AN EMPIRICAL ANALYSIS OF BILATERAL TRADE RELATIONS BETWEEN KAZAKHSTAN AND CHINA

Allayarov Piratdin Atabaevich ✉

College of Economics and Trade, Hunan University, Changsha, Hunan, China

pikon2003@mail.ru

Li Bin

College of Economics and Trade, Hunan University, Changsha, Hunan, China

libin43@sohu.com

Abstract

The aim of this research study is to investigate the bilateral trade relations between Kazakhstan and China and tries to answer the questions whether trade between Kazakhstan and China is balanced, whether the trade composition has been changed over period, and to gauge the Kazakhstan's position in China's markets and vice versa. For this purpose, this study employed trade indices such as intra-industry trade indices, trade reciprocity, and trade intensity index over the period 1995-2014. The intra-industry trade results indicate that trade composition has been changed over the years and now intra-industry trade is high in non-manufactured products than at the start of the period. Furthermore, results of the study confirm that trade between Kazakhstan and China has been increased however, it is not balanced. Besides this study finds that Kazakhstan lost its market position in China while the extent of China's exports position has been strengthened during the study period. There is potential to balance the bilateral trade and both governments have to minimize the obstacles to bilateral trade.

Keywords: Bilateral trade, intra-industry trade, trade reciprocity, trade intensity

INTRODUCTION

The absolute advantage theory explains the basis for foreign trade between countries. Under this doctrine, a country becomes exporter of commodities in which it has absolute advantage and imports the commodities in which it has absolute disadvantage. However, the theory of

comparative advantage reveals that it is not always the case and a country can be exporter of a commodity in which it has comparative advantage and not necessary the country has to have absolute advantage. Thus, according to comparative advantage, international exchange of commodities is possible and desirable in the interests of all countries and trade is mutually beneficial for trading partners. Whereas, the neoclassical approach to international trade on the assumptions that the distribution of material and human resources between countries is uneven thus, consistently explaining the relative prices for the goods, this can be a reason for a country's comparative advantage. While, the Hecksher-Ohlin model explains the international exchange is the exchange of abundant factors for rare and the country exports commodities, which requires more factors available in abundance. So, from the above discussion one can argue for the theoretical background for international trade but none of the existed theories could explain the bilateral trade relations however; no trade theories nullified the importance of bilateral trade.

A general perception prevails in Kazakhstan that allowing Chinese imports will replace domestic products and makes it difficult for local producers to compete with Chinese products thus; Chinese products are facing cumbersome controls especially at the border (Green, 2001). Wang (2009) applied gravity model to analyze Kazakhstan's foreign trade flow with its main trading partners and concluded that distance, economies of scale and railway transportation have a great influence on its trade. Ibraimov (2009) has done a descriptive study to highlight the trade and cooperation between China and Central Asia. He figured out that Kazakhstan is very important to China as China-Kazakhstan trade accounts for 80-86 percent of Sino-Central Asia trade during 1992-2007. In another descriptive study, Dodonov (2010) analyzed the trade and cooperation between Kazakhstan and China. He described the total volume of trade over the years and focused on the energy sector of Kazakhstan. He revealed that the share of Chinese in oil production in Kazakhstan is becoming vital and will mark one third of total oil production in 2010.

Guoliang (2014) applied market share, trade competitiveness and competitive advantage indices to measure the international trade competitiveness and bilateral trade competitiveness between China and Kazakhstan. The analysis showed that China has an absolute advantage in the competitive product category of Kazakhstan, but the trade volume is less than half, and the trade competitiveness of Kazakhstan depends on the large export of few products. In a recent study, Duan and Wang (2016) studied the Chinese exports of industrial products to Kazakhstan and argued that exports of industrial products concentrated in labor-intensive products and imports mainly raw materials for industry.

We did not trace any paper which has analyzed the bilateral trade relations between Kazakhstan and China on bases of the composition of trade at industrial level, the degrees of reciprocity in the whole balance of trade, and the intensity of Kazakhstan's position in Chinese markets and vice versa. Thus, this study is the first attempt to fill this gap and adds to literature on bilateral trade relations between trading partners. In order to analyze the bilateral trade between Kazakhstan and China, this paper applies the trade indices, for instance, intra-industry trade, trade reciprocity, and trade intensity index. The remaining research paper is organized in such manner that next section describes overview of Kazakhstan and China trade relations. Third section explains about data and research methods while fourth section presents results interpretation. The last section concludes the research paper.

OVERVIEW OF KAZAKHSTAN AND CHINA TRADE RELATIONS

The establishment and development of good neighbourhood relations between the Republic of Kazakhstan and the People's Republic of China was a very important part of foreign international activity of sovereign Kazakhstan in a period of rapid economic growth and the new geopolitical situation in Europe and Asia. On March 15, 2001, Kazakhstan adopted a new Concept of Foreign Policy of Kazakhstan. Foreign economic activity has become the subject of special attention, and the main goal of foreign policy in the economic sphere focused on creating conditions for the country to enter the world markets for goods, services and capital, developing its own export-import potential, attracting investments and new technologies to the production sector, and implementing projects of alternative transport. In connection with the changed geopolitical and geostrategic situation, it is necessary to deepen and develop Chinese relations, which require new breakthroughs in the field of economic policy.

Kazakhstan and China are geographically neighbours and share common borders more than 1500 kilometers. Both these countries have large territories: China is the third largest and Kazakhstan is the ninth largest in the world. Meanwhile, Kazakhstan is the largest-landlocked country in the world and one of the two landlocked countries located in two continents (in Europe and in Asia). They both have mutual economic interests: for Kazakhstan, they can get an access to the sea through China while Kazakhstan can help China to develop inland transportations to Europe and West Asia. They also have historical and cultural ties. There are 1.4 million ethnic Kazakhs in China mainly living in the border province, Xinjiang. Kazakhstan and China aiming at regional partnership on regional security, economic development among Central Asian republics, and became co-founders of the Shanghai Cooperation Organization (SCO).

From an economical view, the total trade between the countries had a steady growth. China is now one of Kazakhstan's main trading partners, accounting for almost a quarter of its total trade. At the same time, Kazakhstan has become China's second largest trading partner among the post-soviet countries after Russia. From geo-strategical view, Kazakhstan and China are both members of the Shanghai Cooperation Organization (SCO), which is playing strategically and economically a very important role in Central Asia. Dodonov (2010) considers that growing Chinese FDI into Kazakhstan will help further cooperation of two countries.

Exports from Kazakhstan to China were US$ 283mln in 1995, while imports were US$34mln, leading to the former's trade surplus of US$249 million. This was a steady tendency for these countries' trade up to the present. In 2011, there was the highest trade surplus of US$11billion. In spite of having steady increase in bilateral trade there were some drops in 2009 immediately after 2008 crisis and also from 2011 up to the present partly because import from China also started to increase considerably.

Figure 1 illustrates the tendencies in entire two-sided trade, the trade balance between Kazakhstan and China, Kazakhstan's total export to China, and Kazakhstan's total import from China. At an earlier stage of chosen period, Kazakhstan's exports to China had a slight increase every year. Until 2001, total export was relatively low, less than US$0.7bln, but during the 2002-2012 period, it has considerable increase from US$1.01bln to US$16.4bln. The reason can be explained by increase of main export products, in this particular case they are petroleum, metalliferous ores, non-ferrous metals. In 2009, there was a comparatively little decrease, which can be explained by 2008 world financial crisis and a cause for decrease in 2014 was a fall in price for oil, the main export product of Kazakhstan accounting more than 60% of total export.

Figure 1. Kazakhstan-China Trade, 1995-2014 (in US$ millions)
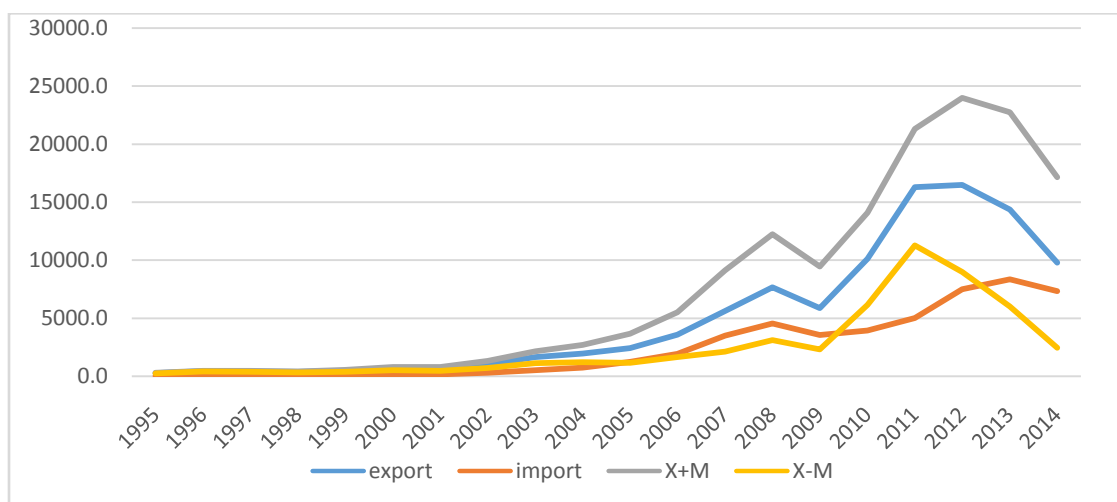
Source: The United Nations Commodity Trade Statistics Database and author's calculations

METHODOLOGY

The purpose of this study is to find out the composition of trade at industrial level, to determine the degrees of reciprocity in the whole balance of trade, and the intensity of Kazakhstan's position in Chinese markets and vice versa. Thus, this research paper analyzed the bilateral trade data gathered from the UN Commodity Trade database from 1995 to 2014 due to data availability. The trade indices are discussed below in detail.

Intra-Industry Trade

Intra-industry trade denotes the export and import of goods belonging to the same commodity group. This contradicts traditional model trade, which says countries with identical factor endowments would not trade and produce goods domestically (David Ricardo and the Heckscher–Ohlin model). Johnson and Turner (2009) clarify '…intra-industry trade increases the variety of products in the same industry, which is beneficial to both, businesses, as well as consumers. This benefit of intra-industry trade is possible because today product range from the same industry can be highly differentiated, and intra-industry trade will provide the opportunity of having a vast range of differentiated products within the markets of trading partners'.

A lot of research was done in measuring intra-industry trade and various indexes were created. These can be found in Verdoorn (1960), Balassa (1963), Grubel and Lloyd (1975), Aquino (1978), Tharakan (1983), Eaton and Kierzkowski (1984), Helpman and Krugman (1985), Bano (2014). We mainly focus on Grubel-Lloyd index as it was widely used and better explains the nature of intra-industry trade. In this study we use Grubel-Lloyd single industry index (IITB$_i$), Grubel-Lloyd weighted mean index (IITB), the Grubel-Lloyd trade imbalance adjusted index (IITC) and the Aquino adjusted index (IITQ).

The Grubel-Lloyd index

According to Grubel and Lloyd, intra-industry trade can be explained as the value of exports matching imports in the same industry and it is formulated as

$$IITB = \frac{[(EXP_i + IMP_i) - |EXP_i - IMP_i|]}{(EXP_i - IMP_i)} \times 100 \quad (1)$$

Where, EXP_i-exports of industry i, and IMP_i- imports of industry i. In this measure the results vary between 0 and 100. If all the trade is balanced (that is, $EXP_i = IMP_i$), $IITB$ equals 100, if the trade is just one-way it equals 0.

$IITB$index can be adjusted to obtain the average level of intra-industry trade. Grubel-Lloyd proposed calculating a weighted mean, using weights as the share of each industry in country i's total trade. The formula is written as

$$IITB = IITB_i = \frac{\sum_{i=1}^{n}(EXP_i+IMP_i) - \sum_{i=1}^{n}|EXP_i-IMP_i|}{\sum_{i=1}^{n}(EXP_i+IMP_i)} \times 100 \quad (2)$$

Where $IITB$ is the average intra-industry trade as a percentage of the export plus import trade. It is also equivalent to the sum of the intra-industry trade for the industries as a percentage of the total export plus import trade of the n industries.

$IITB$index equation, as Grubel and Lloyd pointed out, does not allow for any imbalance in a country's total trade because it is not possible that exports and imports will be the same in each industry. If there is a large trade imbalance in country's commodity trade, $IITB$ will be biased downward measure and the share of intra-industry trade will be undervalued. So Grubel and Lloyd adjusted this formula by adding trade imbalance in the equation above.

$$IITC = \frac{\sum_{i=1}^{n}(EXP_i+IMP_i) - \sum_{i=1}^{n}|EXP_i-IMP_i|}{\sum_{i=1}^{n}(EXP_i+IMP_i) - |\sum_{i=1}^{n}EXP_i - \sum_{i=1}^{n}IMP_i|} \times 100 \quad (3)$$

Aquino (1978) stressed that when a country's trade is unbalanced, IITC may cause some distortions. To remove this distortion Aquino proposed a more general index by simulating the theoretical values of exports and imports presented in equation 4 and 5 respectively.

$$EXP_c^e = EXP_c \frac{1}{2} \frac{\sum_{c=1}^{n}(EXP_c+IMP_c)}{\sum_{c=1}^{n}EXP_c} \quad (4)$$

$$IMP_c^e = IMP_c \frac{1}{2} \frac{\sum_{c=1}^{n}(EXP_c+IMP_c)}{\sum_{c=1}^{n}IMP_c} \quad (5)$$

Thus, by putting equation 4 and 5 in equation 1 we get Aquino measure shown as in equation 6 where $IITQ_i$ presents trade at the industry level.

$$IITQ_i = \frac{\sum_{c=1}^{n}(EXP_c^e+IMP_c^e) - \sum_{c=1}^{n}|EXP_c^e-IMP_c^e|}{\sum_{c=1}^{n}(EXP_c^e+IMP_c^e)} \times 100 \quad (6)$$

Trade Reciprocity index

Trade reciprocity denotes lowering of import duties and other commercial restrictions in exchange for analogous reductions from trading partner country. This enables us to determine the degrees of reciprocity in the whole balance of trade. To reach this goal Wadhva and Asher (1985) proposed an index measuring trade reciprocity by this formula:

$$\theta = 1 - \frac{\sum_{c=1}^{n}\left[\frac{|a_{kc}-a_{ck}|}{(a_{kc}-a_{ck})} \cdot \sum_{i=1}^{n}a_{kc}\right]}{(n-1) \cdot \sum_{k=1}^{n}\sum_{c=1}^{n}a_{kc}}$$

Where, a_{kc}=exports of country k (KZ) to partner c (CHN)

a_{ck}=exports of country c (CHN) to partner k (KZ)

n=total number of countries involved in the context of the bilateral of regional groups

θ=the trade reciprocity index

The index resulted in this formula always lies between 0 and 1. If index is 1 that means this pairing countries have a perfect reciprocal trade, i.e. the value of θ becomes maximum. Vice-versa if index is 0 that means there is no mutual trade, one country only exports or imports from the other trading partner, which makes them completely dependent on the other side and consequently the index becomes minimum. Since this index calculates the levels of trade reciprocity it is hard to use Wadhva and Asher's formula as shown above. SoBano (2014) simplifies the index re-writing the equation with the first part of the numerator inside the summation mark.

Assuming countries cannot export to themselves, our equation turns into a case of n=2.

$$\theta = 1 - \frac{\left[0 + \frac{|a_{12} - a_{21}|}{(a_{12} - a_{21})} a_{12} + \frac{|a_{21} - a_{12}|}{(a_{21} - a_{12})} a_{21} + 0\right]}{(2-1)(0 + a_{12} + a_{21} + 0)}$$

Trade intensity

The intensity of trade index was first applied by Brown (1949) and later elaborated by Kojima (1964). This indicator allows us to assess the level of mutual trade between countries in a trading bloc (in our example we are estimating two countries) compared to the overall volume of their participation in world trade. The evidence from this study suggests that bilateral trade is found to be more intense if low resistance to trade is taken place between trading countries. Trade intensity index is divided into two: a) Export intensity index, and b) import intensity index. They are used to explain patterns of exports and imports.

$$ExpII_{kc} = \frac{\frac{EXP_{kc}}{EXP_k}}{\left(\frac{IMP_c}{IMP_w - IMP_k}\right)}$$

Where:

$ExpII_{kc}$ = Export intensity index

EXP_{kc} = the volume of country k's exports to a partner country c;

EXP_k = the volume of country k's overall exports to the world;

IMP_c = the volume of country c's overall imports from the world;

IMP_w = the volume of total world import;

$$ImpII_{kc} = \frac{\frac{IMP_{kc}}{IMP_k}}{\left(\frac{EXP_c}{EXP_w - EXP_k}\right)}$$

$ImpII_{kc}$ = Import intensity index

IMP_{kc} = the volume of country k's imports to country c;

IMP_k = the volume of country c's total imports from the world;

EXP_k = the volume of country k's total exports to the world;

EXP_w = the volume of total world export;

It indicates the intensity of trade flows between the two countries compared to their role in international trade. It is calculated as the ratio of the share of exports from country k to country c in the total exports of country k to the share of world exports sent to country c. If the meaning of index becomes greater than one that means country c is more important trading partner for country k than the other countries exporting to country c, in other words there is high trade intensity between the countries than would be expected on the basis of their importance in world trade. Conversely, if the index is less than one there is low trade intensity

ANALYSIS AND RESULTS

Intra-industry trade

Table 1 shows the extent of Kazakhstan's intra-industry trade with China over the period 1995-2014. In this study we define high IIT industries, in which IIT value is either 50% or more, and low IIT industries, in which IIT value is either 10% or below. The result shows high IIT in 'chemicals', 'manufactured goods' and 'machinery and transport equipment' industries in 1995. The highest IIT 'other plastic, primary form' (94%) and civil engineering equipment (92.2%), which is followed by 'metal removal work tools' (84.9%). Thus, these results indicate that Kazakhstan and China have almost full intra-industry trade in these products. The low value of IIT is observed in 1995 in the industries like 'food and live animals' and 'beverage and tobacco' in which products such as sugars, molasses, honey, wood, wool and other animal hair, and pigments and paints have almost negligible intra-industry trade while for most of manufactured items such as household equipment, textile, leather machine, telecom equipment and electric machine have more than 5% IIT in 1995. In 2014, the trade composition between Kazakhstan and China has been changed compared to 1995. More than half of the high IIT products are from 'food and live animals', 'beverage and tobacco' and 'mineral fuel lubricants and related materials' industries. However, 'engines and motors non-electric' have more than 91% IIT. It is followed by 'residual petrol products' with IIT value of 83.7%. Most of the products in 2014 has IIT value between 60% and 70% such as milk and cream, fish, sugar, molasses, margarine and shortening, aluminum, and metal working machine. As stated earlier the trade composition between Kazakhstan and China has been changed, so most of the products in low IIT are from manufacturing industries.

Trade reciprocity

The result of Trade reciprocity for bilateral trade between Kazakhstan and China from 1995 to 2014 is shown in Figure 2. In earlier years of study period the trade reciprocity is almost negligible. However, an upward movement can be observed between 1995 and 1999. This means that Kazakhstan exports were more than its imports from China. The trade reciprocity index decrease between 1999 and 2001 which reflects increase of imports from China. Since 2001, one can see an upward movement till 2009 and the trade reciprocity index increase from 0.07 to 0.3. This shows that Kazakhstan's exports were greater than China's imports during 2001-2009. The trade reciprocity index starts to decline from 2009 till 2011. Since 2011, again there is an increase in trade reciprocity index, which shows Kazakhstan's exports to China than imports from China. However, the trade reciprocity index is very low during this study period that represents an unbalanced trade between Kazakhstan and China.

Figure 2. Trade reciprocity index of Kazakhstan and China
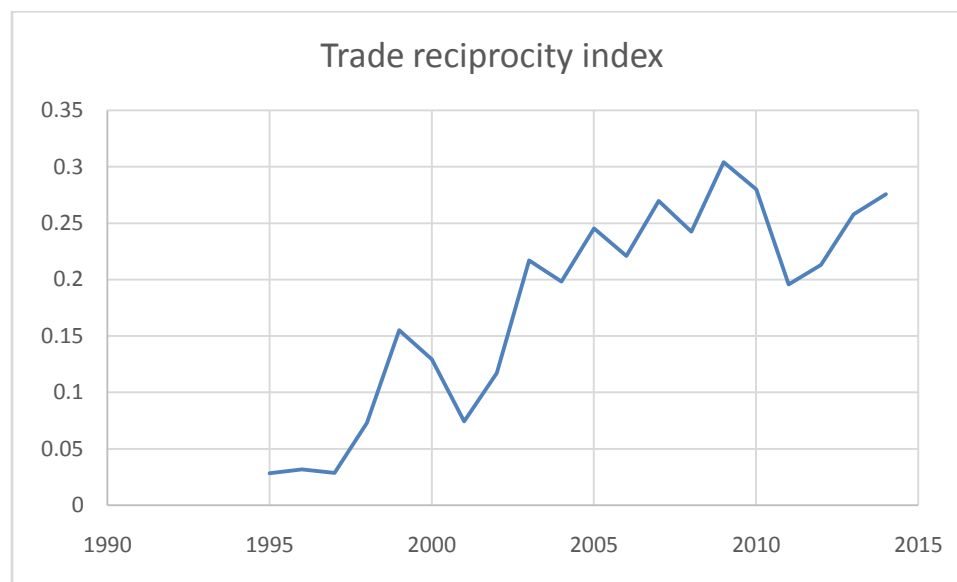
Source: The United Nations Commodity Trade Statistics Database and author's calculations

Trade intensity

Export and import intensity indexes between Kazakhstan and China are presented in Figure 3. Kazakhstan export intensity index was more than 1.9 in 1995, which is suggesting a strong representation of Kazakhstan's exports in China's markets. Export intensity index experienced a sharp increase and reached its maximum 2.85 in 1996. In the subsequent years, the export intensity index fluctuated around 2. Since 2003, it is decreasing and fluctuated around 1.5 between 2004 and 2007. However, in 2010 and 2011 it reached to almost its initial value of

1995. But since 2011, it is falling which is representing weak position of Kazakhstan exports in China's markets. Compared to export intensity, import intensity is showing a steady increase over the years except a sharp increase in 2012. This shows a strong representation of China's exports in the Kazakhstan markets. Thus, any policy for the betterment of bilateral trade between Kazakhstan and China will be in favour of China.

Figure 3. Export and import intensity indexes of Kazakhstan and China, 1995-2014
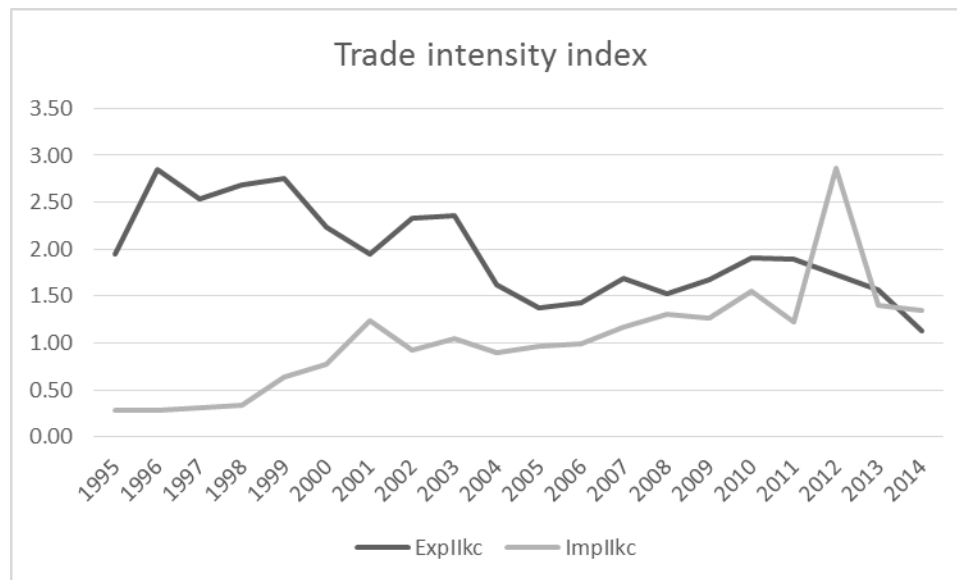
Source: The United Nations Commodity Trade Statistics Database and author's calculations

CONCLUSION

This study examines the bilateral trade between Kazakhstan and China through trade indices, namely, intra-industry trade, trade reciprocity, and trade intensity index over the period 1995 to 2014. The intra-industry trade results confirm the trade composition between Kazakhstan and China has been changed during the study period. In 1995, the intra-industry trade was high in manufactured products compared to 2014 in which the intra-industry is high in non-manufactured products. Trade reciprocity shows that trade between Kazakhstan and China was very low and negligible in the early period of study. However, the trade between Kazakhstan and China has been increased and is considerable now, but it is not balanced. The result of export intensity identified that over the years it has been decreased which is showing the weak position of Kazakhstan's exports in China's markets. Contrary to export intensity, import intensity over the years has been increased which is showing the extent of strong representation of China's exports in Kazakhstan's markets. The result of the study is highlighting that any step towards the free trade agreement (FTA) between Kazakhstan and

China will be in favour of China. Thus, FTA will further boost Kazakhstan's imports from China. In order to increase exports, Kazakhstan should promote its exports and make its exports more competitive by taking into account the quality of its exported products. Similarly, Kazakhstan should take steps to encourage resource efficient products to improve its competiveness. This offers a good starting point for discussion and further research.

REFERENCES

Aquino, A. (1978). Intra-industry trade and inter-industry specialization as concurrent sources of international trade in manufactures, WeltwirtschaftlichesArchiv, 114(2), 275-296.

Balassa, B. (1965). Trade liberalisation and revealed comparative advantage, The Manchester School of Economics and Social Studies, 33(2),99-123.

Bano, S. (2014). Trade relations between New Zealand and China: An empirical Analysis in the context of a free trade agreement, Review of Economics and Finance, 4, 75-92.

Brown, A. J. (1947).Applied Economics: Aspects of the World Economy in War and Peace, London,George Allen and Urwin.

Dodonov V. (2010). Kazakhstan and China: Trade and Economic Cooperation, China and Eurasia Forum Quarterly, 8(4), 11-15.

Duan, X. and Wang, X. (2016). A Study of Trade Structure of Industrial Products in Both China and Kazakhstan—Based one Road Economic Belt, Xinjiang University of Finance and Economics, 3, 64-71.

Eaton, J. and Kierzkowski H. (1984).Oligopolistic Competition, Product Variety and International Trade, Oxford, Kierzkowski.

Grubel, H.G. and Lloyd, P. J. (1975).Intra Industry Trade,London, Macmillan.

Helpman, E. and Krugman P. (1985).Market Structure and Foreign Trade,Brighton, Harvester Wheatsheaf.

Hu, G. (2014). An Analysis of Trade Competitiveness and Structural Changes between China and Kazakhstan, Xinjiang University of Finance and Economics,6, 58-67.

Ibraimov, S. (2009). China-Central Asia Trade Relations: Economic and Social Patterns, China and Eurasia Forum Quarterly, 7(1), 47-59.

Johnson, D. and Turner, C. (2009).International Business: Themes and Issues in the Modern Global Economy,London,Taylor and Francis.

Kojima, K. (1964). The pattern of international trade among advanced countries, Hitotsuboshi Journal of Economics, 5(1), 16-36.

Lloyd, P.J. and Grubel, H.G. (2003).Intra-Industry Trade, Cheltenham, Edward Elgar Publishing Limited.

Raballand, G. and Andresy, A. (2007). Why Should Trade between Central Asia and China Continue to Expand?,Asia-Europe Journal, 5(2), 235-252.

Tharakan, K.P.M. (1981). The economics of intra-industry trade: A survey, Louvain Economic Review, 47(3/4), 259-290

Verdoorn, P.J. (1960).The Intra-Block Trade of Benelux,London,Macmillan.

Wadhva, C.D. and Asher, M.G. (1985).ASEAN-South Asia economic relations,Singapore, Institute of Southeast Asian Studies.

Wang W.R. (2009). Empirical Study of Kazakhstan's Foreign Trade Based on Trade Gravity Model,Russian Studies,156(2), 91-98.

www.comtrade.un.org: United Nations Trade statistics Data Base.

APPENDIX

Table 1. Industries with High and Low IIT, 1995 and 2014

	1995						2014				
SITC	High IIT industries(50% or more	IIT	**SITC**	Low IIT industries(10% and less)	IIT	**SITC**	High IIT industries(50% or more	IIT	**SITC**	Low IIT industries(10% and less)	IIT
511	Hydrocarbons, n.e.s, derivatives	72.2	**012**	Other meat, meat offal	4.9	**022**	Milk and cream	64.1	**047**	Other cereal meal, flours	1.5
575	Other. plastic, primary form	94.0	**061**	Sugars, molasses, honey	0.1	**034**	Fish,fresh, chilled,frozn	69.2	**057**	Fruit, nuts excl.oil nuts	4.2
611	Leather	56.3	**111**	Non-alcohol. beverage, nes	6.6	**048**	Cereal preparations	79.5	**059**	Fruit, vegetable juices	2.7
634	Veneers, plywood, etc.	53.9	**211**	Hides, skins(ex.furs),raw	3.2	**061**	Sugars, molasses,honey	65.9	**223**	Oilseed (oth.fix.veg.oil)	5.8
651	Textile yarn	56.1	**248**	Wood, simply worked	8.8	**081**	Animal feed stuff	74.1	**273**	Stone, sand and gravel	6,0
663	Mineral manufactures, n.e.s	50.0	**268**	Wool, other animal hair	0.2	**091**	Margarine and shortening	62.1	**291**	Crude animal materls.nes	8,3
699	Manufacts. basemetal, nes	68.1	**278**	Other crude minerals	4.1	**111**	Non-alcohol. beverage,nes	52.2	**421**	Fixed veg.fat,oils, soft	2,0
723	Civil engineering equipment	92.2	**288**	Non-ferrous waste, scrap	9.4	**335**	Residual petrol. products	83,7	**523**	Metal. salts, inorgan.acid	6,0
731	Metal removal work tools	84.9	**533**	Pigments, paints, etc.	0.2	**575**	Oth.plastic, primary form	72,1	**525**	Radio-active materials	1,7
			658	Textile articles nes	0.4	**673**	Flat-rolled iron etc.	51,7	**541**	Medicines,etc.exc.grp542	8,2
			671	Pig iron, spiegeleisn, etc	2.7	**684**	Aluminium	66,7	**553**	Perfumery, cosmetics, etc.	1,4
			679	Tubes, pipes, etc. iron, stl	1.3	**689**	Misc.non-ferr.base metal	75,4	**562**	Fertilizer, except grp272	3,1
			684	Aluminum	0.6	**714**	Engines, motors non-elect	91,2	**611**	Leather	0,3
			691	Metallic structures nes	4.1	**737**	Metalworking machnrynes	64,4	**612**	Manufact. leather etc.nes	2,8
			694	Nails, screws, nuts,etc.	3.0				**667**	Pearls, precious stones	1,4
			697	Household equipment, nes	9.0				**671**	Pig iron, spiegeleisn,etc	1,2
			716	Rotating electric plant	0.9				**679**	Tubes, pipes,etc.iron,stl	1,1

		724	Textile, leather machines	9.9				682	Copper	1,3
		725	Paper, pulp mill machines	0.6				691	Metallic structures nes	2,4
		742	Pumps for liquids, parts	1.5				699	Manufacts. base metal,nes	4,6
		745	Oth. nonelecmch, tool, nes	0.6				733	Mach-tools, metal-working	4,5
		764	Telecomm. equip. parts, nes	8.7				742	Pumps for liquids, parts	5,2
		771	Elect power machny. parts	1.9				743	Pumps nes, centrifugs etc	3,9
		775	Dom.elec, non-elec. equipt	6.4				745	Oth. nonelecmch, tool,nes	4,4
		778	Electric.mach. appart.nes	7.1				748	Transmissions shafts etc	2,0
		821	Furniture, cushions,etc.	0.4				772	Elec.switch. relay.circut	2,6
		841	Mens, boysclothng,x-knit	0.9				773	Electr distribt.eqpt nes	1,4
		842	Women, girlclothng, xknit	3.2				774	Electro-medcl, xray equip	2,1
		874	Measure, control instrmnt	6.6				786	Trailers, semi-trailr,etc	1,0
		893	Articles,nes,of plastics	3.2				792	Aircraft, assoctd.equipnt	2,0
								811	Prefabricated buildings	2,1
								874	Measure, control instrment	1.6

Source: The United Nations Commodity Trade Statistics Database and author's calculations

Table 2. KZ-China IIT by industry 3-digit summary values, 1995

Industry		AV-IITB	Av-IITC	Av-IITQ
0	Food and Live animals	1.82	100	22.04
1	Beverage and Tobacco	14.7	63.80	62.68
2	Crude material inedible except fuels	1.7	95.37	45.31
5	Chemicals	9.01	13.99	8.59

6	Manufactured Goods Classified chiefly by materials	1.67	43.01	100
7	Machinery and Transport equipment	3.30	14.15	7.78
8	Miscellaneous Manufactured Articles	7.2	50.37	33.23

Source: The United Nations Commodity Trade Statistics Database and author's calculations

Table 3. KZ-China IIT by industry 3-digit summary values, 2005

Industry		AV-IITB	Av-IITC	Av-IITQ
0	Food and Live animals	10.73	54.51	15.22
2	Crude material inedible except fuels	1.93	53.24	23.51
3	Mineral Fuels Lubricants and related materials	10.85	100	98.83
5	Chemicals	5.46	8.42	4.73
6	Manufactured Goods Classified chiefly by materials	4.33	11.99	5.20
7	Machinery and Transport equipment	3.35	65.94	18.44
8	Miscellaneous Manufactured Articles	3.38	100	60.33

Table 4. KZ-China IIT by industry 3-digit summary values, 2014

Industry		AV-IITB	Av-IITC	Av-IITQ
0	Food and Live animals	6.11	64.60	24.44
1	Beverage and Tobacco	49.99	100	99.74
2	Crude material inedible except fuels	6.83	87.92	22.94
3	Mineral Fuels Lubricants and related materials	19.33	98.69	66.41
4	Animal and Vegetable Oils and fats	2.84	77.36	56.38
5	Chemicals	4.18	11.68	5.63
6	Manufactured Goods Classified chiefly by materials	2.85	3.35	2.76
7	Machinery and Transport equipment	4.30	56.36	20.65
8	Miscellaneous Manufactured Articles	0.24	100	26.10
9	Commodities and Transactions not classified	26.82	100	100