

Harbuzyuk, Oksana; Lutz, Stefan

**Working Paper**

## Analyzing trade opening in Ukraine: Effects of a customs union with the EU

ZEI Working Paper, No. B 26-2004

**Provided in Cooperation with:**

ZEI - Center for European Integration Studies, University of Bonn

*Suggested Citation:* Harbuzyuk, Oksana; Lutz, Stefan (2004) : Analyzing trade opening in Ukraine: Effects of a customs union with the EU, ZEI Working Paper, No. B 26-2004, Rheinische Friedrich-Wilhelms-Universität Bonn, Zentrum für Europäische Integrationsforschung (ZEI), Bonn

This Version is available at:

<https://hdl.handle.net/10419/39636>

**Standard-Nutzungsbedingungen:**

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

**Terms of use:**

*Documents in EconStor may be saved and copied for your personal and scholarly purposes.*

*You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.*

*If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.*

Zentrum für Europäische Integrationsforschung  
Center for European Integration Studies  
Rheinische Friedrich-Wilhelms-Universität Bonn



Oksana Harbuzyuk and Stefan Lutz

**Analyzing Trade Opening  
in Ukraine: Effects of a  
Customs Union with the EU**

**Working Paper**

**B04-26  
2004**

# Analyzing Trade Opening in Ukraine: Effects of a Customs Union with the EU\*

12 October 2004

Oksana Harbuzyuk\*\*, and Stefan Lutz\*\*\*

Indiana University; University of Manchester and ZEI

*This paper analyzes the possible a customs union between and the European Union. The GTAP multi-country simulation model of Purdue University's Center for Global Trade Analysis is applied. The welfare measure evaluated is the change in equivalent variation (EV). As all incomes in the model accrue to a representative household, EV fully assesses possible welfare benefits for Ukraine from a bilateral tariff elimination on trade with the EU. As the model includes Ukraine in the aggregated „Former Soviet Union“ region (FSU), EV is estimated for the FSU and then disaggregated on the industry level proportionally to trade shares. The results of our simulations suggest that Ukraine's EV is particularly sensitive to the inclusion of the agricultural sector into a customs union. Due to the highly protected nature of this sector within the EU, Ukraine would be better off if agriculture were excluded from liberalization. If this scenario is assumed, Ukraine's monetary gain would be in the order of \$40 million.*

JEL classification: F02, F15, O19, O52

Keywords: Ukraine, Trade, Integration, GTAP

---

\* The authors acknowledge the hospitality of the National University “Kiev-Mohyla Academy” and financial support by the Kyiv EERC Program in Economics and by the Institute of Economic Research and Policy Consulting (IER), Kiev. They also would like to thank Charles Steele and Roy Gardner for helpful comments and suggestions. The usual disclaimer applies.

\*\* Address: Oksana Harbuzyuk, Indiana University, Department of Economics, Wylie Hall, Room 105, Bloomington, IN 47405-6620, USA, Email: oksanaha@indiana.edu.

\*\*\* Correspondence: Stefan Lutz, University of Manchester, School of Social Sciences, Economic Studies, Manchester, M13 9PL, United Kingdom, Email: stefan.lutz@manchester.ac.uk.

## 1. INTRODUCTION

In the 20<sup>th</sup> century, Ukraine passed a tremendous period of its history. After collapse of the Soviet Empire, Ukraine recovered more slowly than did the Baltic States and still more slowly than what used to be called the Central and Eastern European Countries (CEECs). Only in the year 2000 did GDP begin to rise again after a decade of steady decline<sup>1</sup>. Strong state regulation of foreign trade was prevalent in 1994 and even in 1999, no time plan was set for Ukraine to join the World Trade Organization (WTO) (e.g., Michalopoulos 1999). In fact, from the point of view of the WTO, Ukraine could still not be considered to be a market economy<sup>2</sup>. However, in the year 2000, in the context of an anti-dumping investigation the European Union recognized Ukraine as a market economy; in the same year, the WTO announced Ukraine could be accepted as a member in the near future if its Parliament approved changes to about 60 laws and provisions as a precondition (*Postup*, 2000).

Already in 1994 the Partnership and Co-operation agreement with the EU was signed, which envisioned the creation of a customs union for 1998.<sup>3</sup> As economic conditions were not appropriate then, the customs union was postponed. Depending on how Ukraine will manage to further develop its political institutions and to improve its economic performance, a customs union with the EU will eventually be established. Anticipating the effects of such a union for Ukraine builds the main motivation for this work.

With the enlargement of the European Union, Ukraine faces the possibility that trade with its Western neighbors is diverted away into the EU.<sup>4</sup> One of Ukraine's major trade partners,

---

<sup>1</sup> In 2001, growth for the coming years was projected to be up to 6% yearly (*Postup*, 2001). See also EBRD (2001).

<sup>2</sup> This means in considering dumping cases by its partners, the costs of Ukrainian producers were not calculated from their actual costs but taken from comparable producer in other, market-economy country. The argument behind this is that non-market economy implicitly subsidises its producers, e.g. through supplying them with cheap energy. Such procedure of treating led to more judgements to detriment of Ukrainian producers.

<sup>3</sup> The basis for EU-Ukraine relations was laid down in the Partnership and Co-operation Agreement (PCA) on 14 June 1994. Ukraine was the first of the Newly Independent States (NIS) to sign this kind of document with the EU to replace former Agreement on Trade and Commercial and Economic Co-operation with the USSR. The aim of the Parties to the document was it to establish a free trade area by 1998 if appropriate (Article 4 of PCA). According to the Agreement, the Parties grant to each other most-favored-nation (MFN) treatment and the products of the other party should not be subject to discriminatory direct or indirect taxation (A10 and 15 respectively). However, textile and steel products are exempted from the latter clause. Further, the Agreement encourages "the approximation of Ukraine's existing and future legislation to that of the Community" (A51).

<sup>4</sup> Further, Chang and Winters (1999) demonstrate that if a country enters Preferential Trading Arrangements (PTA) "other contracting parties [who fail to enter it] may .... be affected adversely, because they are compelled to reduce their prices to meet competition from the suppliers within the PTA" (pp.33).

Poland, has just joined the EU while others like Turkey prepare to do so<sup>5</sup>. Besides, the EU is the largest of Ukraine's trade partners outside the Newly Independent States (NIS); and the trade volume with it is growing from year to year at the expense of trade with the NIS. A customs union with the EU will potentially avoid much of trade diversion associated with EU enlargement otherwise.<sup>6</sup>

Using the GTAP multi-country simulation model of Purdue University's Center for Global Trade Analysis<sup>7</sup>, we show that a customs union between Ukraine and the EU will not only help to avoid trade diversion with some partners, but also will foster trade creation and possibly a (modest) increase in Ukrainian welfare. The customs union is modeled through a bilateral tariff reduction. Since the the GTAP data set available to us had no disaggregated country data for Ukraine, the computation was done for the "Former Soviet Union" (FSU) region as a whole. Then resulting welfare effect for the FSU was then disaggregated proportionally to each Ukrainian industry's share in the total trade of FSU industries.

The rest of the paper is structured as follows. The next chapter gives a short overview of the GTAP model and the calculations performed. The results of modeling the customs union are presented and discussed in Chapter 3. This is followed by the conclusions in the last chapter. Input data and parameters for the GTAP calculations are presented in the appendices.

## 2. Modelling the Customs Union in GTAP<sup>8</sup>

We are applying the GTAP multi-country simulation model of Purdue University's Center for Global Trade Analysis to analyze the effects of a customs union between Ukraine and the EU. The customs union is modeled through a bilateral tariff reduction. The model available to us was Version 4 based on data up to 1995 and including 45 regions and 50 sectors.<sup>9</sup> Since the the GTAP data set available to us had no disaggregated country data for Ukraine, the

---

<sup>5</sup> The top five of Ukraine's trade partners are ranked as follows (1998): Export – Russia, China (steel), Turkey, Germany, Belarus; Import – Russia, Germany, US, Poland, Italy.

<sup>6</sup> Literature exploring the effects of trade liberalization and specifically aspects of trade diversion include Harrison et. al. (1996), Chang and Winters (1999), Kose and Riezman (2000). Kose/Riezaman analyze a three-country model and conclude that a small country will have a preference for building a bilateral customs union with a larger country or region. Chang/Winters estimated trade diversion effects of MERCOSUR on the USA, Germany and Japan. Harrison et. al. estimate Turkey's benefits from a customs union with the EU.

<sup>7</sup> See Hertel (1997) for a comprehensive documentation of the model.

<sup>8</sup> This analysis is based on Harbuzyuk (2001).

<sup>9</sup> Without further aggregation, this would result in more than 20 000 variables in more than 15 000 equations.

computation was done for the “Former Soviet Union” (FSU) region as a whole. The resulting welfare effect for the FSU measured as equivalent variation was then disaggregated proportionally to each Ukrainian industry’s share in the total trade of FSU industries.

The model employs the following assumptions about producers, consumers and markets. Constant returns to scale in production and perfect competition is assumed in all sectors.<sup>10</sup> Consumer preferences are modeled as Armington-style product differentiation. This means, consumers differentiate among products of different origins and a country’s aggregate import function has the following CES functional form:<sup>11</sup>

$$m'_r = \left[ \sum_{i \neq r} a_{ir} x_{ir}^{(\sigma_r - 1)/\sigma_r} \right]^{\sigma_r / (\sigma_r - 1)} \quad \text{for } r, i=1, 2, \dots, n$$

where

$m'_r$  = quantity index of total imports into  $r$  (prime indicates CES functional form);

$x_{ir}$  = quantity of imports into country  $r$  from country  $i$ ;

$a_{ir}$  = weight multipliers;

$\sigma_r$  = elasticity of substitution between any two imported products of different origins ( $\sigma > 0$ );

$n$  = total number of countries.

The production process in GTAP has a nested structure and is modeled as follows. Final output of good  $j$  in region  $r$  ( $QO_{jr}$ ) is produced using a Leontieff production technology, which implies that the value added composite ( $QVA_{jr}$ ) and the intermediate composite ( $QF_{jr}$ ) are perfect complements. There is a number of  $I$  intermediate composites (equal to the number of traded commodities), which can be chosen for the production of the final good; all intermediate composites are mutually substitutable with an elasticity of substitution  $ESUBT_j$  among them. Production of the value added composite ( $QVA_{jr}$ ) is carried out with a constant elasticity of substitution (CES) function, where  $ESUBVA_j$  is the elasticity of substitution among the primary factors of production ( $QFE_{ijr}$ ). Finally, the intermediate composite is produced from a domestic-good composite ( $QFD_{ijr}$ ) and an import composite ( $QFM_{ijr}$  or  $m'$ ) with a CES production function and an elasticity of substitution  $ESUBD_i$ .

<sup>10</sup> See Hertel and Tsigas (1997). Some authors (Rutherford and Tarr, 1998) assume increasing returns to scale and monopolistic competition in the intermediate sector. The basic argument for this is the assumed presence of high fixed costs for starting business in this sector.

<sup>11</sup> See Geraci and Prewo (1982).

---

The production process is performed under the assumption of separability, i.e. the optimal mix of land, labor, and capital ( $QFE_{ijr}$ ) is independent of the prices of intermediates. Therefore, the solution can be obtained in two steps: first the optimal mix of primary factors of production and of domestic relative to foreign goods is chosen; then the optimal mix of intermediate composites for the production of the final good is determined.

Similarly, consumption is nested. A representative consumer derives utility from private expenditure (UP), savings (QSAVE/POP), and government expenditure (UG) according to a Cobb-Douglas utility function.<sup>12</sup> Government expenditure (UG) is also determined according to a Cobb-Douglas function.<sup>13</sup> Finally, the private expenditure function has a constant difference of elasticities (CDE) form, originally suggested by Hanoch (1975). The non-homothetic CDE form was chosen, because homothetic representations are inconsistent with real consumer data exhibiting expenditure shares that change with the level of income. The CDE function allows for both changes in expenditure shares and also changes in marginal expenditure (Huff, et. al., 1997).

A reduction of EU tariffs for several countries including Ukraine will result in trade creation and trade diversion effects. While trade creation unambiguously generates welfare gains, trade diversion may result in either gains or losses. In the GTAP model, the overall effect will be measured by equivalent variation (EV). Since in this model, all the income including taxes accrues to consumers, equivalent variation captures changes in consumer and producer surplus as well as changes in government revenues. Equivalent variation in region  $r$   $EV(r)$  is calculated as the product of the percent change in per-capita utility  $u(r)$  and the regional income before the simulation  $INC(r)$ .

Version 4 of the GTAP model, which we used, does not contain Ukraine as a separate region. Instead, Ukraine is part of the aggregated Former Soviet Union (FSU) region. Therefore, we ran simulations for the FSU and then disaggregated Ukraine's part of the static changes in welfare according to her share in FSU trade on an industry-by-industry basis.

---

<sup>12</sup> The inclusion of savings in static models like the GTAP model is based on results showing that an intertemporal expenditure system can be derived from a static maximization problem with savings (Howe, 1975, presented also in Hertel and Tsigas, 1997, p.46).

<sup>13</sup> Inclusion of government expenditure into households' utility is motivated by Keller (1980); see also Hertel and Tsigas (1997, p.47). Of course, using Cobb-Douglas implies constant expenditure shares for each good.

---

In a first step, the number of regions was reduced by aggregation from 45 to eight: Asia<sup>14</sup>, USA, EU, European Free Trade Association (EFTA), Central European Associates (CEA)<sup>15</sup>, FSU, Turkey, and the Rest of the World (ROW). Similarly, the number of sectors was reduced by aggregation from 50 to ten: agriculture, forest, coal, oil & gas, other minerals & chemicals, textiles & other clothes, ferrous & other metals, machinery, electricity, and services.

Next, two simulations are performed. As positive consideration of a Ukrainian application to the EU is virtually made conditional on the CEA's full membership in the EU (TSN, 2001), the first simulation is run in order to model the CEA joining the EU and Turkey forming a customs union with the EU. The Turkish agricultural sector is exempted from customs union regulations in this simulation (Harrison *et al*, 1996). The economy is put out of equilibrium by a series of shocks that eliminate bilateral import and export tariffs among the EU, the CEA, and Turkey and adjust their tariffs with third countries to the EU level (see the appendix).

The second simulation includes all the elements of the first one described above and additionally models the FSU forming a customs union with the EU. The simulation constitutes a series of shocks performed to eliminate bilateral tariffs between the FSU on the one hand, and the EU, the CEECs, and Turkey on the other hand. It also adjusts bilateral tariffs of the FSU with third countries to EU levels and eliminates tariffs within the FSU itself. Since the EU is highly interested in maintaining the high protection of its agricultural sector, including agriculture into the customs union simulation would require increasing external agricultural tariffs for the FSU (and Ukraine). Therefore, the FSU's agricultural sector is exempted from the customs union in this base scenario.

Alternative scenarios include the agricultural sector into the customs union for Turkey in the first simulation and for the FSU (Ukraine), in the second simulation. The next chapter presents the results of the base scenario as a benchmark and contrasts them to the alternative scenario for comparison and to derive policy implications.

### 3. RESULTS AND DISCUSSION

---

<sup>14</sup> "Asia" contains a number of Asian high-growth countries, China, and Japan. For a detailed mapping of regions and sectors see the appendix.

<sup>15</sup> CEA includes 7 countries: Poland, Hungary, Czech Republic, Slovakia, Slovenia, Romania, and Bulgaria.



The results of both simulations – Simulation 1: EU customs union with CEA and Turkey; Simulation 2: EU customs union with CEA, Turkey and FSU - are presented together in Table 1 below. Not surprisingly, the world as a whole gains under both scenarios, but there is some redistribution of wealth. The EU countries (Germany, Italy, and the rest of the EU) as well as the Candidate Countries (Poland, the rest of the CEA, and Turkey) gain in both simulations, while all the other regions (except Asia) lose.

**Table 1. Equivalent variation, in millions of US\$**

<b>Region</b>	<b>Simulation 1</b>	<b>Simulation 2</b>
China	-568	-52
Asia	-1692	64
USA	-893	-110
Germany	482	629
Italy	123	339
Rest of EU	253	840
EFTA	-76	-147
Poland	3016	248
CEA	4675	279
<b>FSU</b>	<b>-571</b>	<b>-123</b>
Turkey	1802	192
ROW	-2517	-802
World total	4034	1355

The FSU as a whole loses in both simulations. In the remainder of this chapter, the FSU's equivalent variation from Simulation 2 – i.e. from the full customs union between EU, CEECs, Turkey and the FSU (excluding agriculture) - is disaggregated with the purpose of quantifying Ukraine's share in equivalent variation. This will be our approximate measure of the trade liberalization's net welfare effect for Ukraine.

The next table presents the decomposition of the simulation 2 results into allocation, terms-of-trade (TOT) and capital-goods effects. Allocation effects are the results of relative price changes due to changes in taxes, while capital-goods effects stem from changes in capital-goods prices.

**Table 2. Decomposition of EV, in millions of US\$**

<b>Region</b>	<b>Allocation</b>	<b>TOT</b>	<b>Capital goods</b>	<b>Total</b>
China	-88	27	9	-52

Asia	-14	89	-12	64
USA	-16	-61	-34	-110
Germany	213	450	-33	629
Italy	124	255	-41	339
EU	505	358	-24	840
EFTA	-25	-114	-8	-147
Poland	68	123	57	248
CEA	40	198	41	279
<b>FSU</b>	<b>749</b>	<b>-903</b>	<b>31</b>	<b>-123</b>
Turkey	30	129	33	192
ROW	-230	-552	-20	-802
World total	1355	-1	0	1355

While the FSU gains mainly from a more efficient allocation of resources, this is overcompensated for by an adverse terms-of-trade shock. The terms of trade shock is mainly due to decreases in export prices (see Table 3). Note the significantly negative figures for exports in the forestry, oil & gas, and metals industry sectors and the highly positive number for transport services. Ukraine does not have much mineral fuels while services of pipeline transport constitute more than half of its export of transport services.

**Table 3. Decomposition of the TOT component for the FSU, in millions of US\$**

Sector	World price	Price of export	Price of import	Total
1 Agriculture	-4	75	-35	37
2 Forestry	0	-101	-1	-102
3 Oil & gas	-88	-372	-2	-462
4 Minerals	0	-5	4	-1
5 Cloths	-1	-66	-136	-204
6 Chemicals	0	-62	10	-52
7 Metals	-2	-111	13	-99
8 Machinery	-6	-59	2	-62
9 Miscellaneous	0	-6	0	-7
10 Transport	2	110	-3	109
11 Services	-2	-37	-21	-60
Total	-100	-635	-168	-903

The decomposition of the allocation effect by tax type is presented in **Error! Not a valid bookmark self-reference..** The results suggest that the distortions from almost all taxes (except the consumption tax) decline.

**Table 4. Decomposing the allocation effect for the FSU, in millions of US\$**

Type of tax	Contribution to EV
1. Tax on production	2
2. Tax on inputs	35
3. Consumption tax	-17
4. Export tariff	52
5. Import tariff	678
Total	749

**Table 5. Decomposing the trade tariff effects for the FSU, in millions of US\$**

Sector	EV due to export tariff	EV due to import tariff
1 Agriculture	-5	29
2 Forestry	4	61
3 Oil & gas	43	6
4 Minerals	0	46
5 Cloths	3	89
6 Chemicals	1	34
7 Metals	1	74
8 Machinery	3	306
9 Miscellaneous	0	23
10 Transport	0	2
11 Services	2	9
Total	52	678

The shares of Ukraine's trade in the FSU's trade are displayed in Table 6. They are used as weights to calculate Ukraine's share in equivalent variation from the term-of-trade effect and the allocation effect, respectively. Data from the World Bank and the State Statistical Committee of Ukraine were used for these calculations. Ukraine's small share in negatively affected export industries – 4% in forestry and 1% in oil & gas – is noteworthy. So is Ukraine's large share in exports of transport services.

**Table 6. Share of Ukraine's trade in FSU's trade**

Sector	Export and import	Export	Import
1 Agriculture	0.08	0.17	0.04
2 Forestry	0.06	0.04	0.09

3 Oil & gas	0.14	0.01	0.50
4 Minerals	0.14	0.19	0.10
5 Cloths	0.09	0.16	0.07
6 Chemicals	0.19	0.23	0.17
7 Metals	0.18	0.21	0.09
8 Machinery	0.14	0.23	0.12
9 Miscellaneous	0.38	0.27	0.51
10 Transport	0.21	0.34	0.05
11 Services	0.06	0.05	0.06

### Disaggregating Ukraine's welfare change

Ukraine's equivalent variation EV is separated into three elements:  $EV_1$  due to changes in the terms of trade;  $EV_2$  due to changes in the distortions from export and import tariffs;  $EV_3$  due to changes in production, input, and consumption taxes and changes in the price of capital goods.

**Table 7. Ukraine's EV due to TOT, millions of US\$**

Sector	World price	Export price	Import price	Total
1 Agriculture	-0.3	12.8	-1.4	11.1
2 Forestry	0.0	-3.7	-0.1	-3.7
3 Oil & gas	-12.6	-4.4	-0.8	-17.9
4 Minerals	0.0	-1.0	0.4	-0.5
5 Cloths	-0.1	-10.8	-8.9	-19.8
6 Chemicals	0.1	-14.0	1.6	-12.2
7 Metals	-0.3	-23.2	1.2	-22.2
8 Machinery	-0.8	-13.2	0.3	-13.8
9 Miscellaneous	0.0	-1.8	-0.2	-2.0
10 Transport	0.3	37.1	-0.1	37.3
11 Services	-0.1	-2.0	-1.2	-3.3
<b>Total</b>	<b>-13.9</b>	<b>-24.0</b>	<b>-9.1</b>	<b>-47.0</b>

$EV_1$  for each sector in Ukraine is received by multiplying the respective columns of Tables 3 and 6 and summing up. As Table 7 shows, equivalent variation due to changes in in the terms of trade sum up to -\$47.0 million for Ukraine, despite the much larger negative figure for the FSU (-\$903 million). The relatively small magnitude of the negative TOT effect is mainly due to the different composition of Ukraine's trade flows.

EV<sub>2</sub> for Ukraine is calculated by multiplying the respective columns of Tables 5 and 6 and summing up. The results are presented in Table 8. Ukraine receives an overproportional share of the FSU's positive trade tariffs effects.

**Table 8. Ukraine' EV due to trade tariffs effect, in millions of US\$**

Sector	Export tax	Import tax	Total
1 Agriculture	-0.9	1.2	0.3
2 Forestry	0.1	5.4	5.5
3 Oil & gas	0.5	3.0	3.5
4 Minerals	0.1	4.6	4.6
5 Cloths	0.5	5.8	6.3
6 Chemicals	0.2	5.8	5.9
7 Metals	0.2	6.8	7.0
8 Machinery	0.6	36.6	37.2
9 Miscellaneous	0.0	11.7	11.7
10 Transport	0.0	0.1	0.0
11 Services	0.1	0.5	0.6
Total	1.5	81.3	<b>82.8</b>

The third constituent, EV<sub>3</sub>, is computed using the share of Ukraine's GDP in the FSU's GDP of 9.2% ( according to World Bank Data) and is reported in Table 9 below.

**Table 9. Ukraine's EV due to capital-goods price and non-trade tax effects, in millions of US\$**

Type of tax	FSU	Weighing. %	Ukraine
Capital goods	30.9	9.20	2.8
Production tax	1.8	9.20	0.2
Input tax	34.8	9.20	3.2
Consumption tax	-16.9	9.20	-1.6
Total	50.6		<b>4.7</b>

Finally, Table 10 summarizes total equivalent variation for Ukraine; the total net effect will amount to +US\$40.5 million including a positive allocation effect of about \$83 million and a negative TOT effect of 47 million.

**Table 10. Summing up EV for Ukraine, in millions of US\$**

TOT	-47.0
-----	-------

---

Allocation, trade tariffs	82.8
The rest, proportional to GDP	4.7
Total	<b>40.5</b>

### Comparing base and alternative scenarios

Calculations for the alternative scenario are performed under the same methodology as for base scenario. Equivalent variation for Ukraine under the alternative scenario amounts to +\$22.2 millions and for the FSU as a whole the result is -\$618.3 millions. The received numbers suggest that Ukraine's gain from joining into a customs union with the EU would be less than half that expected from the base scenario, if the agricultural sector was included. The large negative figure for the FSU results mainly from a deterioration in the terms of trade for imported agricultural products (-\$754m.). As Ukraine's share in the FSU's total agricultural imports is only 4 percent, the resulting negative welfare effects are still small for Ukraine.

## 4. CONCLUSIONS

As the model predicts, Ukraine stands to gain from joining into a customs union with the European Union under any scenario, although would fare better with the agricultural sector excluded from the agreement. The respective gain – \$40.5 millions – is to accrue yearly in terms of smaller distortions from taxes and an appreciation in the value of investment goods. Ukraine's gain accrues despite the negative aggregated welfare effect for the FSU as a whole. This means Ukraine would gain while some other FSU countries would lose from a customs union between the EU and Ukraine.

The alternative scenario suggests that imitating EU's highly protective agricultural policy would be undesirable for Ukraine. It would worsen Ukraine's terms of trade for agricultural products and lead to a sizable negative welfare effect. Import prices would increase because of the elimination of the 20% subsidy on exports of agricultural products from EU (on average) and higher common external tariffs in the EU on imports from third countries. Export prices would decrease due to higher import taxes of third countries on agricultural products from the EU (and its customs union partners) as response to EU's protectionism.

Therefore, the final result is sensitive to shocks performed on tariffs to agricultural products. However, the EU considers reducing its agricultural export subsidies, followed by bilateral

---

agricultural tariff reductions with third countries, in order to avoid difficulties with its common agricultural policy after enlargement. This would make a customs union including the agricultural sector more attractive for Ukraine.

## REFERENCES

- Chang, Won, L. Allan Winters (1999). "How Regional Blocks Affect Excluded Countries. The Price Effects of MERCOSUR," World Bank Working Paper # 2157.
- EBRD (2001). Business Central Europe. Accessed at: [www.bcemag.com/statsdb](http://www.bcemag.com/statsdb).
- Geraci, Vincent J., Wilfried Prewo (1982). "An Empirical Demand and Supply Model of Multilateral Trade". The Review of Economics and Statistics 64, pp.432-441.
- Hanoch, Giora (1975). "Production and Demand Models with Direct and Indirect Implicit Additivity". Econometrica 43, pp. 395-420.
- Harbuzyuk, O. (2001). "Customs Union With the EU: GTAP Analysis For Ukraine," Master's Thesis, EERC, Kyiv, Ukraine.
- Harrison, Glenn W., Thomas F. Rutherford, and David G. Tarr (1996). "Economic Implications for Turkey of a Customs Union with the European Union". World Bank Working Paper # 1599.
- Hertel, Thomas W., ed. (1997). Global Trade Analysis: Modeling and Applications. Cambridge University Press.
- Hertel, Thomas W. and Marinos E. Tsigas (1997). "Structure of GTAP" in Hertel, Thomas W. (1997). Global Trade Analysis: Modeling and Applications. Cambridge University Press.
- Huff, Karen M., Kevin Hanslow, Thomas W. Hertel, and Marinos E. Tsigas (1997). "GTAP behavioral parameters" in Hertel, Thomas W. (1997). Global Trade Analysis: Modeling and Applications. Cambridge University Press.
- Howe, H. (1975). "Development of the Extended Linear Expenditure System from Simple Savings Assumptions". European Economic Review 6, pp. 305-310.
- IMF (1998). "Directions of Trade Statistics Yearbook."
- Keller, W. J. (1980). Tax Incidence: A General Equilibrium Approach. Amsterdam. North Holland.
- Kose, M. Ayahan and Raymond Riezman (2000). "Small Countries and Preferential Trade Agreements: How Severe is the Innocent Bystander Problem?". CESifo Working Paper # 253. February.
- Michalopoulos, Constantine (1999). "The Integration of Transition Economies into the World Trading System". World Bank Working Paper #2182. September.
- Pakhomov, Y. M., D. G. Lukyanenko, B. V. Hubsnyi (1997). "Natsionalna ekonomika v hlobalnomu konkurentnomu ceredovyshchi" (In Ukrainian - "The National Economy in a Global Competitive Environment"). "Ukrayina". Kyiv.
- Partnership and Co-operation Agreement between the European Communities and their Member States, and Ukraine (1994). 14 June.

Postup's Infobank (2000). 11 October, 19 October, 2 November, 7 November.

Postup's Infobank (2001). 17 January.

Rutherford, Thomas F, David G. Tarr (1998). "Trade Liberalization and Endogenous Growth in a Small Open Economy : A Quantitative Assessment". World Bank Working Paper #1970.

TSN (2001). News service on the channel "1 plus 1". April 18.

World Bank (2001). World Bank Development Statistics. Available at: [devdata.worldbank.org](http://devdata.worldbank.org).

WTO (2000). "Monitoring Country Progress in Central and Eastern Europe and Eurasia". International Trade Statistics 2000. USAID/E&E/PCS.

## APPENDIX

### AGGREGATION OF REGIONS

#### Definition of new (aggregated) regions

ase	Quickly growing Asian economies (including China) and Japan
usa	USA
eun	European Union
eft	EFTA
cea	Central European Associates
fsu	Former Soviet Union
tur	Turkey
row	Rest of the world

#### Regions mapping

Previous	Previous region definition	New
AUS	Australia	row
NZL	New Zealand	row
JPN	Japan	ase
KOR	Republic of Korea	ase
IDN	Indonesia	ase
MYS	Malaysia	ase
PHL	Philippines	ase
SGP	Singapore	ase
THA	Thailand	ase
VNM	Viet Nam	row
CHN	China	ase
HKG	Hong Kong	ase
TWN	Taiwan	ase
IND	India	row
LKA	Sri Lanka	row
RAS	Rest of South Asia	row
CAN	Canada	row
USA	United States of America	usa
MEX	Mexico	row



CAM	Central America and Caribbean	row
VEN	Venezuela	row
COL	Colombia	row
RAP	Rest of Andean Pact	row
ARG	Argentina	row
BRA	Brazil	row
CHL	Chile	row
URY	Uruguay	row
RSM	Rest of South America	row
GBR	United Kingdom	eun
DEU	Germany	eun
DNK	Denmark	eun
SWE	Sweden	eun
FIN	Finland	eun
REU	Rest of European Union	eun
EFT	European Free Trade Area	eft
CEA	Central European Associates	cea
FSU	Former Soviet Union	fsu
TUR	Turkey	tur
RME	Rest of Middle East	row
MAR	Morocco	row
RNF	Rest of North Africa	row
SAF	South African Customs Union	row
RSA	Rest of Southern Africa	row
RSS	Rest of Sub Saharan Africa	row
ROW	Rest of World	row

## AGGREGATION OF INDUSTRIES

### Definition of new (aggregated) sectors

1.	agr	Food products, plant-based fibers, fishery, beverages and tobacco
2.	for	Forestry, wood and paper products
3.	col	Coal
4.	o_g	Oil, gas, petroleum and coal products
5.	min	Minerals and chemicals
6.	tex	Textiles, wearing apparels, and leather products
7.	fer	Metals and metal products
8.	mac	Motor vehicles, transport and electronic equipment, machinery
9.	ele	Electricity
10.	ser	Utilities, trade, transport, construction, financial services

### Industries mapping

Previous	Previous industry definition	New	
1.	pdr	Paddy rice	agr
2.	wht	Wheat	agr
3.	gro	Other cereal grains	agr
4.	v_f	Vegetables, fruit, nuts	agr
5.	osd	Oil seeds	agr
6.	c_b	Sugar cane, sugar beet	agr
7.	pfb	Plant-based fibers	agr
8.	ocr	Other crops	agr

9.	ctl	Bovine cattle, sheep and goats, horses	agr
10.	oap	Other animal products	agr
11.	rmk	Raw milk	agr
12.	wol	Wool silk-worm cocoons	agr
13.	for	Forestry	for
14.	fish	Fishing	agr
15.	col	Coal	col
16.	oil	Oil	o_g
17.	gas	Gas	o_g
18.	omn	Other minerals	min
19.	cmt	Bovine cattle, sheep and goat, horse meat prods	agr
20.	omt	Other meat products	agr
21.	vol	Vegetable oils and fats	agr
22.	mil	Dairy products	agr
23.	pcr	Processed rice	agr
24.	sgr	Sugar	agr
25.	ofd	Other food products	agr
26.	b_t	Beverages and tobacco products	agr
27.	tex	Textiles	tex
28.	wap	Wearing apparel	tex
29.	lea	Leather products	tex
30.	lum	Wood products	for
31.	ppp	Paper products, publishing	for
32.	p_c	Petroleum, coal products	o_g
33.	crp	Chemical, rubber, plastic products	min
34.	nmm	Other mineral products	min
35.	i_s	Ferrous metals	fer
36.	nfm	Other metals	fer
37.	fmp	Metal products	fer
38.	mvh	Motor vehicles and parts	mac
39.	otn	Other transport equipment	mac
40.	ele	Electronic equipment	mac
41.	ome	Other machinery and equipment	mac
42.	omf	Other manufactures	mac
43.	ely	Electricity	ele
44.	gdt	Gas manufacture, distribution	ser
45.	wtr	Water	ser
46.	cns	Construction	ser
47.	t_t	Trade, transport	ser
48.	osp	Financial, business, recreational services	ser
49.	osg	Public admin and defense, education, health	ser
50.	dwe	Dwellings	ser

#### TRADE DATA USED FOR CALCULATIONS

Two sources of trade data used in this work are IMF (1998) and Pakhomov *et al* (1997). IMF data (Table A1) is used to calculate Ukraine's share in FSU's exports and imports.

**Table A1. Exports and imports of FSU countries, millions of US\$**

Country	Exports, fob	Imports, cif
Armenia	357	696
Azerbaijan	544	666

Belarus	4641	5505
Estonia	1840	2546
Georgia	151	392
Kazakhstan	5250	3807
Kyrgyz Rep.	483	392
Latvia	1284	1646
Lithuania	2706	3649
Moldova	739	841
Russia	81096	60945
Tajikistan	749	810
Turkmenistan	1881	1364
Ukraine	13317	16052
Uzbekistan	2708	3030
FSU	117746	102341
Ukraine, share of FSU	0.11	0.16

Source: IMF (1998) and calculations of the author.

Pakhomov *et al* (1997) data is used to calculate percentage structure of Ukrainian exports and imports. The original data and calculations are presented in Table C2.

**Table A2. The structure of Ukrainian exports and imports, millions of US\$**

Sector	Export, value	Export, share	Import, value	Import, share
1 Agriculture	2823	0.18	1190	0.07
2 Forestry	150	0.01	490	0.03
3 Coal	72	0.00	560	0.03
4 Oil & gas	176	0.01	6731	0.41
5 Minerals	2125	0.14	1600	0.10
6 Textiles	389	0.03	572	0.03
7 Metals	4620	0.30	777	0.05
8 Machinery	2285	0.15	3394	0.21
9 Electricity	91	0.01	0	0.00
10 Services	2559	0.17	1179	0.07
Total	15289	1	16492	1

The next table shows the calculation of adjusted trade flows for Ukraine. It uses only relative relationships among different sectors. The table contains exports and imports at market prices and the figures for the FSU are taken from GTAP.

**Table A3. Calculating adjusted trade flows for Ukraine, millions of US\$**

Sector	GTAP, FSU		Ukraine, GTAP adjusted	
	Export	Import	Export	Import
1 Agriculture	7543	16735	1852	958
2 Forestry	4918	3650	98	394
3 Coal	955	438	47	451
4 Oil & gas	16621	1190	116	5417
5 Minerals	12716	8108	1394	1288
6 Textiles	2688	7290	255	460

7 Metals	23715	2728	3031	625
8 Machinery	3795	22851	1499	2732
9 Electricity	279	130	60	0
10 Services	15451	21507	1679	949
Total	88682	84628	10030	13274

Then the numbers for total adjusted export and import for Ukraine are calculated using shares from Table A1. Finally, the value of each sector's export and import is computed by applying weights from Table A2 to previously calculated total values. Further, Ukrainian adjusted exports are divided by FSU exports from Table A3 and the same is done for imports. Also, the sum of Ukraine's exports and imports is divided by sum of FSU's exports and imports to get weighting coefficients for EV due to the change in world prices. Computed weights are put down into Table A4 (compare Table 6 in the main text above).

**Table A4. Share of Ukraine's trade in FSU's trade**

Sector	Export and Import	Export	Import
1 Agriculture	0.12	0.25	0.06
2 Forestry	0.06	0.02	0.11
3 Coal	0.35	0.05	1.00
4 Oil & gas	0.07	0.01	1.00
5 Minerals	0.13	0.11	0.16
6 Textiles	0.07	0.09	0.06
7 Metals	0.14	0.13	0.23
8 Machinery	0.16	0.39	0.12
9 Electricity	0.15	0.21	0.00
10 Services	0.07	0.11	0.04

#### **GDP DATA USED FOR CALCULATIONS**

For disaggregating non-trade allocation effects the weighting coefficients computed from the table below are used. Input data are from the World Bank (2001).

<b>GDP at market prices (current \$US millions), 1995</b>	
Armenia	2887
Azerbaijan	2894
Belarus	20071
Estonia	4789
Georgia	1900

---

Kazakhstan	19925
Kyrgyz Rep.	3325
Latvia	4904
Lithuania	6445
Moldova	3093
Russia	337902
Tajikistan	1827
Turkmenistan	4505
Ukraine	49061
Uzbekistan	16294
FSU	479822
Ukraine, share	0.1022

Source: World Bank (2001) and author's calculations.

**2008**

B01-08 Euro-Diplomatie durch gemeinsame „Wirtschaftsregierung“ *Martin Seidel*

**2007**

B03-07 Löhne und Steuern im Systemwettbewerb der Mitgliedstaaten der Europäischen Union *Martin Seidel*

B02-07 Konsolidierung und Reform der Europäischen Union *Martin Seidel*

B01-07 The Ratification of European Treaties - Legal and Constitutional Basis of a European Referendum. *Martin Seidel*

**2006**

B03-06 Financial Frictions, Capital Reallocation, and Aggregate Fluctuations *Jürgen von Hagen, Haiping Zhang*

B02-06 Financial Openness and Macroeconomic Volatility *Jürgen von Hagen, Haiping Zhang*

B01-06 A Welfare Analysis of Capital Account Liberalization *Jürgen von Hagen, Haiping Zhang*

**2005**

B11-05 Das Kompetenz- und Entscheidungssystem des Vertrages von Rom im Wandel seiner Funktion und Verfassung *Martin Seidel*

B10-05 Die Schutzklauseln der Beitrittsverträge *Martin Seidel*

B09-05 Measuring Tax Burdens in Europe *Guntram B. Wolff*

B08-05 Remittances as Investment in the Absence of Altruism *Gabriel González-König*

B07-05 Economic Integration in a Multicore World? *Christian Volpe Martincus, Jennifer Pédussel Wu*

B06-05 Banking Sector (Under?)Development in Central and Eastern Europe *Jürgen von Hagen, Valeriya Dinger*

B05-05 Regulatory Standards Can Lead to Predation *Stefan Lutz*

B04-05 Währungspolitik als Sozialpolitik *Martin Seidel*

B03-05 Public Education in an Integrated Europe: Studying to Migrate and Teaching to Stay? *Panu Poutvaara*

B02-05 Voice of the Diaspora: An Analysis of Migrant Voting Behavior *Jan Fidrmuc, Orla Doyle*

B01-05 Macroeconomic Adjustment in the New EU Member States *Jürgen von Hagen, Iulia Traistaru*

**2004**

B33-04 The Effects of Transition and Political Instability On Foreign Direct Investment Inflows: Central Europe and the Balkans *Josef C. Brada, Ali M. Kutan, Tamer M. Yigit*

B32-04 The Choice of Exchange Rate Regimes in Developing Countries: A Multinomial Panel Analysis *Jürgen von Hagen, Jizhong Zhou*

B31-04 Fear of Floating and Fear of Pegging: An Empirical Analysis of De Facto Exchange Rate Regimes in Developing Countries *Jürgen von Hagen, Jizhong Zhou*

B30-04 Der Vollzug von Gemeinschaftsrecht über die Mitgliedstaaten und seine Rolle für die EU und den Beitrittsprozess *Martin Seidel*

B29-04 Deutschlands Wirtschaft, seine Schulden und die Unzulänglichkeiten der einheitlichen Geldpolitik im Eurosystem *Dieter Spethmann, Otto Steiger*

B28-04 Fiscal Crises in U.S. Cities: Structural and Non-structural Causes *Guntram B. Wolff*

B27-04 Firm Performance and Privatization in Ukraine *Galyna Grygorenko, Stefan Lutz*

B26-04 Analyzing Trade Opening in Ukraine: Effects of a Customs Union with the EU *Oksana Harbuzyuk, Stefan Lutz*

B25-04 Exchange Rate Risk and Convergence to the Euro *Lucjan T. Orlowski*

B24-04 The Endogeneity of Money and the Eurosystem *Otto Steiger*

B23-04 Which Lender of Last Resort for the Eurosystem? *Otto Steiger*

B22-04 Non-Discretionary Monetary Policy: The Answer for Transition Economies? *Elham-Mafi Kreft, Steven F. Kreft*

B21-04 The Effectiveness of Subsidies Revisited: Accounting for Wage and Employment Effects in Business R+D *Volker Reinthaler, Guntram B. Wolff*

B20-04 Money Market Pressure and the Determinants of Banking Crises *Jürgen von Hagen, Tai-kuang Ho*

B19-04 Die Stellung der Europäischen Zentralbank nach dem Verfassungsvertrag *Martin Seidel*

- B18-04 **Transmission Channels of Business Cycles Synchronization in an Enlarged EMU** *Iulia Traistaru*
- B17-04 **Foreign Exchange Regime, the Real Exchange Rate and Current Account Sustainability: The Case of Turkey** *Sübidey Togan, Hasan Ersel*
- B16-04 **Does It Matter Where Immigrants Work? Traded Goods, Non-traded Goods, and Sector Specific Employment** *Harry P. Bowen, Jennifer Pédussel Wu*
- B15-04 **Do Economic Integration and Fiscal Competition Help to Explain Local Patterns?** *Christian Volpe Martincus*
- B14-04 **Euro Adoption and Maastricht Criteria: Rules or Discretion?** *Jiri Jonas*
- B13-04 **The Role of Electoral and Party Systems in the Development of Fiscal Institutions in the Central and Eastern European Countries** *Sami Yläoutinen*
- B12-04 **Measuring and Explaining Levels of Regional Economic Integration** *Jennifer Pédussel Wu*
- B11-04 **Economic Integration and Location of Manufacturing Activities: Evidence from MERCOSUR** *Pablo Sanguinetti, Iulia Traistaru, Christian Volpe Martincus*
- B10-04 **Economic Integration and Industry Location in Transition Countries** *Laura Resmini*
- B09-04 **Testing Creditor Moral Hazard in Sovereign Bond Markets: A Unified Theoretical Approach and Empirical Evidence** *Ayse Y. Evrensel, Ali M. Kutan*
- B08-04 **European Integration, Productivity Growth and Real Convergence** *Taner M. Yigit, Ali M. Kutan*
- B07-04 **The Contribution of Income, Social Capital, and Institutions to Human Well-being in Africa** *Mina Balamoune-Lutz, Stefan H. Lutz*
- B06-04 **Rural Urban Inequality in Africa: A Panel Study of the Effects of Trade Liberalization and Financial Deepening** *Mina Balamoune-Lutz, Stefan H. Lutz*
- B05-04 **Money Rules for the Eurozone Candidate Countries** *Lucjan T. Orłowski*
- B04-04 **Who is in Favor of Enlargement? Determinants of Support for EU Membership in the Candidate Countries' Referenda** *Orla Doyle, Jan Fidrmuc*
- B03-04 **Over- and Underbidding in Central Bank Open Market Operations Conducted as Fixed Rate Tender** *Ulrich Bindseil*
- B02-04 **Total Factor Productivity and Economic Freedom Implications for EU Enlargement** *Ronald L. Moomaw, Euy Seok Yang*
- B01-04 **Die neuen Schutzklauseln der Artikel 38 und 39 des Beitrittsvertrages: Schutz der alten Mitgliedstaaten vor Störungen durch die neuen Mitgliedstaaten** *Martin Seidel*
- 2003**
- B29-03 **Macroeconomic Implications of Low Inflation in the Euro Area** *Jürgen von Hagen, Boris Hofmann*
- B28-03 **The Effects of Transition and Political Instability on Foreign Direct Investment: Central Europe and the Balkans** *Josef C. Brada, Ali M. Kutan, Taner M. Yigit*
- B27-03 **The Performance of the Euribor Futures Market: Efficiency and the Impact of ECB Policy Announcements (Electronic Version of International Finance)** *Kerstin Bernoth, Juergen von Hagen*
- B26-03 **Sovereign Risk Premia in the European Government Bond Market (überarbeitete Version zum Herunterladen)** *Kerstin Bernoth, Juergen von Hagen, Ludger Schulknecht*
- B25-03 **How Flexible are Wages in EU Accession Countries?** *Anna Iara, Iulia Traistaru*
- B24-03 **Monetary Policy Reaction Functions: ECB versus Bundesbank** *Bernd Hayo, Boris Hofmann*
- B23-03 **Economic Integration and Manufacturing Concentration Patterns: Evidence from Mercosur** *Iulia Traistaru, Christian Volpe Martincus*
- B22-03 **Reformzwänge innerhalb der EU angesichts der Osterweiterung** *Martin Seidel*
- B21-03 **Reputation Flows: Contractual Disputes and the Channels for Inter-Firm Communication** *William Pyle*
- B20-03 **Urban Primacy, Gigantism, and International Trade: Evidence from Asia and the Americas** *Ronald L. Moomaw, Mohammed A. Alwosabi*
- B19-03 **An Empirical Analysis of Competing Explanations of Urban Primacy Evidence from Asia and the Americas** *Ronald L. Moomaw, Mohammed A. Alwosabi*

B18-03	<b>The Effects of Regional and Industry-Wide FDI Spillovers on Export of Ukrainian Firms</b>	<i>Stefan H. Lutz, Oleksandr Talavera, Sang-Min Park</i>
B17-03	<b>Determinants of Inter-Regional Migration in the Baltic States</b>	<i>Mihails Hazans</i>
B16-03	<b>South-East Europe: Economic Performance, Perspectives, and Policy Challenges</b>	<i>Iulia Traistaru, Jürgen von Hagen</i>
B15-03	<b>Employed and Unemployed Search: The Marginal Willingness to Pay for Attributes in Lithuania, the US and the Netherlands</b>	<i>Jos van Ommeren, Mihails Hazans</i>
B14-03	<b>FCIs and Economic Activity: Some International Evidence</b>	<i>Charles Goodhart, Boris Hofmann</i>
B13-03	<b>The IS Curve and the Transmission of Monetary Policy: Is there a Puzzle?</b>	<i>Charles Goodhart, Boris Hofmann</i>
B12-03	<b>What Makes Regions in Eastern Europe Catching Up? The Role of Foreign Investment, Human Resources, and Geography</b>	<i>Gabriele Tondl, Goran Vuksic</i>
B11-03	<b>Die Weisungs- und Herrschaftsmacht der Europäischen Zentralbank im europäischen System der Zentralbanken - eine rechtliche Analyse</b>	<i>Martin Seidel</i>
B10-03	<b>Foreign Direct Investment and Perceptions of Vulnerability to Foreign Exchange Crises: Evidence from Transition Economies</b>	<i>Josef C. Brada, Vladimír Tomsík</i>
B09-03	<b>The European Central Bank and the Eurosystem: An Analysis of the Missing Central Monetary Institution in European Monetary Union</b>	<i>Gunnar Heinsohn, Otto Steiger</i>
B08-03	<b>The Determination of Capital Controls: Which Role Do Exchange Rate Regimes Play?</b>	<i>Jürgen von Hagen, Jizhong Zhou</i>
B07-03	<b>Nach Nizza und Stockholm: Stand des Binnenmarktes und Prioritäten für die Zukunft</b>	<i>Martin Seidel</i>
B06-03	<b>Fiscal Discipline and Growth in Euroland. Experiences with the Stability and Growth Pact</b>	<i>Jürgen von Hagen</i>
B05-03	<b>Reconsidering the Evidence: Are Eurozone Business Cycles Converging?</b>	<i>Michael Massmann, James Mitchell</i>
B04-03	<b>Do Ukrainian Firms Benefit from FDI?</b>	<i>Stefan H. Lutz, Oleksandr Talavera</i>
B03-03	<b>Europäische Steuerkoordination und die Schweiz</b>	<i>Stefan H. Lutz</i>
B02-03	<b>Commuting in the Baltic States: Patterns, Determinants, and Gains</b>	<i>Mihails Hazans</i>
B01-03	<b>Die Wirtschafts- und Währungsunion im rechtlichen und politischen Gefüge der Europäischen Union</b>	<i>Martin Seidel</i>
<b>2002</b>		
B30-02	<b>An Adverse Selection Model of Optimal Unemployment Assurance</b>	<i>Marcus Hagedorn, Ashok Kaul, Tim Mennel</i>
B29B-02	<b>Trade Agreements as Self-protection</b>	<i>Jennifer Pédussel Wu</i>
B29A-02	<b>Growth and Business Cycles with Imperfect Credit Markets</b>	<i>Debajyoti Chakrabarty</i>
B28-02	<b>Inequality, Politics and Economic Growth</b>	<i>Debajyoti Chakrabarty</i>
B27-02	<b>Poverty Traps and Growth in a Model of Endogenous Time Preference</b>	<i>Debajyoti Chakrabarty</i>
B26-02	<b>Monetary Convergence and Risk Premiums in the EU Candidate Countries</b>	<i>Lucjan T. Orlowski</i>
B25-02	<b>Trade Policy: Institutional Vs. Economic Factors</b>	<i>Stefan Lutz</i>
B24-02	<b>The Effects of Quotas on Vertical Intra-industry Trade</b>	<i>Stefan Lutz</i>
B23-02	<b>Legal Aspects of European Economic and Monetary Union</b>	<i>Martin Seidel</i>
B22-02	<b>Der Staat als Lender of Last Resort - oder: Die Achillesverse des Eurosystems</b>	<i>Otto Steiger</i>
B21-02	<b>Nominal and Real Stochastic Convergence Within the Transition Economies and to the European Union: Evidence from Panel Data</b>	<i>Ali M. Kutan, Taner M. Yigit</i>
B20-02	<b>The Impact of News, Oil Prices, and International Spillovers on Russian Financial Markets</b>	<i>Bernd Hayo, Ali M. Kutan</i>



B19-02	<b>East Germany: Transition with Unification, Experiments and Experiences</b>	<i>Jürgen von Hagen, Rolf R. Strauch, Guntram B. Wolff</i>
B18-02	<b>Regional Specialization and Employment Dynamics in Transition Countries</b>	<i>Iulia Traistaru, Guntram B. Wolff</i>
B17-02	<b>Specialization and Growth Patterns in Border Regions of Accession Countries</b>	<i>Laura Resmini</i>
B16-02	<b>Regional Specialization and Concentration of Industrial Activity in Accession Countries</b>	<i>Iulia Traistaru, Peter Nijkamp, Simonetta Longhi</i>
B15-02	<b>Does Broad Money Matter for Interest Rate Policy?</b>	<i>Matthias Brückner, Andreas Schaber</i>
B14-02	<b>The Long and Short of It: Global Liberalization, Poverty and Inequality</b>	<i>Christian E. Weller, Adam Hersch</i>
B13-02	<b>De Facto and Official Exchange Rate Regimes in Transition Economies</b>	<i>Jürgen von Hagen, Jizhong Zhou</i>
B12-02	<b>Argentina: The Anatomy of A Crisis</b>	<i>Jiri Jonas</i>
B11-02	<b>The Eurosystem and the Art of Central Banking</b>	<i>Gunnar Heinsohn, Otto Steiger</i>
B10-02	<b>National Origins of European Law: Towards an Autonomous System of European Law?</b>	<i>Martin Seidel</i>
B09-02	<b>Monetary Policy in the Euro Area - Lessons from the First Years</b>	<i>Volker Clausen, Bernd Hayo</i>
B08-02	<b>Has the Link Between the Spot and Forward Exchange Rates Broken Down? Evidence From Rolling Cointegration Tests</b>	<i>Ali M. Kutan, Su Zhou</i>
B07-02	<b>Perspektiven der Erweiterung der Europäischen Union</b>	<i>Martin Seidel</i>
B06-02	<b>Is There Asymmetry in Forward Exchange Rate Bias? Multi-Country Evidence</b>	<i>Su Zhou, Ali M. Kutan</i>
B05-02	<b>Real and Monetary Convergence Within the European Union and Between the European Union and Candidate Countries: A Rolling Cointegration Approach</b>	<i>Josef C. Brada, Ali M. Kutan, Su Zhou</i>
B04-02	<b>Asymmetric Monetary Policy Effects in EMU</b>	<i>Volker Clausen, Bernd Hayo</i>
B03-02	<b>The Choice of Exchange Rate Regimes: An Empirical Analysis for Transition Economies</b>	<i>Jürgen von Hagen, Jizhong Zhou</i>
B02-02	<b>The Euro System and the Federal Reserve System Compared: Facts and Challenges</b>	<i>Karlheinz Ruckriegel, Franz Seitz</i>
B01-02	<b>Does Inflation Targeting Matter?</b>	<i>Manfred J. M. Neumann, Jürgen von Hagen</i>
<b>2001</b>		
B29-01	<b>Is Kazakhstan Vulnerable to the Dutch Disease?</b>	<i>Karlygash Kuralbayeva, Ali M. Kutan, Michael L. Wyzan</i>
B28-01	<b>Political Economy of the Nice Treaty: Rebalancing the EU Council. The Future of European Agricultural Policies</b>	<i>Deutsch-Französisches Wirtschaftspolitisches Forum</i>
B27-01	<b>Investor Panic, IMF Actions, and Emerging Stock Market Returns and Volatility: A Panel Investigation</b>	<i>Bernd Hayo, Ali M. Kutan</i>
B26-01	<b>Regional Effects of Terrorism on Tourism: Evidence from Three Mediterranean Countries</b>	<i>Konstantinos Drakos, Ali M. Kutan</i>
B25-01	<b>Monetary Convergence of the EU Candidates to the Euro: A Theoretical Framework and Policy Implications</b>	<i>Lucjan T. Orłowski</i>
B24-01	<b>Disintegration and Trade</b>	<i>Jarko and Jan Fidrmuc</i>
B23-01	<b>Migration and Adjustment to Shocks in Transition Economies</b>	<i>Jan Fidrmuc</i>
B22-01	<b>Strategic Delegation and International Capital Taxation</b>	<i>Matthias Brückner</i>
B21-01	<b>Balkan and Mediterranean Candidates for European Union Membership: The Convergence of Their Monetary Policy With That of the European Central Bank</b>	<i>Josef C. Brada, Ali M. Kutan</i>
B20-01	<b>An Empirical Inquiry of the Efficiency of Intergovernmental Transfers for Water Projects Based on the WRDA Data</b>	<i>Anna Rubinchik-Pessach</i>
B19-01	<b>Detrending and the Money-Output Link: International Evidence</b>	<i>R.W. Hafer, Ali M. Kutan</i>

B18-01	<b>Monetary Policy in Unknown Territory. The European Central Bank in the Early Years</b>	<i>Jürgen von Hagen, Matthias Brückner</i>
B17-01	<b>Executive Authority, the Personal Vote, and Budget Discipline in Latin American and Caribbean Countries</b>	<i>Mark Hallerberg, Patrick Marier</i>
B16-01	<b>Sources of Inflation and Output Fluctuations in Poland and Hungary: Implications for Full Membership in the European Union</b>	<i>Selahattin Dibooglu, Ali M. Kutan</i>
B15-01	<b>Programs Without Alternative: Public Pensions in the OECD</b>	<i>Christian E. Weller</i>
B14-01	<b>Formal Fiscal Restraints and Budget Processes As Solutions to a Deficit and Spending Bias in Public Finances - U.S. Experience and Possible Lessons for EMU</b>	<i>Rolf R. Strauch, Jürgen von Hagen</i>
B13-01	<b>German Public Finances: Recent Experiences and Future Challenges</b>	<i>Jürgen von Hagen, Rolf R. Strauch</i>
B12-01	<b>The Impact of Eastern Enlargement On EU-Labour Markets. Pensions Reform Between Economic and Political Problems</b>	<i>Deutsch-Französisches Wirtschaftspolitisches Forum</i>
B11-01	<b>Inflationary Performance in a Monetary Union With Large Wage Setters</b>	<i>Lilia Cavallar</i>
B10-01	<b>Integration of the Baltic States into the EU and Institutions of Fiscal Convergence: A Critical Evaluation of Key Issues and Empirical Evidence</b>	<i>Ali M. Kutan, Niina Pautola-Mol</i>
B09-01	<b>Democracy in Transition Economies: Grease or Sand in the Wheels of Growth?</b>	<i>Jan Fidrmuc</i>
B08-01	<b>The Functioning of Economic Policy Coordination</b>	<i>Jürgen von Hagen, Susanne Mundschenk</i>
B07-01	<b>The Convergence of Monetary Policy Between Candidate Countries and the European Union</b>	<i>Josef C. Brada, Ali M. Kutan</i>
B06-01	<b>Opposites Attract: The Case of Greek and Turkish Financial Markets</b>	<i>Konstantinos Drakos, Ali M. Kutan</i>
B05-01	<b>Trade Rules and Global Governance: A Long Term Agenda. The Future of Banking.</b>	<i>Deutsch-Französisches Wirtschaftspolitisches Forum</i>
B04-01	<b>The Determination of Unemployment Benefits</b>	<i>Rafael di Tella, Robert J. McCulloch</i>
B03-01	<b>Preferences Over Inflation and Unemployment: Evidence from Surveys of Happiness</b>	<i>Rafael di Tella, Robert J. McCulloch, Andrew J. Oswald</i>
B02-01	<b>The Konstanz Seminar on Monetary Theory and Policy at Thirty</b>	<i>Michele Fratianni, Jürgen von Hagen</i>
B01-01	<b>Divided Boards: Partisanship Through Delegated Monetary Policy</b>	<i>Etienne Farvaque, Gael Lagadec</i>
<b>2000</b>		
B20-00	<b>Breakin-up a Nation, From the Inside</b>	<i>Etienne Farvaque</i>
B19-00	<b>Income Dynamics and Stability in the Transition Process, general Reflections applied to the Czech Republic</b>	<i>Jens Hölscher</i>
B18-00	<b>Budget Processes: Theory and Experimental Evidence</b>	<i>Karl-Martin Ehrhart, Roy Gardner, Jürgen von Hagen, Claudia Keser</i>
B17-00	<b>Rückführung der Landwirtschaftspolitik in die Verantwortung der Mitgliedsstaaten? - Rechts- und Verfassungsfragen des Gemeinschaftsrechts</b>	<i>Martin Seidel</i>
B16-00	<b>The European Central Bank: Independence and Accountability</b>	<i>Christa Randzio-Plath, Tomasso Padoa-Schioppa</i>
B15-00	<b>Regional Risk Sharing and Redistribution in the German Federation</b>	<i>Jürgen von Hagen, Ralf Hepp</i>
B14-00	<b>Sources of Real Exchange Rate Fluctuations in Transition Economies: The Case of Poland and Hungary</b>	<i>Selahattin Dibooglu, Ali M. Kutan</i>
B13-00	<b>Back to the Future: The Growth Prospects of Transition Economies Reconsidered</b>	<i>Nauro F. Campos</i>

B12-00	<b>Rechtsetzung und Rechtsangleichung als Folge der Einheitlichen Europäischen Wahrung</b>	<i>Martin Seidel</i>
B11-00	<b>A Dynamic Approach to Inflation Targeting in Transition Economies</b>	<i>Lucjan T. Orłowski</i>
B10-00	<b>The Importance of Domestic Political Institutions: Why and How Belgium Qualified for EMU</b>	<i>Marc Hallerberg</i>
B09-00	<b>Rational Institutions Yield Hysteresis</b>	<i>Rafael Di Tella, Robert MacCulloch</i>
B08-00	<b>The Effectiveness of Self-Protection Policies for Safeguarding Emerging Market Economies from Crises</b>	<i>Kenneth Kletzer</i>
B07-00	<b>Financial Supervision and Policy Coordination in The EMU</b>	<i>Deutsch-Franzosisches Wirtschaftspolitisches Forum</i>
B06-00	<b>The Demand for Money in Austria</b>	<i>Bernd Hayo</i>
B05-00	<b>Liberalization, Democracy and Economic Performance during Transition</b>	<i>Jan Fidrmuc</i>
B04-00	<b>A New Political Culture in The EU - Democratic Accountability of the ECB</b>	<i>Christa Randzio-Plath</i>
B03-00	<b>Integration, Disintegration and Trade in Europe: Evolution of Trade Relations during the 1990's</b>	<i>Jarko Fidrmuc, Jan Fidrmuc</i>
B02-00	<b>Inflation Bias and Productivity Shocks in Transition Economies: The Case of the Czech Republic</b>	<i>Josef C. Brada, Arthur E. King, Ali M. Kutan</i>
B01-00	<b>Monetary Union and Fiscal Federalism</b>	<i>Kenneth Kletzer, Jurgen von Hagen</i>
<b>1999</b>		
B26-99	<b>Skills, Labour Costs, and Vertically Differentiated Industries: A General Equilibrium Analysis</b>	<i>Stefan Lutz, Alessandro Turrini</i>
B25-99	<b>Micro and Macro Determinants of Public Support for Market Reforms in Eastern Europe</b>	<i>Bernd Hayo</i>
B24-99	<b>What Makes a Revolution?</b>	<i>Robert MacCulloch</i>
B23-99	<b>Informal Family Insurance and the Design of the Welfare State</b>	<i>Rafael Di Tella, Robert MacCulloch</i>
B22-99	<b>Partisan Social Happiness</b>	<i>Rafael Di Tella, Robert MacCulloch</i>
B21-99	<b>The End of Moderate Inflation in Three Transition Economies?</b>	<i>Josef C. Brada, Ali M. Kutan</i>
B20-99	<b>Subnational Government Bailouts in Germany</b>	<i>Helmut Seitz</i>
B19-99	<b>The Evolution of Monetary Policy in Transition Economies</b>	<i>Ali M. Kutan, Josef C. Brada</i>
B18-99	<b>Why are Eastern Europe's Banks not failing when everybody else's are?</b>	<i>Christian E. Weller, Bernard Morzuch</i>
B17-99	<b>Stability of Monetary Unions: Lessons from the Break-Up of Czechoslovakia</b>	<i>Jan Fidrmuc, Julius Horvath and Jarko Fidrmuc</i>
B16-99	<b>Multinational Banks and Development Finance</b>	<i>Christian E. Weller and Mark J. Scher</i>
B15-99	<b>Financial Crises after Financial Liberalization: Exceptional Circumstances or Structural Weakness?</b>	<i>Christian E. Weller</i>
B14-99	<b>Industry Effects of Monetary Policy in Germany</b>	<i>Bernd Hayo and Birgit Uhlenbrock</i>
B13-99	<b>Financial Fragility or What Went Right and What Could Go Wrong in Central European Banking?</b>	<i>Christian E. Weller and Jurgen von Hagen</i>
B12-99	<b>Size Distortions of Tests of the Null Hypothesis of Stationarity: Evidence and Implications for Applied Work</b>	<i>Mehmet Caner and Lutz Kilian</i>
B11-99	<b>Financial Supervision and Policy Coordination in the EMU</b>	<i>Deutsch-Franzosisches Wirtschaftspolitisches Forum</i>
B10-99	<b>Financial Liberalization, Multinational Banks and Credit Supply: The Case of Poland</b>	<i>Christian Weller</i>
B09-99	<b>Monetary Policy, Parameter Uncertainty and Optimal Learning</b>	<i>Volker Wieland</i>
B08-99	<b>The Connection between more Multinational Banks and less Real Credit in Transition Economies</b>	<i>Christian Weller</i>

- B07-99 **Comovement and Catch-up in Productivity across Sectors: Evidence from the OECD** *Christopher M. Cornwell and Jens-Uwe Wächter*
- B06-99 **Productivity Convergence and Economic Growth: A Frontier Production Function Approach** *Christopher M. Cornwell and Jens-Uwe Wächter*
- B05-99 **Tumbling Giant: Germany's Experience with the Maastricht Fiscal Criteria** *Jürgen von Hagen and Rolf Strauch*
- B04-99 **The Finance-Investment Link in a Transition Economy: Evidence for Poland from Panel Data** *Christian Weller*
- B03-99 **The Macroeconomics of Happiness** *Rafael Di Tella, Robert McCulloch and Andrew J. Oswald*
- B02-99 **The Consequences of Labour Market Flexibility: Panel Evidence Based on Survey Data** *Rafael Di Tella and Robert McCulloch*
- B01-99 **The Excess Volatility of Foreign Exchange Rates: Statistical Puzzle or Theoretical Artifact?** *Robert B.H. Hauswald*
- 1998**
- B16-98 **Labour Market + Tax Policy in the EMU** *Deutsch-Französisches Wirtschaftspolitisches Forum*
- B15-98 **Can Taxing Foreign Competition Harm the Domestic Industry?** *Stefan Lutz*
- B14-98 **Free Trade and Arms Races: Some Thoughts Regarding EU-Russian Trade** *Rafael Reuveny and John Maxwell*
- B13-98 **Fiscal Policy and Intranational Risk-Sharing** *Jürgen von Hagen*
- B12-98 **Price Stability and Monetary Policy Effectiveness when Nominal Interest Rates are Bounded at Zero** *Athanasios Orphanides and Volker Wieland*
- B11A-98 **Die Bewertung der "dauerhaft tragbaren öffentlichen Finanzlage" der EU Mitgliedstaaten beim Übergang zur dritten Stufe der EWWU** *Rolf Strauch*
- B11-98 **Exchange Rate Regimes in the Transition Economies: Case Study of the Czech Republic: 1990-1997** *Julius Horvath and Jiri Jonas*
- B10-98 **Der Wettbewerb der Rechts- und politischen Systeme in der Europäischen Union** *Martin Seidel*
- B09-98 **U.S. Monetary Policy and Monetary Policy and the ESCB** *Robert L. Hetzel*
- B08-98 **Money-Output Granger Causality Revisited: An Empirical Analysis of EU Countries (überarbeitete Version zum Herunterladen)** *Bernd Hayo*
- B07-98 **Designing Voluntary Environmental Agreements in Europe: Some Lessons from the U.S. EPA's 33/50 Program** *John W. Maxwell*
- B06-98 **Monetary Union, Asymmetric Productivity Shocks and Fiscal Insurance: an Analytical Discussion of Welfare Issues** *Kenneth Kletzer*
- B05-98 **Estimating a European Demand for Money (überarbeitete Version zum Herunterladen)** *Bernd Hayo*
- B04-98 **The EMU's Exchange Rate Policy** *Deutsch-Französisches Wirtschaftspolitisches Forum*
- B03-98 **Central Bank Policy in a More Perfect Financial System** *Jürgen von Hagen / Ingo Fender*
- B02-98 **Trade with Low-Wage Countries and Wage Inequality** *Jaleel Ahmad*
- B01-98 **Budgeting Institutions for Aggregate Fiscal Discipline** *Jürgen von Hagen*
- 1997**
- B04-97 **Macroeconomic Stabilization with a Common Currency: Does European Monetary Unification Create a Need for Fiscal Insurance or Federalism?** *Kenneth Kletzer*
- B-03-97 **Liberalising European Markets for Energy and Telecommunications: Some Lessons from the US Electric Utility Industry** *Tom Lyon / John Mayo*
- B02-97 **Employment and EMU** *Deutsch-Französisches Wirtschaftspolitisches Forum*
- B01-97 **A Stability Pact for Europe** *(a Forum organized by ZEI)*

---

ISSN 1436 - 6053

---

Zentrum für Europäische Integrationsforschung  
Center for European Integration Studies  
Rheinische Friedrich-Wilhelms-Universität Bonn

Walter-Flex-Strasse 3  
D-53113 Bonn  
Germany

Tel.: +49-228-73-1732  
Fax: +49-228-73-1809  
[www.zei.de](http://www.zei.de)