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Abstract

In March 1998, the EU formally launched accession negotiations with a number of countries. In this process there is a danger that countries of the new EU will switch to the trade inside the Union and non-accessing countries will face isolation, locking at the trade between them and lacking flows of foreign capital and new technologies, which can lead to the further gap in the regional development. Above all it concerns Former Soviet Union countries and in the paper the author investigates this issue. For this purpose the author employs Computable General Equilibrium Model, developed by Global Trade Analysis Project (USA). Database for the model is GTAP 4, in current research it was aggregated into 5 regions and 8 sectors of economy.

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Keywords: regional integration; EU enlargement; Computable General Equilibrium model; GTAP; FSU countries

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Contents

1. Introduction

Foreign trade is an important factor, influencing on the economic development of the country or region. For CIS countries this issue is especially important due to transformation in many economic and political aspects inside the CIS as well as in the whole world. First of all, these countries are still in the process of transition to market model and the question of creation of the open economy and effective production stays quite important. Second, world globalization of economy and increasing role of some integrated zones of influence significantly change trade and capital flows, which in its turn will considerably influence regional development. Such, for CIS countries the very important factor is integration of the European Union and its enlargement to the East.

In March 1998 the EU formally launched the process that will make enlargement possible. It embraces the following thirteen applicant countries**:** Bulgaria, Cyprus, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Romania, the Slovak Republic, Slovenia and Turkey.

The EU can already look back on a history of successful enlargements. The Treaties of Paris (1951), establishing the European Coal and Steel Community (ECSC), and Rome (1957), establishing the European Economic Community (EEC) and EURATOM, were signed by six founding members: Belgium, France, Germany, Italy, Luxembourg and the Netherlands. The EU then underwent four successive enlargements. However, the enlargement facing the EU today poses a unique challenge, since it is without precedent in terms of scope and diversity: the number of candidates, the area (increase of 34%) and population (increase of 105 million). So, there is no doubt that EU enlargement will dramatically change not only landscape of new integrated Europe, but will seriously affect other regions.

In this process there is a danger that countries of the new EU will switch to the trade inside the Union and non-accessing countries will face isolation, locking at the trade between them and lacking flows of foreign capital and new technologies,

which can lead to the further gap in the regional development. Above all it concerns FSU countries and in the paper we would try to investigate this issue. For this purpose we employ Computable General Equilibrium Model, developed by Global Trade Analysis Project (USA). Database for the model is GTAP 4, in current research it was aggregated into 5 regions and 8 sectors of economy.

2. Literature review

In this section we would like to discus some of the papers, concerning issues of trade reforms, which were used during project preparation.

Tarr and Matusz (1998) in their work give overview of more then 50 papers on trade reforms and discuss major consequences of changes in trade policy, both positive and negative. Rutherford and Tarr (1998) describe the effects of liberalization in the small country, working out stylized mathematical model with two sectors of economy. Francois, McDonald and Nordstrom (1996) describe liberalization and capital flows in the framework of CGE modeling.

Martin (1995) looks at the consequences of EU enlargement using the case of Spain economy. Paper includes in itself theoretical foundations of hypothesis, as well as quantitative analysis. The later is done by GLS, employing gravitation model and represents results of partial equilibrium analysis. Beside that analysis of the EU enlargement give such economists, as Brocker (1998) – for Eastern European countries; Harrison, Rutherford and Tarr (1996) – for Turkey. In both cases CGE analysis is conducted.

Goto and Hamada (1995) discuss options of trade policy choice for Asian fast-growing countries. Paper analysis economical as well as political consequences of forming separate trade block, cooperation within APEC and other variants. Also they present results of empirical analysis without description of the very model and graphical analysis.

Michalopoulus and Tarr (1997) analyze economic results of forming Custom Union within CIS countries. The conclude, that static effect will be uncertain, but in the long run members of the union will loose, locking at the countries with old technology. Paper offers good discussion of the CIS countries problems, but does not give quantitative analysis.

Rob Davies (1998) analyses trade reforms in the Southern Africa, making stress at the negotiations with the EU. General equilibrium multi-country multi-

sector model allows simulating a number of agreements between South Africa and European Union and gives quantitative estimates of the results of changes in resource allocation, trade and output.

3. Statement of the problem

As was noted above, enlargement of the EU will significantly affect many regions, but in this paper we will concentrate on the countries of Former Soviet Union, which are not accessing. Although some of them expressed their wish to join the EU, unstable political situation and economic turmoil does not allow these countries to meet members criteria and their accession is postponed at least by one decade.

Enlargement of the EU may have negative effect for FSU countries coming from two sides: 1) trade diversion among members of new EU and 2) technological gap, as FSU countries might be left behind technological flows.

In order to capture these effects, we designed two experiments: the first one simulates gradual integration of CEECs into EU according to the enlargement schedule. European Union first unilaterally reduces its tariffs on non-food products coming from CEECs, which is followed by reciprocal measure from CEEC, than food sector is being liberalized. In the second experiment we add technology factor and simulate technological gap between FSU and other economies.

The model is Computable General Equilibrium model by Global Trade Analysis Project (GTAP). The data in the model is taken from GTAP 4 database and aggregated into 5 regions and 8 sectors of economy.

Before turning to the simulation itself, it is important to know what limitations the model has:

First of all, the data has high level of aggregation. This especially matters for FSU region, which includes western FSU countries that are close to the EU and have intensive trade with it, as well as Asian countries, with weaker trade connections.

Second, the model reflects actual procedure of enlargement somewhat schematically, without exact correspondence to the time schedule of enlargement.

Third, the model assumes perfect competition and constant returns to scale, that is a strong assumptions, although the first one can be valid, since we concentrate on international trade, which is quite competitive.

Fourth, due to the fact that the model is static and not dynamic, it does not fully capture effect of intertemporal growth and technological improvement. Nevertheless, it gives estimation for foundation of growth, while technological aspect is partly modeled through shocking output technology change.

Although the model has some limitations and does not provide deep inside view into country-specific results, it gives fairly good estimation of the effects of EU enlargement on non-accessing countries of FSU in terms of block-wide perspective.

4. Outline of the simulation

The outline of the experiment is described in more details below:

Regions: FSU, EU, CEEC, NAFTA, ROW.

Sectors: FOOD, MINERAL, OthPrimary, LIGHT, METALL, MinPr, MNFCS, SVCES.

Experiment 1:Enlargement of the EU.

Step 1. Unilateral removal of tariffs on non-food products from CEECs by EU.

Step2. Reciprocal removal of tariffs on non-food products by CEECs.

Removal of internal tariffs on non-food products inside CEECs.

Common outside tariffs on non-food products in EU and CEECs.

Step 3. Unilateral removal of tariffs on food products from CEECs by EU.

Step 4. Reciprocal removal of tariffs on food products by CEECs.

Removal of internal tariffs on food products inside CEECs.

Common outside tariffs on food products in EU and CEECs.

Experiment 2. Enlargement of the EU and technological change.

In this experiment additionally to the complete procedure of experiment 1 we add effect of technological change, differentiated by regions. EU, CEECs and NAFTA countries all let to enjoy technological improvement of 5%, ROW augment by 3%, while FSU stays at the same technological level.

5. Results of the simulations

In this section we would like to consider results of the simulation, beginning with protection structure and then analyzing quantitative estimates of experiments 1 and 2, going step by step according to accession schedule.

5.1. Initial protection structure

Lets start from reviewing initial protection structure of three regions of interest: FSU, EU and CEEC.

As can be seen from Table 1, on average FSU countries have higher import tariffs then other countries. But, it should be taken into account that higher tariffs are imposed at such goods as mineral products, in primary and metal industries, where FSU block has large domestic production and traditionally is a net exporter. At the same time food industry is protected significantly less then in CEEC and EU.

At the original stage, countries of FSU face higher import tariffs in CEEC's then in European Union, with exception of primary products (25.4% vs. 8%) and light industry (8% vs. 7%). If, as the result if enlargement, CEEC will accept external tariffs of EU (which is quite possible and I follow this assumption in the work), FSU will not be harmed at least by higher tariffs.

Looking at the bilateral trade of EU and CEEC, we can notice again that eastern countries have higher tariffs, except of food industry. Besides that, CEEC's have considerable initial intra region import tariffs (approximately at the 6% average level), which have to be eliminated in the process of accession to EU that can bring additional benefits to those countries.

5.2. Experiment 1. Enlargement of the EU

The first step concerns unilateral elimination of tariffs on non-food products from CEEC by European Union. Table 2 shows changes in output in different regions. CEEC rapidly increases its production in light industry by 11% with accompanying decline in other industries. EU insignificantly declines its output, while FSU increases it by 0,4%. Exports from FSU rise by 30%, in this, the only

source of external demand is CEEC region. Exports to CEEC of light industry and primary product increase by more then 11% each and we can suggest that they are used as intermediate inputs for CEEC production. At the same time, imports drop by 46% and again, the main effect is coming from decrease of CEEC imports, at the first place of primary products, in light industry, metal and manufactures. Prices in FSU do not change significantly, rising by 0,79%.

Turning to the welfare effect of the reforms, we see that FSU is among the losers, having an equivalent of USD 138 m decline in welfare (it is interesting to note that EU too experiences significant welfare losses at the initial stage of enlargement). Two-third of the losses in FSU come from the terms of trade effect (USD 83 m), especially in the food industry and manufactures (USD 22 m and USD 32 m respectively). Losses due to allocation of resources amount USD 48 m, again with food and manufacturing industries as leaders.

Summarizing, we see that as the process of enlargement begins, FSU somewhat increase their output and run into surplus of the trade balance, due to the export of intermediate inputs for CEEC, but FSU experience welfare losses, mainly coming from TOT effect.

After the second step, when CEEC reduces its tariffs on non-food goods from EU, overall output does not increase as much, as at the first stage. CEEC increase output by 6,27%, EU and FSU decrease it by 0,1% and 0,07% respectively. In FSU output of the light industry decreased the most: by 0,57%. In contradiction to the first case, now FSU has decrease in both, exports and imports. Export decreased the most in light industry and manufactures and can be explained by continuing trade diversion in the new EU continues. Welfare losses in FSU now more then two times more: USD 288 m, USD 252 m of which are due to TOT effect (Table 9).

At the third stage, output in the FSU increases by 0,21%, in EU – by 0,22%, while output in CEEC decreases by1,64% (Table 10). The most substantial increase in FSU output occurred in food industry and primary products. Export of the FSU

decrease by 24% and imports – by 60%. At the export side, exports of the food into CEEC increased by 12%. Welfare losses continue to increase: now FSU loose USD 369 m, again the most part of losses coming from TOT (USD 302 m).

After complete liberalization of trade between EU and CEEC, FSU output practically does not change (just 0,1% increase). It should be noted the negative structure in the output changes: the leaders of the growth are low-processed metal industry and primary goods, while food and light industry decline their production. External trade goes down by the same level on both export and import sides (50% decline). Welfare losses are somewhat less then in previous case – USD 358 m (Table 17). TOT effect brought USD 306 m of losses, allocation – USD 82 m, while changes in prices of savings and investment had positive effect, equivalent to USD 30 m.

5.3. Experiment 2. Enlargement of the EU and technological change

According to the theory, the negative effect of EU enlargement for non-accessing FSU countries come not only from changes in trade patterns, but from the technological gap, that might appear between east and west. In this section, additionally to the previous simulations, we try to proxy effect of technology.

Table 18 shows us changes in output: FSU output rises, but by relatively lower level then in other regions: 5,42% increase comparing with almost 50% increase in CEEC and 26% in EU. Light and metal industry and primary goods output rises the most in the FSU, on average by 7 %. Decomposing output changes at domestic and export parts (Table 22), we see, that 80% of overall output increase is due to external side, while in metal industry and primary goods production this is almost the only source.

From the Table 23, we see that EU and CEEC decreased their exports to all regions, except mutual exports. At the same time, imports of EU and CEEC significantly increased. Non surprisingly, FSU exports grow by dramatic amount, 570%, the main part of which goes to the new EU. Imports decline by 126% and

again, due to the trade with EU. This leads to the increase in the trade surplus by USD 4765 m.

But the trade surplus unfortunately does not lead to the welfare gains in FSU. Actually, regional household income in FSU decreases by 13%, while per capita utility – by 1,04% (Tables 24 and 25).

Ratio of trade balance to income is 0,82 (the biggest among all regions) and points at the fact that although FSU intensifies its external trade, it's production is not efficient and does not bring corresponding income increase.

Turning to the welfare, we see that due to the EU enlargement with appearance of technological gap FSU lost considerable amount of USD 4617 m. Losses of USD 4754 m are coming from TOT effect, allocation effect brought USD 751 m losses, while investment-savings price effect had positive gain of USD 887 m. Decomposing allocation and terms of trade effects by sectors of economy, we see that the most negative impact was at the manufactures, food industry and services. As was noted before, metal and primary goods production in FSU increased and allocation effect for these sectors was actually positive, but terms of trade became significantly negative, outweighting positive allocation effect.

6. Summary

Below we would like to summarize the main findings of the paper:

FSU increases its production by 5,5%. The negative point here is that production in low-processed industries (metal and primary goods) is increased the most, while production of products with higher technological input decline, which in the long run may have strong negative effect on FSU development.

Trade balance experiences significant surplus increase of USD 4765 m. The main importers of FSU goods are CEEC and EU, which use them as intermediate inputs for their growing production.

Although the trade balance is in surplus, ratio of trade balance to income is 0,88, rather large and points at the ineffectiveness of foreign trade.

Imports of the FSU decline first of all for consumer commodities: services, food and manufactures that might have its own negative impact on household utility.

Taking into account that FSU countries will very likely stay in a kind of isolation from technological innovations and know-how, we introduce effect of technological gap between FSU and other countries. This actually brings the most serious negative effect to the FSU, welfare losses become dramatically larger then just from changing trade patterns.

Generally, EU enlargement to the east has negative effect on non-accessing countries of former Soviet Union and their welfare losses come to the equivalent of USD 4617 m. Income declines by 13%, while per capita utility – by 1,04%.

The main message for the policymakers in non-accessing countries of former Soviet Union is to be aware of the danger of staying behind beneficial technological and trade flows and to stress at the importance of negotiation with EU on a closer cooperation. Taking into account that FSU countries will not be able to meet accession criteria for a pretty long term, the most efficient strategy for them is approaching free access to foreign markets (first of all through WTO membership) and this should be the pressing agenda for FSU policy makers.

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Appendix

Table 1. Import Tariffs by Commodity in Various Regions, %

FSU					
	FSU	EU	NAFTA	CEEC	ROW
Food	8.5	11.4	9.0	13.1	5.8
Mineral	5.2	18.2	10.9	5.0	17.8
OthPrimary	12.3	6.6	8.4	8.0	2.4
Light	14.8	14.3	14.7	18.0	18.1
Metal	12.9	12.2	22.5	15.4	16.4
MinPr	9.5	9.6	10.6	12.8	11.6
Mnfcs	10.5	8.9	10.6	13.4	14.6
Svces	2.5	1.8	1.8	1.3	1.7

CEEC					
	FSU	EU	NAFTA	CEEC	ROW
Food	26.3	20.9	23.3	13.0	16.7
Mineral	1.2	2.1	1.4	2.5	6.2
OthPrimary	8.0	4.7	3.4	3.5	2.9
Light	7.0	8.8	6.3	9.3	7.5
Metal	4.9	5.8	3.3	4.7	7.2
MinPr	9.2	7.7	8.5	7.2	7.9
Mnfcs	8.6	6.9	8.4	7.5	11.3
Svces	0.0	0.0	0.0	0.0	0.0

EU				
	FSU	NAFTA	CEEC	ROW
Food	12.3	18.0	24.2	18.3
Mineral	0.0	0.1	0.0	0.1
OthPrimary	25.4	32.8	4.4	14.3
Light	8.0	7.3	7.6	8.7
Metal	2.1	2.7	3.5	3.3
MinPr	3.6	3.7	3.4	4.2
Mnfcs	2.9	3.3	3.7	4.6
Svces	0.0	0.0	0.0	0.0

Experiment 1.

Step 1.

Table 2. Changes in output, %

	FSU	EU	NAFTA	CEEC	ROW	Total
Food	-0.07	0.65	-0.09	-1.04	-0.09	-0.64
Mineral	0.04	0.01	0.03	-1.15	0.05	-1.02
OthPrimary	0.35	0.11	0	1.05	-0.01	1.51
Light	-0.06	-1.02	-0.04	11.07	-0.2	9.74
Metal	0.02	-0.09	0.03	-0.82	0.1	-0.76
MinPr	0.04	-0.01	0.01	-0.27	0.02	-0.2
Mnfcs	0.08	-0.06	0	-0.58	0.06	-0.51
Total	0.4	-0.4	-0.07	8.26	-0.06	8.12

Table 3. Changes in FSU exports, %

	FSU	EU	NAFTA	CEEC	ROW	Total
Food	0.4	-5.4	-0.5	5.3	-0.6	-0.9
Mineral	0.7	-0.4	-0.5	0.8	-0.5	0.2
OthPrimary	0.3	-1.9	-1.0	11.4	-1.0	7.8
Light	1.1	-4.4	-0.8	11.2	-1.0	6.1
Metal	0.7	-0.6	-0.4	4.9	-0.3	4.4
MinPr	0.6	-0.4	-0.4	4.0	-0.4	3.4
Mnfcs	0.5	-0.6	-0.6	5.3	-0.6	4.1
Svces	0.0	0.0	-0.2	5.5	-0.1	5.2
Total	4.2	-13.6	-4.3	48.5	-4.5	30.2

Table 4. Changes in FSU imports, %

	FSU	EU	NAFTA	CEEC	ROW	Total
Food	0.4	1.2	0.9	-9.1	1.0	-5.6
Mineral	0.7	1.1	1.2	-4.2	1.2	-0.1
OthPrimary	0.3	0.7	1.2	-12.2	1.4	-8.7
Light	1.1	2.5	2.0	-12.6	2.2	-4.8
Metal	0.7	0.9	1.2	-10.1	1.3	-6.1
MinPr	0.6	0.8	1.0	-6.7	1.1	-3.3
Mnfcs	0.5	0.8	1.1	-12.8	1.3	-9.1
Svces	0.0	0.1	0.3	-9.5	0.4	-8.6
Total	4.2	8.1	8.9	-77.3	9.8	-46.3

Table 5. Welfare decomposition

	Allocation	TOT	IS F	Total
FSU	-48.6	-82.9	-7.0	-138.6
EU	-969.8	-1717.2	-15.7	-2702.7
NAFTA	12.7	-205.3	-90.1	-282.7
CEEC	638.4	3173.7	160.5	3972.6
ROW	-568.0	-1203.8	-49.5	-1821.3
Total	-935.3	-35.6	-1.9	-972.8

Step 2.

Table 6. Changes in output, %

	FSU	EU	NAFTA	CEEC	ROW	Total
Food	0.08	0.53	-0.08	-0.98	-0.07	-0.52
Mineral	0.02	-0.08	0.02	-1.03	0.05	-1.01
OthPrimary	0.40	0.16	-0.03	0.79	-0.02	1.30
Light	-0.57	-0.70	-0.11	12.37	-0.37	10.61
Metal	0.03	-0.09	0.02	-0.78	0.11	-0.71
MinPr	-0.03	0.12	0.01	-2.07	0.03	-1.94
Mnfcs	-0.01	-0.03	0.00	-2.02	0.10	-1.97
Total	-0.07	-0.10	-0.17	6.27	-0.18	5.76

Table 7. Changes in FSU exports, %

	FSU	EU	NAFTA	CEEC	ROW	Total
Food	0.8	-4.3	0.2	4.8	0.0	1.5
Mineral	0.5	0.8	0.6	-1.2	0.5	1.2
OthPrimary	0.0	-1.0	-0.4	8.4	-0.5	6.5
Light	0.7	-3.5	0.3	-17.9	0.1	-20.3
Metal	1.0	0.9	0.6	-9.3	0.6	-6.3
MinPr	0.6	0.8	0.3	-10.5	0.3	-8.5
Mnfcs	1.1	1.3	0.5	-18.5	0.6	-15.1
Svces	0.6	1.3	0.6	5.4	0.6	8.4
Total	5.2	-3.8	2.8	-38.8	2.1	-32.5

Table 8. Changes in FSU imports, %

	FSU	EU	NAFTA	CEEC	ROW	Total
Food	0.8	0.2	0.6	-7.2	0.9	-4.7
Mineral	0.5	-0.5	-0.1	-2.3	0.0	-2.3
OthPrimary	0.0	-1.2	0.3	-10.7	0.5	-11.1
Light	0.7	-0.1	0.3	-4.1	0.6	-2.6
Metal	1.0	-0.7	0.5	-4.9	0.7	-3.5
MinPr	0.6	-0.5	0.3	-3.2	0.5	-2.2
Mnfcs	1.1	-0.9	0.6	-5.5	0.8	-3.9
Svces	0.6	-0.8	0.2	-7.8	0.3	-7.6
Total	5.2	-4.4	2.7	-45.6	4.3	-37.8

Table 9. Welfare decomposition

	Allocation	TOT	IS F	Total
FSU	-63.9	-252.0	27.9	-288.0
EU	-277.3	926.3	-48.8	600.3
NAFTA	-18.0	-406.1	-85.3	-509.5
CEEC	346.6	1690.9	44.7	2082.3
ROW	-778.6	-1969.9	61.2	-2687.4
Total	-791.3	-10.8	-0.2	-802.3

Step 3.

Table 10. Changes in output, %

	FSU	EU	NAFTA	CEEC	ROW	Total
Food	0.16	-0.01	-0.11	3.45	-0.11	3.38
Mineral	0.00	-0.06	0.02	-1.71	0.05	-1.70
OthPrimary	0.45	0.27	-0.02	-0.86	0.00	-0.15
Light	-0.43	-0.28	-0.09	8.48	-0.31	7.37
Metal	0.04	0.04	0.03	-3.31	0.13	-3.06
MinPr	-0.01	0.18	0.01	-2.91	0.03	-2.70
Mnfcs	0.00	0.08	0.00	-4.78	0.09	-4.60
Total	0.21	0.22	-0.15	-1.64	-0.11	-1.47

Table 11. Changes in FSU exports, %

	FSU	EU	NAFTA	CEEC	ROW	Total
Food	1.3	-7.0	-0.2	12.6	-0.3	6.4
Mineral	0.6	1.0	0.7	-1.8	0.6	1.1
OthPrimary	0.2	-0.8	-0.6	8.9	-0.8	7.0
Light	1.2	-3.3	0.0	-17.6	-0.2	-19.8
Metal	1.2	0.9	0.5	-9.1	0.5	-6.0
MinPr	0.8	0.7	0.3	-9.7	0.2	-7.7
Mnfcs	1.2	1.1	0.3	-17.6	0.4	-14.6
Svces	0.5	1.1	0.5	7.2	0.5	9.9
Total	7.1	-6.4	1.6	-27.0	1.0	-23.8

Table 12. Changes in FSU imports, %

	FSU	EU	NAFTA	CEEC	ROW	Total
Food	1.3	1.6	1.4	-15.8	1.6	-10.0
Mineral	0.6	-0.4	0.0	-3.1	0.0	-2.8
OthPrimary	0.2	-0.6	0.7	-15.5	1.0	-14.1
Light	1.2	0.9	1.2	-9.3	1.5	-4.5
Metal	1.2	-0.2	0.8	-8.8	1.0	-6.0
MinPr	0.8	-0.1	0.6	-5.8	0.8	-3.6
Mnfcs	1.2	-0.4	0.9	-10.5	1.1	-7.7
Svces	0.5	-0.6	0.2	-11.4	0.4	-10.9
Total	7.1	0.1	5.8	-80.1	7.4	-59.7

Table 13. Welfare decomposition

	Allocation	TOT	IS F	Total
FSU	-89.6	-302.4	23.0	-369.0
EU	226.3	-415.0	-48.9	-237.6
NAFTA	-11.0	-418.6	-114.9	-544.5
CEEC	-197.8	3228.8	125.3	3156.3
ROW	-866.1	-2128.6	14.0	-2980.7
Total	-938.2	-35.8	-1.5	-975.4

Step 4.

Table 14. Changes in output, %

	FSU	EU	NAFTA	CEEC	ROW	Total
Food	-0.2	0.5	-0.2	1.6	-0.2	1.6
Mineral	0.0	-0.1	0.0	-1.4	0.1	-1.4
OthPrimary	0.6	0.2	0.0	-0.1	0.0	0.6
Light	-0.4	-0.6	-0.1	10.4	-0.3	9.0
Metal	0.2	-0.1	0.0	-2.2	0.2	-2.0
MinPr	0.0	0.1	0.0	-2.5	0.0	-2.4
Mnfcs	0.0	0.0	0.0	-3.6	0.1	-3.4
Total	0.1	0.1	-0.2	2.1	-0.1	2.0

Table 15. Changes in FSU exports, %

Food	1.0	-6.3	0.3	-18.9	0.1	-23.9
Mineral	0.6	0.9	0.7	-1.5	0.6	1.3
OthPrimary	0.2	-0.7	-0.3	8.9	-0.5	7.6
Light	1.1	-3.2	0.3	-17.5	0.1	-19.1
Metal	1.3	1.1	0.7	-8.9	0.7	-5.1
MinPr	0.8	0.9	0.4	-10.0	0.3	-7.5
Mnfcs	1.4	1.5	0.6	-17.7	0.7	-13.6
Svces	0.6	1.4	0.7	6.5	0.7	10.0
Total	7.0	-4.4	3.3	-59.1	2.6	-50.4

Table 16. Changes in FSU imports, %

	FSU	EU	NAFTA	CEEC	ROW	Total
Food	1.0	0.4	0.6	-10.2	0.9	-7.2
Mineral	0.6	-0.4	0.0	-2.6	0.1	-2.4
OthPrimary	0.2	-1.1	0.4	-13.4	0.7	-13.1
Light	1.1	0.2	0.7	-6.7	1.1	-3.6
Metal	1.3	-0.6	0.7	-7.2	1.0	-4.8
MinPr	0.8	-0.4	0.5	-4.6	0.7	-3.0
Mnfcs	1.4	-0.8	0.8	-8.4	1.0	-6.1
Svces	0.6	-0.9	0.2	-9.9	0.4	-9.6
Total	7.0	-3.6	3.9	-63.0	5.8	-49.8

Table 17. Welfare decomposition

	Allocation	TOT	IS F	Total
FSU	-82.4	-306.9	31.0	-358.3
EU	-652.8	540.3	-59.0	-171.5
NAFTA	-2.5	-467.1	-108.2	-577.8
CEEC	-90.0	2493.6	85.9	2489.5
ROW	-947.3	-2280.2	49.7	-3177.8
Total	-1775.0	-20.3	-0.6	-1795.9

Experiment 2

Table 18. Changes in output, %

	FSU	EU	NAFTA	CEEC	ROW	Total
Food	2.77	1.41	1.74	4.45	2.27	12.65
Mineral	-0.22	-1.49	-0.51	-1.43	-0.93	-4.57
OthPrimary	6.39	-2.13	0.82	2.13	1.65	8.87
Light	7.54	0.95	6.44	18.94	7.44	41.31
Metal	8.51	-1.45	-0.96	-1.65	0.57	5.03
MinPr	2.32	0.74	3.73	0.86	2.28	9.93
Mnfcs	-1.19	1.78	4.12	1.64	4.24	10.59
Svces	-1.03	6.61	5.75	5.9	3.14	20.37
CGDS	-19.68	19.38	6.69	18.28	-0.95	23.72
Total	5.42	25.82	27.83	49.13	19.71	127.9

Table 19. Changes in FSU exports, %

	FSU	EU	NAFTA	CEEC	ROW	Total
Food	10.2	12.0	9.0	-0.8	10.1	40.5
Mineral	1.6	-6.0	-7.6	-2.5	-7.9	-22.5
OthPrimary	7.1	8.9	-3.3	24.1	6.1	42.9
Light	16.4	33.5	21.3	14.6	14.5	100.3
Metal	13.9	25.4	12.8	10.5	10.9	73.4
MinPr	8.7	18.8	10.6	6.0	7.7	51.8
Mnfcs	11.4	47.1	26.2	18.1	18.7	121.5
Svces	14.3	40.4	33.1	47.8	24.5	160.0
Total	83.5	180.1	102.1	117.7	84.6	568.0

Table 20. Changes in FSU imports, %

	FSU	EU	NAFTA	CEEC	ROW	Total
Food	10.2	-9.1	3.8	-20.0	1.7	-13.3
Mineral	1.6	7.6	9.5	-6.4	9.5	21.8
OthPrimary	7.1	-15.5	11.0	-26.4	1.0	-22.8
Light	16.4	-16.8	2.0	-16.6	9.4	-5.6
Metal	13.9	-13.6	-1.1	-14.9	4.3	-11.3
MinPr	8.7	-10.0	2.2	-10.5	4.2	-5.4
Mnfcs	11.4	-23.6	-9.8	-26.0	-1.2	-49.2
Svces	14.3	-17.9	-9.3	-25.4	-2.3	-40.5
Total	83.5	-98.9	8.4	-146.1	26.7	-126.4

Table 21. Welfare decomposition

	Allocation	Technological	TOT	IS F	Total
FSU	-751.0	0.0	-4754.0	887.2	-4617.7
EU	49831.8	927614.9	27788.1	-1031.3	1004203.5
NAFTA	38616.9	747142.6	2892.5	-3706.1	784946.0
CEEC	855.4	52577.1	3876.2	-118.2	57190.6
ROW	21519.6	691510.3	-30582.1	4062.2	686510.0
Total	110072.8	2418844.9	-779.2	93.9	2528232.4

Table 22. Decomposition of output in FSU

	Food	Mineral	OthPrimary	Light	Metal	MinPr	Mnfcs	Total
SHRDM	2.02	0.93	0.62	3.68	0.83	0.92	-3.34	5.67
SHRXMD	0.75	-1.15	5.77	3.86	7.68	1.40	2.15	20.46
Total	2.77	-0.22	6.39	7.54	8.51	2.32	-1.19	26.13

Table 23. Total exports

	FSU	EU	NAFTA	CEEC	ROW	Total
FSU	384.5	7549.2	1357.6	574.1	3692.5	13557.8
EU	-7410.7	11925.5	-20162.9	27828.1	-67474.1	-55294.1
NAFTA	-455.9	31129.1	10774.6	377.3	-4889.2	36935.8
CEEC	-1491.5	23649.3	-1024.1	-2482.4	-5381.9	13269.4
ROW	181.0	82248.7	46142.7	1619.2	43789.3	173980.8
Total	-8792.7	156501.7	37087.8	27916.3	-30263.4	182449.8

Table 24. Regional household income

FSU	-13.06
EU	6.3
NAFTA	1.67
CEEC	7.83
ROW	-3.31

Table 25. Per capita utility

FSU	-1.04
EU	13.18
NAFTA	10.78
CEEC	14.05
ROW	7.34

Table 26. Ratio of trade balance to income

FSU	0.82
EU	0
NAFTA	0.02
CEEC	0.19
ROW	0.06