



Munich Personal RePEc Archive

Will WTO membership really improve market access for Ukrainian exports?

Eromenko, Igor and Mankovska, Nadiya and Dean, James W

Institute of Economic Research and Policy Consulting, Simon Fraser
University

2003

Online at <https://mpra.ub.uni-muenchen.de/67481/>

MPRA Paper No. 67481, posted 28 Oct 2015 23:19 UTC

Will WTO membership really improve market access for Ukrainian exports?

in “*Ukraine’s WTO Accession: Challenges for Domestic Economic Reforms*”
Ihor Burakovsky, Lars Handrich, Lutz Hoffmann (Ed.) - Heidelberg, Physica-Verlag, 2003

Igor Eremenko, Institute of Economic Research and Policy Consulting
Nadiya Mankovska, Simon Fraser University
James W. Dean, Simon Fraser University

JEL classification codes: F13, F 15, F 17, P 33

Abstract

Although the WTO embraces over 90% of world trade, several large CIS transition countries have not joined it yet. Delays have not only been due to technical problems, but also to a lack of clear understanding of the consequences of WTO membership. The aim of this paper is to ask how important improved market access might be as an incentive for one of the biggest CIS countries, Ukraine, to join the WTO.

We employ the gravity model of international trade and include data on 85 of Ukraine’s trade partners. By looking at initial conditions for Ukrainian exports, we estimate the extent to which Ukrainian exports are hurt by barriers imposed by its trading partners, as well as Ukraine’s potential level of trade.

Our estimates show that import barriers imposed by Ukraine’s trade partners do not play an important role in determining the volume of Ukrainian exports. Moreover, Ukraine already exports twice the potential level, predicted by our gravity model. Nevertheless, Ukraine depends on small number of unprocessed and semi-processed export goods and the efficiency of its exporting industries is quite low.

These results suggest that the Most Favoured Nation mechanism and putative improved market access might not be an important criteria for deciding Ukraine’s accession to the WTO. Our results are consistent with other studies on transition economies, which found that WTO membership plays a much less important role in improving market access than do increasing FDI, regularising dispute settlements, and improving resource allocation.

1. Introduction

A high priority of Ukrainian international economic policy is to join the WTO. However, this process has been ongoing for a decade already, and is likely to continue for several more years¹. This slow progress has been due not only to technical problems, but also to a lack of clear understanding of what consequences WTO membership might entail.

Of course, as any trade policy change, membership in the WTO has its costs and benefits. The main costs are expected to be a short-term decrease of output due to stronger foreign competition, lower fiscal revenues as a result of reduced import tariffs, and restricted sovereignty over trade-related policies. The benefits are believed to include improved access to major export markets via the Most Favoured Nation (MFN) mechanism, access to dispute settlements, invigoration of domestic economic reforms, and an increase of foreign direct investment (Drabek and Laird, 1977). In this paper we concentrate on one of these issues only: improved access to foreign markets².

The conventional view of many Ukrainian economists and policy-makers is that by becoming a member of the WTO, Ukraine will enjoy significant benefits from improved access of domestic exporting enterprises to foreign markets. However, such statements are not backed by any in-depth economic analyses in most cases, and cannot be accepted as self-evident. In fact, several researchers have shown that membership in the WTO does not automatically bring improved foreign market access and increased exports. Moreover, specific features of the Ukrainian economy cast doubt on the prospective increase of exports. Please note that in Ukraine the volume of foreign trade is already extraordinarily high: exports are over 60% of GDP, compared with around 35% in Germany, 30% in Poland or even 45% in oil-exporting Russia. Also, Ukraine still relies on a small number of traditional exports, mostly low- and semi-processed products and in many cases Ukraine still follows the traditional patterns of trade, inherited from the USSR. Since it is not evident to what extent the WTO will help Ukrainian exporters to capture a larger foreign market share, we saw an urgent need for an additional study of this issue.

In this study we try to throw some light on this problem by asking two questions:

1) To what extent do barriers imposed by foreign trade partners hurt Ukrainian exports at this moment and 2) What is the potential level of

¹ The process of Ukraine's accession to the WTO system started in 1993, when the official application was submitted. Since that time 9 Working Party meetings have been held and 10 bilateral agreements with members of the WTO were signed. Although Ukrainian officials claim that it will be possible to become a part of the WTO by 2003, the process will most likely continue for a longer period.

² We should note that sometimes access to export markets is understood to include access to the MFN mechanism as well as to dispute settlement. In our study we do not touch upon the second point.

Ukrainian exports? Answering these questions would help us to determine how sensitive Ukrainian exports are to trade barriers - primarily the import tariffs of its partners - and to see whether Ukraine has any scope to increase its exports further. With these results in hands, it will be possible to make some judgements about whether the MFN mechanism would be helpful. We employ modified gravity model of foreign trade in an attempt to answer these questions.

The paper proceeds as follows: Chapter 2 reviews the results of other investigations into the effect of the WTO on trade intensity. Chapter 3 reviews the methodology of the empirical gravity model and presents the results of our model. Chapter 4 summarizes our findings. The appendix provides detailed tables with model results.

2. Does membership in the WTO automatically increase trade?

One of the prime objectives of the WTO is to smooth trade flows and improve market access by lowering tariffs as well as non-tariff barriers, and by helping with dispute settlements. It is true that since the establishment of the GATT/WTO, international trade has significantly increased. As the WTO report stated (The WTO, 1988), "The achievements of the system are well worth celebrating ... during 50 years of GATT/WTO operations, world trade has increased 16 fold ... merchandise exports grew on average by 6% annually. ... GATT and WTO have helped to create a strong and prosperous trading system contributing to unprecedented growth."

Not everyone share this optimism, though. Indeed, some recent studies demonstrate that there is no convincing evidence of a strong relationship between membership in the WTO and an increase of exports. Rose (2002, a) provides an econometric study of the effect of the GATT/WTO on trade. For this purpose he uses a gravity model of international trade for 178 trading entities for the period between 1948 and 1999. Rose concludes that "... membership in the GATT/WTO is not associated with enhanced trade, once standard factors have been taken into account. To be more precise, countries, acceding to the GATT/WTO, do not have significantly different trade patterns than non-members. ... we currently do not have strong empirical evidence that the GATT/WTO has systematically played a strong role in encouraging trade." Moreover, Rose (2002, b) shows that there is little evidence that membership in the GATT/WTO has actually liberalised trade policies.

However, others hold to a more balanced point of view. Langhammer and Lucke (2000) studied accession issues for vulnerable economies. They conclude that the benefits springing from WTO membership in terms of improved market access for

traditional exports are likely to be limited, given such characteristics as reliance on a small number of export goods (mostly raw materials), weak administrative capacities, large economic vulnerability, lack of market-oriented capacities, and political instability. They point out that supply bottlenecks in accessing countries seem to hamper export expansion more than the policy-induced barriers on the demand side. Instead, Langhammer and Lucke argue that the main gains would come from market-oriented policies and sending positive signals to foreign investors. Jensen, Rutherford and Tarr (2002) in their work on the WTO and Russia argue that the main trade partners of Russia already employ quite low import tariffs, and thus the MFN mechanism will not bring significant additional benefits. According to their estimates, 70% of the gains in the long term should come from increased foreign investments. Other important factors are improved resource allocation and better dispute settlement mechanisms.

Summing up, we would like to stress that joining the WTO is not likely to bring an automatic increase in external trade as often claimed in Ukraine. The WTO provides acceding countries with good opportunities to develop their foreign trade and promote economic growth. But, it is the responsibility of the countries to themselves to use these opportunities. Whether a new member of the WTO will succeed or fail in this process depends on its political will, on its economic development strategy and on the initial conditions (or scope for growth) of the economy and the external sector specifically. If the initial conditions are not very promising, policy-makers can try to overcome this problem. If they fail, they should be blamed, not the WTO.

Before drawing any conclusions about whether WTO membership will lead to increased exports, it is important to examine initial conditions in Ukraine. Here, we estimated two of them: the cost of trade barriers imposed by foreign partners and the potential level of Ukrainian exports. In the next section we describe the methodology of the gravity model employed for these purpose and discuss the results of our estimates.

3. The model and empirical results

In this section we use the gravity model of international trade for Ukraine. Originally this model was independently developed by Tinbergen (1962) and Poyhonen (1963), since that time it has been actively used to analyse trade patterns between countries. The basic idea is that trade between two countries will positively depend on the size of their economies, and negatively on transportation costs (usually measured as the distance between countries). Also, trade will be more intensive between countries with similar levels of income (GDP/capita is usually used as the proxy). The country's land area or its population figure can

serve as proxies for its size. Dummy variables, such as a common border or membership in trade organizations are used to capture other influences.

Despite initial doubts by several critics, the gravity model has proved fruitful by throwing light on large variety of research questions. Moreover, recent international trade theory (for example, Deardorf, 1995) has shown that even the simplest gravity model can be derived from major theories of trade, and thus is worth using in empirical studies³.

3.1. Cost of trade barriers imposed by foreign partners

In this part of our study aside from the standard variables of the gravity model we add an indicator of trade liberalisation to the estimating equation. This indicator is calculated by the Heritage Foundation for virtually all countries and incorporates three parts: the degree of tariff protection in the country; non-tariff barriers; and corruption in the customs service (O'Driscoll et al. 2002 (a)). The index ranges from "1" (for free) to "5" (for repressed). A higher value of the indicator should have a negative influence on foreign trade.

In this case the specification of our gravity model is as follows:

$$\ln X_{ij} = \alpha_0 + \alpha_1 \ln D_{ij} + \alpha_2 \ln GDP_i + \alpha_3 \ln GDP_j + \alpha_4 Dumm_CIS_j + \alpha_5 Trade\ Index_j + \gamma$$

where

X_{ij} - exports of the country i to its trade partner j

D_{ij} - distance between countries i and j

GDP_i - gross value of the GDP of the country i

GDP_j - gross value of GDP of the trade partner j

$Dumm_CIS_j$ - dummy for CIS countries

$Trade\ Index_j$ - index of foreign trade policy

We included data on 85 trade partners for the years 2000 and 2001 and used the pooled cross-section technique. Table 3 shows the regression results, estimating the effect of barriers, imposed by trade partners on the Ukrainian export volume.

³ For further discussion of the gravity model and its applications see Anderson (1979), Bergstrand (1985), Davis et al. (1997), Harrigan (2001), Martin (1997), Oguelo et al. (1994), Schumacher (2001), Xymena et al. (2000).

Table 1. Regression results, cost of trade barriers

Variables	<i>ln X UA</i>
Constant	6.332525 (1.497133)
Distance	-1.106063 (-8.812356)***
Gross value of the origins country GDP	0.797468 (0.685728)
Gross value of the trade partner's GDP	0.680858 (10.38499)***
Dummy for CIS	1.796171 (4.824957)***
Index of foreign trade policy	0.474575 (1.785510)*
R-squared	0.51
Total number of observations	170

Note: standard errors are in parentheses; * - 10% significance level, ** - 5% significance level, *** - 1% significance level

The regression results show that the variables are generally acceptably significant, except for the “constant” and “the gross value of the GDP” variables. The R-squared is quite moderate.

According to estimates, increase of Ukraine’s GDP by 10% would lead to roughly 8% increase of exports, while 10% economic growth in the ROW results in 7% increase of Ukrainian exports. In order to interpret estimate for dummy variable, we have to transform it, taking antilog and subtracting one. Results show that Ukraine would export to CIS countries by 40% more than to other countries.

Surprisingly, the regression suggests that the “Trade Index” variable has the opposite effect on Ukrainian exports from what we would expect: the higher the trade partner’s protection barrier, the more intensive were Ukrainian exports to that country. According to estimates, one point increase in trade index is associated with 47% increase of exports. Such results contradict common sense and accepted theories, and contradict the results of similar studies for other countries. For instance, Wall (1999) uses the gravity model to estimate the cost of protectionism on USA trade. Using the same Heritage Foundation indicator of trade liberalisation in his gravity equation, he finds that this variable has an adverse effect on trade volumes. His model quite specifically shows that trade barriers by foreign countries reduce U.S. exports by one-fourth, which is equal to almost 2% of U.S. GDP.

Of course, we should not be misled by these results: a positive value of the trade index does not imply that if Ukraine’s trade partners would raise the trade barriers even higher, exports would expand further. Instead, a breakdown of Ukrainian trade into regions of export destinations shows that Ukraine has traditionally strong trade links with countries that have high trade barriers. Such links are quite

persistent and import tariffs or NTBs, captured by the index of trade barriers has not crucially determined Ukrainian export volumes, at least in the short run.

The primary trade region of Ukraine covers the countries of the former Soviet Union. First of all, Russia alone accounts for more than one-fifth of Ukraine's exports. The CIS as a whole acquires one-third of its exports. Almost all CIS countries have high trade index values, meaning "mostly unfree" or "repressed" trade regimes. Nevertheless, Ukraine intensively trades with these countries, in many cases including special trade arrangements between states, and barter or give-and-take schemes.

Another group of countries, with which Ukraine trades heavily, is the Asian and Middle East region. Several of these countries also have repressed trade regimes, yet Ukraine manages to supply a significant share of its major export item – ferrous metallurgy – to this region.

Also, Ukraine steadily develops new trade relationships with European Union and CEE accessing countries. Currently almost 20% of Ukrainian exports go to the EU and around 15% to CEEC countries. We should note here that the EU has quite low import tariffs, here Ukraine is hurt more by quotas applied primarily to light industry and ferrous metallurgy exports.

Summarising, our modified gravity equation shows that import barriers of trade partners, primarily import tariffs, do not seriously influence the Ukrainian export volume. Despite the generally repressive nature of the trade regimes of many of its partners, Ukraine trades pretty intensively with the rest of the world, reaching a volume of exports over 60% of GDP.

The next question is to ask how this level of exports corresponds to the potential level, predicted by gravity factors. Knowing whether Ukraine under- or over-trades, compared to the predicted volume of exports, we will proceed to further discussion of the issue of improved market access.

3.2. Potential level of exports

In order to estimate trade potentials for Ukraine, we first built a gravity model for the EU countries and then for Central and Eastern European candidate countries. Then, putting actual data for Ukraine into the estimated equations for the EU and CEEC countries, we can see where Ukraine over- or under-trades compared with these regions and what its potential level of trade is. We decided to compare potential trade with that of the EU and accessing CEE countries because of Ukraine's great interest in integration into Europe.

Thus, we estimated the trade with Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Netherlands, Portugal, Spain, Sweden and UK (Luxemburg was excluded due to data problems). The CEEC accession countries in our research were represented by Bulgaria, Croatia, Estonia, Hungary, Latvia,

Lithuania, Poland, Romania, Slovakia and Slovenia (Cyprus and Malta were excluded as well). As trade partners we included 85 countries from all world regions, using data for the year 2000.

We used the following specification:

$$\ln X_{ij} = \beta_0 + \beta_1 \ln D_{ij} + \beta_2 \ln GDP_i + \beta_3 \ln GDP_j + \beta_4 \ln D GDPpc_{ij} + \beta_5 Dumm_EU_j + \delta$$

where

X_{ij} - exports of country i to trade partner j

D_{ij} - distance between countries i and j

GDP_i - gross value of the GDP of country i

GDP_j - gross value of the GDP of trade partner j

$D GDPpc_{ij}$ - difference in GDP per capita between country i and trade partner j (absolute value)

$Dumm_CIS_j$ - dummy variable. It takes the value "1" if the trade partner belongs to the EU or to group candidate CEE countries, otherwise "0"

Below (Table 2) we present the results of the regressions, estimating the gravity model for the EU and CEE countries respectively.

Table 2. Regression results, potential level of exports

Variables	$\ln X_{EU}$	$\ln X_{CEEC}$
Constant	1.935932 (0.591668)***	6.374373 (0.521032)***
Distance	-0.514744 (0.060709)***	-1.106980 (0.054971)***
Gross value of origin country GDP	0.974926 (0.034526)***	0.780380 (0.042455)***
Gross value of the trade partner's GDP	0.798021 (0.023883)***	0.593993 (0.030187)***
Difference in GDP per capita	-0.195536 (0.036290)***	0.000968 (0.032726)
Dummy for EU and CEEC	0.652739 (0.113618)***	0.520605 (0.132767)***
R-squared	0.74	0.72
Total number of observations	1175	640

Note: standard errors are in parentheses; * - 10% significance level, ** - 5% significance level, *** - 1% significance level

As we can see, the model explains the trade patterns of the EU and CEE countries quite well, as confirmed by the value of R-squared. All coefficients have the expected signs and are significant at the 1% level, except for the difference in GDP per capita in the regressions for CEE countries.

In order to estimate the potential level of Ukrainian exports in comparison with the EU and CEE regions, we entered real data for Ukraine to see what volume of goods Ukraine would export, if its trade were explained by the same factors, as apply to the EU and CEE. Estimations of potential Ukrainian exports and their comparison with the actual level are given in Table 3 below.

Table 3. Ukraine's actual and potential exports

Trade partners	Ukraine's actual exports (USD m)	Ukraine's exports in comparison with the EU countries' gravity potential		Ukraine's exports in comparison with the CEEC countries' gravity potential	
		Ukraine's potential exports (USD m)	Ratio of actual exports to potential	Ukraine's potential exports (USD m)	Ratio of actual exports to potential
Total (sum of 85 trading partners)	13128	5988	2.19	4677	2.81
Advanced countries	3396	3580	0.95	2636	1.29
CEE countries	2957	602	4.92	855	3.46
CIS countries	4497	684	6.57	756	5.95
Asia	1310	567	2.31	138	9.52
Middle East	684	228	3.01	172	3.97
Africa	96	110	0.87	62	1.54
South America	188	216	0.87	58	3.24

The results show that Ukraine exports 2.19 times more than in the case if its trade was explained by the same gravity factors as for the EU countries and 2.81 times more than in case if factors of the candidate countries of Central and Eastern Europe applied.

As expected, our estimations suggest that Ukraine significantly over-trades with the former USSR countries: by more than 6 times. Although the share of exports to the CIS gradually decreased over the past several years, economic relations between former Soviet Union countries are still very close and very likely will remain so in the future, especially taking into account plans of Ukraine, Russia, Belorussia and Kazakhstan to establish a Common Economic Area later in 2003.

Turning to the prospect for improved market access after Ukraine has become a member of the WTO, we should note that not all CIS countries are members of the WTO. Hence, the MFN mechanism will work only in trade with selected CIS economies. We also know that the FSU states already took active steps to optimise trade flows between them, to diminish barriers and ease cooperation. Therefore, WTO accession by Ukraine is not expected to result in a significant increase of exports to the CIS.

The close cooperation between FSU countries runs the danger of locking in trade with technologically outdated economies (Michalopoulos, Tarr, 1997). In this respect relationships with advanced economies could be much more beneficial. As estimations of the model show, Ukraine's actual exports to the EU and other advanced countries correspond almost one-to-one to the level, predicted by the gravity equations.

In case of the European Union, improved market access is expected to concern primarily ferrous metallurgy (15% of Ukrainian exports to the EU) and light industry (10% of Ukrainian exports to the EU). Currently exports of these goods are restricted by quotas imposed by the EU, but with WTO membership Ukraine would have the chance to reduce these barriers.

Exports to the CEE countries are significantly higher than model predictions (by 5 times in comparison with the EU equation and by 3.5 times in comparison with the CEE equation). High exports can be explained by the traditional links, inherited from SU times, common borders and cultural similarities, such as language, etc.

Ukrainian exports to Asian countries are also above the levels predicted by gravity forces. Here we observe quite large discrepancy between estimations from the EU and CEEC's equations (the ratio of the actual to potential exports is 2.3 in the case of the EU equation and 9.5 in the case of CEEC's). In contrast, the model estimations concerning the Middle East are more or less similar: Ukraine over-trades by more than 3 times. As we reported earlier, the major item of exports to these countries is ferrous metallurgy products.

Finally, exports to Africa and South America are slightly lower than the predictions by the EU, but higher than by the CEEC's gravity equation.

Further development of Ukrainian exports after accession to the WTO and particularly the role of the MFN mechanism will of course depend on import tariffs, agreed on during the bilateral negotiations with the WTO members. In our view, the major impediments to export promotion in Ukraine are those listed by Langhammer et al. (2000) and Jensen et al. (2002). Firstly, they concern the reliance on a small number of export goods with a low degree of processing, and secondly, they are caused by domestic trade barriers, represented by unfavourable administrative and political practices.

The Ukrainian economy depends heavily on exports of ferrous metallurgical products: it is the world's 4th largest exporter of steel, 50% of all Ukrainian exports revenues come from metallurgy. Although the volume of steel exports is high, these products are mainly low quality and semi-finished. Moreover, as was calculated by Akimova and Scherbakov (2002), the technical efficiency of Ukraine's ferrous metallurgy production is quite low: currently it is at 60% of its potential level⁴. Another important export item - fuel products (10% of exports) - also consists of intermediate products with a low degree of processing. Other export goods are chemical production (10% of Ukrainian exports) and light industry (5% of Ukrainian exports). Unfortunately, the efficiency of these products is low as well: 60% for the chemical production and only 27% for light industry. These results are also supported by Sachs et al. (2000). According to their index of international competitiveness, based on the Global Competitiveness Report, Ukraine is only in the 57th place out of the 58 countries on the list. In order to enhance competitiveness of Ukraine's products, decrease of import tariffs by foreign partners is far from being enough. Instead, inflow of foreign investment and know-how should improve the situation.

Putting all these results together, we note that firstly, Ukraine's traditional exports are only minimally influenced by the trade barriers of its partners, as captured by the Heritage Foundation index of foreign trade policy. Secondly, Ukraine already exports twice as much as predicted by gravity forces. Thirdly, Ukraine is over-saturated with exports of intermediary, semi-finished and low-quality goods, while the efficiency of its basic exporting industries is rather low. This gives us grounds to suggest that the MFN regime will not be a significant factor to provide better market access for Ukraine's *traditional* exports.

5. Conclusions

The aim of this paper is to question the importance of the factor of improved market access after Ukraine's WTO accession. We looked at the initial conditions of Ukrainian exports from two points of view: an assessment of the potential level of trade for Ukraine, and an examination of the extent to which Ukrainian exports are hurt by barriers imposed by its trade partners. We employed the gravity model of international trade to this end.

⁴ Technical efficiency is defined as ability to produce maximum possible output given inputs or, alternatively, minimum possible use of inputs given output. Akimova and Scherbakov (2002) measure relative efficiency of a firm in an industry by comparing its output to the output, which can be produced by the most efficient firm, given the same bundle of inputs.

Our analysis shows that according to our estimates, import tariffs and NTBs, imposed by Ukraine's trade partners do not play an important role in determining the volume of Ukrainian exports. Ukraine trades more with countries that in general have more restrictive trade policies. Beside that, Ukraine already exports at twice its potential level, when compared with EU and CEEC countries. And finally, Ukraine's exports depend on a small number of goods with a low degree of processing, and the efficiency of the exporting industries is quite low. All this suggests that the Most Favoured Nation mechanism and improved market access might not be important aspects of Ukraine's membership in WTO.

This hypothesis coincides with the results of other studies on WTO and transition economy issues, which also conclude that improved market access plays a much less important role than increased FDI, better dispute settlement mechanisms and improved resource allocation. We think that it is very important to have realistic expectations of the WTO membership consequences. In our minds, Ukrainian policy makers should not overemphasize the role of improved market access but rather use the opportunity to turn the WTO requirements into market reforms, which will send positive signals to foreign investors, will help to advance technology and improve productivity.

Bibliography

Akimova, Iryna and Scherbakov, Alexander *Competition and Technical Efficiency of Ukrainian Manufacturing Enterprises*. Institute for Economic Research and Policy Consulting. Working Paper # 17, 2002

Anderson, James E. *A Theoretical Foundation for the Gravity Model*. American Economic Review, 1979

Bergstrand, Jeffrey H. *The Gravity Equation in International Trade: Some Microeconomic Foundations and Empirical Evidence*. Review of Economics and Statistics, 1985

Brockner, Johannes *How would an EU-membership of the Visegrad-countries affect Europe's economic geography?* The Annals of Regional Science Springer-Verlag 32:91-114, 1998

CEFIR-Club 2015 *Russia in the WTO: Myths and Reality*. www.cefir.org, 2001

Davis, Donald R. and Weinstein, David E. *Does Economic Geography Matter for International Specialization?* HIID Development Discussion Paper # 591, 1997

Deardorff, Alan V. *Determinants of Bilateral trade: Does Gravity Work in a Neoclassical World?* NBER working Paper # 5377, 1995

Djankov, Simeon and Friend, Caroline *Disintegration and Trade Flows: Evidence from the Soviet Union*. World Bank, 2000

Drabek, Zdenek and Laird, Sam *The New Liberalism: Trade Policy Developments in Emerging Markets*. WTO, Geneva, 1997

Feenstra, Robert C. *How Costly is Protectionism?* Journal of Economic Perspectives, 1992

Jensen, Jesper, Rutherford, Thomas, Tarr, David *Economy-Wide and Sector Effects of Russia's Accession to the WTO*. Paper prepared for the New Economic School Tenth Anniversary Conference. Moscow, Russia, December 19-21, 2002

Harrigan, James *Specialisation and the Volume of Trade: Do the Data Obey the Laws?* NBER Working Paper # 8675, 2001

Langhammer, Rolf and Lucke, Matthias *WTO Negotiations and Accession Issues for Vulnerable Economies*. Kiel Institute of World Economics, Working Paper # 990, 2000

Martin, Carmela *The Impact of EU Trade Agreements with Central and East European Countries: The Case of Spain* Universidad Complutense de Madrid, Facultad de Economicas, Documentos de Trabajo series, 1995

Matyas, L. *Proper Econometric Specification of the Gravity Model*. The World Economy. 1997

Michalopoulos, Constantine *The Integration of Transition Economies Into the World Trading System*. Paper presented at the Fifth Dubrovnik Conference on Transition Economies, 1999

Michalopoulos, Constantine *WTO Accession for Countries in Transition*. Post-Soviet Prospects 6, #3, 1998

Michalopoulos, Constantine, Tarr, David *The Economics of Customs Unions in the Commonwealth of Independent States*, Policy Research Working Paper, World Bank, April 24, 1997

Oguledo, Victor I., and Craig R. MacPhee. *Gravity Model: A Reformulation and an Application to Discriminatory Trade Arrangements*. Applied Economics, 1994

O'Driscoll, Jr., Gerald P, Feulner, Edwin J and O'Grady, Mary Anastasia *Explaining the Factors of the Index of Economic Freedom*. Heritage Foundation, 2002 (a)

O'Driscoll, Jr., Gerald P, Holmes, Kim R. and O'Grady, Mary Anastasia *The 2002 Index of Economic Freedom*. Heritage Foundation, 2002 (b)

Poyhonen, P. *A Tentative Model for the Flows of Trade Between Countries*. Weltwirtschaftliches Archiv, 1963

Prichett, Lant *Measuring Outward Orientation in LDCs: Can it be Done?* Journal of Development Economics, 1996

Radelet, Steven *Manufacturing Exports, Export Platforms, and Economic Growth*. CAER II Discussion Paper # 43, 1999

Rollo, Jim *Putting Trade on Track. A Realistic Negotiation agenda for the WTO*. A Federal Trust Report. www.fedtrust.co.uk 2001

Rose, Andrew K. *Do We Really Know that the WTO Increases Trade?* NBER Working Paper # 9273, 2002 (a)

Rose, Andrew K. *Do WTO Members Have More Liberal Trade Policy?* NBER Working Paper # 9347, 2002 (b)

Sachs, Jeffrey, Zinnes, Clifford and Eilat, Yair *Benchmarking Competitiveness in Transition Economies*. CAER II Discussion Paper # 62, 2000

Schumacher, Dieter *Market Size and Factor Endowment: Explaining Comparative Advantage in Bilateral trade by Difference in Income and Per Capita Income*, DIW Discussion Paper #259, 2001

Tinbergen, J. *Shaping the World Economy: Suggestions for an International Economic Policy*. New York: The Twentieth Century Fund, 1962

The South Centre *Issues Regarding the Review of the WTO Dispute Settlement Mechanism*, 1999

The South Centre *Special and differential Treatment for Developing Countries in the WTO*, 1999

The WTO *Fiftieth Anniversary of the Multilateral Trading System. Press Brief.* www.wto.org 1998

Wall, Howard J. *Using the Gravity Model to Estimate the Costs of Protection.* Federal Reserve Bank of St. Louis, 1999

Xymena, Clark and Tavares, Jose *A Quantitative Approach Using Gravity Equation.* HIID Development Discussion Paper # 748, 2000

Appendix

A.1. Data

The data on exports is for 2000, in million USD. Taken from IMF, Directions of Trade Statistics, March 2002.

The GNI per capita is for 2000, USD/capita. Available from World Bank, World Development Indicators 2002.

The Gross GNI is for 2000, in billion USD. Available from World Bank, World Development Indicators 2002.

The distance between countries used is the “as-the-crow-flies” distance between their capitals in km. The distance calculation uses the “geod” program, which is part of the ‘PROJ’ system of the U.S. Geological Survey. Available from www.indo.com/distance.

A.2. Regression results

Cost of trade barriers

Dependent Variable: LOG(X_UA?)

Method: Pooled Least Squares

Sample: 2000 2001

Total panel observations 170

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	6.332525	4.229767	1.497133	0.1363
LOG(DIST?)	-1.106063	0.125513	-8.812356	0.0000
LOG(GDP_UA?)	0.797468	1.162951	0.685728	0.4939
LOG(GDP?)	0.680858	0.065562	10.38499	0.0000
LOG(INDEX?)	0.474575	0.265793	1.785510	0.0760
DUM_CIS?	1.796171	0.372267	4.824957	0.0000
R-squared	0.511337	Mean dependent var		3.750091
Adjusted R-squared	0.496438	S.D. dependent var		1.993449
S.E. of regression	1.414593	Sum squared resid		328.1759
F-statistic	34.32188	Durbin-Watson stat		0.103535
Prob(F-statistic)	0.000000			

Gravity model for the EU

Dependent Variable: LOG(X?)

Method: Pooled Least Squares

Included observations: 88

Total panel observations 1175

White Heteroskedasticity-Consistent Standard Errors & Covariance

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.935932	0.591668	3.271990	0.0011
LOG(D_GDPPC?)	-0.195536	0.036290	-5.388109	0.0000
LOG(D?)	-0.514744	0.060709	-8.478799	0.0000
DUMM_EU_CEEC	0.652739	0.113618	5.745035	0.0000
LOG(GDP?)	0.974926	0.034526	28.23714	0.0000
LOG(GDP_GROSS)	0.798021	0.023883	33.41340	0.0000
R-squared	0.739155	Mean dependent var		5.204044
Adjusted R-squared	0.738039	S.D. dependent var		2.374407
S.E. of regression	1.215272	Sum squared resid		1726.479
Log likelihood	-715.2675	F-statistic		662.5170
Durbin-Watson stat	1.548102	Prob(F-statistic)		0.000000

Gravity model for the CEEC

Dependent Variable: LOG(X?)

Method: Pooled Least Squares

Included observations: 84

Total panel observations 640

White Heteroskedasticity-Consistent Standard Errors & Covariance

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	6.374373	0.521032	12.23413	0.0000
LOG(D_GDPPC?)	0.000968	0.032726	0.029585	0.9764
LOG(D?)	-1.106980	0.054971	-20.13757	0.0000
DUMM	0.520605	0.132767	3.921202	0.0001
LOG(GDP?)	0.780380	0.042455	18.38138	0.0000
LOG(GDP_GROSS)	0.593993	0.030187	19.67691	0.0000
R-squared	0.722489	Mean dependent var		3.164401
Adjusted R-squared	0.720300	S.D. dependent var		2.076813
S.E. of regression	1.098357	Sum squared resid		764.8503
Log likelihood	-524.2681	F-statistic		330.1182
Durbin-Watson stat	1.852042	Prob(F-statistic)		0.000000

A.3. Ukraine's actual and potential exports to different groups of countries

European and other advanced countries

Trade partner	Ukraine's actual exports	Ukraine's exports in comparison with EU countries		Ukraine's exports in comparison with CEEC countries	
		Ukraine's potential exports	Ratio of actual exports to potential	Ukraine's potential exports	Ratio of actual exports to potential
Total	3396	3580	0.95	2636	1.29
United States	727	427	1.70	105.6	6.89
Canada	59	57	1.03	23.3	2.53
Australia	12	26	0.46	7.7	1.56
Japan	68	226	0.30	64.1	1.06
New Zealand	1	5	0.19	2.0	0.51
Austria	164	113	1.45	166.4	0.99
Belgium	107	101	1.06	101.8	1.05
Denmark	25	83	0.30	115.9	0.22
Finland	24	76	0.32	117.7	0.20
France	114	387	0.29	257.4	0.44
Germany	741	669	1.11	565.6	1.31
Greece	48	75	0.64	85.5	0.56
Ireland	27	37	0.73	38.0	0.71
Italy	644	374	1.72	280.8	2.29
Netherlands	138	147	0.94	138.1	1.00
Norway	18	68	0.26	87.3	0.21
Portugal	20	32	0.62	15.6	1.28
Spain	163	176	0.92	103.9	1.57
Sweden	8	64	0.13	41.6	0.19
Switzerland	150	55	2.75	72.2	2.08
United Kingdom	138	381	0.36	245.2	0.56

CEEC countries

Trade partner	Ukraine's actual exports	Ukraine's exports in comparison with EU countries		Ukraine's exports in comparison with CEEC countries	
		Ukraine's potential exports	Ratio of actual exports to potential	Ukraine's potential exports	Ratio of actual exports to potential
Total	2957	602	4.92	855	3.46
Albania	4	5	0.82	7.3	0.55
Bulgaria	383	24	16.02	32.6	11.74
Croatia	15	37	0.41	48.6	0.31
Czech Republic	189	52	3.62	69.2	2.73
Estonia	55	9	6.28	18.1	3.04
Hungary	327	55	5.97	84.3	3.88
Latvia	167	14	12.18	29.0	5.77
Lithuania	83	24	3.53	56.2	1.48
Macedonia	42	8	5.27	13.6	3.08
Poland	418	171	2.44	231.8	1.80
Romania	165	65	2.53	88.2	1.87
Slovakia	231	27	8.43	44.2	5.23
Slovenia	9	19	0.46	33.8	0.27
Turkey	869	92	9.46	97.9	8.88

CIS countries

Trade partner	Ukraine's actual exports	Ukraine's exports in comparison with EU countries		Ukraine's exports in comparison with CEEC countries	
		Ukraine's potential exports	Ratio of actual exports to potential	Ukraine's potential exports	Ratio of actual exports to potential
Total	4497	684	6.57	756	5.95
Armenia	12	3	3.85	4.0	2.97
Azerbaijan	41	7	5.79	6.8	6.07
Belarus	272	31	8.64	83.9	3.24
Georgia	38	6	6.71	5.8	6.57
Kazakhstan	77	10	7.85	6.2	12.39
Kyrgyz Republic	6	1	4.79	1.3	4.51
Moldova	176	463	0.38	481.1	0.37
Russia	3516	151	23.36	157.9	22.26
Tajikistan	97	1	89.76	1.3	76.59
Turkmenistan	148	5	28.05	3.5	42.79
Uzbekistan	114	6	18.06	4.6	24.94

Asia

Trade partner	Ukraine's actual exports	Ukraine's exports in comparison with EU countries		Ukraine's exports in comparison with CEEC countries	
		Ukraine's potential exports	Ratio of actual exports to potential	Ukraine's potential exports	Ratio of actual exports to potential
Total	1310	567	2.31	138	9.52
China	629	237	2.65	35.4	17.78
Hong Kong	3	19	0.16	9.9	0.30
India	168	129	1.31	31.4	5.35
Indonesia	77	34	2.25	6.2	12.34
Korea	146	48	3.04	17.8	8.20
Malaysia	16	14	1.16	5.1	3.15
Pakistan	30	28	1.06	11.7	2.56
Philippines	78	21	3.65	5.4	14.53
Singapore	71	11	6.34	6.2	11.43
Thailand	92	25	3.61	8.5	10.79

Middle East

Trade partner	Ukraine's actual exports	Ukraine's exports in comparison with EU countries		Ukraine's exports in comparison with CEEC countries	
		Ukraine's potential exports	Ratio of actual exports to potential	Ukraine's potential exports	Ratio of actual exports to potential
Total	684	228	3.01	172	3.97
Egypt	221	42	5.23	26.8	8.24
Iran	91	44	2.09	27.6	3.29
Iraq	0	45	0.00	29.4	0.00
Israel	106	26	4.02	31.2	3.40
Kuwait	0	10	0.00	11.9	0.00
Libya	2	10	0.20	14.0	0.14
Saudi Arabia	36	2	16.96	3.1	11.72
Syria	160	13	12.04	10.7	14.98
United Arab Emirates	68	35	1.92	17.7	3.84

Africa

Trade partner	Ukraine's actual exports	Ukraine's exports in comparison with EU countries		Ukraine's exports in comparison with CEEC countries	
		Ukraine's potential exports	Ratio of actual exports to potential	Ukraine's potential exports	Ratio of actual exports to potential
Total	96	110	0.87	62	1.54
Algeria	0	22	0.00	15.0	0.00
Congo	0	1	0.00	0.8	0.00
Ghana	0	4	0.00	2.0	0.00
Kenya	3	5	0.56	2.6	1.15
Morocco	61	17	3.62	9.6	6.39
Nigeria	0	13	0.00	5.4	0.00
Senegal	0	3	0.00	1.6	0.00
South Africa	6	22	0.27	7.5	0.80
Sudan	0	6	0.00	3.8	0.00
Tanzania	0	4	0.00	2.1	0.00
Tunisia	26	11	2.36	10.9	2.38
Zambia	0	2	0.00	0.9	0.00

South America

Trade partner	Ukraine's actual exports	Ukraine's exports in comparison with EU countries		Ukraine's exports in comparison with CEEC countries	
		Ukraine's potential exports	Ratio of actual exports to potential	Ukraine's potential exports	Ratio of actual exports to potential
Total	188	216	0.87	58	3.24
Argentina	8	27	0.30	7.5	1.07
Brazil	75	65	1.16	14.4	5.19
Chile	13	10	1.35	3.1	4.19
Colombia	12	16	0.76	4.6	2.63
Costa Rica	0	5	0.00	1.6	0.00
Ecuador	11	5	2.35	1.5	7.20
Mexico	51	51	1.01	12.7	4.00
Peru	0	10	0.00	2.9	0.00
Venezuela	8	16	0.50	5.7	1.40
Cuba	10	13	0.77	3.9	2.57