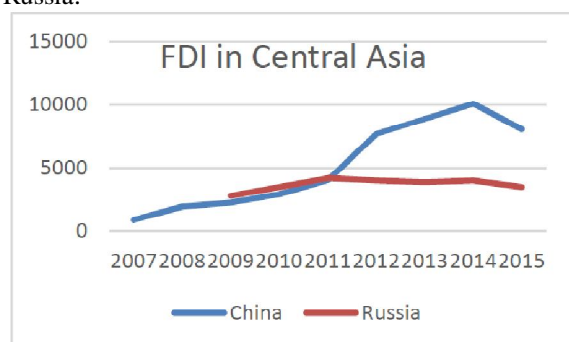


Chart 4: Total outward FDI stock (mio. USD)
Sources: Bank of Russia (2016), Ministry of Commerce of PL Cet al (2016)

Prospects of incoming Chinese investments therefore lure the post-soviet economies to the Chinese sphere of influence more, than the export opportunities in the Chinese market. On the other hand, Russia, especially before the 2014 slowdown, represented a significant immigration country for post-soviet economies and therefore an important source of remittances. This held most of all for Uzbekistan and Tajikistan.

CONCLUSION

Economies in the post-soviet Central Asia are located between two regional political powers, China and Russia, which gives them an opportunity to search for the best cooperation model. In this article, export structure of the key economic sectors, identified by the revealed comparative advantage approach, was analyzed, in order to determine, which of the regional powers contribute more to the export-led development of the selected post-soviet states. Despite its membership in the Eurasian Economic Union (EEU), China is for Kazakhstan larger export partner than Russia and dominating buyer of 4 items, produced in Kazakhstan at the comparative advantage. Russia is a significant purchaser only for 1 key commodity, however, Russia tends to buy more advanced products with higher value added, than China. Kyrgyzstan is the 2nd member of the EEU in the region, which is in this case reflected also in its trade structure. Russia demonstrates twice as high share on Kyrgyz exports than China, moreover, it buys also goods with medium and higher value added. For Tajikistan, Russia is also the more important export partner, buying only 1 commodity produced at the comparative advantage (the same holds for China), nevertheless, Russia is almost the only customer for Tajik aircraft, as a high skill and technology intensive product. Turkmenistan is the economy, where the Chinese trade influence prevailed. China is due to natural gas the largest

export market, covering almost 1/2 of Turkmen export performance, purchasing also a dominant share of inorganic chemicals, classified as a high skill product. Uzbekistan is another country, which relies more on exports to China, than to Russia. China buys also a significant share of Uzbek high value added chemical products. All the post-soviet economies benefited to an extent from the long-term relations with Russian purchasers, which held especially for medium-tech machinery and equipment. Moreover, due to the common history and lower language barriers, Russia was a natural immigrant country for Central Asian workers. Those advantages, nonetheless, begin to wane with Russian economy stagnating and Chinese economy ready to provide huge capital injections in the underdeveloped infrastructure. For those reasons, the post-soviet Central Asian economies do more or less successfully balance the influence of the neighboring political powers also by establishing closer ties to the 3rd parties, especially to Europe or Turkey.

REFERENCES

- [1] Ballance, R. H., Forstner, H., Murray, T., 1987. Consistency tests of alternative measures of comparative advantage. *Review of Economics & Statistics*, 69, p. 157-161.
- [2] Bank of Russia (2016). Balance of Payments of the Russian Federation [online] [vid. 2017-05-13]. URL: [http://www.cbr.ru/Eng/statistics/?Prtd=svs\[3\]](http://www.cbr.ru/Eng/statistics/?Prtd=svs[3])
- [3] Bowen, H. 1983. On the theoretical interpretation of indices of trade intensity and revealed comparative advantage. *Review of World Economics*, 119, p. 464-472.
- [4] Clarida, R. H., Findlay, R., 1992. Government, Trade, And Comparative Advantage. *American Economic Review*, Vol. 82, No.2, p. 122-127.
- [5] Deardorff, A. V., 2011. Comparative advantage: The theory behind measurement, OECD, Globalization, Comparative Advantage and the Changing Dynamics of Trade, OECD Publishing.
- [6] Hoen, A., Oosterhaven, J. 2006. On the measurement of comparative advantage. *Annals of Regional Science*, 40, p. 677-691.
- [7] Ministry of Commerce of the People's Republic of China, National Bureau of Statistics of the People's Republic of China, State Administration of Foreign Exchange (2016). 2015 Statistical Bulletin of China's Outward Foreign Direct Investments.
- [8] Ricardo, D., 1815. *Essay on the Influence of a Low Price of Corn on the Profits of Stock*. London.
- [9] Sanidas, E., Shin, Y., 2010. Comparison of Revealed Comparative Advantage Indices with Application to Trade Tendencies of East Asian Countries. Department of Economics, Seoul National University
- [10] Vollrath, T., 1991. A theoretical evaluation of alternative trade intensity measures of revealed comparative advantage. *Weltwirtschaftliches Archiv*, 127, p. 265-280
- [11] This article was created with the support of the IGA project: The New Silk Road Initiative as a New Stage of Chinese Global Activity, No. F2/32/2017.
- [12] UNCTADstat (2018): Statistics database [online]. UNCTAD 2018. [vid. 2018-04-19]. URL: <http://unctadstat.unctad.org/EN/Index.html>
- [13] UNCTAD (2018): Manufactured goods by degree of manufacturing groupings (SITC Rev. 3) [online]. UNCTAD [vid. 2018-03-28]. URL: http://unctadstat.unctad.org/EN/Classifications/DimSicRev3_Products_Tdr_Hierarchy.pdf
- [14] World Bank (2018): World Development Indicators [online]. The World Bank, 2018. [vid. 2018-03-28].

- URL:<http://databank.worldbank.org/data/reports.aspx?source=world-development-indicators>
- [13] Yeats, A. 1985. On the appropriate interpretation of the revealed comparative advantage index: implications of a methodology based on industry sector analysis. *Weltwirtschaftliches Archiv*, 121, p. 61-73.
- [14] Yu, R., Cai, J., Leung, P. 2009. The normalized revealed comparative advantage index. *Annals of Regional Science*, 43, p. 267-282

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