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Estimation of Kazakhstan's trade potential in the framework of the Custom Union

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The paper identifies the features and determinants of Kazakhstan's foreign trade with other members of the Customs Union of Russia, Kazakhstan and Belarus (CU), and estimates the degree of utilization of its trade potential for 1995-2011. The participation in the CU has led to an increase of Kazakhstan's turnover with Russia and Belarus mainly due to imports from these countries, while the share of exports to these countries in its total exports has been declined since 2011. The main reason is the achievement of the potential level of mutual trade for Kazakhstan. Gravity models confirms that the inter-industry trade between the CU's countries based on the comparative advantages comes to a standstill and to further expand their mutual trade, countries should specialize in the expansion of intra-industry trade.

JEL Classifications: F14, F15, P33

Keywords: Trade potential, Custom Union, gravity model, Kazakhstan, Russia, Belarus

Introduction

One of the main reasons of the trade between Russia, Kazakhstan and Belarus is the geographical factor. Kazakhstan is landlocked, and is largely dependent on the transport infrastructure of Russia and Belarus for the supply of exports to Europe. In turn, these countries depend on Kazakhstan in its foreign trade with Central and South Asia. Another important reason is the fact that Kazakhstan is rich of nature recourses such as copper, uranium, titanium, oil and gas, while Russia and Belarus have a skilled workforce and facilities for the production of final goods and services. Therefore, if mining and primary processing of raw materials is dominated in Kazakhstan, final stages of the production cycle are more prevalent in Russia, let alone Belarus, which is mainly engaged in the processing of products. We should also not ignore the common history, because these countries were part of the former Soviet Union for a long period of time. For 70 years of its existence, a Soviet culture and psychology has been formed, and the majority of the population is fluent in Russian. In addition, Kazakhstan shares with Russia one of the longest land borders in the world of 7512 km. Twelve Russian and seven regions of Kazakhstan on the border are home to 18.5% and 30% of Russian and Kazakh population, respectively (EDB, 2012, p.6-7). For these reasons, efforts to promote mutual trade within the CU, is beneficial for all member countries.

The first step in this direction was the creation by Russia, Belarus and Ukraine the Commonwealth of Independent States (CIS) in 1991, the purpose of which was to regulate the relations of cooperation between the countries of the former Soviet Union. Kazakhstan joined it on December 21, 1991. In September 1993 heads of CIS countries signed the Agreement on the Economic Union for the formation of a Common economic space based on the free movement of goods: services, labor and capital (IDW, 2001). CIS acted on a voluntary basis. This was both its advantage and disadvantage. On the one hand, it does not limit the sovereignty of participants, that was important at the stage of self-determination of countries after the collapse of the Soviet Union. On the other hand,

the absences of common rules obligatory for all Member States, and enforcing supranational bodies have prevented its further development.

In order to promote further integration, the Agreement between Russia, Belarus and Kazakhstan on the establishment of the CU, was signed in January 1995. However, the economic crisis in Russia in 1998 had a negative impact on the customs policy of the CIS countries, and thus led to the collapse of plans to create a CU across these countries. The heads of five countries (Belarus, Kazakhstan, Kyrgyzstan, Russia, and Tajikistan) signed an Agreement on the creation of the Eurasian Economic Community (EurAsEC) on October 10, 2000 in Astana. The mechanism of decision-making with voting shares according the economic potential of each country was provided in EurAsEC. Nevertheless, the corresponding supranational bodies were not formed (Simon, 2009, 3).

The Organization of Regional Integration was created by Belarus, Kazakhstan, Russia and Ukraine on February 23, 2003. These countries signed the founding documents of the Common Economic Space (CES) on September 19, 2003. CES envisaged not only the free flow of goods, services, capital and labor in the common market, but also the introduction of a single currency, the coordination of trade, fiscal, monetary and financial policies, the harmonization of the relevant legislation and the formation of a supra-national Commission on Trade and Tariffs. Each participant was free to decide in which direction of integration and to what extent to participate. Important decisions have to take into account the economic weights of participants. This was not acceptable for all countries, as well as sharply increased Russia's influence on the acceptance of all such matters. Kiev, taking a course on European integration, refused to go further free trade zone and to be bound by the additional obligations under the CES and the whole CIS (Simon, 2010, 12). Therefore, the heads of state of remaining three participants - Belarus, Kazakhstan and Russia at a meeting of the Interstate Council (IC) in the framework of the Eurasian Economic Community, held in Sochi on August 16, 2006, decided to establish instead of CES a legal basis of a new customs union, to which Kyrgyzstan, Tajikistan and Uzbekistan could join, after they get ready for this (Andrianov, 2005, pp.58-59; Shumsky, 2005).

The Agreement on the establishment of a common customs territory and formation of the CU was signed in Dushanbe on October 6, 2007. The Commission of the CU, as well as two ICs – one at the level of heads of state and another at the level of the heads of governments, was created as single regulatory bodies on February 4, 2009. The governments of Belarus, Kazakhstan and Russia signed an agreement on the establishment the CU of the EurAsEC on November 27, 2009 (Simon, 2010, 12), which began its work since 1 January 2010, when three countries eliminated most of duties in mutual trade, moved to the harmonized customs rules and implemented a common external tariff. A Common Customs Code was introduced throughout the CU on January 6, 2010, and transport control in mutual trade was canceled and moved to the outer contour of its borders on July 1, 2011.

It was expected that the establishment of the CU with a common external tariff (CET) would boost trade and strengthen the integration process (trade creation effect), which would increase the GDP of Russia, Belarus and Kazakhstan by almost 15% to 2015 (INS News, 2009). The reasons lie in the fact that the CU could have reduced border costs due to (1) the elimination of inter-state trade borders, (2) reducing the number of documents required for import, export, and difficulties in obtaining documents, and (3) reducing corruption on the roads within the CU (World Bank, 2012, p.1). The increased market size due to economies of scale would be raised the attractiveness of the production of finished products with high added value (Kazakh-zerno.kz, 2010). In addition, more high tariffs towards third countries would have protected domestic producers from the supply of cheap foreign goods (mainly Chinese) at bargain prices and could have created conditions for domestic production (Rahmatulina, 2012). However, other experts believed that the participation of Kazakhstan in the CU would lead, on the contrary, to a general increase in

prices and the deterioration of long-term prospects of Kazakhstan's economy (trade diversion effect).

In reality a reduction of trade with other countries due to the introduction of the CET has increased internal prices for goods and services (Ileuova, 2012), as manufacturers outside the CU have as a rule lower costs than the same producers within the CU. Competition intensification from more developed Russian and Belarusian companies deteriorated Kazakhstan's plans to diversify its economy (Simon, 2010, 12). It preserved its technological backwardness from advanced countries, as harvesters, computers, electronics and etc., produced within the CU, were way behind Japanese, European or American counterparts (Observator, 2010). As a significant part of the population was engaged in shuttle trade, as well as in the sale of imported goods, these people either have lose their jobs or were seriously affected due to the fact that the import duties from third countries have increased significantly, and their business became unprofitable (Alzhanova, 2012). Large size of the Russia's economy compare to other CIS countries have led to its economic dominance in the CU. Russia's GDP exceeds the GDP of Kazakhstan and Belarus in 10 and 15 times, respectively. In 2011, Russia's share in the Kazakhstan's trade was 18.8%, while the share of Kazakhstan in the Russia's trade was only 3.2%. So if for Kazakhstan and Belarus, Russia is clearly the leading trading partner; for Russia, both countries are minor partners. Economic inequality is complemented by legal inequities. In the Commission of the CU Russia has 57% of the vote, while Kazakhstan and Belarus - by 21.5% (EEC, 2014).

After the introduction of the CET, the average external tariffs of Kazakhstan have increased from an average of 6.7 percent to 11.1 percent on non-weighted basis (and 5.3 percent to 9.5 percent on a trade-weighted basis) (World Bank, 2012). The average external tariff has increased by about 78 percent on a trade-weighted basis from its pre-2009th level.

As a result of the CET implementing, there an increase in bilateral trade of the CU countries, as well as a general price increase was observed. The foreign trade turnover of Kazakhstan with Russia and Belarus has increased by 46.6% in 2010, by 25.4% in 2011, and only by 1.2% in 2012 (trade creation effect). On the other hand, during last two years, the quantities of goods and products exported to Kazakhstan from non-members countries of the union have been decreased and their prices have been soared (trade diversion effect). They increased on the most tangible goods for the population like fuel, cars, household appliances, agricultural products (Ileuova, 2012). The prices of sugar, vegetable oil, cereals, meat, and dairy products have been increased almost twice. For example, the price of buckwheat has been increased by 2.5 times, beef has become more expensive by 40%, and lamb by 33% compared with 1999 (Observator, 2010). Based on these facts, we can conclude that both of above mentioned trading effects were observed in the foreign trade of Kazakhstan with other CU's countries. In this regard, it is important to accurately assess the prospects of bilateral trade within the CU. This necessarily includes knowledge the mutual trade potential and the factors that determine it. Knowing it, countries could make an effort to minimize or at least mitigate the effects of existing limitations on trade growth (Armstrong et al., 2008).

The purpose of this paper is to identify the major determinants and to estimate the trade potential of Kazakhstan with other countries of the CU for 1995-2011. This knowledge would help policymakers remove the existing behind and beyond the border constraints, thereby further facilitating trade in the CU.

Rest part of the paper is organized as follows. Second section provides an overview of Kazakhstan's trade with Russia and Belarus within the framework of the CU. Third section discusses the theoretical foundations of customs unions. Fourth presents the models and methodology. Fifth section presents the results of gravity models. The sixth section uses the estimated values for calculation of the Kazakhstan's trade potential with Russia and Belarus. The last section presents conclusions and policy implications.

Overview of Kazakhstan trade with Russia and Belarus

Kazakhstan is one of the emerging economies in CIS, which has witnessed steady trade growth over 17 percent in 1995-2012. Its trade has increased from US$9.1 bln in 1995 to US$132.8 bln in 2012. The largest decline occurred in foreign trade of Kazakhstan in 2009, because of the world economic crisis (Table 1).

TABLE 1. TRENDS IN KAZAKHSTAN'S MERCHANDIZE TRADE IN CURRENT PRICES, US$ BLN

Years	Total	including to		Total	including to		Total	including from		Net	including to	
	trade	Russia	Belarus	export	Russia	Belarus	import	Russia	Belarus	export	Russia	Belarus
1995	9.1	4.3	0.13	5.3	2.4	0.05	3.8	1.9	0.08	1.4	0.5	-0,02
1996	10.1	4.8	0.17	5.9	2.5	0.05	4.2	2.3	0.12	1.7	0.2	-0,07
1997	10.8	4.3	0.10	6.5	2.3	0.04	4.3	2.0	0.06	2.2	0.3	-0,02
1998	9.6	3.3	0.08	5.3	1.6	0.02	4.3	1.7	0.06	1.0	-0.1	-0,04
1999	9.6	2.5	0.05	5.9	1.1	0.01	3.7	1.4	0.04	2.2	-0.2	-0,03
2000	13.8	4.2	0.06	8.8	1.8	0.02	5.0	2.4	0.04	3.8	-0.7	-0,02
2001	15.0	4.7	0.05	8.6	1.8	0.01	6.4	2.9	0.05	2.2	-1.1	-0,04
2002	16.3	4.0	0.06	9.7	1.5	0.01	6.6	2.5	0.05	3.1	-1.1	-0,04
2003	21.3	5.3	0.10	12.9	2.0	0.01	8.4	3.3	0.09	4.5	-1.3	-0,08
2004	32.9	7.6	0.16	20.1	2.8	0.02	12.8	4.8	0.14	7.3	-2.0	-0,12
2005	45.2	9.5	0.23	27.8	2.9	0.03	17.4	6.6	0.21	10.5	-3.7	-0,18
2006	62.0	12.8	0.35	38.3	3.7	0.07	23.7	9.1	0.28	14.6	-5.3	-0,21
2007	80.6	16.3	0.52	47.8	4.7	0.13	32.8	11.6	0.40	15.0	-6.9	-0,27
2008	109.1	20.0	0.57	71.2	6.2	0.17	37.9	13.8	0.40	33.3	-7.5	-0,23
2009	71.6	12.4	0.42	43.2	3.5	0.05	28.4	8.9	0.37	14.8	-5.3	-0,31
2010	91.4	17.9	0.87	60.3	5.7	0.34	31.1	12.2	0.53	29.1	-6.5	-0,19
2011	121.2	22.9	0.73	84.3	7.7	0.10	36.9	15.2	0.62	47.4	-7.5	-0,52
2012	132.8	23.1	0.79	86.4	6.1	0.09	46.4	17.0	0.70	40.1	-10.8	-0,61

Source: Data from the Agency of Kazakhstan on Statistics, 2013.

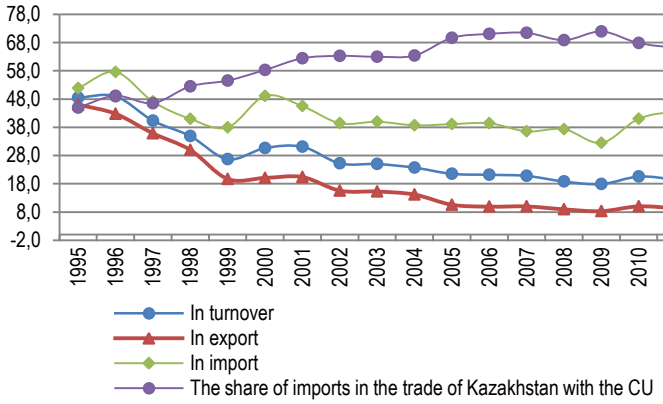
TABLE 2. STRUCTURE OF KAZAKHSTAN'S FOREIGN TRADE IN 2012, %

Countries	Trade turnover	Export	Import
Total	100.0	100.0	100.0
CIS countries	25.3	13.2	47.7
of them: the CU countries	18.0	7.2	38.1
- Russia	17.4	7.1	36.6
- Belarus	0.6	0.1	1.5
EU countries	41.1	52.4	20.1
- Italy	12.3	17.8	2.1
- Netherlands	5.7	8.4	0.6
- France	4.7	6.5	1.4
- Germany	3.9	1.6	8.3
Countries outside the EU	4.1	5.9	0.7
- Switzerland	3.9	5.7	0.5
Asia	24.3	24.1	24.7
- China	16.3	16.5	16.1
- Turkey	2.6	3.1	1.7
America	4.9	4.2	6.2
- USA	1.9	0.5	4.6
Africa	0.3	0.3	0.5

Source: Data from the Agency of Kazakhstan on Statistics, 2012.

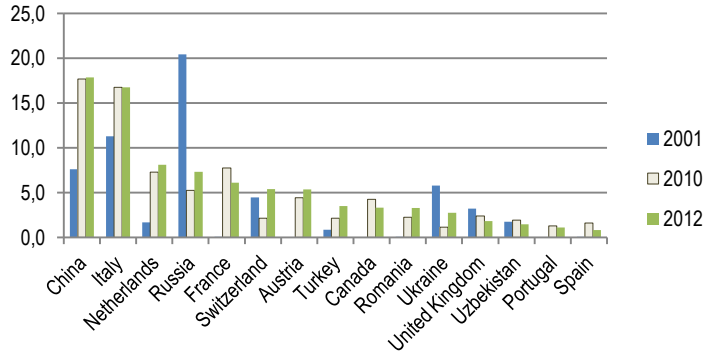
From 2010 onwards, the steady growth of its trade with other countries, including CU, was observed. However, in 2012, the situation has somewhat changed. If the total turnover of Kazakhstan continued to increase, the export to the CU's countries fell from US$7.7 to US$6.1 bln, while imports from these countries, on the contrary, increased. As a result, the negative balance of export trade with the CU's countries has grown from $6.5 to $10.8 bln in 2010-2012, or 1.7 times. This increase occurred despite the establishment of the CU of the EurAsEC, which came into force in early 2010. The main reason was that Kazakh processed products except for raw materials, are less competitive than similar products of Russian and Belarusian companies. This was evidenced by the growth of the share of imports goods in the trade turnover of Kazakhstan with the CU's countries from 45% to 73.9% in 1995-2012 (Figure 1).

FIGURE 1. THE SHARE OF THE CUSTOM UNION IN THE KAZAKHSTAN'S TOTAL TRADE, %



Source: Data from the Agency of Kazakhstan on Statistics, 2013.

FIGURE 2. THE MAIN DESTINATIONS OF KAZAKHSTAN'S EXPORT (% OF TOTAL VALUE)



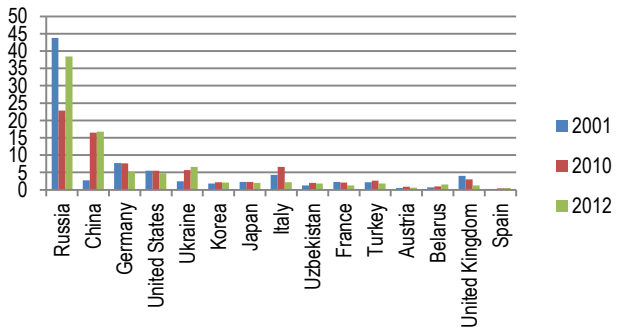
Source: Data from the International Trade Center, 2012.

By and large, this trade was a poor deal for the country. Kazakhstan "gave" much more to Russia and Belarus than it "has received" from them (Kazakov, 2012). This indicated an undesirability of further expansion of the trade with these countries. In 1995-2012, the share of Russia and Belarus in the trade of Kazakhstan fell from 47 and 1.5 percents to 17.9 and 0.1 percents, respectively, reflecting the reduced importance of these countries in the Kazakhstan's foreign trade (Figure 1). In 2011-2012, export's share of the CU countries in Kazakhstan's trade has been decreased by 2.8 percentage points (pp), import's share - by 3 pp., and trade's share - by 2.6 pp., while in 2010 there was observed an increase of their entire share in its total export - by 1.7 pp., in its import - by 8.5 pp., and in its total trade - by 2.7 pp.This confirms that Kazakhstan has achieved the highest relative level of trade with these countries in 2011-2012.

Nevertheless, Russia still continues to hold the palm of a main trading partner in the Kazakhstan's total trade with the world, but lost it against of exports in favor of Italy and China (Table 2). Russia accounts for about 97% of the turnover of Kazakhstan with the CU's countries, while Belarus related to the remaining 3%. However, in recent years, Russia has lost its significance as a major export partner of Kazakhstan, whereas the EU has strengthened its position, and China has become a leading export partner. If in 2001 the share of Kazakhstan exports to Russia was 20.4 percent, to the EU - 27.8 percent, and to China - 7.6 percent; then at the end of 2010, the share of its exports to Russia fell to 5.3 percent, while the share of the EU increased up to 55.5 percent and China up to 17.7 percent, respectively (Figure 2).

After the introduction of the CET in early 2010, the Russia's share in Kazakhstan's exports rose again to 8.1 percents in 2012, while the EU's and China's shares have remained almost at the same level - 54.4 and 17.9 percent, respectively. The share of Belarus was negligible in all cases - 0.1 percent.

FIGURE 3. THE MAIN IMPORTERS OF KAZAKHSTAN (% OF TOTAL VALUE)



Source: Data from THE International Trade Center, 2012.

As for imports, a significant reduction of Russian share from 48.3 to 22.8 percent has been observed in 2001-2010. However, this loss was largely rebuilt after the creation of the CU (Figure 3). As a result, the share of Kazakhstan's imports from Russia has increased to 38.4 percent in 2012 (trade creation effect). At the same time, the EU's share rose at first from 26 to 31.1 percent, but then declined to 17.3 percent. This was the impact of the entering of the CET within the CU. Also of note is a sharp increase in imports from China to Kazakhstan. It grew rapidly from 2.7 to 16.5 percents in 2001-2010. After the introduction of the CET, its share also fell to 13.2 percent in 2010, but then increased again to 16.8 percent in 2012. The rapid recovery of China's exports indicates a high competitiveness of Chinese goods in comparison with European goods in the Kazakh market, where the cheapness of goods valued more than their quality. The

share of other countries for the import of Kazakhstan was dropped after the introduction of the CET (trade diversion effect).

Impact of the CU becomes more pronounced when we look at the structure of the entire foreign trade of Kazakhstan. Considering the period since its creation to the present time, we see that the positive effects of the CU associated with the expansion of exports, being a short term. The share of Russia and Belarus in the Kazakhstan's total exports has really grown from 8.3% to 10% in the first year after the CET introduction. However, in subsequent 2011-2012 years, it has been decreased to 9.2% and 7.2%, respectively (Table 1). This shows that the export of Kazakhstan presented by raw materials is becoming less popular in the market of members countries as Russia itself is the supplier of the same products. Thus, in the case of Kazakhstan, we see that the diversion effect of trade with the CU takes place not only in relation to imports, as is the case of other countries, but also in respect to exports from other members of the same union, because it is competing with own exports produced in other member countries. However, this statement is true only for extracting countries, which are forced to compete on a narrow segment of the commodities. It is not be true for developed countries, where a list of competing products is much wider, as well as the markets of these countries are dominated by monopolistic competition. Another reason could be achieving a high level of exports, beyond which a further increase is not economically feasible.

TABLE 3. THE TOP TEN MAJOR EXPORT COMMODITIES OF KAZAKHSTAN TO RUSSIA, % OF TOTAL EXPORT

	Export commodities	Code	1995	2000	2005	2010	2011
1	Iron ore and concentrates	2601	2.3	3.4	16.2	12.4	19.7
2	Coal. anthracite	2701	14.0	8.9	11.4	14.0	18.4
3	Flat-rolled iron or non-alloy steel	7210	1.0	4.5	5.9	5.3	5.6
4	Artificial corundum	2818	7.5	9.2	10.7	7.2	5.4
5	Copper cathodes and their sections	7403	2.5	0.0	0.0	0.1	4.3
6	Chromium ores and concentrates	2610	1.9	1.2	3.7	5.0	4.3
7	Uranium ore, waste and scrap	2844	0.0	2.2	4.5	4.7	3.5
8	Copper ores and concentrates	2603	0.0	1.8	3.2	2.3	3.2
9	Rough aluminum	7601	0.0	0.0	0.0	3.5	3.0
10	Ferromanganese	7202	2.0	0.1	2.4	3.7	2.8
	The total share of ten commodities		31.2	31.3	57.9	58.2	70.2

Source: Custom statistic of the National Bank of Kazakhstan, 1995-2011.

TABLE 4. THE TOP TEN MAJOR EXPORT COMMODITIES OF KAZAKHSTAN TO BELARUS, % OF TOTAL EXPORT

	Export commodities	Code	1995	2000	2005	2010	2011
1	Flat-rolled	7210	5.1	3.3	23.5	7.3	27.0
2	Light distillates	2710	0.0	0.0	0.0	76.8	22.0
3	Rough aluminum	7601	0.0	0.0	0.0	3.9	20.9
4	Conveyor belts	4010	0.0	0.0	6.9	1.1	5.9
5	Flat-rolled	7209	5.1	0.0	0.6	3.6	4.5
6	Durum wheat	1001	17.4	35.8	17.9	0.0	2.6
7	Phosphinate and phosphonates	2835	2.5	0.0	0.0	0.2	2.4
8	Mineral fertilizer	3105	0.0	0.0	0.0	0.4	2.0
9	Ball bearings	8482	2.2	0.0	6.4	0.5	2.0
10	Lead-acid batteries	8507	0.0	0.0	5.4	0.1	1.2
	The total share of the commodities		32.2	39.1	60.8	93.8	90.4

Source: Custom statistic of the National Bank of Kazakhstan, 1995-2011.

TABLE 5. THE TOP TEN MAJOR KAZAKHSTAN'S IMPORT COMMODITIES FROM RUSSIA, % OF TOTAL IMPORT

	Import commodities	Code	1995	2000	2005	2010	2011
1	Natural gas condensate	2709	1.9	3.3	11.8	19.6	16.4
2	Light distillates	2710	6.2	9.1	7.8	6.3	8.1
3	Tank-wagons	8606	0.1	0.0	2.6	1.0	2.2
4	Coke and semi-coke of coal	2704	4.2	1.6	1.9	1.5	1.5
5	Bars and rods of iron or non-alloy steel	7214	0.3	0.5	1.2	1.4	1.4
6	Metal beams	7216	0.6	0.8	1.4	1.1	1.3
7	Oil or gas pipes	7304	2.2	2.0	1.9	0.9	1.1
8	Vacuum pumps	8414	0.1	0.1	0.1	0.4	1.1
9	Monitors with cathode-ray tube	8528	0.0	0.0	0.0	0.6	1.1
10	Pneumatic tires	4011	0.0	1.6	1.0	0.7	1.0
	The total share of ten commodities		15.5	19.0	29.7	33.5	35.2

Source: Custom statistic of the National Bank of Kazakhstan, 1995-2011.

TABLE 6. THE TOP TEN MAJOR KAZAKHSTAN'S IMPORT COMMODITIES FROM BELARUS, % OF TOTAL IMPORT

	Import commodities	Code	1995	2000	2005	2010	2011
1	Milk and cream concentrated or containing sugar	0402	0.7	0.2	2.7	8.2	10.1
2	Pneumatic tires	4011	0.0	10.2	4.2	7.3	7.4
3	Plastic cards with a magnetic stripe	8523	0.0	0.0	0.0	0.1	5.5
4	Trucks	8704	0.0	0.1	15.6	5.0	5.5
5	Windows, balcony doors and frames from wood	4418	0.0	0.3	1.5	1.4	5.4
6	Tractors	8701	2.7	8.5	6.3	4.4	5.4
7	Writing metal desks	9403	3.4	3.3	4.3	3.5	3.8
8	Solod	1107	0.2	0.3	0.0	0.4	2.7
9	Natural butter	8701	0.0	0.0	6.4	1.7	2.5
10	Helicopters	8802	0.0	0.0	0.0	5.7	2.4
	The total share of ten commodities		7.0	22.9	41.0	33.3	48.3

Source: Custom statistic of the National Bank of Kazakhstan, 1995-2011.

Quite different is the case with the imports from Russia and Belarus in Kazakhstan. Immediately after the introduction of the CET, imports from Russia to Kazakhstan have increased dramatically. So, if in 2010, imports from these countries amounted to 32.5% of the total imports of Kazakhstan, in 2010, their share had risen to 41%, and in 2011, - to 42.9%. This means that its population has become more satisfied with goods from Russia and Belarus than goods produced in countries outside the CU (trade diversion effect). However, this trend did not last long, and in 2012 was the decline in the share of CU to 38.1%. The reason could be the achievement of the highest level of imports, beyond which a further increase is not economically unfeasible.

Merchandise exports from Kazakhstan have also changed, but not dramatically. Leading position still owns mineral products (ores and concentrates, chemical and metallurgical products). Moreover, Kazakhstan's exports to these countries dominated by few primary products, whose share are constantly growing. Whereas, in 1995 the top 10 largest commodity groups of Kazakhstan's exports to Russia, including iron ore, coal, flat-rolled products of iron, synthetic corundum, copper cathodes, chrome ore, uranium ore, copper ore, ore, ferromanganese accounted for 31.2 percent; in 2011, their share had risen to 70.2 percent (Table 3). Almost similar trends are observed in Belarus. Whereas, in 1995, the top 10 largest commodity groups of Kazakhstan's exports to Belarus, including flat-rolled products, light oils, crude aluminum conveyors, durum wheat, phosphates and phosphonates, fertilizers, bearings, lead-acid batteries, accounted for 32.2 percent; in 2011,

their share has been increased to 90.4 percent (Table 4). This is evidence of growing raw specialization of Kazakhstan in the trade with other partner countries.

Kazakhstan imports from these countries mainly products of industrial processing. The ten major imported products from Russia include natural gas condensate, light distillates, tank-wagons, coke and semi-coke of coal, bars and rods of iron or non-alloy steel, metal beams, oil and gas pipes, vacuum pumps, monitors, pneumatic tires (Table 5). Ten major imports from Belarus are also industrial products such as condensed milk and cream, tires, plastic cards, trucks, wooden windows, balcony doors and their frames, tractors, malt, natural butter, helicopters (Table 6).

Thus, the previous analysis shows that Kazakhstan acts mainly as a supplier of raw materials and buyer of finished processed products in the trade with other CU's countries, which drastically reduces its benefits from the participation in the CU in comparison with possible benefits of a more balanced trade. On the base of these observations, we can suggest that Kazakhstan may have reached its potential level in mutual trade with other countries of the CU, which could mean the desirability of its further expansion. In order to test this hypothesis, it is necessary to evaluate the mutual trade potential of Kazakhstan with other CU's countries over the past period of time, and then compare it with the actual data.

Literature review

The theory of customs union was originally developed by List in Germany (List, 2009), who stated that the hypothesis of equalization of living standards in free trading countries, as a result of the removal of tariff barriers is not borne out in practice. On the contrary, it leads to the transfer of difficult and low-paying jobs to less developed country, with the dividends received by a developed country. If the state does not participate in foreign trade, it also leads to a low rate of economic growth, as investments dispersed. List proposed a third way for weak countries with similar levels of development, common cultural and historical values, which consists of trade liberalization in the framework of the customs union, but not beyond it (Simon, 2010).

Viener (1950) showed that the net welfare of a customs union depends on the net impact of trade creation or trade diversion. Trade creation involves replacing the high cost of domestic production of one member by importing low-cost products of another member. Trade diversion means the replacement of more efficiently produced foreign imports by less efficient products from a supplier within the customs union.

Mead (1955) showed how the formation of the customs union may change relative prices and consumption patterns, thereby changing the volume of trade between countries. Since this can lead to two effects - the expansion of trade and trade contraction, increased welfare will only be possible when there is net increase in the volume of trade. However, Lipsey (1957) noted that the reduction of tariffs on a discriminatory basis in the framework of regional integration mechanism does not necessarily lead to greater wealth for a country or for the world as a whole.

Sodersen and Reid (1994) showed that after the formation of the custom union only an exporting country profits from trade diversion, while an importing country bears losses caused by declining terms of trade. However, since each member of the customs union is in mutual relations with other members represented either as an exporter or importer, the losses through trade diversion on imports might be matched by gains through trade diversion on exports. Kemp and Wan (1976) argued that the customs union with transfer payments for less favorable conditions between countries always favorable for each country, as even if there is a loss, it can be compensated.

Multilateral trade within the customs union is driven either through a change in the relative prices of production factors, or economies of scale. The first factor leads to the trade with a variety of products or to inter-industry trade. This is typical for trading with

primary production. The second factor leads to the trade with similar products or to intra-industry trade. In this case, the country will specialize in different varieties of similar goods or parts thereof. This is typical for the production of knowledge-intensive and technologically complex products that require a deeper level of cooperation between firms. The more similar are countries, the more important becomes the second type of trade (Helpman and Krugman, 1985).

Economic integration can also undermine the market power of dominant firms through market entry of competing firms from other member countries. Therefore, with the liberalization of trade, sales at home will be reduced and at the same time, sales to export markets will be expanded (Baldwin and Venables, 1995).

Consideration of gains and losses from bilateral trade, where a small country shapes or joins to a regional integration was carried out by Perroni and Whalley (1994). They argued that a small country enjoys the benefits of ensuring its access to the markets of a large country. Schiff (1997) also found that a small country joining RTA can increase its welfare by reducing tariffs on imports from member countries, which is large enough to satisfy its entire import demands for at little or no increase above the prevailing international terms of trade. Lipsey (1960) noted that the welfare of the CU will be higher; the higher trade shares of each country with partner countries, and lower its trade with the rest of the world. In addition, becoming a member of a customs union with a common external tariff, a small country can increase its bargaining power in multilateral trade negotiations (Fernandez, 1997).

One of the common characteristics of recent trade agreements is that they are regional, as they have been established by neighboring countries (Ethier, 1996). Such countries would likely to gain greater welfare from regional integration if they are large, trade disproportionately with each other and geographically proximate, so the risk of trade diversion will be minimal (Summers, 1991). It was also noted that since proximity between neighboring countries increases trade between them (due to lower transport costs), it reduces the extent of trade diversion and increases the benefits of regional integration (Wonnacott and Lutz, 1989). All these theories help us to better understand gains of Russia, Kazakhstan, and Belarus from the participation in the CU, where first one represent a large country and the latter two - small countries.

Assessment of the determinants of bilateral trade flows between countries in regional trade union is usually made on the basis of construction of the gravity model. Tinbergen (1962) and Pöyhönen (1963) were first authors, who applied a gravity model for the analysis of international trade flows. Since then, the gravity model has become a popular tool in empirical studies of bilateral trade. Bergstrand (1985, 1989), Deardorff (1998), Eaton and Kortum (2002), Anderson and van Wincoop (2003), Helpman et al. (2008) and Chaney (2008) strengthen the theoretical foundation of this model. According to this model, the volume of bilateral trade between two countries is an increasing function of their income and a decreasing function of the distance between them. The gravity model uses distance for modeling transport costs. Nevertheless, Bougheas et al. (1999) showed that transport costs do not depend only on the distance, but also on the level of development of public infrastructure. They added new variables such as the stock of social capital and the length of the motorway network. Limao and Venables (1999), Martinez-Zarzoso and Nowak-Lehmann (2003) went further, using the mean over four variables: km of road, km paved road, km of rail (each divided by the density of the population) and installed telephones main lines per person. Felipe and Kumar (2010) used the World Bank's Logistic Performance Index, which is a composite measure comprised of 7 components: efficiency of customs and other border agencies, quality of transport and information technology (IT) infrastructure, ease and affordability of international shipments, competence of local logistics industry (LPI), ability to track and trace, domestic logistics costs, and timeliness of shipments in reaching destination. However, these variables are closely related to each other, so it is not possible to determine the impact of each of them on transport separately.

Rahman and Ara (2010) used ad valorem tariff specific to trading partners in current years as a proxy for trade transaction cost. Berstrand (1985, 1989) introduced real exchange rates in the gravity model as a proxy for prices, then, Soloaga and Winters (1999), Khan (2000) incorporated it into the gravity equation.

In addition to the traditional variables, several other relevant variables can be added to the gravity model to account for other factors affecting bilateral trade. Augmented gravity model may include additional independent variables, such as difference in per capita income, level of taxation, exchange rate volatility, infrastructure endowment, and market openness and etc., which reflect the specific characteristics of a cross-country trade or the impact of government policies. It can include also time-invariant dummy variables, such as common language, history, RTA membership, geographic characteristics as adjacency, landlocked, island, and coastal (Greene, 2013, pp.9-13). Their use is justified by the fact that a common language, culture, membership in regional or preferential trading arrangements, proximity, and access to the sea are associated with increased mutual trade. Dummies unlike other variables can take only values one or a zero.

Trade potential can be measured as the maximum possible trade (Kalirajan, 1999) that can occur between such countries, which have liberalized trade restrictions. It might be achieved in the case of the most open and frictionless trade given current trade, transport and institutional technologies or practices (Drysdale et al., 2000; Armstrong, 2007). The realized actual trade is a current level of trade with existing level of restriction and institutions. There is a gap between potential and actual trade, which is related to different socio-economical and institutional factors that are hindering actual trade to grow to the upper limit of the production frontier. Trade performance (or trade efficiency) is then a measure of actual trade against potential trade and can be estimated statistically using the stochastic frontier gravity model (Kalirajan and Findlay, 2005). Trade performance is not only affected by trade policies; it is also affected by policies, institutions and regulations that facilitate or inhibit trade and investment and promote openness right across the economy (Armstrong et al., 2008).

Two different methods of the assessing of foreign trade potential are used for its evaluating: 1) based on the gravity model; 2) based on the use of trade indices. Each method has its own advantages and disadvantages (Table 7).

TABLE 7. COMPARISON OF THE TWO MAIN METHODS OF TRADE POTENTIAL ESTIMATING

	ADVANTAGES	DISADVANTAGES
GRAVITY MODEL	- Allows comparisons at the level of commodities, set of commodities and countries - Allows to consider the influence of many factors - Enables cross-section comparisons	- Treats trade potential as a static variable that can lead to measuring errors - Requires a lot of data over long periods of time - Does not capture all the dynamic effects
TRADE INDEXES	- More accurate calculation of trade capacity-building. as it treats it as a dynamic variable - Requires little data for short periods of time - Catch all dynamic effects	- Estimate the trade potential mostly at the commodity level. and does not allow a comparison at the country level - Does not allow to carry out a factor analysis - More suitable for longitudinal comparisons

Source: Compiled by the author.

The first method is more common. It evaluates the potential of foreign trade on the basis of ordinary least squares (OLS) techniques. The coefficients thus obtained from the gravity model estimation are then used to predict trade potential for a considered country

(Baldwin, 1994). The ratio of predicted trade (P) obtained by the model and actual trade (A) i.e. (P/A) is then used to analyze the country's trade potential (Batra, 2004, p.15). The value of (P-A) has also used to assess the potential of country's trade expansion. A positive value implies future possibilities of trade expansion while a negative value indicates that country has already exceeded its trade potential with a particular trading partner (Rahman, 2009, p.20). This methodology of trade potential calculation has been widely used by researchers studying international trade. It can be applied either at the aggregate or industry level (Helmers et al., 2005). Egger (1999), using this methodology, estimated the potential for trade between Austria and five CEE countries (Hungary, Czech Republic, Slovak Republic, Poland and Slovenia). Konkhartchank and Maurel (2003) assessed the potential of trade between the central eastern European countries, and EU. Batra (2004) analyzed India's global trade potential by applying of an augmented gravity model. Rahman (2009) investigated trade potential for Australia using augmented gravity models. Kabir and Salim (2011) examined the integration of ASEAN and EU by using coefficients of the intra-EU trade found previously by Pastore, Ferragina and Giovannetti (2009) as a benchmark and then put the data of ASEAN-EU country pairs into a similar gravity model to calculate the trade potential.

The second method allows estimating the trade potential only at the commodity level. It does not allow analyzing and identifying the impact of various trade factors, as well as doing cross-section comparisons. Therefore, in this study we use gravity method, as more suitable for analysis at the country level.

There are a lot of papers related to the study of the current conditions in the EurAsEC and CIS (Elborgh-Woytek, 2003; Freinkman et al, 2004; Michalopoulos and Tarr, 1997; De Kort et al, 2006; Shepotylo 2009; Kurmanalieva, E. Vinokurov, E., 2011; and EDB, 2012), as well as to the accession of Kazakhstan (Jensen and Tarr, 2007, World Bank, 2012) and Russia to the WTO (Stern, 2002; Banetskaia-Kukharchukova et al, 2004; Khatibi, 2008), however, they only partially addresses the mutual trade within the CU. This paper is tried to fill this gap.

Methodology and data

To assess the impact of the CU creation on Kazakhstan's trade, we used a basic gravity model. According to this model, the volume of trade between any countries, like the gravitational force between two objects, depends directly on their respective 'masses' (GDP is used as a proxy for mass) and inversely on the distance between them (reflects transportation costs).

The basic gravity model

The gravity model for international trade is analogous to Newton's 1686 law of universal gravitation. The basic gravity equation can be expressed as:

$$F = G\frac{m_1 \cdot m_2}{r^2} \Rightarrow Trade_{ij} = \alpha \frac{Y_i^{\beta} \cdot Y_j^{\gamma}}{D_{ij}^{\delta}} \qquad (1)$$

Where, $Trade_{ij}$ is the trade flow of country i to country j; Y_i and Y_j are national products of country i and j, respectively; D_{ij} is distance between countries i and j, which reflects transportation costs of delivering goods (eg, price of fuel, infrastructure, and physical shipping costs, transport time, and market access); parameters α, β, γ, and δ are coefficients to be estimated empirically. For easy application, equation 2 can be represented in a linear form by taking logarithm:

$$Ln(Trade_{ij}) = \alpha + \beta \ln(Y_i) + \gamma \ln(Y_j) - \delta \ln(D_{ij})_{ij} \quad (2)$$

Depending on the specification, $Trade_{ij}$ can be exports (X_{ij}), imports (I_{ij}), or total trade (T_{ij}) between two countries. The α is the country-pair fixed effects covering all unobservable factor affecting bilateral trade, that can be favorable or not favorable for trade. The β and γ parameters, which measure the impact of exporting and importing country size; δ measures the impact of distance, and μ_{ij} - is the error term.

As for the signs, α coefficient shows the influence of unrecorded factors. Therefore, it can be either positive or negative. Coefficients β and γ are positive, because higher GDP means more opportunities to trade. The distance parameter δ is normally negative as it just a proxy for various trade costs, which depends on distance. If other trade cost variables are added, the absolute value of the distance parameter could be reduced. In principle, the distance parameter could become insignificant if we are able to measure all trade barriers correctly (Melchior, 2009, p.8).

Augmented gravity model

In addition to two traditional variables (national income and distance), this paper augments the basic model (equation 2) by adding several conditioning variables to control for unobserved country characteristics that can either promote or impede Kazakhstan's trade.

The dependent variable used in this paper is the natural log of Kazakhstan's merchandise trade, export and import within the CU countries measured in constant U.S. dollars of 1995. In order to obtain the real value of trade flows, we used trade prices from custom statistics, not CPI or deflator GDP, as it is usually done. This allows obtaining more accurate estimates of aggregate trade prices, taking into account price changes of each commodity group, while the use of CPI or deflator GDP gives rough estimates, which do not take into account prices changes of each commodity group for considered period of time. But in our case there was a problem to bring different units of measurement to a unified one, because the physical volume of goods are measured in different units, such as tons, square meters, liters, pairs, meters, pieces, cubic meters, karats, etc. To do this, we first grouped all trade flows in same units of measurement, and found the uniform prices for each commodity flow.

The calculation of the overall trading index were based on the Fisher index, which made it possible to get rid of the shortcomings of the Laspeyres and Paasche indexes and obtain a more accurate assessment of changes in prices for the period analyzed.

Lapeyres index of commodity prices (IL) measures the changes in trading prices on the basis of the value of goods traded by the country with other countries during a year. As weights are used natural quantities of goods of the base year:

$$IL = (\sum p_{0i} q_{ti} / \sum p_{ti} q_{ti}) * 100\% \quad (3)$$

Where, p_{ti}, p_{0i} - the price for the ith traded good in the current (t) and base (0) periods, respectively; q_{ti}, q_{0i} - the quantity of the ith traded good in the current (t) and base (0) periods, respectively;

Paasche index of commodity prices (IP) was calculated on the basis of the value of goods traded by the country with other countries during a current year. As weights used natural quantities of goods throughout a year:

$$IP = (\sum p_{ti}q_{ti}/\sum p_{0i}q_{ti}) * 100\% \quad (4)$$

Where, p_{ti}, p_{0i} - the price for the ith traded good in the current (t) and base (0) periods, respectively;

q_{ti}, q_{0i} - the quantity of ith traded good in the current (t) and base (0) periods, respectively.

However, both indices have inherent internal weaknesses. Lapeyres index overestimates the value of changes in prices and Paasche index understates it. This occurs for two reasons: a) Lapeyres index underestimates structural trade changes (the substitution effect of more expensive goods on relatively cheaper), since it is calculated on the basis of the trade pattern of a base year, ie, it attributes structure of the base year to the current trade. Thus, the trade values are artificially inflated. Paasche trade index, on the contrary, overestimates the structural trade changes (the substitution effect), attributing the weights of the current year to the base year. Then, based on both indexes, the Fisher index was calculated, which removes these deficiencies, as it is the geometric mean of the Laspeyres and Paasche indexes:

$$IF = \sqrt{IL \times IP} = \sqrt{\frac{\sum p_{ti}q_{ti}}{\sum p_{to}q_{ti}} \times \frac{\sum p_{ti}q_{0i}}{\sum p_{0i}q_{0i}}} \quad (5)$$

The augmented gravity equation for Kazakhstan's trade within the CU is as follows:

$$LN\_TR\_95_{ij} = \alpha + \beta LN\_GDP\_KZ95 + \gamma LN\_GDP\_FC95_j + \delta LN\_DIST_{ij} + \theta_1 RI\_KZ + \theta_2 T\_COMP_{ij} + \theta_3 D\_TF_{ij} + \theta_4 D\_FC_{ij} + \theta_5 D\_FF_{ij} + \theta_6 D\_IF_{ij} + REER_{ij} \quad (6)$$

Where, α is the country-pair fixed effects covering all unobservable factor affecting bilateral trade. TR_95_{ij} denotes the bilateral trade turnover between Kazakhstan and partner country j in blns of dollars in 1995 prices. Trade turnovers was cleared from inflation using trade prices on commodities, taken directly from the customs statistics of the National Bank of Kazakhstan, not CPI or GDP deflator, as it usually done (Khatibi, 2008, p.4; Kurmanalieva and Vinokurov, 2011, p.7). This method allows for a more accurate account of price changes in the foreign trade;

GDP_KZ95 and GDP_FC95_j denote the GDP of Kazakhstan and the GDP of j member's country of the CU in constant prices of 1995, in bln dollars. We used GDP at constant prices for each country, cleared of inflation by GDP deflator rather than CPI, because it is a more appropriate measure for the total country's output. Real GDP is included to capture the factors associated with the level of economic development (Frankel, 1993). It also reflects the production capacity of an exporting country and the absorptive capacity of an importing country;

$DIST_{ij}$ is the geographical distance in km between capitals of Kazakhstan and j member's country. Distance is a trade barrier and the estimated coefficient is expected to be negative and statistically significant.

Compared to the basic gravity model, the following additional variables were included:

RI_KZ is the density of rail lines (total route-km) on 1000 sq. km of land area in Kazakhstan. This index is a proxy for the level of the country's transport infrastructure development. Countries with a developed infrastructure, is expected to trade more than those with less developed infrastructures. Since the development of the railway network has a positive impact on mutual trade, the sign of coefficient $\theta 1$ is expected to be positive.

T_COMP_{ij} defines the ratio of average trade-weighted tariffs in the partner countries of the CU in relation to the same in Kazakhstan. It reflects the influence of the height of trade barriers on the intensity of mutual trade. Tariffs are trade-weighted because countries differ in resource endowments and by comparative advantages. Such tariffs are also commonly used to measure various nontariff barriers and quantitative restrictions (Greene, 2013, pp.9-13). The increase in tariffs in other countries compared with those in the home country has a negative impact on the volume of bilateral trade with these countries, so that sign of of θ_2 has to be negative.

D_TF_{ij} is the ratio of the value of the index of trade freedom in partner country j to the value of this index in Kazakhstan. The index of trade freedom measures the degree of a country's trade liberalization regime and is conducted by the Heritage Foundation. Since the increase of this ratio means a reduction of comparative trade freedom in Kazakhstan, compared to other countries of the CU, the sign of the estimated coefficient θ_3 is expected to be negative. For example, in 1998-2009, the index of free trade has increased from 58.6 to 60.8 (by 3.7 percent) in Russia, and from 61 to 86.2 (by 41.3 percent) in Kazakhstan, while it declined from 79 to 67.2 (by 15 percent) in Belarus. Therefore, the value of this index has decreased from 0.96 to 0.71 in Russia and from 1.3 to 0.78 in Belarus.

D_FC_{ij} is the ratio of the value of the index of freedom from corruption in partner country j to the value of this index in Kazakhstan. Its increase indicates the relative growth of corruption in Kazakhstan, compared with other countries in the CU, so that the value θ_4 has to be negative.

D_FF_{ij} is the ratio of the value of the index of finance freedom in partner country j to the value of this index in Kazakhstan. As its growth means a relative reduction of comparative finance freedom in Kazakhstan, in comparison with other countries of the CU, the value of θ_5 should be negative.

D_IF_{ij} is the ratio of the value of the index of investment freedom in partner country j to the value of this index within the country. Its increase means the relative declining of investment freedom in Kazakhstan comparing to other countries of the CU. Therefore, the value of the coefficient θ_6 has to be negative.

Using these indices we calculate the ratio, rather than differences, in order to avoid problems with negative values by using natural logarithms.

$REER_{ij}$ is a real effective exchange rate of foreign currencies of the j major trading partner per unit of domestic currency, adjusted for inflation in all considered countries. It is usually used as a proxy for financial risk, relative prices, and purchasing power parity (Greene, 2013, pp.10). In our case it is a weighted average of changes in the exchange rates of the national currency of Kazakhstan - tenge against a basket of currencies of partner countries, adjusted for changes in relative prices, which was constructed by the formula (NBK, 2003):

$$REER_{ij} = 100 * \prod_{j=1}^{n} \left(\frac{p_i}{p_j} * \frac{e_{ij}^t}{e_{ij}^0} \right)^{w_{ij}} \qquad (7)$$

Where, e_{ij}^{t0}, e_{ij}^{t} - the bilateral nominal exchange rate of the j foreign country's currency per unit of the home currency (tenge) in the base year 0 and current years t, respectively;

p_j - changes in the price level in the partner country j – a trade partner of Kazakhstan over time between the base year 0 and the current year t;

p_i - changes in the internal prices level in Kazakhstan over time between the base year 0 and the current year t;

w_{ij} - the weight of the j country's trade in the total commodity trade turnover of Kazakhstan with the world, averaging for previous three years. It is calculated by the formula:

$$w_{ij} = \frac{TR_{ij(t-1)} + TR_{ij(t-2)} + TR_{ij(t-3)}}{TR_{t-1} + TR_{t-2} + TR_{t-3}},$$

Where, TR_t - the trade turnover of Kazakhstan with the total world in the year t;

TR_{ijt} - the trade turnover of Kazakhstan with the j partner country in the year t.

Using a three-year period for calculation of weights of the j trading partner is the most compromise approach. It can provide smoothing the impact of different factors on commodity trade flows. At the same time the risk of using of the old structure of merchandise trade in the weighting scheme is eliminated.

Some researchers consider real exchange rate as the significant factor affecting bilateral trade (Klein and Shambaugh, 2006; Gul and Yasin, 2011; Hosny A.S., 2013). The appreciation of national currency can lower exports while increasing the demand for imports, whereas depreciation can stimulate the country's exports and decrease its imports (Bergstrand 1985, 1989). Thus, the sign of REERij may be positive or negative.

The equation 9 shows the gravitation model for Kazakhstan's exports to other member countries of the CU, presented in a linear logarithmic form:

$$\begin{aligned} LN\_EX\_95_{ij} = {} & \alpha + \beta LN\_GDP\_KZ95 + \gamma LN\_GDP\_FC95_j + \\ & \delta LN\_DIST_{ij} + \theta_1 RI\_KZ + \theta_2 T\_COMP_{ij} + \theta_3 * D\_TF_{ij} + \\ & \theta_4 * D\_FC_{ij} + \theta_5 * D\_FF_{ij} + \theta_6 * D\_IF_{ij} + \theta_7 REER_{ij} \end{aligned} \quad (8)$$

In this equation, EX_95_{ij} denotes the bilateral export between Kazakhstan and partner country j in 1995 prices. Deflation was calculated on the base of trade prices of commodities, taken from the customs statistics of the National Bank of Kazakhstan. The independent variables, methods of their calculation and expected signs of the coefficients are the same as in equation (6). One exception is $REER_{ij}$, because the export to other countries of the CU depends on the real effective exchange rate of tenge to the national currencies of these countries. Increase\decrease in the index means that the tenge appreciates\depreciates in real terms against the basket of currencies of the countries which have trade relations with Kazakhstan. Thus, the coefficient of $REER_{ij}$ is expected to be positive in the exports data panel.

The equation 10 shows the gravitation model of Kazakhstan's import from other countries of the CU, represented in a linear logarithmic form:

$$\begin{aligned} LN\_IM\_95_{ij} = {} & \alpha + \beta LN\_GDP\_KZ95 + \gamma LN\_GDP\_FC95_j + \\ & \delta LN\_DIST_{ij} + \theta_1 RI\_KZ + \theta_2 T\_COMP_{ij} + \theta_3 * D\_TF_{ij} + \\ & \theta_4 * D\_FC_{ij} + \theta_5 * D\_FF_{ij} + \theta_6 * D\_IF_{ij} + \theta_7 * REER_{ij} \end{aligned} \quad (9)$$

In this equation, the variable IM_95_{ij} was used to denote the bilateral import between Kazakhstan and partner country j in 1995 prices. All other variables, the method of their calculation and the expected signs of coefficients are the same as in equation (8). One exception is $REER_{ij}$, because the import of Kazakhstan from other countries of the CU depends on the real effective exchange rate of tenge to the national currencies of these countries. Increase\decrease in the index means that tenge appreciates\depreciates in real terms against the basket of currencies of main trade countries. Thus, the coefficient of $REER_{ij}$ is expected to be negative in the imports data panel.

Regarding the estimation method, we have to deal with two problems. The first problem is connected with heteroskedasticity and auto correlation in the panel data set. We found panel level heteroskedasticity and some autocorrelation by using LR test and Wooldridge's test for autocorrelation in panel-data models. We apply the weighted ordinary least square (OLSQ) method with corrected errors to estimate parameters for panel data. In addition, endogeneity of the regressors gives rise to simultaneous determination such as the relation between the density of rail lines (total route-km) on 1000 sq. km in Kazakhstan and bilateral trade flows. Therefore we apply the Generalized Method of Moments (GMM) technique. The GMM technique proposed by Blundell and Bond (1997) is the estimation of a system of two simultaneous equations, one equation in levels and the other in first differences, and these simultaneous equations are estimated with lagged levels and first differences instruments.

In our study, the trade potential of bilateral trade, exports and imports was calculated on the basis of gravity models. We use received equations to calculate estimated trade potential for certain years. We assume that estimated trade flows are equal potential trade flows. The mutual trade potential within the CU was calculated as the ratio of actual trade to potential trade. It can be expressed in the following formula:

$$\textit{Trade Potential (k)} = \textit{Actual Trade} \,/\, \textit{Estimated Trade Potential} \times 100\% \qquad (10)$$

If the trade potential is less than 1, the existence of untapped trade potential between countries of the CU is evident. If it is at unity, actual trade has already met the potential trade level. The downward trend indicates a growing gap between the actual trade level and its potential level, while the increasing trend shows that the actual trade level converges to its potential level.

The data collected in this paper are time series data from 1995-2011 and cross section of 3 countries (Kazakhstan, Russia and Belarus). The trade data comes from the custom statistic of National Bank of Kazakhstan. Total exports are valued free on board (FOB) and are recorded in current US dollars, so the data is deflated using actual trade prices. The real GDP data (in constant US dollars) is also obtained from the WITS database of the World Bank. The information on distances between capitals of trading countries is collected using distance calculator, http://distancecalculator.globefeed.com. Data on the length of railways and the land area of the CU countries were obtained from the WITS database of the World Bank. Data on tariff rates also obtained from the WITS database of the World Bank, wits.worldbank.org. Data on the freedom indexes come from the Heritage Foundation (2007), <www.heritage.org/Index/>?, data on trade statistics, the density of rail lines (total route-km) at 1000 sq. km, the land area obtained from the Agency Kazakhstan on statistics, www. stat.kz. The real effective exchange rates data were taken from the dataset of the National Bank of Kazakhstan: http://www.nationalbank.kz.

Primary results of a quantitative analysis

We estimated gravity models separately for trade, exports and imports of Kazakhstan with other countries in the CU, respectively. For the calculations, we used the weighted

ordinary least square (OLSQ) method, and the technique of Generalized Method of Moments (GMM). All estimated coefficients of the variables used have expected signs with statistical significance (Table 8).

TABLE 8. EMPIRICAL RESULTS OF GRAVITY EQUATION ESTIMATION ON TOTAL TRADE FOR 1995-2011

	Trade (Ln_Tr_95)		Export (Ln_Ex_95)		Import (Ln_Im_95)	
	OLS	GMM	OLS	GMM	OLS	GMM
LN_GDP_FC95	1.11*(31.35)	1.11*(34.32)	1.51*(36.24)	1.50*(37.53)	1.04*(26.45)	1.12*(24.23)
LN_DIST	-1.66*(-4.68)	1.67*(-5.17)	-	-	-2.32*(-7.28)	-1.74*(-4.93)
T_COMP	-0.18*(-2.64)	-0.18*(-3.17)	-0.27**(-2.48)	-0.18****(-1.49)	-	-
RI_KZ	3.10* (5.97)	3.11* (6.52)	-	-	3.96*(7.92)	3.06*(5.53)
D_TF	-	-	-0.53*****(-1.25)	-0.81***(-1.75)		
D_FF	-	-	-	-	-0.24**(-2.68)	-0.47*(-3.26)
REER	-0.53*****(-1.23)	-0.52****(-1.46)	-	-	-	-
Observations	34	28	34	28	34	28
R2	0.977	0.977	0.958	0.956	0.990	0.988
Adjusted R2	0.974	0.974	0.954	0.953	0.989	0.987
SSR	3.111	3.111	6.567	6.825	1.005	1.250
Akaike info crt.	-2.097	-2.097	-1.235	-1.197	-3.04	-2.82
Schwarz crt.	-1.872	-1.872	-1.092	-1.055	-2.85	-2.63
D-Watson stat	1.884	1.873	1.979	1.857	1.844	1.343
Log likelihood	-7.592		-19.43		6.847	
F-statistic	309.6		283.0		843.5	

Source: compiled by the author

Notes: Standard errors are in parentheses: *. **. ***. **** denotes 1%. 5%. 10%. 15%. 20%.

The gravity models of Kazakhstan's exports and imports with the countries of the CU are fully complied with all statistical tests. The gravity model of Kazakhstan's trade turnover with the CUs countries is also satisfied almost all of the criteria, with the exception of the test on autocorrelation. Appendices 1 and 2 present the detailed descriptive statistics and the simple correlation of used variables.

The Table 8 shows that not all indicators are initially considered by us as valuables were included in the final gravity models. All remaining explanatory variables in the equation showed a high degree of statistical significance, as can be judged by high rates of t-statistics or standard residues. The values of the Durbin Watson statistics show that models are free from first order autocorrelation. All of gravity models show a high degree of reliability, which can see from high levels of the determination coefficient (R^2) and F-statistics. They are, therefore, suitable for the modeling and forecasting.

Constructed gravity models have the following prominent features:

- Kazakhstan's trade (exports, as well as imports) relied heavily on partner countries GDP, but not on its own GDP. The GDP growth in partner countries by 1% leads to an increase in Kazakhstan's exports by 1.5%, its imports - by 1% and its trade turnover - by 1.1%. This is due to high commodity dependence of Kazakhstan's economy on foreign countries' markets, particularly those in the CU.
- The higher is GDP growth in partner CU's countries (LN_GDP_FC95), the higher demand for Kazakhstan's exports. On the other hand, since Kazakhstan produces raw materials in many times more than its internal needs, the growth of its exports weakly depends on the growth of its own GDP. The reason for the high dependence of Kazakhstan's imports from the GDP in partner countries and lower from GDP of own country is also commodity dependence of its economy, when almost all goods which economy produces goes to exports, while domestic demand is mostly satisfied by imports.
- The increase in transport distance (LN_DIST) by 1% leads to a decrease in imports - by 2.3%, and in total trades – by 1.7%, while has no significant effect on exports. This

is due to the fact that Kazakhstan's exports to CU's countries depend very little on transport costs (distance-related), because of the high profitability of exports. At the same time, the imports strongly depend on transport costs, since it was not as profitable as the exports.

- The growth of the Kazakhstan's customs tariff (T_COMP) relative to other partner countries by 1% has caused a decline in exports by 0.3%, in trade turnover – by 0.2%, while has no significant effect on exports. Why was this so? This was due to a higher difference between GDP export duties rates on finished products and on raw materials within the CU. Kazakhstan compared to Russia and Belarus uses zero tariffs on exports of raw materials, while import tariff rates do not differ so much. However, the adoption of the CET on January 1, 2010 means that this factor loses its significance in the future.
- The relative improvement of the internal rail network (RI_KZ) has a great impact on the Kazakhstan's imports, but had no effect on its exports. The increased density of the internal rail network by 1% led to an increase of Kazakhstan's imports with CU's partner countries of 4%, and its total trade turnover – by 3%, but almost has no effect on its exports. Why was it so, if from an economic point of view, one would expect a positive impact on both as exports, as well as imports? In our opinion, this is due to the fact that raw materials exports do not require an extensive development of internal railways network. For its delivery is still sufficient the already existing railways network, which was established during the colonial and soviet period of time, which from the beginning has been focused on the export of raw materials[1]. Another reason is the high profitability of raw materials exports (Table 3 and 4), which determines not only by a low production costs, but also by a high level of monopolization in these industries, as well as to the absence of export duties on raw materials in Kazakhstan since 1996 (Myrzakhmetova, 1999). This made the country's exports less sensitive to the reduction of transport costs due to the development of national rail network. In contrast to exports, imports mainly represented by various industrial goods (Tables 5 and 6), so it requires the development of an extensive network of domestic railways. Another factor is a high level of competition in the markets of imported goods. All these factors make the country's imports more sensitive to a reduction in transport costs than its exports.
- The relative decline of trade freedom in Kazakhstan in comparison with other countries of the CU (the relative growth of trade barriers) is not a favorable effect on its exports. Relative reduction in trade freedom (D_TF) by 1% leads to a decrease in its exports by 0.5%. However, it has no effect on imports as the country's economy is heavily dependent on imports of finished goods, and due to the lack of domestic production is forced to buy them even at a higher price. In contrast, the relative decline of financial freedom in Kazakhstan compared with partner countries (D_FF) by 1% (an increase of the relative financial barriers) reduces its imports by 0.2%, but has no effect on its exports. This is due to the fact that in the conditions of limited financial freedom, importers are less interested in the purchase of foreign goods.
- The changes in real exchange rate of tenge to the national currencies of partner countries (REER) do not significantly impact on mutual exports, and imports. Although, the appreciation of tenge against these currencies by 1% leads to its lower overall trade with other CU's countries by 0.5%, but the significance of REER is very low (its t statistic is equal 1.24). This means that this factor is not desirable to include in the model of Kazakhstan's trade turnover with the CU.

On the basis of gravity models, we have calculated the potential volume of trade turnover, exports, and imports of Kazakhstan with other CU's countries. The calculated results for trade of Kazakhstan with Russia and Belarus are presented in Tables 9 and 10.

[1] Until now, some of the regional and district centers in Kazakhstan are not linked to each other by means of cheap railway lines. This significantly increases the cost of transportation and makes it unprofitable to manufacture sophisticated products.

TABLE 9. THE CALCULATION OF THE POTENTIAL OF KAZAKHSTAN'S TRADE WITH RUSSIA IN 1995 PRICES , MILLION DOLLARS

Year	Fact	Model		Calculation		Fact	Model		Fact	Model	
	TR_95	TR_95f	k_{TR1}	TR_95c	k_{TR2}	EX95	EX95f	k_{EX}	IM_95	IM_95f	k_{IM}
	$ mln	$ mln	%	$ mln	%	$ mln	$ mln	%	$ mln	$ mln	%
1995	4260	3910	109	4260	100	2363	2363	100	1898	1898	100
1996	4806	3911	123	4806	100	2484	2484	100	2322	2322	100
1997	4135	3698	112	4135	100	2223	2223	100	1912	1912	100
1998	3120	2997	104	2727	114	1499	1359	110	1622	1368	119
1999	2333	2990	78	2964	79	1071	1511	71	1262	1453	87
2000	3831	3090	124	3654	105	1602	1753	91	2229	1901	117
2001	4113	3437	120	3844	107	1557	1765	88	2556	2080	123
2002	3478	3578	97	3898	89	1287	1630	79	2191	2268	97
2003	4435	4341	102	4679	95	1664	1532	109	2771	3147	88
2004	6333	3930	161	4626	137	2351	1242	189	3982	3384	118
2005	7673	8559	90	8648	89	2361	1820	130	5312	6828	78
2006	9978	10973	91	11245	89	2910	2715	107	7067	8530	83
2007	12279	13577	90	12417	99	3519	3642	97	8760	8775	100
2008	14684	15143	97	14555	101	4576	5298	86	10107	9257	109
2009	8787	14203	62	12919	68	2510	4416	57	6277	8502	74
2010	12758	15511	82	13244	96	4058	4643	87	8699	8601	101
2011	15991	16750	95	13955	115	5359	4964	108	10633	8991	118

Source: Authors' calculations based on the data of gravity models.
Notes: Actual trade data are taken from the database of the National Bank of Kazakhstan. Therefore, there may be some differences with the same data of the Agency on Statistics.

TABLE 10. THE CALCULATION OF THE POTENTIAL OF KAZAKHSTAN'S TRADE WITH BELARUS IN 1995 PRICES , MILLION DOLLARS

Year	Fact	Model		Calculation		Fact	Model		Fact	Model	
	TR_95	TR_95f	k_{TR1}	TR_95c	k_{TR2}	EX95	EX95f	k_{EX}	IM_95	IM_95f	k_{IM}
	$ mln	$ mln	%	$ mln	%	$ mln	$ mln	%	$ mln	$ mln	%
1995	132	79	168	132	100	54	54	100	78	78	100
1996	162	86	187	162	100	45	45	100	117	117	100
1997	96	91	105	96	100	41	41	100	55	55	100
1998	76	95	81	55	138	20	15	139	56	41	137
1999	46	93	50	67	68	11	17	62	35	50	70
2000	53	77	68	64	83	18	19	95	35	45	78
2001	43	78	56	65	67	4	16	27	39	49	80
2002	55	81	68	68	80	10	15	67	45	54	84
2003	87	99	88	90	97	11	15	69	76	74	103
2004	130	93	139	98	133	15	14	102	115	83	139
2005	182	207	88	194	94	21	22	95	161	173	94
2006	268	253	106	252	106	54	32	169	214	220	97
2007	385	294	131	297	130	95	41	232	290	256	114
2008	401	343	117	347	116	121	63	191	280	283	99
2009	300	357	84	346	87	39	62	62	261	284	92
2010	605	388	156	372	163	235	68	348	369	304	121
2011	494	385	128	395	125	71	74	96	423	321	132

Source: Authors' calculations based on the data of gravity models
Notes: Actual trade data are taken from the database of the National Bank of Kazakhstan. Therefore, there may be some differences with the same data of the Agency on Statistics.

Since the model of trade turnover of Kazakhstan with the CU's countries, characterized by a certain autocorrelation, in order to check the accuracy of its calculation, we check it simply by adding up the value of exports and imports, calculated by gravity models for the analyzed years. As a result, we found that, in 2011, Kazakhstan overuses its trade potential in the trade turnover with Russia by 115% and Belarus - by 125%, exports to Russia and

Belarus - by 108% and 96%, and imports from Russia and Belarus by 118% and 132%, respectively. Thus, our hypothesis about the possibility of the exceeding potential of mutual trade was confirmed on panel data of the CU's countries in recent years.

Although such findings have been made before, our findings appear to be more accurate. For example, according to Khatibi (2008, p.5), Kazakhstan's exports to CIS countries is 13 times more than by the average gravity equation. Together the CIS countries traded in four times of their potential levels in 1995 and now trade in three times higher than the potential (Kurmanalieva and Vinokurov, 2011, p.10). However, in this case, no development of mutual trade between these countries would be observed, but it is contradicts the actual data (Table 1). Achieving the potential of bilateral trade was observed only in recent years, as evidenced by the sharp slowdown in mutual trade. The foreign trade of Kazakhstan with Russia and Belarus has increased by 46.6% in 2010, by 25.4% in 2011, and only by 1.2% in 2012.

We believe that our results are closer to reality than the results of the above mentioned authors. According our results the dynamics of mutual trade have experienced ups and downs, which are caused by an excess or deficit of trade capacity, respectively. For example, in 1998, the Kazakhstan's trade within the CU was higher than the potential level, due to the sharp devaluation (50%) of the Russian ruble in 1998, which strongly increased the attractiveness of Russian goods to Kazakhstan's consumers. Exceeding the potential level, indeed, led to the sharp decline in its mutual trade with Russia from $3.3 bln to $2.5 bln, respectively (Table 1 and Table 9). However, due to a significant 60% devaluation of tenge in the spring of 1999, the bilateral trade has declined below its potential level, which made the purchase of Russian goods less favorable to Kazakhstan's consumers. The presence of underutilized potential of mutual trade in 1999, again spurred trade in 2000-2001 to $4.2 bln and $4.7 bln, respectively.

Another example is situation occurred in February 2009, when the National Bank of Kazakhstan for the second time has devalued tenge by 25% due to a significant negative balance of payments and a further decline in oil prices from $57.1 per barrel in the 4th quarter of 2008 to $45.4 per barrel in Q1 of 2009 (Kochetov E., 2013). A devaluation of tenge led to the significant increase in underutilized capacity of mutual trade in 2009, which realized in the trade growth from $12.4 bln to $17.9 bln in 2009-2010. Of course, another important reason for this increase was the introduction of CET since January 1, 2010.

In 2010, Kazakhstan underused its trade potential by 96%, exports – by 87% and meets its potential by imports – 101% in its trade with Russia (Table 9). Underutilization of trade capacity would lead to an increase in the mutual trade in following years. This is confirmed by the data of customs statistics regarding the trade turnover and exports, but not imports. In 2010, there was an increase in trade from $17.9 bln to $22.9 bln, exports of $5.7 bln to $7.7 bln, but imports saw an increase from $12.2 bln to $15.2 bln in 2011 (Table 1). Perhaps the introduction of the CET has a greater impact on imports in these countries. In the same year, Kazakhstan has overused the trade potential with Belarus on trade turnover by 125%, on exports - by 348%, and on imports - up 121% (Table 10). This was confirmed by the customs statistics on trades and exports, which fell from $0.87 bln to $0.73 bln, and from $0.10 bln to $0.9 bln, respectively, (Table 1). However, the overuse of trade potential has not been confirmed by imports, which increased from $0.62 bln to $0.70 bln. This may also be due to a greater impact of the CET.

Thus, statistic data in general confirms more our results than the findings of previous authors, which does not explain the changes in inter-country trade within the CU for 1995-2011.

Conclusion

The results show that participation in the CU is not as useful for Kazakhstan as for Russia and Belarus, as it seems at first glance. First, the participation in the CU has led to an

increase in Kazakhstan's trade turnover with Russia and Belarus mainly due to imports from these countries, while its exports to them have been declined since 2012. Second, Kazakhstan increasingly acts as a supplier of raw materials and buyer of finished processed products, which drastically reduces its benefits from the participation in the CU in comparison with possible benefits of a more balanced trade. Third, in the case of Kazakhstan, we see that the trade diversion effect in the CU takes place not only in relation to its imports, as is the case in other RTA, but since 2011 also in respect of its exports to these countries. As a result, its negative trade balance with them increased annually from (-)$0.5 bln to (+)$11.4 bln in 1995-2012. The posible reason is the achievement of the potential level of mutual trade, beyond which further increase is unbeneficial.

In order to test this hypothesis, we have evaluated the Kazakhstan's potential trade with other CU's countries, using the OLSQ and GMM techniques. A distinctive feature of our approach is the building of gravity models only on the data of partner countries. It drastically improved their quality, and made it possible to obtain more accurate calculations of mutual trade potential.

The received results basically supported our hypothesis that Kazakhstan has reached its potential level in its mutual trade with other countries of the CU as by exports, as well as by imports in recent years, which could mean the desirability of its further expansion in the same vein. The correctness of our calculations is confirmed by the fact that under the conditions of an excess (deficit) of trade potential is observed fall (rise) in mutual trade between the CU's countries. Another sign of reaching of bilateral trade potential was the reduction of growth rates as the actual level of trade has been approaching the potential level. It was something that we have seen in the CU in recent years. Unlike us, previous authors considered that Kazakhstan has achieved multiple exceedance of trade potential in the trade with CU's countries since 1995, but this would make mutual trade impossible in reality. Therefore, further inter-industry trade based on comparative advantage in the CU's countries according to the Heckscher-Ohlin model has come to a standstill, and to increase mutual trade, these countries have to specialize in the expansion of intra-industry trade. The more similar are countries, the more important becomes the second type of trade (Helpman and Krugman, 1985). This means that the time is ripe for the transition to a new, more advanced forms of cooperation - from horizontal (traditional trade) to vertical integration (production cooperation). Only in this case, the member states of the CU can expect sustainable long-term growth of mutual trade, and Kazakhstan will also be able to improve the trade balance in the trade with these countries.

In general, Kazakhstan's experience teaches that when the developing countries creating custom union have a similar, rather than a supplementing structure of their economies, the trade diversion effect may exceed the trade creation effect for weaker partners. In this case, it is necessary to provide transfer payments from the benefiting countries to the countries bearing the losses from their participation in an amount sufficient to fully compensate for their losses. Only this type of a custom union with transfer payments for less favorable conditions between countries may create favorable for each member country (Kemp and Wan, 1976) and is the key to successful development of the CU in the middle and long terms.

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Appendix

APPENDIX 1. DESCRIPTIVE STATISTICS

	TR_95	EX_95	IM_95	GDP_KZ95	GDP_FC95	DIST
Mean	4032.811	1323.179	2709.632	31.33964	192.8172	2605.950
Median	1469.005	653.4128	842.6408	30.99571	134.9259	2605.950
Maximum	15991.30	5358.707	10632.59	47.14160	469.3431	2938.050
Minimum	43.44836	4.406523	34.94136	17.56028	12.60399	2273.850
Std. Dev.	5036.640	1590.043	3465.799	9.836574	184.8695	338.1941
Skewness	1.083039	1.014975	1.113077	0.037668	0.252379	-1.99E-15
Kurtosis	2.802726	2.921166	2.754190	1.578361	1.287484	0.964286
Jarque-Bera	5.519277	4.814726	5.852211	2.364523	3.718740	4.834821
Probability	0.063315	0.090052	0.053605	0.306585	0.155771	0.089152
Observations	28	28	28	28	28	28

Source: Authors' calculations based on the data of gravity models.

APPENDIX 1. DESCRIPTIVE STATISTICS (CONTINUATION)

	RI_KZ	D_FC	D_FF	D_IF	D_TF	REER
Mean	5.159211	1.386509	0.881803	1.428571	0.909942	0.944143
Median	5.180946	1.069358	1.000000	1.000000	0.919716	0.916500
Maximum	5.261696	3.900000	2.333333	5.000000	1.295082	1.337000
Minimum	5.017224	0.700000	0.166667	0.666667	0.512761	0.764000
Std. Dev.	0.106641	0.741560	0.545641	0.983850	0.157608	0.147942
Skewness	-0.121613	1.871705	1.065459	2.091454	-0.206506	0.860720
Kurtosis	1.113323	6.070757	4.415777	7.246256	3.825161	2.947206
Jarque-Bera	4.221827	27.34978	7.636110	41.44865	0.993381	3.460500
Probability	0.121127	0.000001	0.021970	0.000000	0.608541	0.177240
Observations	28	28	28	28	28	28

Source: Authors' calculations based on the data of gravity models.

APPENDIX 2. SIMPLE CORRELATIONS OF VARIABLES

	TR_95	EX_95	EX_95	GDP_KZ95	GDP_FC95	DIST
TR_95	1.0000	0.9917	0.9983	0.4426	0.9185	-0.7703
EX_95	0.9917	1.0000	0.9824	0.3846	0.9347	-0.8143
IM_95	0.9983	0.9824	1.0000	0.4668	0.9060	-0.7458
GDP_KZ95	0.4426	0.3846	0.4668	1.0000	0.2274	0.0000
GDP_FC95	0.9185	0.9347	0.9060	0.2274	1.0000	-0.9525
DIST	-0.7703	-0.8143	-0.7458	0.0000	-0.9525	1.0000
RI_KZ	0.4095	0.3407	0.4389	0.9116	0.2111	0.0001
T_COMP	-0.1887	-0.1641	-0.1990	-0.4105	-0.0207	-0.0754
D_FC	-0.2925	-0.2535	-0.3088	-0.5437	-0.2193	0.0780
D_FF	-0.0625	0.0106	-0.0957	-0.7559	0.1175	-0.3133
D_IF	0.0119	0.0556	-0.0082	-0.2612	0.1807	-0.2711
D_TF	-0.4868	-0.4894	-0.4829	-0.3838	-0.4900	0.4356
REER	-0.5488	-0.5166	-0.5605	0.0145	-0.4678	0.3211

Source: Authors' calculations based on the data of gravity models.

APPENDIX 2. SIMPLE CORRELATIONS OF VARIABLES (CONTINUATION).

	RI_KZ	T_COMP	D_FC	D_FF	D_IF	D_TF	REER_RU
TR_95	0.4095	-0.1887	-0.2925	-0.0625	0.0119	-0.4868	-0.3493
EX_95	0.3407	-0.1641	-0.2535	0.0106	0.0556	-0.4894	-0.2932
IM_95	0.4389	-0.1990	-0.3088	-0.0957	-0.0082	-0.4829	-0.3731
GDP_KZ95	0.9116	-0.4105	-0.5437	-0.7559	-0.2612	-0.3838	-0.8581
GDP_FC95	0.2111	-0.0207	-0.2193	0.1175	0.1807	-0.4900	-0.1995
DIST	0.0001	-0.0754	0.0780	-0.3133	-0.2711	0.4356	0.0000
RI_KZ	1.0000	-0.3765	-0.4753	-0.6477	-0.2073	-0.3276	-0.7508
T_COMP	-0.3765	1.0000	0.1654	0.2477	0.7936	0.3361	-0.0274
D_FC	-0.4753	0.1654	1.0000	0.5137	0.1531	0.0939	0.5329
D_FF	-0.6477	0.2477	0.5137	1.0000	0.3194	0.3040	0.7500
D_IF	-0.2073	0.7936	0.1531	0.3194	1.0000	0.1952	0.0066
D_TF	-0.3276	0.3361	0.0939	0.3040	0.1952	1.0000	0.2129
REER	-0.0365	-0.2697	0.2706	-0.0195	-0.1801	-0.0190	1.0000

Source: Authors' calculations based on the data of gravity models.