A Study on Mechanisms and Potential for Agricultural Commodities Trade in Central Asia

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Content

CURRENCY AND EQUIVALENT UNITS

Currency Unit = USD
USD1 = 126.09 Tenge (2006 average)
USD1 = 1219.8 Sum (2006 average)
USD1 = 40.16 Som (2006 average)
USD1 = 3.3 Somoni (2006 average)

ABBREVIATIONS

ADB	Asian Development Bank
AKS	Agriculture Knowledge System
CBOT	Chicago Board of Trade
CIS	Commonwealth of Independent States
CPI	Consumer Price Index
EEC	Eurasian Economic Community
EU	European Union
EurasEC	Eurasian Economic Community
FDI	Foreign Direct Investment
FSU	Former Soviet Union
GDP	Gross Domestic Product
ICT	Information and Communications Technology
IMF	International Monetary Fund
KZT	Kazakh Tenge
MIS	Market Information System
SWOT	Strengths Weaknesses Opportunities Threats
UNDP	United Nations Development Programme
USD	US Dollar
VAT	Value-Added Tax
WTO	World Trade Organization

Introduction

1. For the Central Asian countries endowed with natural resources, agricultural trade represents a traditional economic activity which affects everyday life of population (on average 63% of Central Asia people lives in rural areas and 40% under poverty line), both on demand and supply side.
2. Although four of Central Asian countries (Kazakhstan, Kyrgyzstan, Tajikistan and Uzbekistan) are members of the Eurasian Economic Community and enjoy favorable (and even low) tariffs within the union, the barriers to trade still exist in the form of illegal customs and transit country road police fees.
3. Because of geographical constraints and absence of transport routes with large capacities, a bulk of cross-border trade in agricultural food stuff occurs through shuttle-trade and is not reflected in official statistics. This indicates that official trade mechanisms in agricultural commodities are not efficient, which had initially contributed to rise in smuggling of agricultural commodities. Moreover, illegal nature of this business has attracted a large number of intermediaries on both sides of the border, which ultimately led to significant differences in prices and appearance of arbitrage opportunities, which led to an excessive rise in sale prices.
4. Such hurdles to trade essentially complicate the market integration. Grafe et al. (2005) found unexpected evidence that the entire estimated border effect on Central Asian intraregional trade is overestimated. More importantly, trade barriers beyond the borders (i.e., price dispersion inside Kazakhstan) have been found to be a significant obstacle for trade.
5. Although elimination of various intermediary chains will be risky for the incomes of the people involved, stabilization of incomes might be more beneficial for the traders. However, this needs to be studied as is the effect of prices for agricultural products in the region as it is unknown if the rise in food prices can benefit producers and offset the costs incurred by consumers. IFPRI recommends a welfare-enhancing approach of proceeding with the liberalization of markets, along with cash grants or other financial schemes to compensate poor for higher prices and lost preferences.
6. Price instability for agricultural commodities is caused by unstable trade flows between Uzbekistan and Kazakhstan, in particular and the absence of clear and organized trading mechanisms and procedures. This issue is especially important for Kazakhstan, which is struggling with high food inflation. Unstable supply of agricultural products is seen as one of major obstacles to developing agro-processing facilities in the region.
7. Such various issues as absence of a single licensing and standardization systems, taxation differences also create significant obstacles against regional trade and creation of fair pricing mechanisms.
8. Therefore, this paper aims to reveal potential mechanisms of improving agricultural trade which could create more transparent prices, develop market information systems and integrate rural finance mechanisms. Creation of a regional organized trade exchange in agricultural commodities between Central Asian states will enable to set up a single floor for determining demand and supply and equilibrium price for agricultural products through the use of various trading tools.
9. Although, there have been several attempts since early 1990s to set up agricultural commodities exchanges throughout the region, many of them have become inactive. Moreover, trading in agricultural consumer goods is very infrequent at existing exchanges.
10. Given different level of liberalization of commodity markets in Central Asia markets and a complexity of the set-up for such an advanced mechanism as a commodity exchange, this paper also develops alternative recommendations as we recommend this task should be di-

vided into components which should be fulfilled stage by stage and separately from one another.

11. As the issue of food security has become on top of agenda for the Central Asian countries and the campaign of improving border surveillance continues in the region, this allows us to conclude sound and timely recommendations.

12. Unfortunately, there is no complete and exhaustive study of trade in agricultural consumer goods in the region both in terms of its recent dynamics, current volumes, its potential, features of cross-border trade, barriers to official trade and mechanisms.

13. The work of Grafe et al. (2005) is a basic research which is focused on overall interregional trade. Based on the methodology and data released by Central Asian statistics bodies and international financial organizations in 1999-2003, the work had made several statements which need to be confirmed in the period of 2004-2006.

14. This paper aims to fill this gap. On the basis of this approach and latest data, this project envisages research into agricultural markets in Central Asian countries to study mutual trade, interregional integration and the impact of various obstacles on the development of trade and assess the main trends emerging in mutual agricultural trade in Central Asian countries.

15. The objectives are to identify major obstacles (legal, economic and other relevant) to interregional trade in agricultural commodities in Central Asian region and potential for such trade. The research will primarily be on Kazakhstan, Kyrgyzstan, Tajikistan and Uzbekistan. The team also aims to study the possibility of establishing Central Asian agricultural commodities exchange.

16. The analysis of the issues around agricultural trade in Central Asian region will comprise of several components:

    i. Statistical and retrospective analysis will be used to identify current trends in trade in agricultural products to determine major direction of agricultural trade in Central Asia, major production and consumer markets.

    ii. Institutional and legislature analysis will be used to determine major barriers to agricultural trade in the region and major effect of these barriers to volumes and prices of agricultural products traded.

    iii. Gravity model approach will also be employed to identify further potential of trade in agricultural products between Central Asian states, primarily Kazakhstan and Uzbekistan.

17. This paper is structured as follows. The section A will study the development of trade in agricultural commodities within the region and estimate the potential for agricultural trade between Central Asian countries. In the section B major barriers to trade in agricultural commodities in key countries of Central Asia will be studied. Section C will present major trade facilitation mechanisms and components while Section D will analyze the possibility and demand for a commodity exchange. Section F will list conclusions and recommendations for policy-makers, private sector and international donors.

A. Agricultural Trade Pattern in Central Asia

A.1. Importance of Agriculture to the Central Asian Economies

18. The agricultural sector plays significant role in economies of Central Asian countries. Agricultural share in GDP in three Central Asian countries, except for Kazakhstan, is equal to or over 20%. Moreover, rural population in all Central Asian countries is significant – on average 63%. Poverty is especially high, as population below poverty line varies from 19% in Kazakhstan to 64% in Tajikistan and is economically dependent on the performance of agricultural sector. Agriculture provides food, jobs, and tradable goods, and generates foreign exchange.
19. In transforming countries, among which Central Asia countries can be listed, according to the World Bank classification, agricultural production is important for food security because it is a source of income for the majority of the rural poor. Agriculture can be a source of growth for the national economy, a provider of investment opportunities for the private sector, and a prime driver of agriculture-related industries and the rural nonfarm economy (World Bank, 2007). World Bank estimates that GDP growth originating in agriculture is at least twice as effective in reducing poverty as GDP growth originating outside agriculture.
20. Yet poor structural reforms in the agricultural sector as well as low and ineffective public spending resulted in a declining share of agriculture in GDP almost elsewhere in Central Asia. Weak performance of agriculture is one of the main reasons for high rates of outbound migration from the rural areas of the countries. In particular, unorganized trade in agricultural commodities leads to missing opportunities in the new agriculture.
21. Even if production and exports are growing, lack of advanced investment, poor productivity and marketing activities limit the access to markets and decreases tradability of agricultural commodities.
22. The decline in agricultural share in GDP has taken place also due to rapid expansion of industries as the countries strived both to get more foreign exchange form expanding production of internationally tradable goods and get sufficiency in industrial goods. Falling incomes and small consuming capacity of the domestic market impeded the innovations processes further damaging the quality and overall competitiveness of the agricultural output.
23. Although GDP growth in Kazakhstan has been fueled by the development of oil and gas industries, its export earnings from grain and flour are yet significant standing at about $3bn. Yet, the share of agriculture in GDP has been falling in Kazakhstan since 1990 when it was 34%, to 8.6% by 2006 ceding place to industry (mostly mining) and services.
24. As in Kazakhstan, the trade and services sector in Uzbekistan has expanded significantly contributing about 40% of GDP while agriculture and industry contribute 20% each in 2006. This is a slight decrease from 2000 when agriculture contributed 30% to GDP and industry – only 14%.
25. Agriculture is the main economic sector of Kyrgyzstan contributing to about 44% of GDP in 2006 while trade and services constitute another 30% making it the second largest economic sector. Contrary to Kazakhstan and Uzbekistan, the share of agriculture in GDP in Kyrgyzstan has increased from 35.3% in 1991 to 44% in 2007. Kyrgyzstan has held an agricultural reform early on, from 1992 – to 1996. Small private farms dominate in agricultural production.
26. Tajikistan is an agrarian country and has been classified by many international organizations as one of the poorest countries in the world. Yet, the share of agriculture in GDP is falling in Tajikistan. While in 1991 agriculture made up 36.5% of GDP, in 2006 agriculture in Tajikistan made up 30.8% of GDP. Industry contributed 29.1% to GDP in 2006 while the services sector contributes 40.1%.

27. In addition to being rich in natural resources, the countries in the region have the potential to increase agricultural production sufficient to increase exports but also to set up industrial agricultural processing capacities. This is especially pertinent to Kazakhstan and Uzbekistan. Yet, a strategic goal of increasing food processing capacity will require stable and significant supply of agricultural commodities.
28. Rising incomes and demand are especially pertinent to Kazakhstan, which is also a destination for agricultural commodities export from other key Central Asian states.
29. Overall, according to Pandya–Lorch (2000), prospects for food demand and supply in Central Asia, look good. Central Asian countries are seen as increasing both consumption and production of agricultural commodities.
30. Agricultural sector in Central Asia is primarily run by smallholders. Commercial smallholders are also main traders. Therefore, farmers remain poorly organized in terms of marketing efforts unable to deliver products of high standard for outer markets. Farmers unions and organizations remain yet ineffective in providing market infrastructure, upgrading farmers' technical capacity, risk management instruments, and collective action.

A.2. Commodity Structure

31. Commodity structure of agricultural production is another constraint for developing trade in the region. Aside from grain-rich Kazakhstan, other Central Asia countries essentially produce similar goods (e.g. fruit and vegetables). However, for the region as a whole the sector is sufficient providing annual output of about 29 million tones of grain, about 10 million tones of fruit and vegetables and more that 2.3 million of meat and meat products.
32. Crop production plays a significant role in agriculture in Kazakhstan – it makes up 56% of total agricultural output. Grain is Kazakhstan's main agricultural product. Grain harvesting makes up about 50% of total crop production in Kazakhstan. The production of wheat amounted to 16.6m tones in 2007 which surpassed its production in 1990, the pre-independence year. As the Kazakh authorities say, this has allowed Kazakhstan to become the number one producer of wheat per capita in the world (considering that the country's population is small relative to the territory of the country) (Interfax, 2007).
33. Kazakhstan is able to easily cover the needs of wheat for the region where annual consumption of wheat stands at over 15 m tones.
34. Crop production in Uzbekistan contributes around 54% of total agricultural production and animal husbandry - 46%. Cotton is the main agricultural product in Uzbekistan. However, its production has decreased since 1990 amounting to only 71.2% of that year's output. The production of rice has also decreased and constitutes only 42.5% of output in 1990 and production of corn constitutes 45% of 1990's level. Contrary, the production of vegetables, wheat and potatoes has grown significantly since 1990 by 50.5%, 1002.7%, 203% respectively. Production of vegetables and fruit in 2006 amounted to almost 5 million tones. Most of this is consumed domestically but there is a room for export as well. Wheat production has increased 11-fold, the biggest increase in output of crop cultures in the region. Largest animal husbandry goods are wool and cocoon production. Uzbekistan is also known for its astrakhan production.
35. Uzbekistan is a net exporter of vegetables and fruit, meat and meat products. Although most of the vegetables and fruit produced in Uzbekistan is consumed domestically (140 kg per capita per year), Uzbekistan could meet part of the demand for fruit, vegetables and meat in the Central Asian region.
36. Crop production constitutes about 60.9% of total agricultural production in Kyrgyzstan. Main agricultural goods in Kyrgyzstan are cotton, tobacco and vegetables and fruit. The production of cotton has increased by 45% in 2006 as compared to 1990 amounting to 117,500 tones. The increase in output is due to this good being Kyrgyzstan's primary agricultural export. The output of tobacco has decreased by 75% in 2006 as compared to 1990 amounting to 13,400 tones. The decrease in output can be explained by the destruction of tobacco produc-

tion chains which existed in the Soviet Union. The production of wheat has increased by 74% since 1990, the production of sugar beet has increased by 130 times. This can be explained by a change in consumption patterns of population. Increase of sugar beet production is driven by the boost of sugar producing industry the potential of which is 600,000 tones of sugar/year.

37. Although animal husbandry production has been growing n the past few years in Kyrgyzstan, it has not reached the 1990 level. As compared to 1990, production of meat has decreased by 28.1%, production of eggs decreased y 53.9% and production of wool has deceased by 72.8%. This is related to decrease in count of livestock and the change of farming from state-owned ones to private ones where this livestock was consumed privately.
38. Kyrgyzstan is a net exporter of fruit and vegetables. The minimum consumption of vegetables per year was set by the Kyrgyz parliament at 150 kg; minimum norm for consumption of fruit is about 112 kg per year; however, we think that the real consumption pattern is much lower.
39. Tajikistan is also a net exporter of fruit and vegetables. Consumption of fruit and vegetables in Tajikistan is about 78 kg per capita per year.

A.3. Agricultural Trade in Central Asia

40. At present, intraregional agricultural trade in Central Asia is much below its potential and the main trading partner for these countries, Russia, lies outside the region. This is due to many factors such as similarity in the structure of agricultural production, relatively small consuming capacity of population in the region and political factors. In the latest aspect, we can note that Uzbekistan stifles trade in Central Asia.
41. Kazakhstan is the largest supplier of wheat and flour in the region. It is set to increase the exports of wheat from about 4.2m ones exported currently (which puts Kazakhstan among ten top exporters of wheat) to 12m ones by 2010. Russia is one of the major buyers of Kazakh grain – in 2006 it imported Kazakh grain worth of $162.6m, about 28.6% of total Kazakh export of this good. In fact, almost all CIS countries import Kazakh grain. Kyrgyzstan, Tajikistan and Uzbekistan are one of the major buyers of this good in Central Asia. Turkey, Iran, Yemen, India, Egypt and European countries are among those who purchase Kazakh grain.
42. Kazakhstan has the most developed relations in export – import of agricultural products with other Central Asian countries (see Figure 1). The largest agricultural trade is conducted in Kazakhstan- Uzbekistan pair. In addition to its grain export, Kazakhstan also serves as a transit (re-export) country for agricultural exports of three other Central Asian countries to Russia – that is one of the reasons for the huge figures in exports of vegetables and fruit from Kazakhstan to Russia ($68.9m in 2006).
43. Uzbekistan's main agricultural product for export is cotton. The share of cotton in Uzbekistan's exports is 20.2%. Uzbekistan also exports processed food products and their share is 8.1% in total foreign trade of this country. However, Uzbekistan does not export cotton to Central Asian countries; its main agricultural export to this countries are vegetables and fruit.
44. For **Uzbekistan**[1], agricultural trade balance with Kazakhstan is negative. Agricultural imports from Kazakhstan increased by 4.5 times from 2003 to 2007 to 931.3 thousand tons, while exports tripled in this period to 23.3 thousand tons.
45. In 2003 agricultire and food imports from Kazakhstan to Uzbekistan were worth $27.7 m (mainly, flour -86.2%, wheat -3.4%), exports - $2.5 m (juices – 28.2%, confitures - 22.3% and chocolate – 4.5%). In 2007 agniculuture and food imports increased to $190.2 m (flour –

[1] Source: Customs Committee of Kazakhstan

81%). Exports of agricultural products to Kazakhstan were worth $13.0 m (juices – 31.4%, fats – 20.9% and vegetable oil -9.6%).

46. Kyrgyzstan's export of agricultural products was 15% in country's total exports in 2007. Main agricultural products for export in Kyrgyzstan are milk and tobacco.
47. For **Kyrgyzstan**[2], Russia and Kazakhstan are major trade partners in agricultural trade (44.4% and 37.8% of total agricultural trade with CIS respectively). While Kazakhstan exports wheat and sugar to Kyrgyzstan, Kyrgyzstan supplies its neighbor with processed agricultural products. But overall agricultural trade balance is negative for Kyrgyzstan as agricultural imports from Kazakhstan doubled from 2003 to 2007 to 342 thousand tons, while exports decreased by 50% in this period to 38.8 thousand tons.
48. In 2003 agricultural imports from Kazakhstan were worth $32 m (mainly, grain -24.3%, sugar -24.3% and tobacco -21.3%), exports - $12.6 m (milk products – 46.4% and processed food products – 22.2%). In 2007 agricultural imports increased to $75 m (wheat – 60.6%, flour – 13.3% and sugar – 12.5%). Exports of agricultural products to Kazakhstan were worth $31.1 m (milk – 63.1%).
49. Wheat imports have increased by 175% in physical terms from 2003 to 2007 (from 96.4 thousand tons to 266 thousand tons). As opposed to that, Kyrgyz milk exports to Kazakhstan increased from 2003 to 2007 by 25% only.
50. Uzbekistan is a third largest trading partner in CIS for Kyrgyzstan. These trade relations are seen as most complicated as Uzbekistan has been trying to introduce a unilateral visa regime with Kyrgyzstan, there were incidents of border closure, and even border mines.
51. Agricultural trade balance with Uzbekistan is as well negative for Kyrgyzstan. In 2000 agricultural imports from Uzbekistan were worth $1.8 m (mainly, wheat -82%, bread -14.7%), exports - $0.996 m (flour – 71.4% and tea– 19.3%). In 2007 agricultural imports increased to $3.9 m (wheat – 30.0%, vegetable oil – 43.9%). Exports of agricultural products to Uzbekistan were worth $1.0 m (chocolate – 28.2%, malt extract – 27.5%).
52. Wheat imports by Kyrgyzstan increased by 22% in physical terms from 2000 to 2007 (from 6 471 tons to 7 920 tons), vegetable oil imports increased from 4 tons in 2000 to 2 581 tons in 2007.
53. As there is a short border with Tajikistan, Kyrgyz agricultural trade with Tajikistan is marginal. Here Kyrgyz have a positive trade balance. In 2000-2007 Kyrgyz exports to Tajikistan increased by 30% in physical terms which are mainly processed food products. Agricultural imports from Tajikistan decreased almost by 70% in the same period. In 2000 agricultural imports from Tajikistan were worth $61 thousand (mainly, food products), exports - $612 thousand (flour – 42.2%, sugar -19.5% and tea– 19.6%). In 2007 agricultural imports were only $1 thousand, while exports of agricultural products to Tajikistan were worth $4.0 m (chocolate – 54.8%, bread – 16.5% and milk – 6.5%).
54. Tajikistan's main agricultural products for export are: fruit and vegetables, cotton, tobacco. Its main export partner in Central Asia is also Kazakhstan.
55. For **Tajikistan**[3] as well Russia, Kazakhstan and Uzbekistan are the largest CIS trade partners in agricultural sector.
56. Despite, good natural resource base, agricultural trade balance of Tajikistan is negative with all of its Central Asia countries. Agricultural imports from Kazakhstan doubled from 2000 to 2007 to 744.5 thousand tons, while exports increased by 5 times in this period to 12.5 thousand tons.
57. In 2000 agricultural imports from Kazakhstan were worth $44.4 m (mainly, wheat – 81.6% and flour – 13.6%), exports - $422 thousand (juices – 36.3%, apples - 17.8% and citrus - 15.1%). In 2007 agricultural imports were $124.3 m (flour – 65% and wheat – 30.5%), while exports of agricultural products to Kazakhstan were worth $4.0 m (juices – 82.3%).

[2] Source: Customs Committee of Kyrgyzstan
[3] Source: Customs Committee of Tajikistan

58. Imports of agricultural commodities (mainly, flour) from Kazakhstan increased nine-fold in 2000-2007 to 467.7 thousand tons. As opposed to that, Tajik juice exports to Kazakhstan increased from 2000 to 2007 by 10 times to 10.4 thousand tons.
59. The agricultural trade with Uzbekistan is also constrained by political factors with similar commodity pattern. Agricultural imports from Uzbekistan increased from 2000 to 2007 by 105% in physical terms to 22 thousand tons while exports decreased by 81% to 73 tons.
60. In 2000 agricultural imports from Uzbekistan were worth $4.8 m (mainly, vegetable oil – 91.4%), exports - $31 thousand (citrus, grapes and apples). In 2007 agricultural imports were $6.7 m (vegetable oil – 60.4% and wheat – 23.3%), while exports of agricultural products to Uzbekistan were worth $37 thousand (vegetable oil -50% and malt extract – 50%).
61. Despite being a large wheat and flour exporter, Kazakhstan's exports of other agricultural commodities is in fact shrinking. Excluding grain and wheat, Kazakhstan has a small surplus in trade with Uzbekistan ($14.3 m of exports vs $13.0 m of imports in 2007), a small surplus with Tajikistan ($5.4m vs $4.0m) and a large deficit with Kyrgyzstan ($19.5 m vs $31.1m).
62. Although Kyrgyzstan has a negative agricultural balance with Uzbekistan (according to official data, while unofficially the picture could be opposite, given a very active border between two countries), it has a large trade potential in the region.
63. The main trade directions in the Central Asian region connect Kazakhstan with Uzbekistan, Kyrgyzstan and Tajikistan, but keeping in mind Uzbekistan's restrictive regional trade policy, the main trade paths actually pass through Kyrgyzstan toward Kazakhstan.
64. At present the only option for conducting regional trade for Tajikistan is through Kyrgyzstan; however, potentially the other export route is through Uzbekistan whose trade policy towards its neighbors is quite restrictive.
65. Due to the geographic position of Central Asian countries and a range and volumes of agricultural products grown, farming products are mainly transported from south to north in Central Asia. As the main producers, Uzbekistan, Kyrgyzstan and Tajikistan export their products to Kazakhstan and Russia.
66. Since Central Asian countries are landlocked, the main means of transporting agricultural products are railways (for wholesale supplies) and roads (for smaller consignments) that cut through Kazakhstan. The absence of other feasible routes to supply products (including the absence of direct access to the open sea) pushes the transportation costs up, especially those costs that relate to non-tariff and non-transparent pricing schemes. Kazakhstan's monopolistic position increases the share of bribes paid during transporting agricultural products in the total costs.

Table 1

Main agricultural goods: export	**To Kazakhstan**	**To Uzbekistan**	**To Kyrgyzstan**	**To Tajikistan**	**To Russia**
From Kazakhstan		Wheat, flour products	Wheat, flour products, sugar	Wheat, flour products	Wheat, milk, eggs, animal products, fruit and vegetables (possibly re-export from other Central Asian countries)
From Uzbekistan	Juices, vegetable oils		Wheat, vegetable oils	Wheat, vegetable oils	Cotton, fruit and vegetables
From Kyrgyzstan	Milk and dairy products, sugar, processed food	Chocolate, malt extract		Chocolate, bread, milk	Fruit and vegetables, tobacco, cotton
From Tajikistan	Juices, fruit and	Vegetable oil, malt	No agricultural		Fruit and

	vegetables	extract	export		vegetables, cotton

Source: National statistics agencies.

Table 2 Annual figures - Wheat

Country	Wheat, million tones				
	production	consumption	import	export	trade balance
Kazakhstan	16 (2007/2008)	7.5 (2007/2008)	0	8	+
Uzbekistan	6 (2007/2008)	6.6 (2007/2008)	0.7m (2007/2008)	0.1m (2007/2008)	-
Kyrgyzstan	0,840	0.621	0.224	0	-
Tajikistan	0.6	0.9	0.3	0	-

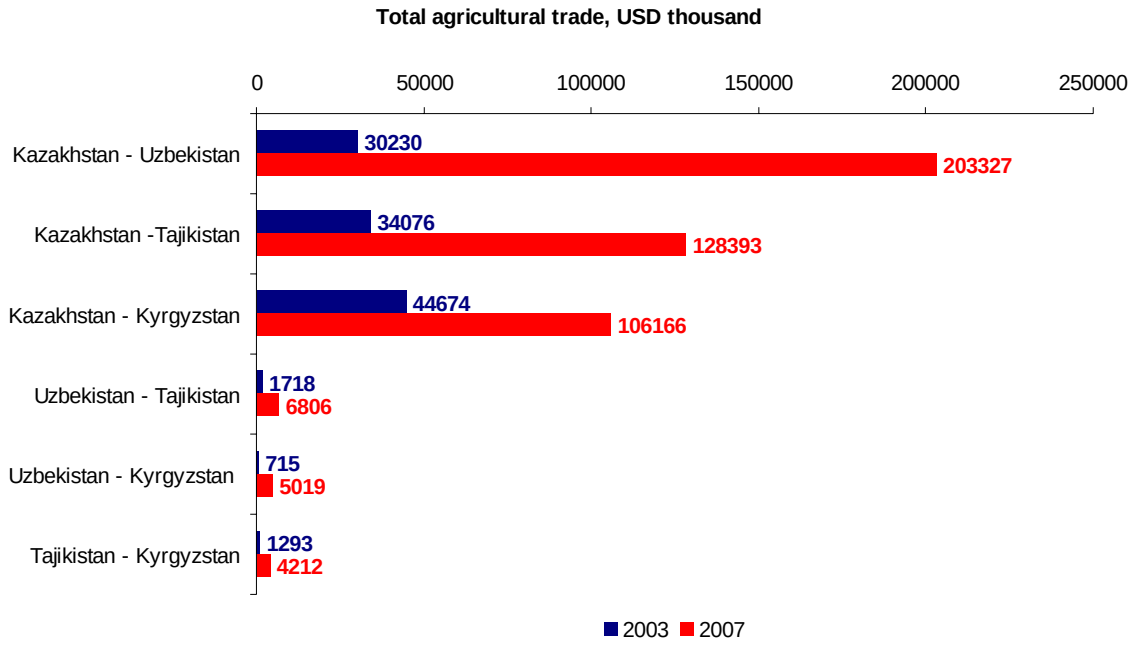
Table 3 Annual figures - Vegetables and Fruit

Country	Vegetables and fruit, million tones				
	production	consumption	import	export	balance
Kazakhstan	3	2.7	0.125	0.2	+
Uzbekistan	4.7	4	0	0.7	+
Kyrgyzstan	0.761	0.5	0	0.2	+
Tajikistan	1	0.5	0	0.2	+

Table 4 Annual figures - Meat

Country	Meat and meat products, tones				
	production	consumption	import	export	balance
Kazakhstan	808,600	981,500	191,500	200	-
Uzbekistan	1,140,000	580,600	0	500,000	+
Kyrgyzstan	321,300	218,400	0	103,000	+
Tajikistan	43,700	56,500	12,800	0	-

Figure 1


Total agricultural trade, USD thousand
0
50000
100000
150000
200000
250000
Kazakhstan - Uzbekistan
30230
203327
Kazakhstan -Tajikistan
34076
128393
Kazakhstan - Kyrgyzstan
44674
106166
Uzbekistan - Tajikistan
1718
6806
Uzbekistan - Kyrgyzstan
715
5019
Tajikistan - Kyrgyzstan
1293
4212
2003
2007

B. Major Obstacles to Trade

B.1. Trade Policies

67. Trade in agricultural commodities in the Central Asian region has a number of specifics pertinent for this region. After the break-up of Soviet Union, the closing of borders to trade has reduced foreign exchange and resulted in inefficient use of resources (Babu and Rhoe, 2001)
68. For example, the food self-sufficiency policy, especially in grains, adopted by Uzbekistan had changed its crops policy away from cotton[4] to grains thus resulting in less trade with Kazakhstan. In response to formal and informal trade restrictions of the Former Soviet Republics, Kyrgyzstan has shifted from exporting to Commonwealth of Independent States (CIS) to non-(CIS) countries (Babu and Rhoe, 2001).
69. Central Asian countries, as other countries in CIS, have entered into multiple overlapping bilateral and regional agreements which do not promote trade. Particularly, all of the region's cross-border and transit road transport is conducted under bilateral agreements, and unilateral decisions on their implementation. The multilateral agreements act mostly as framework statements. Their implementation mechanisms have never been effective (ADB, 2005).
70. One of the most prominent agreements is agreement on free trade within EurAsEC but even this union has not been very effective. Although the countries of Central Asia have developed trade ties with various countries, Russia remains their major trade partner for them.
71. As mentioned, trade among Central Asian countries is highly ad-hoc and unstable. But thanks to the interest shown by Central Asian exporters and consumers, the numerous integration frameworks which the countries have formed may imply that the problem of applying free market prices in mutual trade and preventing unilateral actions to limit the access of goods to national markets may be solved within the next two or three years.
72. From the view of existing legislative basis created for setting up an integrated agrarian market in Central Asia, there are no formal legal obstacles to free movement of goods in Central Asia (except Turkmenistan). Nevertheless, in practice a free trade zone, set up by the EEC, is not working properly due to various bilateral contradictions among Central Asian countries.
73. Different approach the countries apply to the liberalization of their markets impedes market integration the most. Kyrgyzstan and Tajikistan, has made better progress while Kazakhstan is moderate and Uzbekistan restrictive in allowing access to their markets.
74. Kazakhstan has taken measures to liberalize its trade policy since 1996. Export duties were removed at that time and the average import tariff is about 8 % at the moment. However, there have been ad hoc tariff impositions which make Kazakhstan's trade policy less consistent. Kazakhstan has a high trade/ GDP ratio – 78.9% however this ratio was higher in 2005 – 86%.
75. Uzbekistan's customs tariffs are inconsistent and include some high tariffs. Average tariff rate is about 15%. Despite this, Uzbekistan has a high trade to GDP ratio which is an indicator of an open economy – 71.6%. This is due to its advantages in export of natural gas and cotton.
76. However, besides tariffs, Uzbekistan has other levers to restricting foreign trade (this is characteristic of all Central Asian nations). For example, Uzbekistan imposes certain customs rules which prohibit the export of several commodities: grains: rye, barley, wheat, oat, maize, buckwheat; baked goods (excluding pastry, cake goods, biscuits and cookies); flour, livestock, poultry, meat and nutritional sub-products, sugar, plant oil (the margin volumes of exporting these products by individuals are stated by laws of the Republic of Uzbekistan); leather and fur raw stock (including not-standard types of it), metal scraps; cocoon silkworm,

[4] We refer primarily to food stuff as agricultural commodities and exclude cotton from our considerations.

applicable to layout, crude silk (not rolled), silk mouth scraps, and all the types of commodities, means or devices that are not permitted to import.

77. Kyrgyzstan has a liberal trade regime. It is a member of WTO since 1998. The non-weighted average tariff rate in Kyrgyzstan is lowest among Central Asian countries – 5.1%. Tariffs are relatively uniform in Kyrgyzstan. Kyrgyzstan's trade to GDP ratio is much higher than in Kazakhstan or Uzbekistan – 101%. Kyrgyzstan has a negative foreign trade balance at -$643.8m (1 half of 2007) with total foreign trade amounting to $1.673 bn. Kyrgyzstan has natural disadvantages to improving its export because of relative scarcity of resources and its landlocked status.
78. Tajikistan's non-weighted average tariff rate is also quite low – 7.5%. It has quite a liberal trade regime. However, there are some inconsistencies in its trade to GDP ratio – for example, in 2006 its foreign trade to GDP ratio was 102% while in 2007 it fell to only 30%. This might have taken place due to imperfect statistics.
79. Another important issue is the regional countries' positions on WTO membership. As mentioned, Kyrgyzstan is already a member of the WTO and Kazakhstan is finalizing talks on the issue, while other Central Asian countries are only studying the possibility of their membership of the organization in the distant future. This causes problems for the creation of a common agricultural market, because WTO membership sets quite strict requirements for member countries in the technical, economic, customs and other spheres. These varying levels of foreign trade regulation in the regional countries create loopholes in customs legislation for re-exporting goods originated in third countries through using a free trade regime, ruining local production. For example, Uzbekistan criticizes Kyrgyzstan for turning into a foothold for supplying cheap consumer goods from China to the Uzbek market.
80. There are still many goods that are not subject to free trade. Not only Uzbekistan imposes restrictions on the trade with Kazakhstan, the latter as well restricts imports of rice, tobacco products, alcoholic and alcohol-free drinks. These restrictions encourage smuggling, damaging national economies. There are also many administrative and technical barriers to border trade. In Kazakhstan, border problems are complicated by administrative controls (epidemiological and traffic police posts) on borders between regions.

B.2. Border and Transit Barriers

81. Despite unclear tariff system between the countries, it is believed that the issue of unifying tariffs to transport goods and passengers using free transit principles and tariff and non-tariff regulation mechanisms may be solved within the next three to five years.
82. Yet, Kazakhstan has a complex tariff system with 10 ad valorem and seven specific tariff rates, and some goods being subject to both, but a relatively low non-weighted average rate (10%) (UNDP, 2005). In Uzbekistan, the tariff system is not as complex as in Kazakhstan, but the non-weighted average rate is almost twice as high.

Table 5 Tariff and non-tariff barriers in Central Asian countries:

	Kazakhstan[5]	**Kyrgyzstan**	**Tajikistan**	**Uzbekistan**
Number of tariff ranges	10	10	4	4
Maximum rate (%)	30	15[6]	15.0	30.0
Average rate (%)	7.4	5.1	7.5	14.8

Source: UNDP, 2005, Asian Development Bank, 2006, CAREC, 2006

83. Some Central Asian countries impose other taxes on imports that are not levied on domestically produced goods or that have higher rates for imported than domestically produced

[5] Includes ad valorem tariffs and ad valorem components of combined tariffs. There are also specific tariffs.
[6] Excluding a 30% seasonal tariff on refined sugar.

goods. For instance, Kazakhstan imposes excise taxes on both imported and domestically produced alcoholic beverages and tobacco products, but the tax rates are higher for the former. Uzbekistan levies excise taxes on a wide range of imported consumer products but not on domestically produced ones.

84. Taxes on exports are less common in Central Asia than taxes on imports. Kazakhstan levies export taxes on a limited number of goods when they are exported to countries that are not members of the Eurasian Economic Community.
85. Various import taxes and tariffs on agricultural inputs including fuel raise the cost of agricultural outputs. However, there are also different subsidy measures from each government which might be lowering net taxation for agricultural producers.
86. All countries apply quantitative restrictions, such as prohibitions, quotas and licenses, to trade in goods that have implications for national security, public health and the environment, or to protect local producers (for example, Uzbekistan).
87. Central Asian countries use non-tariff trade restrictions such as export quotas to restrict export of "strategic" goods and use registration of international transactions as a means to regulate trade. For example, in 2007 Kazakhstan has imposed licenses for export of grain which led to some export contracts being delayed. More details about Central Asian countries' trade policies will be provided later. Licensing and registration of international transactions create opportunities for rent-seeking and corruption. This also supports monopolies and hinders competition.
88. Certification requirements are strict and organizations responsible for standards are weak. The fact that there are many organizations that service the border and poor coordination between them are also big problems.
89. Various payments levied on the border, often unilaterally, points to the lack of coordination between relevant agencies of the Central Asian countries.

Table 6 Duties imposed on vehicles on the border:

Country	Duties
Kazakhstan	Entrance duty is $78 (except for some cases) There are payments for excess weight or dimension limits. Domestic vehicles leaving the country are also subject to duty. Customs clearance may reach as high as $285.
Kyrgyzstan	$50 for vehicles from countries that have a system of permission for entering the country without permission $250 for vehicles from non-CIS countries which do not have a system of permission for entering the country without permission (non-CIS countries) Lorries from Tajikistan are exempt from these payments, but they pay an entrance duty of $50 The duty is five to 10 times higher for foreign vehicles than local ones
Tajikistan	Tariffs depending on weight/number of passengers: • Lorries from non-CIS countries – from $100 to $200 • Lorries from CIS countries – from $50 to $150; lorries from Uzbekistan pay $130. Customs duty for lorries leaving Uzbekistan is €200. Transit duty is $90. Customs fee is up to $100. Lorries from Kyrgyzstan is exempt from any duties.
Uzbekistan	Entrance duty: • $300 for lorries from Kazakhstan and Kyrgyzstan (except for lorries transiting from Kyrgyzstan to Kyrgyzstan) • $130 for lorries from Tajikistan • $400 for lorries from non-CIS countries Tariffs for lorries with weight exceeding 8 tones per axle Customs fee is €50 (up to 200 km) and €120 (over 200 km) and may reach $245.

This applies to all countries concerned:

Compulsory insurance by a third party is relatively small (Uzbekistan - $5-20).
Different payments for staying in the country longer than a maximum permissible period.
Environmental protection payments are low or absent.
Source: Asian Development Bank, 2006

90. According to ADB, opaque regulations and practices, including high level of perceived corruption which have been identified in Central Asia add to the cost of transport, reduce speed, and make it unpredictable. According to Logistics Friendliness Survey 2003, Central Asian countries fare badly in terms of logistical friendliness and GDP per capita. It was established also by ADB in 2006 that total logistical costs account for 16-19% of the total cost of exports/imports; however, if we exclude mineral resources and heavy machinery this figure jumps to 20%. For comparison, this indicator stands at 8.4% in Asia, less than 10% in the EU and 6.1% in the world on average.
91. Unofficial payments are made not only on the border but also while transiting through these countries (Kazakhstan and Uzbekistan). Studies show that traffic police, the border and customs checks are often cited as the main obstacles to the movement of goods (ADB, 2006). Customs procedures are time-consuming and very complicated. Often, goods are inspected physically and this hinders the process of customs clearance, leading to bribery.
92. Costs and time for transporting goods between Central Asian countries (Kazakhstan, Kyrgyzstan, Tajikistan and Uzbekistan) and some other countries are considerably higher while time of transporting is considerably longer than it should "ideally" be. These indicators grow unpredictably with a growth in the length of the route (ADB, 2006).
93. The share of transport costs in the total cost of exports and imports is estimated by ADB (2006) at:
    in Kazakhstan – 10% for exports and 8% for imports;
    Kyrgyzstan – 13% and 10% respectively;
    Tajikistan – 14% and 10%;
    Uzbekistan – 12% and 8%.

94. These barriers are particularly impeding trade in agricultural stuff as it is perishable and particularly sensitive to unpredictable transit times. This unpredictability is a strong disincentive to their regional trade and transport (ADB, 2005).
95. Border and customs authorities in certain Central Asian states, particularly in Uzbekistan and Kazakhstan, have decisively stated recently that border surveillance, especially in terms of trade in agricultural commodities will be improved. At the same time when these announcements have been made countries observed delays and shortage in supply of agricultural products, which led to several meetings of country officials to expedite flow of agricultural trade in the region. So, when pressure on illegal trade is strengthened, problems with official trading channels and mechanism seem to reveal.

Box 1. **The Border Constraints in Uzbekistan**

International Financial Corporation in a study conducted in Uzbekistan established that the main obstacle to the movement of agricultural products in Uzbekistan was extortions by traffic police and epidemiological posts. Suppliers made enormous efforts to cross international borders when they had to deal with border, customs and police officers from their own country and foreign countries. Entrepreneurs also indicated that another big problem for trade was numerous traffic police posts on roads. This was cited by 32% of those polled by the IFC in 2004; 57% of respondents pointed to problems in export operations (44% in 2001), while 71% said that they exported goods through unofficial channels.

According to the IFC findings, suppliers took up to 80 days to export their products from Uzbekistan (30 days on average in the region and nine days in OECD countries), while the cost to

export one container stood at $2,550 in 2007 ($1,393.4 in the region and $905 in OECD countries)

Source: http://www.doingbusiness.org/ExploreEconomies/?economyid=199).

Box 2. **The development of an integrated agricultural market in Central Asian countries: the legislative basis**

All Central Asian countries are members of the CIS, which was set up in 1991, while all of them but one (Turkmenistan) are also members of the Eurasian Economic Community (which members are Russia, Belarus and Kazakhstan since 1995, Kyrgyzstan since 1996, Tajikistan since 1999 and Uzbekistan since 2006).

The aim of the CIS was to create a free economic zone in the former Soviet countries. Measures to set up this organization are specified in 70 founding documents and a plan of action to implement these documents which was endorsed by heads of state in 2000. The following measures should be taken to create a free trade zone in the CIS:

- eliminating obstacles to free movement of goods and services (abolishing customs duties and other restrictions);
- creating an efficient system of mutual settlements and payments;
- cooperating on trade and economic, inter-sectoral and intra-sectoral policy, including agriculture;
- harmonizing and unifying national legislations to create conditions for a free trade zone to function properly and efficiently.

This means that the fulfillment of the aims of the CIS free trade zone would provide a necessary and adequate basis for an integrated agricultural market not only for Central Asia, but also for all CIS countries (which mainly consume farming produce from Central Asia countries). However, different levels of economic development and political will in these countries are impeding the process of integration. For example, on average the countries have now harmonized only 82.3% of procedures that regulate the free trade regime: this figure stands at 95.7% in Kazakhstan and Kyrgyzstan and only at 77.1% in Uzbekistan.

Another integration organization, the Eurasian Economic Community (EEC), having adopted a pragmatic stance from the very beginning, considers the completion of the creation of the free trade regime, the formation of a single tariff system and single system of non-tariff regulation, the adoption of a unified system of customs regulation and the introduction of common rules for trading in foods and services and their access to domestic markets as its main tasks. In addition to other strategic spheres, it regards the agricultural sector as an urgent priority and intends to create a single food market, reduce costs to transport, store and sell farming products and create new market institutions in this sphere, including stock exchanges.

Customs duties are not imposed on goods and services moved within the EEC and through internal borders (for example, in Central Asia). Reducing transaction costs makes goods produced in EEC member countries more competitive compared with goods produced in third countries.

B.3. Price Dispersion

96. It is known that high distortion of prices for tradable goods creates opportunities for arbitrage limiting further integration efforts.
97. Grafe et al (2005) found that the national borders do not seem to add much to the variation in relative prices across different regions in Central Asia. At the same time, it appears that the within-country barriers to trade are significant beyond simple transport costs.
98. However, Kazakhstan benefits from being a transit country, although all illicit payments have a negative impact on prices of farming produce imported into the country. As a large importer of agricultural products (excluding grains), there is an unevenness in prices of agricultural imports within the country. For example, the table 7 shows the dispersion of prices of apples in various regions of Kazakhstan, relative to the southern cities of Kazakhstan, Taraz and Chymkent where the lowest prices were recorded.

Table 7 Retail prices for apples in various cities of Kazakhstan

Region	**2002**	**2003**	**2004**	**2007**
Astana	116%	186%	60%	86%
Aktau	137%	329%	142%	47%
Aktobe	124%	221%	183%	68%
Almaty	58%	150%	51%	71%
Atyrau	-	-	-	59%
Kyzylorda	58%	204%	89%	77%
Kokshetau	-	221%	70%	41%
Karaganda	0%	159%	0%	44%
Kostanay	97%	221%	104%	78%
Pavlodar	71%	257%	89%	40%
Petropavlovsk	124%	261%	117%	47%
Taraz	0%	43%	32%	0%
Taldykorgan	0%	-	-	48%
Uralsk	-	329%	126%	44%
Ust-Kamenogorsk	71%	232%	47%	7%
Shymkent	8%	0%	0%	47%
Kazakhstan	79%	194%	91%	51%
Cities taken as 100%	Taraz	Shymkent	Shymkent	Taraz

Source: KazAgroMarketing

99. In 2007, the maximum deviation from the lowest price in Taraz was 86% in Astana and the minimum deviation was 7% in Ust-Kamenogorsk. The nationwide average price was 53% higher than the price in Taraz.
100. These significant deviations show that there additional pricing mechanisms (including non-transparent, such as bribery and extortion) which have a greater impact on the final prices of agricultural products in the country's various regions than market mechanisms. The final cost of products may significantly depend not on transport costs but hidden costs such as extortions on roads and markets. Inflation figures point to a link between the prices of agricultural products in Kazakhstan with a growth in prices of imports (Graph 2 and Table 8).
101. Research carried out in Kyrgyzstan also established a link between unofficial extortions on roads and the final price of products. Experts said that a study conducted by the Asian Development Bank in 2000 showed that a lorry travelling from Bishkek to Novosibirsk might pay total costs of $1,598, excluding fuel and driving duties. Of this sum, $1,308 might

have been collected in Kazakhstan, including 10-15% of payments were specified by those polled as unofficial ones (UNDP, 2003).

Figure 2 Growth in prices of agricultural products in Kazakhstan:

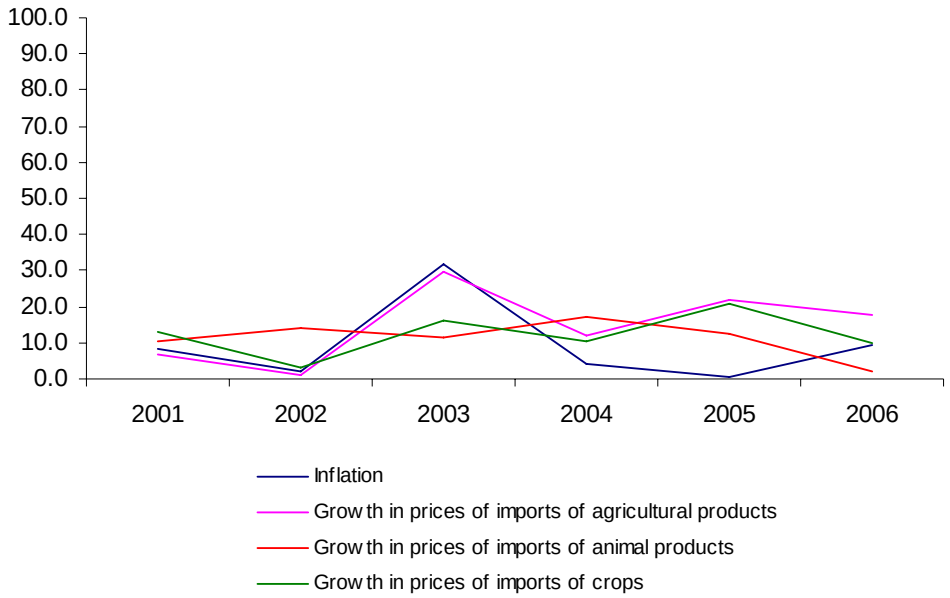


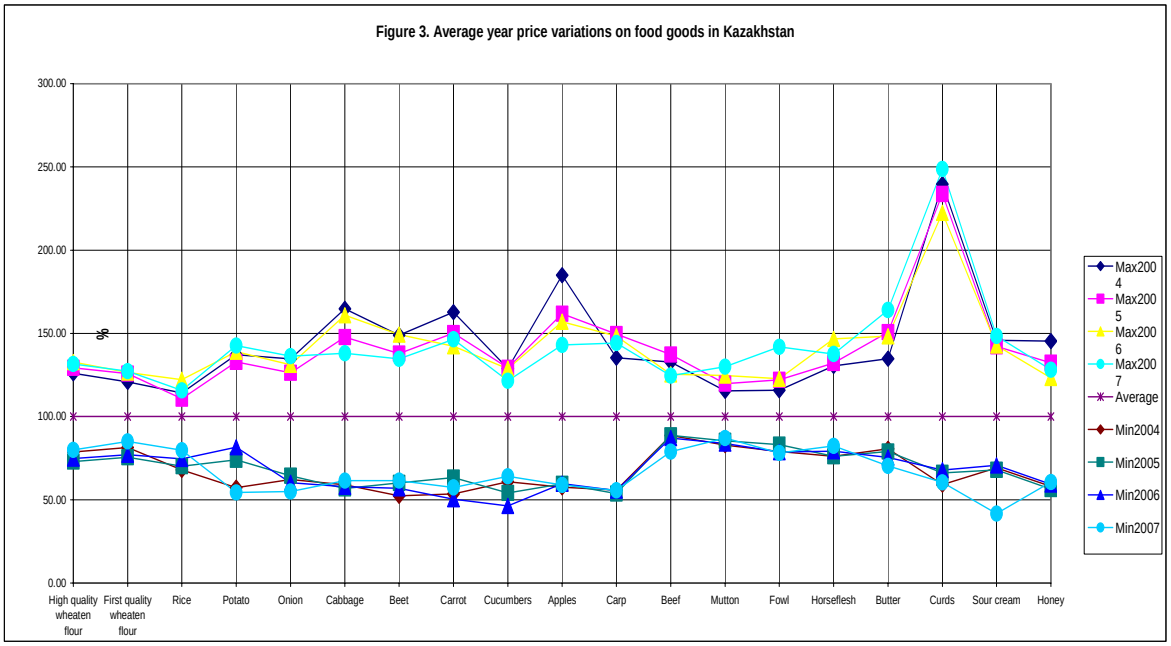
Table 8 Changes in sale prices of agricultural products in 2000-2007 in Kazakhstan, %, negative (minus) sign means reduction

	2000	2001	2002	2003	2004	2005	2006	2007
Year on year changes								
Total agricultural output	33.3	18.9	0.1	6.3	27.1	1.4	1.2	20.3
Crops	45.8	22.8	-6.4	5.3	38.5	-6.0	-4.6	26.6
Grains	53.6	24.2	-7.6	4.3	43.1	-6.1	-6.4	28.7
Oil crops	-10.2	13.7	26.3	0.6	-0.8	3.8	5.5	1.9
Potatoes	18.9	-5.2	-8.0	15.1	0.5	1.7	18.5	23.8
Vegetables	17.9	29.0	-5.7	9.3	5.1	4.0	9.6	11.8
Fruit and berries	19.8	-3.8	3.6	5.5	11.8	3.7	2.0	0.7
Animal products	22.2	15.2	7.5	4.7	11.0	11.6	8.5	12.0
Livestock and poultry	24.9	20.4	12.4	5.2	9.1	11.8	9.8	11.3
Milk	18.1	7.6	-0.6	1.0	10.5	7.9	6.0	13.0
Eggs	17.7	6.7	-2.7	6.7	20.0	14.6	6.8	15.2
Wool	6.0	13.4	10.1	26.7	20.5	-0.3	2.2	3.4
Astrakhan fur	16.7	13.7	1.6	7.5	1.7	-0.7	-1.1	0.6

102. The studies of the growth dynamics of prices (in dollar terms) of the staples in Kazakhstan, Kyrgyzstan and Uzbekistan in 2004-2007 have established the following.

- The dynamics of the average annual variations of prices of 19 goods in all of Kazakhstan's regions in 2004-2007 (the average level is 100%) are shown on the following graph.

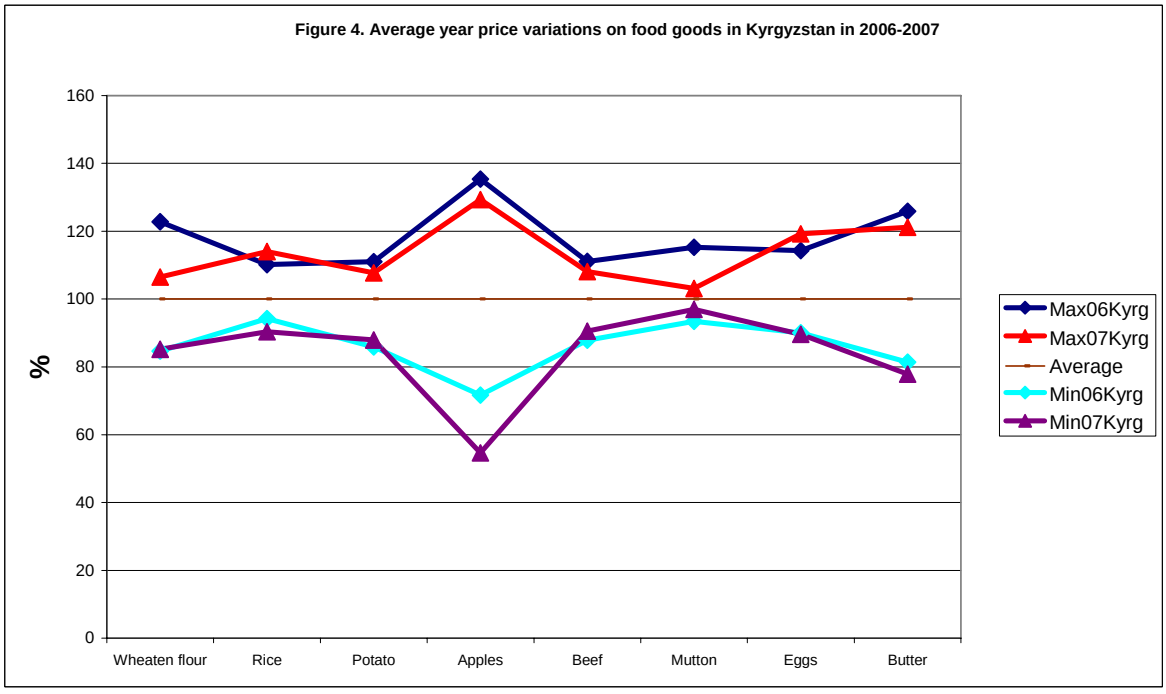
Figure 3



103. We can see that there are moderate variations of grain and meat prices in Kazakh regions, whereas the prices of vegetables, fruit and dairy products varied hugely (over 60%).

104. In Kyrgyzstan, we chose eight foodstuffs on which there were data available for all eight regions of the country (Batken, Jalalabad, Karakol, Naryn, Osh, Talas, Chuy Regions and Bishkek). Graph 4 shows the average annual variations of prices (the average price is 100%) in all regions in the given period.

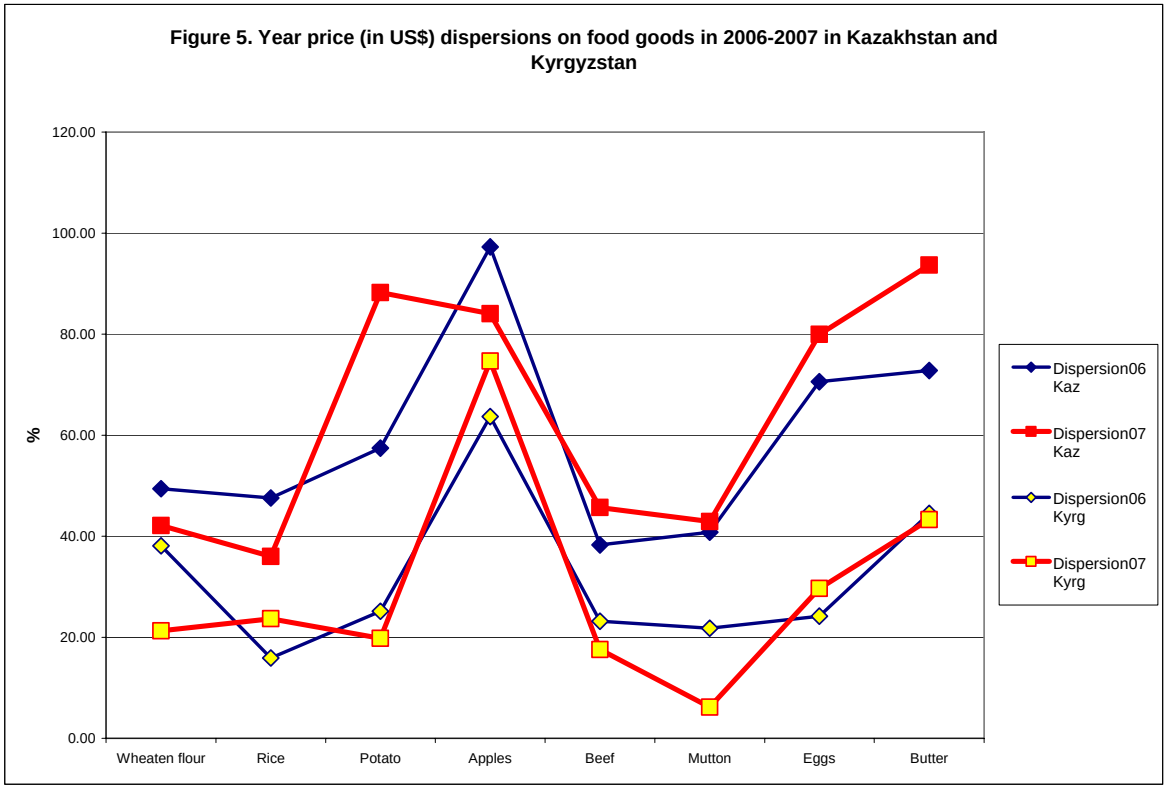
Figure 4



105. We can see that in comparison with Kazakh region the deviation of prices of similar products in general (the difference between maximum and minimum values in % of the average

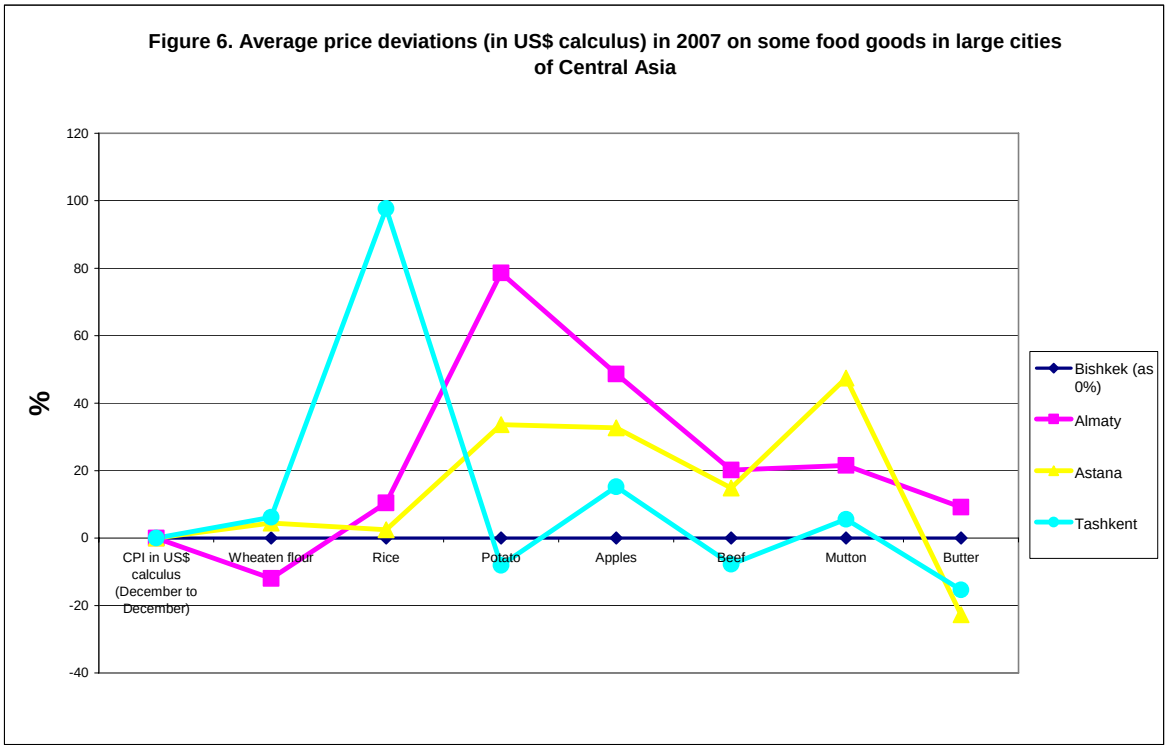
level) in Kyrgyz regions is far lower which is supported by comparative analysis of the dynamics of price deviation in Kazakhstan and Kyrgyzstan (Graph 5).

Figure 5



106. In order to analyze changes in prices in all three countries we compared variations of monthly prices of seven products in 2007 in four major cities in Central Asia (Almaty, Astana, Bishkek and Tashkent)[7]. The results are shown on Graph 6, where the prices in Bishkek were taken as the benchmark (0%). The comparison shows that prices of many products are higher in the Kazakh cities (Almaty and Astana) than in the Uzbek or Kyrgyz capital. Prices in the capitals of Uzbekistan and Kyrgyzstan are in a price corridor of (+20%, -20%), except for rice whose price is almost 100% higher in Tashkent than in Bishkek, Almaty or Astana. This may be linked to the specifics of national diet in Uzbekistan where rice is used more than in Kazakhstan or Kyrgyzstan.

Figure 6



107. The work of Grafe et al. (2005) found that as the impact of customs barriers might be exaggerated the interregional trade is Central Asia is conducted in the environment of high regional market integration. To support their evidence we extend the methodology used in this paper to years 2004-2007.

108. The methodology of Grafe et al (2005) based on the data released by Central Asian statistics bodies and international financial organizations in 1999-2003 found somewhat unexpected results:

a. Central Asian countries are integrated quite closely, their borders are porous and cause significantly less obstacles than it was believed (for example, compared with the "border factor" between the USA and Canada). Shuttle trade is effective in taking advantage of arbitrage opportunities due to the deviation in consumer goods prices;

[7] For comparing price variations of specific farming product in Tashkent we used information from the ferghana.ru website for October 2006 to December 2007. In calculations of market prices of specific farming products (14 goods) we used the relevant monthly data available on the aforementioned website.

b. Costs to cross borders are lower than transport costs in Kazakhstan (due to distances) or Tajikistan (mountainous terrain). Internal trade barriers (road posts and restrictions on access to markets) remain to be greater obstacles to trade both in separate countries and Central Asia, as a whole.

109. According to Grafe et al, if the two regions in question are located in different countries, there are additional frictions in economic exchange, summarized in the so-called border effect, which is explained by tariff and non-tariff trade barriers, relatively less integrated labor markets or distribution networks that work only within the national borders. However, prices may also differ because of changes in the nominal exchange rate that are not transmitted immediately to consumer prices.

110. Regional consumer price inflation rates disaggregated into food and non-food segments can be used to analyze price dispersion and compare differences in absolute prices. This approach makes it possible to assess the level of trade integration using prices, not information on trade volumes which are usually extremely underestimated as a result of a well-developed shuttle trade in Central Asian countries.

111. The measure of price dispersion between ***i*** and ***j*** regions is:

$$S_{i/j} = (\sigma (lnP_{it} / lnP_{jt}),$$

where σ is the standard deviation and P_{it} is price index for region ***i*** and period ***t*** in dollar terms, divided by P_i^* (average of P_i during period ***t***). This formula can be adjusted for changes in prices of non-tradables through deflating the index for tradables in the consumer price index. Using the price variation indices, these indices can now be regressed against geographical distance and a border dummy:

$$S_{i/j} = \alpha + \beta \, ln\text{“}Distance\text{”}_{ij} + \gamma\text{“}Border\text{”} + e,$$

where $\text{“}Distance\text{”}_{ij}$ is the distance in kilometres between region ***i*** and ***j*** and ***“Border”*** equals 1 if region ***i*** and ***j*** lie in different countries and 0 otherwise; e is an error term.

112. The results of the general analysis are shown in Table 9[8]. We provide additional information on average distances between regions in each Central Asian country, which are based on the Atlas of Roads (Moscow, Tretiy Rim, 2007). In brackets are the results of the research carried out on these countries in 1999-2003 by C. Grafe, M. Raiser and T. Sakatsume in 2005. In terms of geography, interregional distances are longer in Kazakhstan (1,472 km) than in Uzbekistan (614 km) and Kyrgyzstan (513 km). Average distances between regions of different countries are longer between Kazakhstan and Uzbekistan (1,561 km) and Kazakhstan and Kyrgyzstan (1,471 km) than between Uzbekistan and Kyrgyzstan (865 km).

Table 9 Relative variations of food price indices

Price variations, including exchange rate factors						
	Kazakhstan	Uzbekistan	Kyrgyzstan	Kazakhstan-Uzbekistan	Kazakhstan-Kyrgyzstan	Kyrgyzstan-Uzbekistan

[8] We used monthly data (the Kazakh Statistics Agency) on market selling prices of most farming products (over 30 goods) in all Kazakhstan's regions between 2004 and 2007 and the relevant monthly growth indices of food prices in general. For Kyrgyzstan, we used monthly data for 2004-2007 on growth indices of food prices in the country in general. For Uzbekistan, we used official data of the Uzbek Statistics Committee on quarterly indices of food prices in general and indices of consumer prices in the country in 2004-2007. For calculating indices of food prices in dollar terms we used the official quarterly data on the exchange rates. As a result, for analysing price variations of 16 rows (in each region of Kazakhstan) for 48 months in 2004-2007 on indices of prices of food products. In this period, Kyrgyzstan is represented by one row of the monthly growth indices of food prices in the country as a whole. For Uzbekistan we had only one row of the growth index of food prices in 16 quarters in 2004-2007. We assumed that the food basket in all the three countries were the same. This supposition is quite correct because these countries have inherited the Soviet statistical methodology.

Average distance (km)	1,472 *(1,586)*	614 *(546)*	513 *(595)*	1,561 *(1,898)*	1,471 *(1,763)*	865 *(914)*
Standard deviation (km)	710 *(808)*	290 *(328)*	239 *(279)*	755 *(814)*	724 *(870)*	561 *(440)*
Average variation	0.0237 *(0.027)*	**0.040**[3] *(0.030)*	0.0335[1] *(0.031)*	0.045[2] *(0.166)*	0.0244[1] *(0.050)*	0.044[3] *(0.140)*
Standard deviation	0.0087 *(0.008)*	— [3] *(0.013)*	— [3] *(0.009)*	0.023[2] *(0.012)*	0.0135[1] *(0.012)*	0.051[3] *(0.010)*
Price variations, excluding exchange rate factors						
Average variations	0.0209 *(0.027)*	**0.028**[3] *(0.030)*	0.0203 *(0.031)*	0.036[2] *(0.030)*	0.0209 *(0.029)*	0.027[3] *(0.033)*
Standard deviation	0.0065 *(0.009)*	— [3] *(0.013)*	— [3] *(0.009)*	0.021[2] *(0.013)*	0.0101 *(0.008)*	0.036[3] *(0.013)*

[1] – Assessed for the country on monthly data on the index of food prices (regional data not available).

[2] – Comparisons are based on the reconstructed quarterly data for Kazakh regions and quarterly date for Uzbekistan as a whole.

[3] – Relevant data on Kyrgyzstan as a whole on the reconstructed quarterly data equal **0.048 (including exchange rate factors) and 0.027 (excluding exchange rate factors)**. Kyrgyzstan and Uzbekistan were compared on quarterly indices of food prices for the countries as a whole. Since there are no regional data on price indices, standard deviations were not calculated for these countries.

113. From the first half of Table 9 (the results of the analysis with exchange rate factors) we can see that the average variation of food prices in Kazakhstan (0.0237) differs from those in Kyrgyzstan (0.0335) and Uzbekistan (0.04), but it is still within the confidence limits of the aforementioned analysis (relatively 0.031±0.009 и 0.030±0.013). Some deviation from the results of Grafe et al, 2005, can be explained by the fact that general variations of price indices were assessed on these countries as a whole which caused quite big deviations of the result (the data on price indices in the Uzbek and Kyrgyz regions were not available). As a result, the price variations decreased in 2004-2007 compared with 1999-2003 only in Kazakhstan. The results on Kyrgyzstan and Uzbekistan due to diversity and inconsistency of the basic data do not allow making any definite conclusions.

114. It should be noted that prices differences in 2004-2007 narrow (in dollar terms) between the countries compared with 1999-2003, which points to a decrease in the border factor in crossborder trade with foodstuffs (large numbers of inter-country variations compared with intra-country variations points to the presence of this factor).Price variations in regions of different countries (Uzbekistan and Kyrgyzstan) are higher than the intra-country variations, except for the Kazakhstan-Kyrgyzstan pair, for which the relevant variations are similar (0.0244 for the pair compared with 0.0237 for Kazakhstan). Variation in the Uzbekistan-Kazakhstan pair (0.045) is higher than separately in the countries (0.0237 in Kazakhstan and 0.04 in Uzbekistan).

115. Using $S_{i/j}$ measure of price dispersion we built regression for assessing the impact of distance “Distance”_{ij} between different regions i and j and the border factor “Border” in accordance with the following formula:

$$S_{i/j} = \alpha + \beta \ln \text{“Distance”}_{ij} + \gamma \text{“Border”} + e,$$

where ***"Border"*** = 1, if regions are in different countries and 0 if they are in one country. For studying the distance and border factors between Kazakhstan and Kyrgyzstan in 2004-2007 we built 16 monthly rows of prices dispersions on all Kazakh regions and one monthly row for Kyrgyzstan, in which we picked Bishkek as the point of localization. Similarly, for analyzing the factors between Kazakhstan and Uzbekistan we took 16 rows for all Kazakh regions and one row for Uzbekistan. The difference is that data available on Uzbekistan are quarterly, so the relevant row for Kazakh regions were transformed into quarterly rows. The point of localization in Uzbekistan was Tashkent. The results of the regression analysis are shown in Table 10.

Table 10 Regression of standard deviations of food price indices ($T_{0,05} = \pm 1,98$)

	Kazakhstan-Kyrgyzstan	Kazakhstan-Uzbekistan
Constant α	0.0392	0.0511
Significance α (T-statistics)	2.35 (significant at 0.05)	0.84 (insignificant)
Coefficient β (distance factor)	- 0.0022	- 0.0006
Significance of coefficient β (T-statistics)	- 0.93 (insignificant)	-0.069 (insignificant)
Coefficient γ (border factor)	- 0.011	- 0.089
Significance of coefficient γ (T-statistics)	- 2.29 (significant at 0.05)	-5.23 (significant at 0.05)

116. We can see from Table 10 that the border factor has a significance influence on prices variations for the both Kazakhstan-Kyrgyzstan and Kazakhstan-Uzbekistan pairs but it is more expressed for the latter. However, the distance factor is insignificant for the both pairs.

117. One of the results of the regression study by C. Grafe, M. Raiser, T. Sakatsume, 2005 on data for 1999-2003 on Kazakhstan, Uzbekistan and Kyrgyzstan is the conclusion that the economic sense of "distance" between these countries is significant only for the index of good prices. The "average economic distance" between different countries can be calculated using data in Table 10 and the following formula::

$$«Distance» = AverDist * [exp(\gamma / \beta) -1],$$

where ***AverDist*** is the average distance between countries from Table 9. From our results we obtained the value 194,471 km for the Kazakhstan-Kyrgyzstan pair, which is smaller than 238,220 km taken from the aforementioned research. "Distance" between Uzbekistan and Kazakhstan calculated based on our data produces the figure ~ 10^{68}, which is far higher than the figure of ~ 10^{28} shown in Grafe et al, 2005. Although this calculation may not have any sense in case of Uzbekistan because of insignificance of the regression coefficient, but, nevertheless, the border factor in case is seen very clearly. In any case, "border" between Uzbekistan and Kazakhstan has the main impact on price variations of foodstuffs between these countries.

118. If compared internatiolnally, "average economic distances" for food products between Kazakhstan, Kyrgyzstan and Uzbekistan correspond to conclusions drawn by Grafe et al, 2005, that there is quite close integration between these countries in trade with foodstuffs. But international comparison with such neighboring countries as the USA and Canada or India and Bangladesh may appear misleading taking into consideration close integration frameworks in which former USSR countries still cooperate.

Another widespread methodological approache to analyzing mutual trade and various barriers to it, including agricultural trade, is the so-called gravity model (Paiva, 2004) which studies trade flows as the function of the size of markets of partner countries and bilateral trade barriers. We applied the gravity model for further analysis of data on trade with agricultural products in Central Asian countries (Kazakhstan, Kyrgyzstan, Uzbekistan and Tajikistan)[9] by the following formula:

$$ln\ M_{ij} = a_0 + a_1 ln\ y_i + a_2 ln\ y_j + a_3 lnd_{ij} + a_4 border_{ij} + a_7 ln(1+t_{ij})$$

where M_{ij} is agricultural imports to country ***i*** (importer) from country ***j*** (exporter) during a certain time (in dollars), ***y*** is the relevant GDP in dollar terms, ***d*** is the average distance between trade partners, ***border*** is a dummy variable (equal 1, if ***i*** and ***j*** share a common border and a common language, otherwise 0), and ***t*** bilateral tariffs.

119. The results of the application of this model for Central Asian countries are shown in the following table.

Table 11. The coefficients of the gravity model for Central Asian countries

	a_0	a_1	a_2	a_3	a_4	a_7
Value	**292.75**	**0.04**	**0.74**	**-38.45**	**-18.88**	**2.33**
T-statistics	2.95	0.09	1.56	-2.66	-2.48	4.06
Significance (error likelihood)	0.03	0.39	0.17	0.04	0.05	0.01

The levels of significance for coefficients of this multiple regression range from 0.01 to 0.39 (for the coefficient a_1 responsible for the influence of a country's GDP on imports). The determination coefficient which shows the degree of relation of variables of the gravitational equation has a quite high value and equals 0.946. For assessing the significance of this relation we calculated F-statistics which equals 21.12. The critical value for 95% confidence that hypothesis about the relation is correct equals 4.39. As a result (21.12 > 4.39), the hypothesis about the existence of relation established by the *gravity* equation is statistically significant for 95% confidence for the whole equation as a whole (despite certain statistically insignificant coefficients based on T-statistics). Coefficients of the equation as a whole are significant at 0.05, except for GDP of the importer and exporter (respectively a_1 and a_2). For more details, please see the Annex 1.

120. As a result, the influence of GDP is, as expected based on the results of other studies, positive (to a lesser extent for the importer and to a greater extent for the exporter), although it is insignificantly small.

121. Distance has a negative impact on imports, which corresponds to the global trends. The border factor, as expected based on the results of other studies, negatively affects the volume of agricultural imports.

122. The results we obtained show that trade restrictions (tariffs) positively influence the volume of imports, which contradicts the results of the application of the gravity model to agricultural trade (Paiva, 2004). This proves that the rate of tariffs in Central Asia are insignificant for the trade, thus not affecting negatively imports (liberal regimes that are far from saturation in general are not flexible to tariff rates) although the volumes of agricultural trade are also small relative to GDP.

[9] Data for 2005-2006 on agricultural trade between the following pairs of countries: Kazakhstan-Kyrgyzstan, Kazakhstan-Uzbekistan and Kazakhstan-Tajikistan. As average tariffs we took the following figures as at 2005: Kazakhstan 7.4%, Kyrgyzstan 5.1%, Uzbekistan 14.8% and Tajikistan 7.5%. Generally, we should note that there is quite a liberal trade regime in these countries (except for Uzbekistan) because 10% is regarded as a ceiling for the trade regime to be liberal.

123. The result of application of price dispersion analysis and gravity model we found that border factor and tariffs remain less significant for the agricultural trade in Central Asia thus opening some room for further cooperation in this field. The prices differences between countries are narrowing generally throughout the region. However, for some inter-country pairs the border and pricing factors appear to be more significant, like for for the pair between Uzbekistan and Kyrgyzstan and Uzbekistan-Kazakhstan. Given important role of Uzbekistan in the regional agricultural production and trade this remains to be an issue of the policy agenda of the regional integration forums.

124. In the context of continuing diificulting in trading with Uzbekistan, Kyrgyzstan appears as the natural trade hub for the region, especially taking into consideration higher trade trurnover between Kyrgyzstan and Kazakhstan which reflects the anecdotal facts of Uzbek and Tajik goods crossing Kyrgyzstan to trade with Kazakhstan. Also, Kazakhstan's non-grain agricultural trade deficit with Kyrgystan is growing. Therefore, our further recommedations to facilitate agricultural trade in the region are based on the growing role of Kyrgyzstan and its trade potential.

C. Mechanisms for Agricultural Commodities Trade in Central Asia

125. Agricultural downturns which Central Asia countries faced were in part attributed to poor development of marketing, weak institutional capacity and collapse of rural finance sector, breakdown of trade and marketing of both inputs and outputs.

126. There are many ways to improve trade mechanisms. Although overall structural market reforms are needed, in this research we will focus on those that may address the following principle issues:

- Reduction of transaction and production costs which remain a major barrier in the agricultural trade in Central Asia
- Managing price volatility and particularly, price variation in inter-region and intra-region perspectives
- Insurance of risks (e.g. weather and political risks)
- Better marketing food and agricultural commodities
- Encouraging private initiatives and enabling Centrals Asia smallholders with a leading role in the market
- Better financial infrastructure and provision of accessible credit to agro-producers

127. To address these issues, most promising innovations are seen in the functioning of commodity exchanges, market information systems based on rural radio and short messaging systems, warehouse receipts, and market based risk management tools (World Bank, 2007).

128. Therefore, the facilitation of agricultural trade in Central Asia could be found in developing two components:

- Development of financial systems facilitating agricultural trade based on information technologies and advanced trading mechanisms
- Establishment of an agricultural marketing information service in Central Asia

129. These components will help to strengthen the integration and growth of the agricultural sector and trade in Central Asian countries, making a significant contribution to reducing rural poverty.

C.1. Development of Financial Systems

130. With the rise of integrated supply chains and contract farming, financial intermediation through using various advanced instruments is becoming more common. There are many ways to facilitate access to rural credit by using information technologies, which reduce transaction costs and make loans less costly in rural areas, for example, using agricultural credit cards to purchase inputs or cellular phones to complete banking transactions.

131. The financial system of agricultural credit is poorly developed in the region with only Kyrgyzstan having a special Agricultural Bank (Auyl Bank) which is a case study of how non-banking agricultural institution have transformed into a fully operating bank with a help fo international donors. But generally financial systems of the region are highly dispersed with Kazakhstan having the highest credit to GDP ratio at over 70 percent. But the financial system in Kazakhstan is mostly focused on commercial universal banks which are not the best source of agricultural credit.

132. Therefore, the transfer of know how of agricultural credit mechanisms such as large microcredit institutions and banking services specially tailored for agricultural need would be very useful throughout the region, especially is they are based on a single platform and unified standards which could also help spur the process of single standardization and financial integration of the region.

133. Another effective instrument to raise financing for the agricultural sector in Central Asia is a system of warehouse receipts. By storing their goods in a reliable warehouse until the

price increases while using the goods as loan collateral, farmers may access funds before they sell their goods. The warehouse receipts system is also known as inventory credits and when backed by legal provisions that guarantee quality, provide a secure system whereby stored agricultural commodities can serve as collateral, be sold, traded or used for delivery against financial instruments including futures contracts (Giovannucci, 2006).

134. The warehouse receipts system is helpful in smoothing market prices by facilitating sales throughout the year rather than just after harvests, reducing risk in the agricultural markets, improving food security and increasing market power of small-holders, lowering transaction costs by guaranteeing quantity and quality, etc.

135. In Central Asia, a warehouse receipt financing is successful in grains trade in Kazakhstan and cotton in Uzbekistan but is not popular for other agricultural commodities.

136. According to Giovannucci, there are a number of prerequisites for a successful warehouse system to operate.

- Role of state - governments interested in developing efficient markets by using warehouse receipt systems must be committed to not intervening in the market and distract in such a way as to crowd out private markets for storage
- Good market information - it allows to remain knowledgeable about the real value of the product being stored;
- Legal system - the rights, liabilities, and duties of each party to a warehouse receipt (producer, bank, warehouse, and so on) must be clearly defined.
- Adequate system of warehouse licensing and inspection of warehouse facilities
- Adequate grades and quality standards need to be specific enough as to give a clear description of the quality of the goods stored without needing to physically examine the goods.
- Viable storage industry - shortage of small-scale drying or preservation technologies for agricultural products which aggravates the risk for spoilage, loss from pests, and quality depreciation; transporting of goods to the warehouse

137. Warehouses operate in a number of ways. Each type of warehouse provides the customer with a different range of security and services. The five basic types of warehouses are: public warehouses are open to anyone on a non-qualifying basis, at field warehouses, an operator manages a warehouse on the premises of another business, dual-key warehouses provide secure storage as both the bank and the depositor have control over the warehouse, self-managed or single-key warehouses provide depositors with complete control over their goods at the storage facility; at trading warehouses, the warehouse operator trades the stored commodity on the depositor's behalf (Coulter, 1998)

138. In Latin America, the experience of tradable warehouse receipts at the exchanges. Complicated financing schemes have been developed in Columbia.

C.2. Agricultural Marketing Information System

139. Market information systems (MIS) is a necessary service that involves the collection of information on prices on a regular basis and, in some cases, quantities of widely traded agricultural products from rural assembly markets, wholesale and retail markets, as appropriate, and dissemination of this information on a timely and regular basis through various media to farmers, traders, government officials, policy-makers and others, including consumers (CTA, 2005).

140. As knowledge is an increasingly significant factor of production, Agricultural Knowledge System (AKS) is becoming an efficient tool in many countries. The Agricultural Knowledge System (AKS) consists of the organizations, sources of knowledge, methods of communica-

tion, and behaviors surrounding an agricultural process. Knowledge is not the same as information: knowledge includes information, understanding, insights, and other information that has been processed by individuals through learning and thought.

141. Decisions on what to plant, when to plant it, how to cultivate and harvest, and where to store and sell and at what price have long depended on knowledge, communication, and information exchange. The importance of information and communication technologies to agriculture is not new, and many traditional methods of managing and communicating information will continue to be critical to developing country agriculture (CTA, 2005).

142. The role of information has been facilitated by expanding the use of ICTs and digital networks in developing country agriculture allowing quicker and wider availability of critical information. In Central Asia, insufficient use of ICTs and low penetration of Internet may be a potential barrier for developing advanced information and communication technologies.

143. However, a wide development of mobile networks allow for introduction of low cost MIS based on cell phone networks.

144. Developing trade mechanisms will demand a more active and empowered role for rural private sector. Therefore, private producers are encouraged to form associations. Enabling better vertical market integration will improve marketing information, reduce transaction costs for producers, which will help increase their incomes, keep prices of agricultural commodities low to local consumers, and make them competitive in regional and international markets (Babu and Rhoe, 2001). However, the state role is still seen as a mediator coordinating across sectors and partnering with the private sector.

145. For smallholders in Central Asia, producer organizations are essential to achieve competitiveness after state's virtual withdrawal from marketing, input provision, and credit.

D. Agricultural Commodity Exchange

D.1. Benefits of Agricultural Commodity Exchange

146. In principle, the creation of an agricultural stock exchange with a wide range of products sold and services (futures, forwards and others) might be the most effective mechanism to organize the agricultural trade in the region. Yet this mechanism is a very complicated and advanced step forward.

147. Commodity exchanges which have become increasingly popular in the world since 1990s have a number of benefits. It is an organized form of trade which brings together buyers and sellers as well as mediators, improving terms of trade by facilitating, expediting and making cheaper the trade contracts and operations, bringing unification and in part, integration of commodity markets.

148. One of primary benefits of the commodity exchange is organizing price developments as it enables to see price dynamics in the past, present and estimated future and understand annual price cycles. Reference or quoted prices at the exchange is a result of more balanced demand/supply ratios.

149. It is widely believed that commodity exchange is a more progressive way of commercial intermediation, regulation of trade and trade disputes, and expansion of market information.

150. However beneficial it is, a commodity exchange is an advanced trade mechanism to develop and there have been many recorded failures in the world. There are few important prerequisites – sufficient financial sector development; availability of warehouse capacities, developed communication infrastructure, convenient geographical location and liberal taxation and currency regime.

151. There are different tradable commodities unified by several characteristics such as being mass, standardized, mutually substituted and with low level of monopolization (i.e. highly competitive). Safety and quality standards are important precursor for tradability.

152. Moreover, the advanced commodity exchanges widely use such instruments for insuring price risk as derivatives. Futures contracts for agricultural commodities are particularly important as they allow to insure various risks, including weather, etc.

D.2. Exploring Possibilities for the Agro-Commodity Exchange in Central Asia

153. In the beginning of 1990s when economic activities were liberated and the transition to a market-based economy was launched, numerous exchanges have been set up serving as a sign of market liberation in the former Soviet Union. However, few of them have been transformed into organized markets with standardized terms of trade. The number of exchanges had been thus greatly reduced, thereby casting a doubt over further attempts to bring order in the market trade. There have been many reasons for this failure specific for each country, but most commonly commodity exchanges were failing because of sharp transition and inexperienced players, inaccurate terms of trade and frequent breaches of contracts, uncontrolled pricing developments, informal and inappropriate taxation, insufficient protection of private property (Peck, 2001).

154. Developing standardized terms for contracts was also not easy even in circumstances where contracts and established trade patters have developed. In Kazakhstan, vast majority of grain deals in 1996 were barter trade.

155. Although many of the EurAsEC and CIS countries have been trying to set up various exchanges, there have been few successful attempts to set up a regional entity. One of the noteworthy attempts to organize agricultural trade in the region has been taken in 2004 when the international producing system, Green Corridor, had been set up within a EurAsEC single agricultural market agreement. This creation was envisaged in the general framework agreements.

156. Green Corridor involves EurAsEC agri-producers, manufacturers, traders, agricultural commodities, wholesale markets, exhibitions, warehouses, banks, insurers, transport companies, certification agencies and other accredited participants.

157. Green Corridor is based on international exchange trades and Internet trading. The exchanges secure the deals while the pricing and delivery dependent on the exchange warehouses in the region. Inter-exchange arbitrage is also envisages to deal with disputes arising during the trades.

158. In May 2007 in Moscow the Government of Moscow hosted a meeting discussing the development of Green Corridor, involving representatives of Russia, Kyrgyzstan, Uzbekistan, and Kazakhstan.

159. In this meeting, the member countries discussed how to use the Green Corridor facilities to allow agricultural trade without intermediaries, ensure quality control, guarantee trading terms and payment in accordance with inter-commodity trade. The possibilities for providing software, pricing information and other services had been also discussed.

160. Despite this infrastructure, the real agricultural trade through exchange remains underdeveloped with only activity in Russia and Ukraine, mainly in grain trade with foreign agents. In Central Asia agricultural trade remains to be based on private deals.

161. Marketing and distribution have been largely controlled by the government departments and ministries. Especially in Uzbekistan, commodity exchange remains to be a state agency. There is no real trading there and the whole principle contradicts with market-based spirit of an exchange.

162. There are few choices for the Central Asian agricultural market to trade in an organized manner: either integrate, or cooperate with Russia (i.e. give it a leading role), or launch a separate exchange floors in each countries. However, the experience of commodity exchanges indicates that one has to avoid duplicative contracts and structures.
163. Yet commodity exchange could be an institutional tool helping to restore Central Asia trade potential after Great Silk Route by modernizing and organizing trade flows. The demand from the side of such large consumer markets as Russia, China and Kazakhstan should play a key role of unleashing the potential of agricultural commodity trade.
164. Central Asia countries could specifically focus on those agricultural commodities which do not have a fair reference price and are not regionally traded (fruit, vegetables, livestock). As our research has proven the prices of vegetables, fruit and dairy products are particularly volatile. In future, this exchange could be supplemented with trading in metals, cotton, grains, and hydro energy.
165. Thus, the exchange could set a reference price for these commodities, stabilize supply and demand, minimize transit and transport costs (forward contracts with deliveries) and insure pricing risks (futures contracts).
166. The fairness of the price would be secured through high standardization services and clearing chamber.
167. Importantly, the exchange allows to develop rural finance mechanisms and use of warehouse receipts. Moreover, urban/rural divides could be also addressed through exchange mechanism as is shown by India experience where spot prices have become balanced both in remote areas and electronic trades of agro-exchanges.
168. Practically, all countries of Latin America and many countries of Asia and Africa are already benefiting from commodity exchanges. This experience should be studied.
169. The demand for the exchange can be also strengthened from the side of foreign clients, namely from India and China.
170. The first step is to assess the need for the commodity exchange, if sellers and buyers in Central Asia need a floor to meet? What particular commodities would be then traded? What price dispersion is and how urgent do farmers need a reference price for their products?

Table 11 SWOT Regional Agro-Commodity Exchange in Central Asia

Strengths	***Weaknesses***
Availability of agricultural commodities and resources	Absence of developed transport and financial infrastructure, absence of technologies
Proximity to destination markets (China, Russia, India)	Lack of political cooperation between the countries
Investment potential in agriculture	Autocratic regimes apart from Kyrgyzstan
Opportunities	***Barriers***
Creation of jobs, improvement of trade mechanisms and terms, reduction of migration and poverty	Lack of compromise between the countries on location and access to such exchange
Improvement of regional cooperation and integration efforts	Poor marketing efforts and government interference could reduce investment interest
Increase of attention from investors worldwide	Low awareness among market players could protract the creation of the exchange

D.3. Regional Agro-Commodity Exchange in Kyrgyzstan

171. This paper proposes to look at Kyrgyzstan as a potential place to set up a regional agro-commodities exchange which could better embody such growing advantages of the Kyrgyz

Republic as distributional and trade center in the region. Services sector accounts for over 40% in the GDP.

172. As we discussed in earlier chapters, Kyrgyzstan might have the most active trade in Central Asia, given its dynamics in trade with Kazakhstan and Uzbekistan. Among geographical factors, the main trade paths also bypass Kyrgyzstan toward Kazakhstan and Russia.

173. Kyrgyzstan has a good basis for processed agricultural production. Including dairy, flour tea, chocolate, malt extract, and sugar.

174. As we evidenced, the deviation of prices of similar products in general in Kyrgyz regions is far lower than in other countries. Price variations in the Kazakhstan-Kyrgyzstan border, a major point of trade, are also lower.

175. The advantages of Kyrgyzstan to accommodate a regional trade floor lie in the following:

- WTO membership

Being a WTO member, the Kyrgyz Republic has the lowest tariff rates in the region and is most open to trade. Because of WTO, the Kyrgyz policy has almost never been protectionist or subsidizing and has a liberal commodity and currency regime.

- Cheap labor force and energy tariffs

The Kyrgyz Republic faces with increasing outflows of labor to Russia, Kazakhstan and other richer countries. The remittances are one of sources of income for the country. Being rich hydro-power, the country still has low energy tariffs, although this advantage is offset by increasing oil and gas dependence from Kazakhstan and Uzbekistan, respectively.

- Relative exchange rate stability and microcredit development

Because of small foreign exchange inflows and small market, the exchange rate is rather stable. Although Kyrgyz financial sector is not particularly developed, its microcredit segment is the best in the region. Presence of agricultural bank is another important element of rural finance.

- Tax incentives policies

The Kyrgyz government undertakes extra efforts to attract investment in the economy and provides numerous tax incentives for investors, including those within a Special Economic Zone of Bishkek.

- Geoclimatic advantages

The Kyrgyz Republic has attractive climate (mountains and large lake) to develop tourism infrastructure. This serves as additional advantage in building a regional hub in analogy with Dubai.

- Cheapest and accessible telecommunication infrastructure in the region

The Kyrgyz information infrastructure is found to be one of the most open and cheapest in the region.

- Political support from international donors

The Kyrgyz Republic is dependent on international aid and donors play an important role in country's development.

- Neutral image

The Kyrgyz Republic has undergone through political transformation and policy makers are more accountable in this country than elsewhere in the region. As a small country, Kyrgyzstan is a member of numerous unions and organizations and is positioning itself as neutral.

176. Because of these advantages, Kyrgyzstan has already become informal trading floor. There are popular sites as Kara Suu in the south of Kyrgyzstan and Dordoi market in Bishkek which serve as a distributional hub. In these markets the Chinese traders (estimated number above 10,000) are particularly active, using liberal regime of Kyrgyzstan to provide cheap goods not only for Central Asia markets but also CIS (mainly, Russia).

177. The Kyrgyz Government estimated that broken links of consumer markets' coordination, high transport tariffs, and outdated technologies has led to the fact that over a third of agricultural produce in Kyrgyzstan is unable to meet the consumer. Therefore, the government of

Kyrgyzstan aware of this trend has already made several attempts to optimize agricultural trade via electronic means which is seen as an effective instrument of exports promotion and fighting intermediary chains.

178. In March 2004, the Kyrgyz Government has set up the interregional good-producing system called "Bishkek Contracts" which made an attempt to systemize and promote agricultural trade within an exchange mechanism, setting up the link from regional producers to domestic and foreign markets by optimal prices and bypassing intermediaries. This system would secure the supplies and ensure accompanying financial operations.

179. This creation was supported by Ministry of agricultural and water resources and country's single commodity exchange «EKU» and it was proposed to set up an electronic exchange trading floor within «EKU». Therefore, a separate entity was not created.

180. The Kyrgyz government also laid down the rules to develop a financial and clearing system for banks. The procedure has been also set up for interaction between regional producers, commodity exchange, distribution centers, banks and companies.

181. The Kyrgyz rules envisaged electronic trade to sell harvest and set up purchasing centers, which in the Soviet times have been linked within consumer cooperatives (Kyrgyzpotrebkooperatsia). Thus, an exchange would allow involving much more rural activities than normal trade.

182. Despite these efforts, Kyrgyzstan finds little support in developing exchange without international know-how and support of neighboring countries.

183. In addition, this a government-led initiative while it needs to partner a private sector as well to be more successful. Unlike other Central Asia countries, the Kyrgyz government seems to be more cooperative with private sector and is more prepared to reduce its role.

184. Development of trade floor in Bishkek could allow to spread economic activity across the region not focusing it solely in Kyrgyzstan

185. Furthermore, as a member of the WTO, Kyrgyzstan will also be liberalizing all foreign trade activities and adopting international standards. It could also allow the country to avoid discrimination of its goods from its neighbors with tariff and non-tariff barriers.

186. As for the benefits for Kyrgyzstan, the country could find its market niche in developing service economy and strengthen its comparative advantages. Such specialization might be found more effective in promoting growth in trade, agricultural sector, transport and logistics infrastructure, attracting more FDI thereby reducing poverty.

187. Among barriers there are deepening agricultural focus in the economy to the detriment of other sectors, critical growth of speculations and shadow operations, risk of economic dependence from neighboring countries, a need to increase regional cooperation and address inevitably arising disputes.

188. Therefore, an important prerequisite in setting up a regional commodity exchange in Kyrgyzstan is regional support. As Kyrgyzstan can not finance and organize the set up of a commodity exchange, the role of international donors is very important in this project.

189. Alongside, the Kyrgyz government needs to ensure a rapid sufficient financial sector development; availability of warehouse capacities, and developed communication infrastructure, at the same time maintaining its liberal taxation and currency regime.

E. Conclusions and Recommendations

190. Today, all Central Asian countries are seeking to ensure food security as rising commodity prices present a risk for a largely poor population. Though endowed with natural resources which allow meeting the demand of each other in agricultural products, Central Asia countries seem to be hurt with insufficient agricultural trade which also often occurs through shuttle-trade and complicates the market integration.

191. As free trade agreements positively influence the growth of mutual trade with agricultural goods, the countries in the region should facilitate the market integration in agriculture. As the analysis of price dispersion showed the border factor though decreases is still rather present particularlu for the Uzbek borders. From the other hand, as gravity model showed, the role of tariffs is quite small for the trade thus pointing at rather high integration in the region. Still as recent studies by the World Bank and others recommend trade should be further liberalised to ensure that the region's poorest countries and poorest people will benefit from it.

192. Unlike other sectors, agriculture can bring benefits both to exporters and importers. Also all countries are interested to eliminate shuttle trade and intermediaries chains although this might be sensitive for the people involved in the chains but ultimately the possibility of obtaining less risky and more stable incomes might be a more effective for the employment in the agricultural trade.

193. The countries do need more clear and organized trading mechanisms and procedures, especially as existing legislative basis allows to set up an integrated agrarian market in Central Asia and there are no formal legal obstacles to free movement of goods in Central Asia. Facilitation of agricultural trade in Central Asia could be found in creating of a regional agricultural stock exchange with built-in system of warehouse receipts and agricultural marketing information service.

194. These three intertwined components will help to strengthen the integration and growth of the agricultural sector and trade in Central Asian countries, making a significant contribution to reducing rural poverty.

195. Effective financial and marketing systems development is essential to further development of agritrade in the region. The transfer of agricultural finance mechanisms and broad dissemination of agricultural knowledge can spur the process of single standardization (single grades and quality standards) and financial integration of the region. One of the urgent measures is also a set up of the regional agricultural exchange in Kyrgyzstan, which has the most neutral political image in the region and has more advanced democratic values. Being a small country, Kyrgyzstan is less involved in trade disputes, more open and liberal. It is also more aimed at political integration in the region. The Kyrgyz legal system also allows for development of financial infrastructure pertinent to agricultural trade. This choice has been based on purely economic-geographic criteria as this country has the most active trade, is a WTO member and already serves as a transit and distributional hub in the region.

196. Kyrgyzstan shares a border with Uzbekistan, Kazakhstan and Tajikistan. Although Uzbekistan shares a border with all Central Asia countries, including Turkmenistan, its trade policy remains to be restrictive. At the same time, as we have proven in our research, the border factor in trade in Central Asia somewhat decreases and trade with farming produce is high if partners share a border.

197. In general, "average economic distances" for food products between Kazakhstan, Kyrgyzstan and Uzbekistan allow for closer integration between these countries in trade with foodstuffs. Although Agricultural trade as particularly perishable depends on the distance

making regional trade more effective, with development of sound trade policies, transport efficiency and technologies outside trade in agricultural products would be no less feasible.

198. Therefore, our main recommendation is to initiate a discussion on the ways the agricultural trade in the region can be facilitated. The consensus among countries is important as various unilateral restrictions may significantly limit trade.

199. Regional cooperation in private sector is also important in ensuring more broad-based development of farmers' technical capacity and collective actions. Private sector initiatives could strengthen numerous integration frameworks and support mutual trade, integrate rural finance mechanisms and ensure a free access of goods to national markets.

200. Third important factor is donor support which could be directed in helping countries reach compromise, investing in know-how and technical capacities, especially in building the commodity exchange facility in Kyrgyzstan.

Policy Recommendations

Regional Level	▪ Bring the discussion on the agricultural trade facilitation on top of regional agenda (e.g. CAREC, EurAsEC) ▪ Sign interregional interagency framework agreements (e.g. between regional customs and internal police agencies) allowing more corridors and free trade flows between the countries ▪ Expand the EurAsEC agreement on Green Corridor and draw an action plan ▪ The discussion in private sector on the regional level could be also helpful as regards the creation of the regional market information system through web, mobile networks, mass media, and public information channels. ▪ Private initiative is also important in the creation of a regional facility on the Agricultural Knowledge System (AKS) comprising of the organizations, sources of knowledge, methods of communication, etc. ▪ Regional association of private agriproducers could a powerful tool in promoting trade. But the state role remains as a mediator coordinating across sectors and partnering with the private sector.

For Kyrgyz Republic

- Initiate the set up of a regional commodity exchange in Bishkek
- Establish required legislative framework for the regional commodity exchange, flexible requirements and regulations allowing for participation of other Central Asia players
- Support private sector involvement in the establishment of the exchange
- Remove excessive tax barriers
- Support sufficient financial sector development (especially, micro-credits)
- Revise financial legislation to develop further rural finance mechanisms (warehouse receipts), including an adequate system of warehouse licensing and inspection of warehouse facilities
- Ensure regular market information facility
- Imitative large-scale grades and quality standardization
- Support the infrastructure and logistics development for viable storage industry
- Support communication infrastructure.

For donors

- Provide a ground for regional consultations
- Provide additional research on the topic
- Help to finance necessary actions
- Help to organize assistance and advice from such outside entities as CBOT

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Annexes

Annex 1 Gravity model

Another widespread methodological approache to analyzing mutual trade and various barriers to it, including agricultural trade, is the so-called gravity model (Paiva, 2004) which studies trade flows as the function of the size of markets of partner countries and bilateral trade barriers. The size of market is measured by GDP. A standard set of variables for trade barriers are the following:

- Transport costs are expressed as distance, landlocked and border dummies to reflect that they grow with distance and are higher for landlocked countries and lower for neighboring countries;
- Information costs are described as a dummy for common language;
- Generally, tariff barriers are neglected.

The work of Paiva, 2005, devoted to using the gravitational model for studying mutual trade with farming products for a sampling of 152 countries identified the following trends:

Average distance between trade partners negatively affects the volume of mutual imports of agricultural products.
Mutual imports are positively influenced by the size of economies (GDP or other similar measures) of trade partners.
Trade with farming produce is high if partners share a border.
Free trade agreements positively influence the growth of mutual trade with agricultural goods.

These trends in global agricultural trade emphasize a positive role of regional integration in agricultural trade, which points to the topicality of this study into the development of an integrated agricultural market in Central Asia.

Generally, the gravity model for trade with farming products can be expressed by the following formula:

$$\ln M_{ij} = a_0 + a_1 \ln y_i + a_2 \ln y_j + a_3 \ln d_{ij} + a_4 border_{ij} + a_5 lang_{ij} + a_6 landlock_{ij} + a_7 \ln(1+t_{ij}) + a_8 \ln infr_i + a_9 \ln infr_j$$

where M_{ij} is agricultural imports to country ***i*** (importer) from country ***j*** (exporter) during a certain time (in dollars), ***y*** is the relevant GDP in dollar terms, ***d*** is the average distance between trade partners, ***border*** and ***lang*** are dummy variables (equal 1, if ***i*** and ***j*** share a common border and a common language, otherwise 0), ***landlock*** is dummy variable (1, if ***i*** and ***j*** are landlocked, otherwise 0), ***t*** bilateral tariffs and ***infr*** is the quality of infrastructure.

For further analysis of data on trade with agricultural products in Central Asian countries (Kazakhstan, Kyrgyzstan, Uzbekistan and Tajikistan)[10] we used the following gravitational equation:

[10] Data for 2005-2006 on agricultural trade between the following pairs of countries: Kazakhstan-Kyrgyzstan, Kazakhstan-Uzbekistan and Kazakhstan-Tajikistan. As average tariffs we took the following figures as at 2005: Kazakhstan 7.4%, Kyrgyzstan 5.1%, Uzbekistan 14.8% and Tajikistan 7.5%. Generally, we should note that there is quite a liberal trade regime in these countries (except for Uzbekistan) because 10% is regarded as a ceiling for the trade regime to be liberal.

$$ln\ M_{ij} = a_0 + a_1 ln\ y_i + a_2 ln\ y_j + a_3 lnd_{ij} + a_4 border_{ij} + a_7 ln(1+t_{ij})$$

The ***lang*** variable was not taken into account for these countries because it is not indicative in former Soviet countries. The dummy variable ***landlock*** is not applicable for analysing trade in Central Asia because all countries are landlocked. The variable ***infr*** was neglected because it is hard to select criteria for assessing the quality of infrastructure.

The results of the application of this model for Central Asian countries are shown in the following table.

Table 11. The coefficients of the gravity model for Central Asian countries

	a_0	a_1	a_2	a_3	a_4	a_7
Value	**292.75**	**0.04**	**0.74**	**-38.45**	**-18.88**	**2.33**
T-statistics	2.95	0.09	1.56	-2.66	-2.48	4.06
Significance (error likelihood)	0.03	0.39	0.17	0.04	0.05	0.01

The levels of significance for coefficients of this multiple regression range from 0.01 to 0.39 (for the coefficient a_1 responsible for the influence of a country's GDP on imports). The determination coefficient which shows the degree of relation of variables of the gravitational equation has a quite high value and equals 0.946. For assessing the significance of this relation we calculated F-statistics which equals 21.12. The critical value for 95% confidence that hypothesis about the relation is correct equals 4.39. As a result (21.12 > 4.39), the hypothesis about the existence of relation established by the *gravity* equation is statistically significant for 95% confidence for the whole equation as a whole (despite certain statistically insignificant coefficients based on T-statistics). Coefficients of the equation as a whole are significant at 0.05, except for GDP of the importer and exporter (respectively a_1 and a_2).

As a result, the influence of GDP is, as expected based on the results of other studies, positive (to a lesser extent for the importer and to a greater extent for the exporter), although it is insignificantly small.

Distance has a negative impact on imports, which corresponds to the global trends. The border factor, as expected based on the results of other studies, negatively affects the volume of agricultural imports.

The results we obtained show that trade restrictions (tariffs) positively influence the volume of imports, which contradicts the results of the application of the gravity model to agricultural trade (Paiva, 2004). This may be linked to both the insignificant rate of tariffs in Central Asia, thus not affecting negatively imports (liberal regimes that are far from saturation in general are not flexible to tariff rates) and the insignificant volumes of agricultural trade. In addition, another possible explanation may be the quite insufficient coverage of all Central Asian countries which demands the inclusion of bilateral agricultural trade between Turkmenistan, Uzbekistan, Kyrgyzstan and Tajikistan to draw a more substantiated conclusion about the possibility of applying the gravity model for studying tariff rates' impact on agricultural imports in Central Asia.

Annex 2 Analysis of legislation on stock exchanges and activities in member countries of the EurAsEC

Legislative systems in the EurAsEC member countries are complex but inter alia, include pieces on commodity exchanges, securities market, foreign exchange regulation and other legislation on specialized exchanges.

International treaties signed by EurAsEC member countries (Belarus, Kazakhstan, Kyrgyzstan, Russia, Tajikistan and Uzbekistan) mainly focus on stock exchanges. There are no specific provisions on exchange trade in the EurAsEC founding treaty of 10 December 2000 but it confirms that bilateral treaties signed earlier will be efficient if they do not contradict the aforementioned treaty.

Therefore, legislation on commodity exchanges in EurAsEC is mainly regulated by the national laws. The most advanced legislation in this respect among Central Asia countries is in Kazakhstan and Kyrgyzstan, whose Civil Codes contain separate articles on exchange deals, specifying procedures on exchange deals, its registration and regulation. Unlike the Kyrgyz law, the Kazakh law (Article 156 of the Civil Code) has a provision on resolving disputes relating to exchange deals, envisaging an exchange arbitrage and court proceedings. Uzbek law on commodity exchanges and exchange activities also provides some specific definitions on exchange, traded goods, exchange deal, etc.

The Kazakh presidential decree on commodity exchanges, which has the power of law, does not specify the form of ownership of a commodity exchange. Nevertheless, the presidential decree envisages licensing for exchange activities and this is indicated in Article 2 of the decree entitled "The sphere of activities of a commodity exchange". Article 24 of the Uzbek law on commodity exchanges and exchange activities also require licensing for exchange activities.

It should be noted that Article 11 of the Kazakh law stipulates the division of commodity exchanges into closed (only members of an exchange take part in trade operations) and open (outsiders can also take part in operations).

Other member countries' legislation does not make this division. Kyrgyz and Uzbek legislations allow exchange members, intermediaries and outsiders to take part in exchange operations.

The Tajik law on exchanges and exchange trade (Article 6) says that "an exchange builds its activities as a closed organization".

This contradiction in approaches can also be seen in matters relating to intermediary activities on the exchange. Kazakh, Kyrgyz and Uzbek legislation proceed from the fact that exchange operations are conducted through exchange deals by exchange intermediaries on behalf of a client, while the Tajik law does not envisage the possibility of dealers' operations on commodity exchanges.

In addition, Article 1 of the Tajik law on exchanges and exchange trade also stipulates that, on the one hand, the exchange is a commercial organization which operates independently. On the other hand, Article 4 says that a commodity exchange is set up on the principles of a partnership made up of shareholders, which, as a rule, do not aim to make profits.

The laws of Kyrgyzstan and Uzbekistan ban exchanges from opening deposits, buying stakes (shares) and company shares, if these organizations do not aim to conduct exchange trade.

Commodity exchange legislations of all member countries, except for Tajikistan, specify the notions of exchange goods as certain goods of certain quality that are not withdrawn from turnover. However, a number of law provisions do not coincide.

For example, Article 3 of the Kazakh law regards exports permission (quotas and licences), a standard contract and consignment of foods as exchange goods. Article 9 of the law envisages the possibility of trading with property on the exchange, but intellectual property cannot be exchange goods.

Article 3 of the Uzbek law states the opposite that exchange goods can be property, including real estate, services, contracts on product supplies, intellectual property, securities, foreign currency and other goods allowed for civil turnover. Moreover, Article 8 of this law envisages the possibility of creating specialized exchanges for trading with intellectual property items. Nevertheless, land, natural resources, water, national cultural and historical heritage and other kinds of goods defined by the Cabinet of Ministers under the Uzbek president are excluded from a list of goods allowed to be traded on exchanges.

It should also be noted that the Uzbek law defines the notion of exchange operation which, in essence, is equivalent to the notion of an exchange deal in legislations of other member countries of EurAsEC.

The member countries' laws also specify types of exchange deals similarly: with an immediate supply, forward, features, options and other deals, but differ in terms of regulating certain types of deals.

Laws of Kazakhstan, Kyrgyzstan and Uzbekistan have brief definitions of types of exchange deal, distinguishing deals relating to:

- mutual transfer of rights and obligations in regard for real goods;
- mutual transfer of rights and obligations in regard for real goods with a delayed term of supplies (forward contracts);
- mutual transfer of rights and obligations in regard for standard contracts on supplying exchange goods (futures contracts);
- cession of rights to the future transfer of rights and obligations in regard for exchange goods or a contract on supplying exchange goods (options contracts);
- other contracts in regard for exchange goods, contracts or rights set by the rules of exchange trade.

Legislative acts of EurAsEC member countries relating to the activities of commodity exchanges.

Country	Legislative act and date of its adoption
Belarus	Law on commodity exchanges; 13 March 1992, No 1516-XII. Law on securities and stock exchanges; 12 March 1992, No 1512-XII. Law on currency regulation and currency control; 22 July 2003, No 226-3. Government resolution No 173 on endorsing the main conditions for issuing certain government securities of Belarus; 13 February 2003; Belarusian National Bank resolution on the rules for investment in government securities of Belarus and securities of the Belarusian National Bank by non-residents; 4 September 1997, No 944. Board of Directors of the Belarusian National Bank resolution; 13 August 1999, No 22. Resolution by the Belarusian Council of Ministers on measures to develop exchange trade on the securities market; 16 June 2004, No 714. Resolution by the Belarusian Council of Ministers' Securities Committee on setting requirements for financial adequacy for professional participants in the securities market and qualification requirements for their managers and personnel; 26 April 2005, No 05/P.
Kazakhstan	The Civil Code (Part 1). Law on securities market; 2 July 2003, No 461-2. Law on currency regulation; 24 December 1996, No 54-1. Presidential decree on commodity exchanges; 7 January 1995, No222 Resolution by the Kazakh Cabinet of Ministers on endorsing the list of exchange goods; 28 July 1995, No 1035. Kazakh government resolution on measures to develop exchange activities in Kazakhstan; 12 August 2000, No 1253. Rules for conducting activities of securities traders (endorsed by Kazakh National Securities Commission resolution No 19; 23 December 1998).

	Rules on licensing activities of stock exchanges in Kazakhstan (endorsed by Kazakh National Securities Commission resolution No 152; 29 September 1997).
Kyrgyzstan	The Civil Code (Part 1). Law on securities market; 21 July 1998, No 95. Law on foreign currency operations; 5 July 1995, No 6-1. Law on commodity exchange and exchange trade; 29 June 1992, No 915-XII.
Russia	Federal Law on securities market; 22 April 1996, No 39-F3. Federal Law on commodity exchanges and exchange trade; 20 February 1992, No 2484-1. Federal Law on currency regulation and currency control; 10 December 2003, No 173-F3.
Tajikistan	Law on securities and stock exchanges; 10 March 1992, No 552. Law on commodity exchange and exchange trade in Tajikistan; 23 December 1991, No 452.
Uzbekistan	Law on securities and stock exchange; 2 September 1993, No 918-XII. Law on exchanges and exchange activities; 2 July 1992 (revised by laws on 29 August 2001, No 260-II, and 22 September 2005, No 3 RU-7). Law on the mechanism of functioning of securities market; 25 April 1996, No 218-I. Law on currency regulation; 11 December 2003, No 556-II.