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Economic Impact of a Potential Free Trade Agreement (FTA) Between the European Union and the Commonwealth of the Independent States

Kazakhstan

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Table of contents

1 Introduction..... 4
2 Trade and Production structure of Kazakhstan..... 5
3 The Model and the Data..... 8
3.1 The CGE model..... 8
3.2 Model data..... 9
3.3 Setting up the analysis; baselines and trade liberalization scenarios..... 11
4 Results 12
4.1 Real Income Effects..... 12
4.2 Changes in sectoral output in Kazakhstan..... 13
4.3 Effects on bilateral trade flows..... 14
4.4 Other Macroeconomic Results..... 17
4.5 Terms of Trade Effects 18
5 Conclusions..... 19

1 Introduction

Kazakhstan is the EU's largest trade partner in the Central Asian region. The EU imports from Kazakhstan are mainly dominated by energy products (around 80% of the total), while the main EU exports to Kazakhstan are machinery, transport material and chemicals products.

The EU has bilateral trade relations with Kazakhstan in the form of Partnership and Cooperation Agreements (PCAs). The PCA, which have been in force since 1999, establishes the basis for trade liberalisation and gradual economic rapprochement. The agreements includes the foundations for a broad economic co-operation in the several areas.

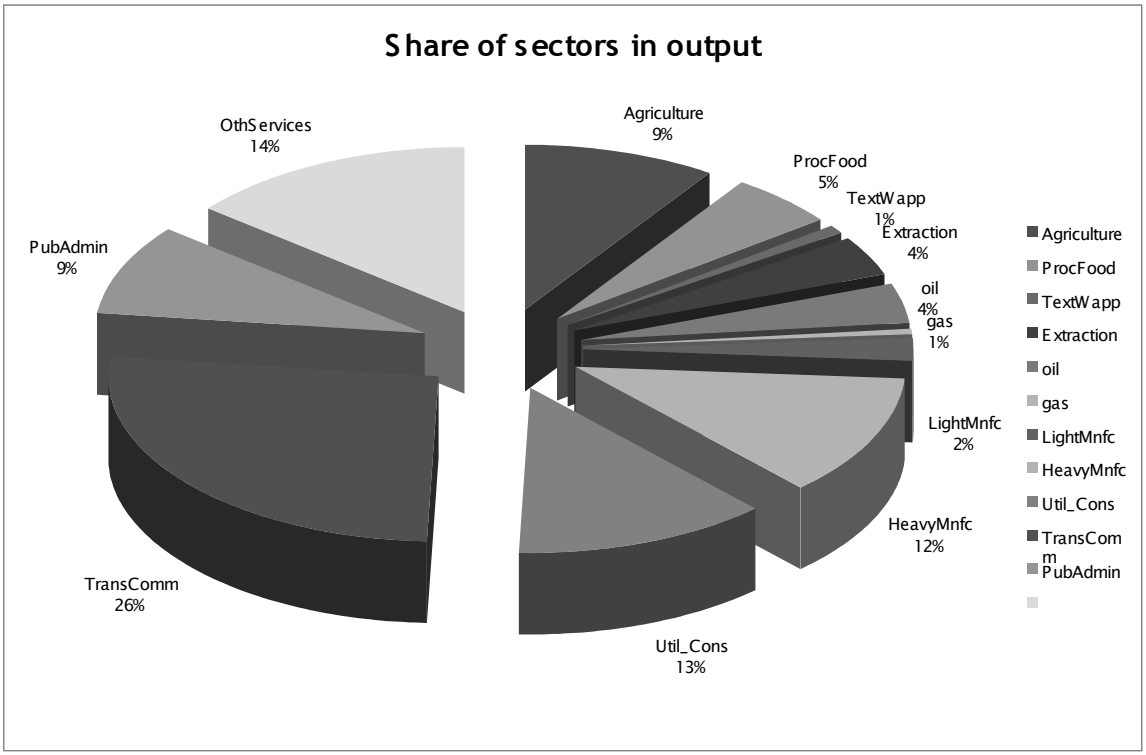
The Commission adopted in 2002 a Strategy Paper (SP) for Central Asia which provides the strategic framework within which the Commission's assistance is provided for the period 2002-2006. Furthermore, Kazakhstan is beneficiary of the Generalised System of Preferences from the EU's.

The rest of the study is organized as follows: Chapter 2 offers a general background to the production and trade of Kazakhstan. Chapter 3 describes methodology, data and the different scenarios. Since the methodology used in this study is the same as the one which was employed looking at the CIS region as a whole and also used for looking at the effects of different FTAs on other individual CIS countries in the different studies undertaken under this project, the description in this chapter is identical to the description of the model and data in the other studies. Therefore we suggest to those readers who are already familiar with this description to skip this section and continue with the discussion of the results. Chapter 4 discusses the results. Concluding comments can be found in Chapter 4.

2 Trade and Production structure of Kazakhstan

The importance of different sectors in Kazakhstan's output is depicted in Figure 2-1. The share of services in total output is about two-thirds. Among manufacturing sectors heavy manufacturing sectors take up the most important part of total output, representing about 12% of total output. On the other hand output in light manufacturing sectors is rather small and it is only around 2% of total output. Agricultural output is 9% of total output which is similar to the importance of this sector in other CIS countries, such as Ukraine, or Russia. Processed food contributes 5% of total output.

Figure 2-1 Share of sectors in output

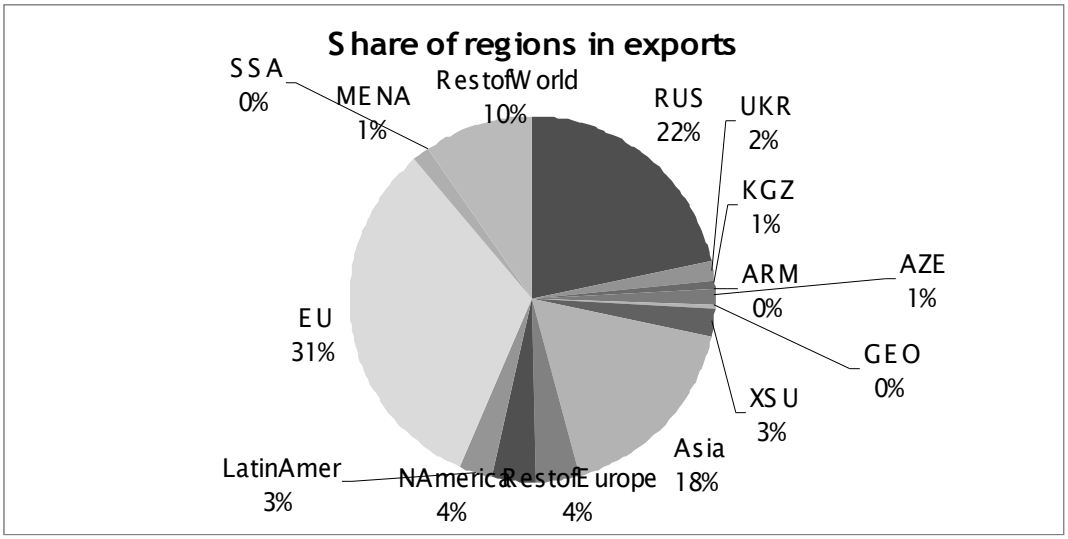


Source: own calculations, data come from GTAP database version 7

Figure 2-2 depicts the importance of different regions and countries in Kazakhstan's exports. The EU is the most important export destination for Kazakhstan. About 31% of all Kazakhstan's exports go to the EU. The second

biggest export destination is within the CIS region. About 22% of Kazakhstan's exports go to Russia. Other CIS countries are less important export destinations for Kazakhstan. A relatively important share, almost one fifth of Kazakhstan's exports go to other countries than CIS in Asia.

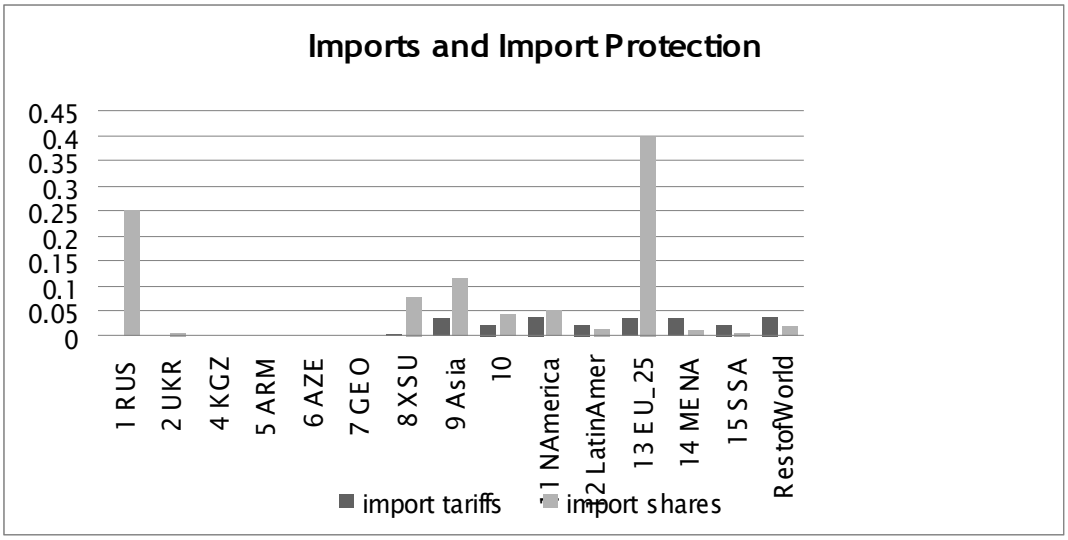
Figure 2-2 Share of regions in exports



Source: own calculations, data come from GTAP database version 7

Figure 2-3 depicts Kazakhstan imports coming from different destinations and the corresponding import tariffs. Similarly to exports, the EU is the most important import partner with imports coming from the EU representing about 40% of total Kazakhstan's imports. There are no import tariffs for other countries in the CIS region; nevertheless the share of imports coming from these countries is rather small with the exception of Russia from where 25% of imports are originating.

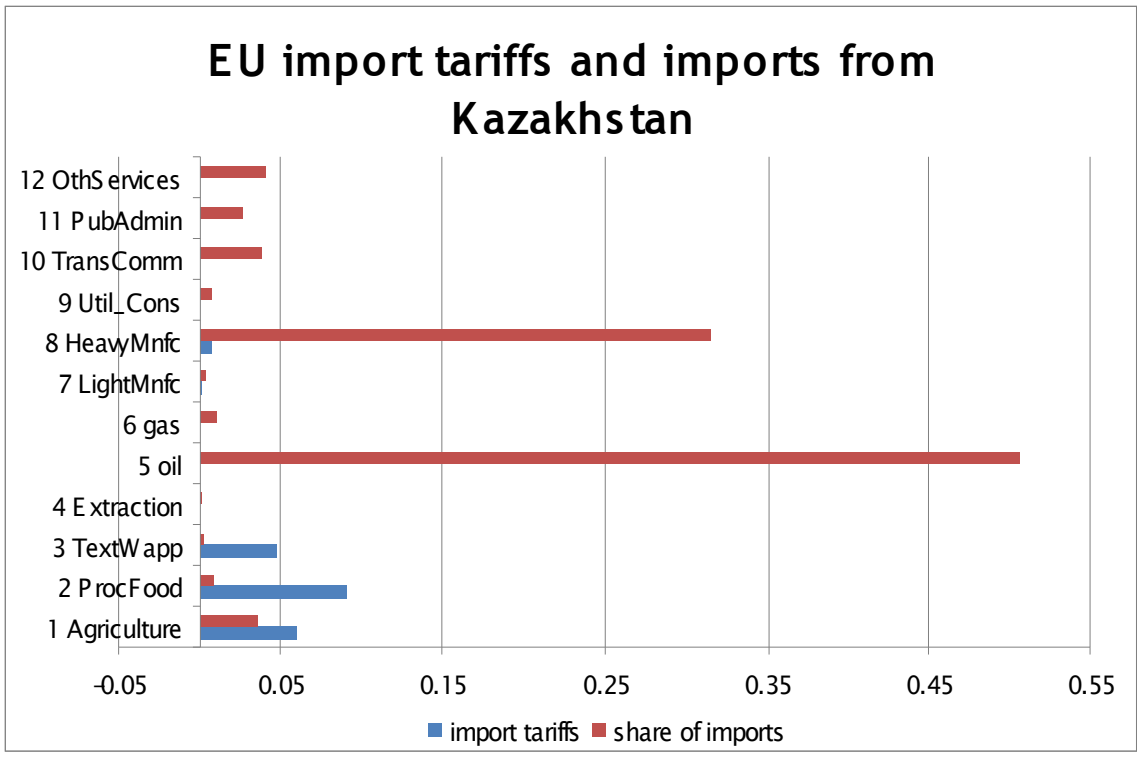
Figure 2-3 Imports and import protection



Source: own calculations, data come from GTAP database version 7

Figure 2-4 shows EU import tariffs and import in different sectors originating from Kazakhstan. The highest import tariffs are in the processed food sector, in agricultural products and in textiles and clothing. The share of imports in these sectors is rather small; import share of agricultural products is around 6% while in the other two sectors imports are very limited. The sector with the highest share of imports is oil which represents half of total imports from Kazakhstan. The second most important sector with respect to imports is heavy manufacturing which represents about one-third of total imports.

Figure 2-4 EU imports and import tariffs



Source: own calculations, data come from GTAP database version 7

3 The Model and the Data

3.1 The CGE model

The methodology is comparable with recent policy analyses of the World Bank, the IMF and the OECD, incorporating a similar quantitative modeling framework. This section provides a brief overview of the global computable general equilibrium (CGE) model used in this study.

The CGE-model is based on an input-output structure (which stem from national input-output tables) which explicitly links industries through chain of value added in production, from primary goods, through stages of intermediate processing, to the final assembling of goods and services for consumption. This inter-sectoral linkage works both through direct linkages, e.g. the use of steel in the production

of transport equipment, and indirect, i.e. via intermediate use in other sectors. These linkages are captured in the model by the usage of firms' use of factors and intermediate inputs. An overview of the model is provided in Box 3.1 below, while a more detailed description is available in the Technical Annex.

Recent developments in international trade and economic geography focus on the importance of scale economies (e.g. starting from Krugman (1979), (1980), Helpman and Krugman (1989) and onwards) and imperfect competition in determining the patterns of production and trade. In order to incorporate this development into the analysis, our model is expanded to take into account differences in underlying market structures across sectors.

Furthermore, in order to further increase the quality of the analysis, we employ estimates on elasticities as reported in the recent paper by Antweiler and Trefler (2002).

Impediments to trade in services are not as clearly visible as is the case with tariffs for trade in merchandise. Rather, trade barriers in the service sector often entail prohibitions, quantitative restrictions and government regulations, which are designed to limit the market access of foreign suppliers. These are not easy to quantify. In order to remedy this lack of data, we follow Francois (2003) in estimating tariff equivalents for the service sector through the use of a gravity type equation. These estimates are then incorporated into the analysis. Further information about these estimates is available in the Technical Annex.

3.2 Model data

The GTAP database, version 7, provides the majority of the data for the empirical implementation of the model. The database is the best and most updated source for internally consistent data on production, consumption and international trade by country and sector. For more information, please refer to Dimaranan and McDougall (2006).

The GTAP version 7 dataset is benchmarked to 2004, and includes detailed information on input-output, trade and final demand structures for the whole world this year. However, there are some important changes to the trade policy environment that have happened since then, that we wish to include in the basic dataset. Therefore, before conducting any policy experiments, we first run a 'pre-experiment', where we include the ATC phase-out and EU enlargement. Moreover, several of the CIS countries are currently in the process of joining the WTO. The EU would most probably only negotiate FTAs if the given partner country would already be a WTO member. Therefore, we implement the result from WTO accessions of all non-WTO members of CIS as well in our baseline.

For the purpose of this study, the GTAP database has been aggregated into 16 regions and 12 sectors. The list of sectors and regions is shown in . The detailed mapping between the aggregated sectors and the original GTAP sectors, together will a list of regions used in the model can be found in the Technical Appendix to the main report.

Table 3.1: Sectors in the model

Sectors	Regions
Agricultural products, food	Russia
Processed Food	Ukraine
Textiles and Clothing	Kazakhstan
Coals and other minerals	Kyrgyztan
Oil	Armenia
Gas	Azerbaijan
Light Manufacturing	Georgia
Heavy Manufacturing	Rest of Former Soviet Union
Utilities and Construction	East, Southeast and South Asia
Transport and Communication	Rest of Europe
PubAdmin/Defence/Health/Educat	North America
Other Services	Latin America
	European Union 25
	Middle East and North Africa
	Sub-Saharan Africa
	Rest of World

3.3 Setting up the analysis; baselines and trade liberalization scenarios

All results are compared to the baseline, which takes into account the effects of a successful WTO accession, the EU enlargement and the phase-out of the ATC.

The core of our analysis is structured around a set of scenarios. We simulate these three scenarios assuming that all CIS countries have the same FTAs with the EU. These scenarios are based on alternative liberalization approaches for agriculture, manufactured goods and services trade, as well as measures to facilitate trade. Trade facilitation measures aim to reduce less transparent trade barriers, such as customs procedures, product standards and conformance certifications, licensing requirements, and related administrative sources of trading costs. The scenarios which we use as basis for our analysis are summarized in the table below.

Table 3.2: Scenarios

		Assumptions			
Nr	**Description**	**Food**	**Non-food**	**Services**	**Trade facilitation**
1	Partial 1 trade agreement	No tariff reductions	Full bilateral tariff reductions	no reduction	None
2	Partial 2 trade agreement	Full bilateral tariff reductions	Full bilateral tariff reductions	no reduction	None
3	Full FTA	Full bilateral tariff reductions	Full bilateral tariff reductions	Full services liberalisation	2% of value of trade

The partial trade agreements imply more realistic outcomes of the trade negotiations than the Full FTA scenario described above. With regards to the outcome of the bilateral trade agreements on non-food, the assumption is the same as in the full FTA, namely full bilateral tariff reduction. The second partial trade agreement scenario offers a deeper liberalisation between the regions implying full bilateral reduction in not only manufacturing goods but also in the food sector. No trade facilitation is assumed to take place in the partial scenarios.

The Full FTA agreement implies full bilateral tariff reductions for manufacturing goods, full bilateral tariff reductions in the agriculture and processed food sectors, full liberalization of trade in services and trade facilitation measures corresponding to 2 percent of value of trade. From a policy point of view, this scenario can be seen as quite radical in its assumptions. Nonetheless it is very useful in providing an upper benchmark for the effect of potential measures to liberalize trade.

4 Results

4.1 Real Income Effects

Trade liberalization would have a positive income effect for Kazakhstan under all the different scenarios which is shown in Table 4.3. The smallest effect would occur under the first FTA scenario which would result in a 0.17% real income increase, which is slightly higher than the effects in the EU. The second FTA scenario which would involve liberalization in agriculture and processed food sectors as well would have a very similar real income effect than the first scenario. On the other hand, the third, full FTA scenario would have a high positive real income effect with a 2.06 % real income increase which is much higher than the effects on real income in the EU or the CIS.

Table 4.3. Real Income Effects (percentage change from baseline)

Scenario	Partial 1 trade agreement	Partial 2 trade agreement	Full FTA
EU	0.14	0.13	0.21
CIS	-0.53	-0.83	0.62
Kazakhstan	0.17	0.18	2.06

Source: Model simulations.

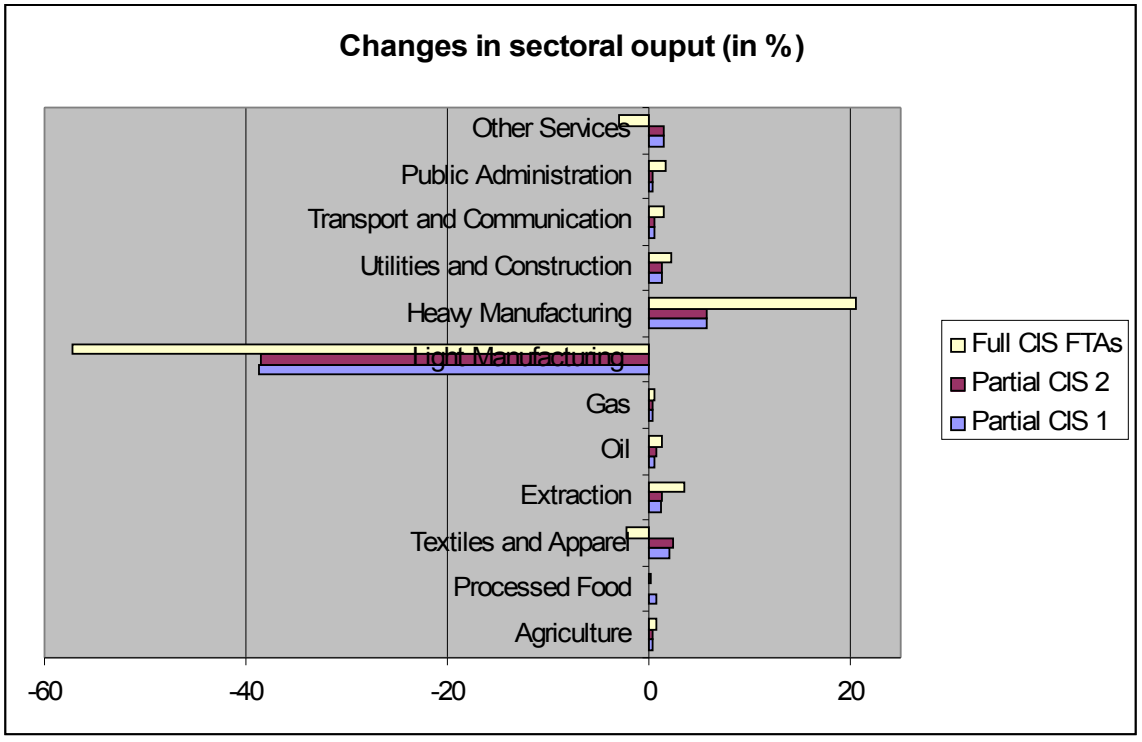
4.2 Changes in sectoral output in Kazakhstan

Our analyses of the expected changes in sectoral output as a result of different forms of trade liberalisation show that important changes would occur in the sectoral output of Kazakhstan. Figure 4-1 depicts changes in the output of different sectors in Kazakhstan after the three different FTA would take place.

The most pronounced decrease would take place in the light manufacturing sector. The light manufacturing sector would experience a decrease in output which would be in the magnitude of 38% in case of the first two scenarios and would be much higher i.e. 57% under the full FTA scenario.

Most other sectors would have a small increase in their production under the different scenarios. The only sector where important increase in output would occur is the heavy manufacturing sector. An increase in output would take place in this sector under all three scenarios with the increase being the highest under the full FTA scenario which would result in a 20% increase.

Figure 4-5 Changes in sectoral output



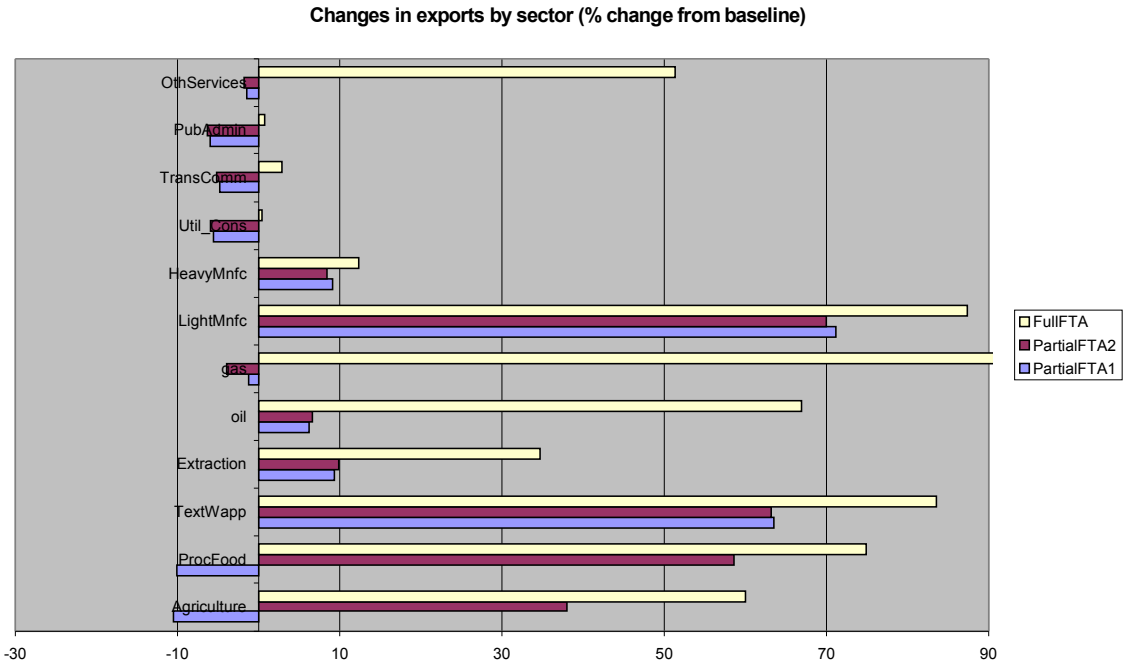
Source: Model simulations. Note: All results are reported as percentage change compared to baseline.

4.3 Effects on bilateral trade flows

In this section we provide detailed results on trade impacts in the three scenarios, and we present the changes in trade flows by sector.

The figure below depicts changes in EU exports towards Kazakhstan after the three different FTA scenarios. The services sectors experience a small reduction in the first two scenarios. Under the third scenario, trade in services sectors belonging to 'other services' is liberalised. As a consequence of this there would be an important, about 50% increase in EU exports in other services sectors towards Kazakhstan. An important increase would occur in exports of light manufacturing and textiles and apparel under all scenarios, the biggest increase occurring under the third scenario. The exports in these light manufacturing would increase by 70% under the first two scenario and about 87% under the third scenario. When trade liberalisation would occur also in agriculture and processed food sectors, these sectors would also experience an important increase in their exports towards Kazakhstan. There would be an increase in gas and oil exports, which according to the graph is important in terms of percentage change compared to the baseline scenario. The table below shows the percentage changes compared to the baseline together with the share of exports in each sector. The share of gas and oil sector's exports is very close to zero, thus the increase shown in the graph in the exports of gas Kazakhstan in terms of level is minimal.

Figure 4-6 Changes in EU exports by sector.



Source: Model simulations. Note: All results are reported as percentage change compared to baseline.

Table 4 Percentage changes in sectoral exports of the EU

	Partial CIS 1	Partial CIS 2	Full CIS FTAs	share in total exports
Agriculture	-10.51	38.01	60.01	0.51%
Processed Food	-10.32	58.61	74.9	1.71%
Textiles and Apparel	63.51	63.19	83.56	1.20%
Extraction	9.33	9.74	34.43	0.18%
Oil	6.21	6.63	66.92	0.00%
Gas	-1.24	-3.95	303.04	0.00%
Light Manufacturing	70.92	69.98	87.33	23.02%
Heavy Manufacturing	9.09	8.43	12.34	37.73%
Utilities and Construction	-5.57	-5.93	0.42	6.58%
Transport and Communication	-4.79	-5.19	2.87	4.97%
Public Administration	-5.97	-6.33	0.74	0.73%
Other Services	-1.47	-1.79	51.35	23.37%

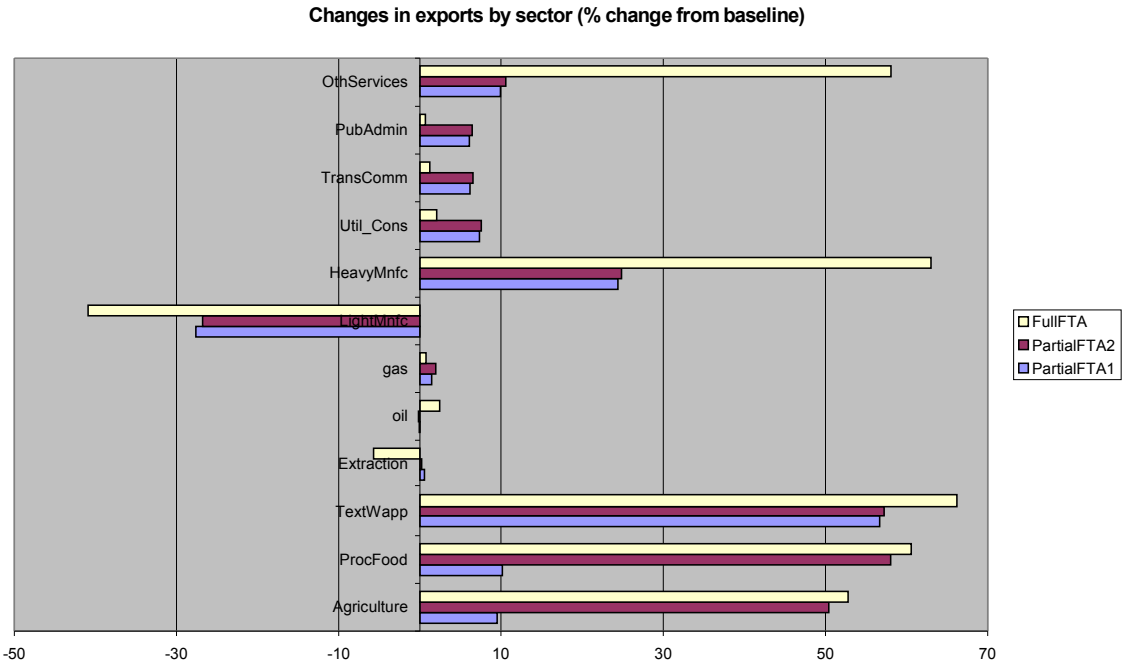
Source: Model simulations. Note: All results are reported as percentage change compared to baseline.

Figure 4-3 shows percentage changes in exports of Kazakhstan by each sector towards the EU. Similarly to the case of EU exports in services, an important

increase would occur in other services exports if trade would be liberalised between the EU and the CIS in these sectors.

Reduction in export flows towards the EU would occur almost only in light manufacturing sector. This sector would experience a drop in exports under all scenarios with the decrease being around 41% under the full FTA scenario. In exports of all other sectors increase would take place. The most pronounced increase would occur in the textiles and apparel sectors. Under the first and second scenarios, the increase would be around 57% and it would be 66% in case of full liberalisation. Exports in heavy manufacturing would increase by 24-25% under the two first scenarios and by 63% in case of full liberalisation. Increase in exports of processed food and agricultural products would take place under all three scenarios, the effect being small in case of no liberalisation in agriculture and becoming important once liberalisation in the agriculture and food sectors would also take place.

Figure 4-7 Changes in Kazakhstan's exports to the EU by sector.



Source: Model simulations. Note: All results are reported as percentage change compared to baseline.

Table 5 shows the percentage changes in sectoral exports together with the share of each sector in total exports towards the EU in the baseline. Although the most important increase would occur in the textiles and apparel sector with exports to the EU increasing by 57-66% depending on the scenario, this sector only represents a small share of exports in total exports. Less than 0.3% of exports occur in this sector. In the exports of goods the second most important increase would occur in processed food followed by the increase in exports of agricultural products. Again, these sectors represent only a very small share of total exports therefore the change after the different FTAs in terms of level would be only very small.

Table 5 Percentage changes in sectoral exports of Kazakhstan

	Partial CIS 1	Partial CIS 2	Full CIS FTAs	share in total exports
Agriculture	9.53	50.41	52.79	3.59%
Processed Food	10.16	58.03	60.57	0.88%
Textiles and Apparel	56.68	57.23	66.21	0.27%
Extraction	0.56	0.21	-5.7	0.14%
Oil	-0.07	-0.18	2.45	48.05%
Gas	1.46	1.96	0.75	0.98%
Light Manufacturing	-27.68	-27.01	-40.91	0.36%
Heavy Manufacturing	24.41	24.86	63.02	34.44%
Utilities and Construction	7.19	7.58	2.07	0.71%
Transport and Communication	6.17	6.55	1.23	3.76%
Public Administration	6.09	6.44	0.67	2.61%
Other Services	9.93	10.59	58.08	4.22%

4.4 Other Macroeconomic Results

In this section other macroeconomic results, such us changes in wages and GDP are discussed. These results are summarized in Table 4.6 and Table 4.5 below. Kazakhstan would have an increase of 2.36% in its GDP under the full FTA scenario which is shown in Table 4.6. This increase is about two times higher than the average increase in the CIS. Furthermore, Kazakhstan would experience an increase in wages for both the skilled and unskilled workers. These increases would be higher than those reported for the average of the CIS

and the EU. The increase in Kazakhstan wages would be around 2% for unskilled workers and about 1.6% for skilled workers.

Table 4.6: Macroeconomic results from Full FTA (in %)

	EU	CIS	Kazakhstan
Change in GDP	0.18	1.195	2.36
Unskilled worker wage	0.26	1.56	2.04
Skilled worker wage	0.24	1.47	1.65

Source: Model simulations. Note: All results are reported as percentage change compared to baseline.

The results with regards to the effect on other macroeconomic variables of the more realistic scenarios of trade agreements are summarized in Table 4.7 below. These results are different in magnitude and represent significantly smaller increases than the full FTA scenario. Both the first and the second scenario would result in an increase of 0.6% in GDP which is much lower than the increase which would take place under the full FTA scenario.

Both skilled and unskilled workers in Kazakhstan would experience an increase in their wages which would be higher than those experienced by workers on average in the CIS or in the EU and again significantly lower than the changes implied by a full FTA. The increase in wages in Kazakhstan would be higher for skilled workers and somewhat lower for unskilled workers under the first two FTA scenarios.

Table 4.7: Macroeconomic results from Partial 1 & 2 trade agreement

	Partial 1 trade agreement			Partial 2 trade agreement		
	EU	CIS	Kazakhstan	EU	CIS	Kazakhstan
Change in GDP	0.12	-0.13	0.63	0.10	-0.35	0.63
Unskilled worker wage	0.18	0.22	0.40	0.18	0.16	0.42
Skilled worker wage	0.16	0.32	0.60	0.15	0.36	0.63

Source: Model simulations. Note: All results are reported as percentage change compared to baseline.

4.5 Terms of Trade Effects

The table below shows terms of trade effects in the case of full free trade agreement with liberalization not being limited to only agriculture and manufacturing products but also services trade and technical barriers. While the

EU would have small terms of trade improvement amounting to about 0.11%, the CIS on average would experience 0.83% deterioration and the terms of trade deterioration would amount to 0.53% in the case of Kazakhstan.

Table 4.8: Terms of trade results from Full FTA (in %)

	EU	CIS	Kazakhstan
Terms of trade effects	0.11	-0.83	-0.53

Source: Model simulations. Note: All results are reported as percentage change compared to baseline.

The terms of trade effects for the two other forms of trade liberalisation are presented in the table below. Kazakhstan again, similarly to the full FTA case would experience a terms of trade deterioration however it would be slightly higher under the first two FTAs than under full FTA liberalization. The decrease in terms of trade would be similar in magnitude under the first and second scenario to the CIS average terms of trade changes. On the other hand the terms of trade gains for the EU would be significantly much smaller than for Kazakhstan and always positive.

Table 4.9: Terms of trade results from Partial 1 & 2 trade agreement

	Partial 1 trade agreement			Partial 2 trade agreement		
	EU	CIS	Kazakhstan	EU	CIS	Kazakhstan
Terms of trade effects	0.09	-0.63	-0.71	0.10	-0.76	-0.67

Source: Model simulations. Note: All results are reported as percentage change compared to baseline

5 Conclusions

In this study we explore the economic effects of potential measures to liberalize trade between the European Union and Kazakhstan. In so doing, we have a Computable General Equilibrium Model, CGE Model, based on the most recent version of the GTAP data base, i.e. GTAP 7, which is benchmarked to data from 2004. Our CGE model follows recent research in trade theory in taking differences in underlying industry specific market structures and elasticities into account. Furthermore, the model incorporates estimated non-tariff trade barriers to trade in services, stemming from industry-specific gravity equation, which

enhances the analysis of the service sector. The results are compared to a baseline which incorporates recent developments in the trade policy environment, i.e. the phase out of ATC, enlargement of the EU and CIS accessions to the WTO. The analysis takes agricultural liberalization, liberalization in industrial tariffs, and liberalization in services trade as well as trade facilitation measures into account.

The EU is a very important trading partner for Kazakhstan. On the other hand, Kazakhstan is a very small trading partner for the EU. Furthermore, CIS as a region represents only a relatively small share of EU trade. As a consequence of this asymmetric relationship the effects of an FTA between the EU and the CIS would have asymmetric effects on the EU and Kazakhstan. The impact of an FTA would be more pronounced for Kazakhstan and rather marginal for the EU.

Only a rather limited income effect would occur in the EU as a consequence of the FTAs while the income effect in Kazakhstan would be higher in magnitude. While the income effect in Kazakhstan would also rather small, close to the effect on the EU under the first two FTA scenarios which are only limited to liberalisation of tariffs in good, an important positive income effect would take place in Kazakhstan under the full FTA scenario.

Similarly to the income effects, the change in GDP in Kazakhstan would be positive under all the three FTAs however would be rather small under the first two scenarios. The full FTA would provide significantly higher benefits for Kazakhstan.