

Poland's Accession to the European Union: Demand for Protection of Selected Sensitive Products *

Jarko Fidrmuc^{**}

Peter Huber^{***}

Jan Jakub Michalek^{****}

June 1999

Key Words: Eastern Enlargement of EU, trade liberalisation, trade restrictions, adjustment costs.

Abstract

This paper analyses the expected changes in external tariffs and imports in Poland after accession to the European Union. We find that around 14% of all manufacturing commodity groups in the Harmonised System will experience tariff reductions of over 10 percentage points, while for agricultural goods tariff comparisons are complicated by very different tariff systems and may be overrated since applied tariffs are often lower than those committed. Based on gravity estimates we also find that only few – relatively narrowly defined commodities – will experience import growth rates of above 20%. More widely defined sensitive commodities are subject to a much smaller but still important import growth.

1. Introduction

As a part of the accession to the European Union, Poland will have to abolish all tariffs on imports (including agricultural products) from the European Union (EU) not yet liberalised by Europe Agreements and to adopt the EU's common external tariffs (CET) for its imports from non-member countries. Thus, the enlargement of the European Union will represent an additional liberalisation step and induce a corresponding increase of Polish trade. Insofar as Polish GDP is expected to grow significantly higher than in its major trade partners, this liberalisation is likely to aggravate the balance of payments problems of Poland. Welfe et al. (1997), for instance, predict substantial increases in the balance of payments deficits after the accession to EU in all but the most optimistic scenarios. Furthermore trade liberalisation and thus opening up towards increased competition may put domestic production in Poland under additional pressure, although it could potentially increase the size of markets for Polish products.

The adjustment costs in transition countries following their accession to the European Union received too little attention until now. As a result, present member states of the European Union intensively discuss the transition periods which will be necessary to reduce the burden on these countries after the Eastern Enlargement of the European Union (see for example Pichelmann et al., 1998). Contrary to this, the discussion in the candidate countries on transition periods hoping to "speed up" the process of the accession has been less lively¹. This paper intends to fill this gap partially.

This paper proceeds in two steps. First, the current tariff structure of Poland and the expected future adaptations in the process of the accession to the EU are analysed according to the six-digit level of the Harmonised System (HS) classification for all manufactured products. Based on this analysis of tariff line changes, we select 27 commodity groups for further analyses. Second, we present results of trade forecasts from gravity models for the selected 27 commodities.

* This paper was prepared as a part of PHARE project of the European Union, PL 9405.01.04 Technical Assistance, Sub-project 1: "Analysis of the impact on Polish economy and trade of the acceptance by Poland the rules and instruments of common trade policy, with special consideration of acceptance of common external custom tariff and development of optimal mode of adjusting Polish custom rates to the level of the EU customs." We appreciate our co-operation and many valuable comments (in particular on the selection of commodity groups) by the Polish Ministry of Economic Affairs in Warsaw and HumanDynamics Vienna.

** Institute for Advanced Studies, Vienna, Austria, fidrmuc@ihs.ac.at.

*** Austrian Institute for Economic Research, Vienna (WIFO), Austria, huber@wifo.ac.at.

**** Warsaw University, Faculty of Economic Sciences, Warsaw, Poland, michalek@wne.uw.edu.pl.

¹ A notable exception to this for Poland is Maliszewska, Michalek, and Smith (1999).

The paper is organised as follows: The next Section argues that aside from the undoubted beneficial long-run effects of trade liberalisation, there are also possible negative (short-term) effects of tariff reductions on domestic producers. To offer a first estimate of the importance of these hypothesised effects of tariff reduction, Section 3 compares the tariff structure of Poland and the expected future adaptations in the process of the accession to the European Union. This Section also selects the products for further import predictions. Section 4 introduces gravity models as a method for forecasting bilateral trade and discusses their application to the selected commodity groups. Finally, the last Section concludes the paper.

2. Tariff Reductions, EU Accession and Trade Development

A large number of recent studies (see for example Baldwin et al. 1997 for both EU and CEECs, and Welfe et al., 1997, for Poland) suggest that the accession to the European Union will substantially increase GDP in the newly acceding countries in the long run. This reflects the reduction of barriers to trade after accession, which allows a deeper division of labour and increased specialisation. The positive effects of a deepening of the international division of labour thus make accession desirable from the long run economic perspective.

This expectation seems to be largely supported by the available empirical evidence. Countries, which liberalised foreign trade, experienced high GDP growth rates. This piece of evidence, which seems to validate the so-called “export-led growth hypothesis”, has been found in a wide range of countries including developing and developed countries (see Holzmann et al., 1994). For instance the open economies in Southeast Asia (see Rodrik, 1995a), which strongly supported exports to developed countries, experienced several times higher growth rates than countries with similar initial income levels, but a different trade policy (for example Brazil). Among the developed countries, we can note Japan, and more recently Israel, Ireland, and the Netherlands, which exhibit very high export performance and GDP growth rates. But also other countries that joined the European Union (for example Greece, Portugal and Spain) out-performed the comparable countries (for example Turkey), which did not participate in European integration.

Therefore, free trade is generally seen as an aim which should be reached through multilateral trade liberalisation, supported by many international institutions including mainly WTO (previously GATT), but also IMF, OECD, etc. Last but not least, this observation represents the economic justification for the creation of large free trade areas including the European Union and North American Free Trade Area. In the case of the envisioned enlargement, protectionist arguments have been of relevance for both sides. In particular, two sorts of arguments have been brought forth for less rapid trade liberalisation:

The first line of argument may be termed the adjustment cost argument. It argues that at least in the short run certain sectors of an economy will gain from trade liberalisation, while other sectors will loose from the integration, as domestic producers are assumed to move their production towards sectors with higher efficiency according to factor endowments. Although this reallocation of production leads to higher income in all participating countries and also to lower prices (which are equal to production costs of the internationally most efficient producer), the welfare improving effects are fully valid only under the assumption of full mobility of factors between sectors (see Bhagwati and Srinivasan, 1994, and Findlay and Wellisz, 1984).

Production factors, however, are rarely fully mobile (i.e. they cannot move between sectors without cost). This may result from the existence of sector specific factors, that is capital stock or labour (especially skilled labour and human capital), which cannot be easily moved to different productions. For example, the capital stock and workers in mining enterprises and heavy industry cannot be fully transformed to small industrial enterprises. The capital stock will loose almost all of its value, when mining production is stopped. Similarly, the miners and workers cannot use the qualifications and experience from the previous employment, and may become either unemployed, or have to accept less qualified jobs with lower wages. Furthermore, we can have regional misallocation, when capital stock or labour is concentrated in regions with worse prospects. The misallocation of the resources is an important argument for agriculture, because it is the most important employer in many regions. This also applies to specific industries in Poland such as iron and steel or textiles and clothing, which tend to be regionally concentrated. All these factors may induce significant adjustment costs, although the reallocation of resources would be optimal in the long run. Thus high import growth rates could lead one to expect high adjustment costs.

Intra-industry trade, that is, trade in similar (differentiated or homogenous) products, is generally seen to indicate the importance of adjustment costs in the cause of trade liberalisation (see Hamilton and Kniest, 1991, and Rodrik, 1995b). Fidrmuc (1999c) demonstrates that the share of intra-industry trade in Polish trade with the European Union (computed for 3-digit SITC commodity groups) increased from 32.7% in

1990 to 40.6% in 1997.² However, vertical intra-industry trade could be responsible for a significant part of Polish intra-industry trade. Aturupane, Djankov, and Hoekman (1999) show that, first, the share of Polish intra-industry trade remained relatively stable at about 30% (as computed for 6-digit CN products) between 1990 and 1995, and, second, that a substantial part of two-way trade between Poland and the European Union (25% to 27% between 1990 and 1995) was attributed to vertical intra-industry trade. Furthermore, Fidrmuc et al. (1999) also show that Polish intra-industry trade with selected EU countries is significantly different from the traditional pattern of intra-industry trade within the European Union. This indicates that adjustment costs are likely to play an important role during the Polish accession to the European Union.

Related to this, there is a political economy argument. The firms and employers, which are suffering under the adjustment losses, are often large and influential lobbying groups. Farmers, trade unions in large enterprises, but also the political influence of large and especially state-owned firms are good examples of such an influence. Conflicts between the government and these groups (for example strikes, etc.) are likely to lead to significant losses to the national economy (see Krueger, 1974, Hillman, 1989; Findlay and Wellisz, 1984; Grossman and Helpman, 1994, Mayer, 1984, and Fidrmuc, 1999a). This is likely to play a more important role in Poland, where trade unions and non-government organisations have a long tradition of participating in national policy (including the revolutionary break down of communist power in advance to other socialist countries already in the second half of the 1980s), than in other associated countries in Central and Eastern Europe.³

Therefore, governments around the world often prefer to distribute significant trade liberalisation steps to several years. For example, the European Union foresees transition periods for transmission of negative effects related to liberalisation on several years. This allows to use the natural reallocation processes (that is, depreciation of the capital stock and the retirement of old-aged employees) to restructure the national economies. However, the time gained through transition periods should not be used in order to enlarge the production in sectors without prospects, because this may even increase adjustment costs in later years. In consequence, large import growth in isolated commodity groups may become a political problem in the acceding countries. This argument may be particularly relevant in productions with large, well-organised interests such as agriculture, the iron and steel industry as well as potentially the textile industry. Such considerations may give preference to piecemeal policies of import liberalisation.

3. Tariff Structure of Poland

3.1 Comparison of customs duties for non-agricultural products

A first step in assessing to what degree adjustment cost or political economy arguments may be of relevance for Poland comes from comparing the actual tariff changes necessitated by enlargement. This section will compare Polish and EU's CET applied on basis of Most Favored Nations (MFN) conditions. These tariffs are applied to imports from members of the World Trade Organization (WTO), with whom there are no preferential agreements. On the basis of this analysis we will choose some "sensitive" commodity groups.

The comparative analysis, due to the different trade policy instruments used, was conducted separately for agricultural and non-agricultural products. In order to secure comparability, we had to make a number of simplifying assumptions. First, for the analysis we used "bound" customs duties of the EU (Schedule LXXX) and Poland (Schedule LXV) as negotiated and accepted in the WTO, only. We compared the level of CET and MFN duties in Poland after implementation of tariff reductions negotiated in the Uruguay Round⁴. Second, all comparisons were made at the 6 or 8-digit level of disaggregation of the CN (*Combined Nomenclature*) classification used by the EU and Poland. This is comparable to the HS (*Harmonized System*) 1992 classification used for the purpose of Uruguay Round (UR) negotiations and WTO schedules of commitments. Finally, if there were no bound commitments for non-agricultural products in the Polish schedule, we took the applied tariffs for 1998 as a basis for comparison.

² Other authors refer also similar levels of intra-industry trade for Poland with various regions and for different levels of commodity aggregation (see for example Swierkocki, Robowski, and Woreta, 1998, or Plucinski, 1996).

³ In part this strong role for Trade Unions in Poland can be explained by the role of the Solidarnosc in the organisation of resistance against the communist regime since 1979.

⁴ The Polish list of concessions (schedule of commitments) is contained in the: Uruguay Round of Multilateral Trade Negotiations: Legal Instruments Embodying the Results of the Uruguay Round of Multilateral Trade Negotiations Done at Marrakesh on April 15, 1994; vol. 16; (Schedule LXV of Poland) and vol. 19 (Schedule LXXXX of the EC). For analytical purposes we used an electronic version of Polish and EU's commitments.

Insert Table 1 about here.

We analyzed all non-agricultural products (i.e. 4307 6-digit tariff lines) included in groups 25 to 97 of the HS System. Table 1 shows the amount of products included in each section for which Polish duties are higher than EU tariffs by a given number of percentage points. Only eight 6-digit tariff lines are higher in the EU than in Poland. In all other cases Polish tariffs are (sometimes significantly) higher. In 1% of the products (tariff lines) analyzed Polish duties were substantially higher (by more than 25 percentage points) than those in the EU. These products (characterised by over 30 percentage points after the UR) include for example (at 4-digit level of HS classification):⁵

- Casein, caseinates and other casein derivatives; casein glues (HS 3501),
- Raw skins of sheep or lambs (HS 4102),
- Flax, raw or processed but not spun; flax tow and waste (HS 5301),
- Tractors (HS 8701),
- Motor vehicles for the transport of goods: (HS 8704),
- Special purpose motor vehicles, other than those principally designed for the transport of persons or goods (for example, breakdown lorries, crane lorries, fire fighting vehicles, concrete-mixer lorries, road sweeper lorries, spraying lorries, (HS 8705), and
- Wrist-watches, pocket-watches and other watches, including stop- watches, with case of precious metal or of metal clad with precious metal: (HS 9101).

These are potentially sensitive goods because the adoption of CET by Poland will lower very significantly the level of external protection applied in relation to imports from third countries. In the case of 4.5% Polish duties are higher by more than 20 percentage points in relation to the CET level. And important differences of more than 10 percentage points between the two schedules exist in the case of 13.7% products.

Insert Figure 1 about here.

The overall picture of current differences in the level of external tariff protection is presented in the Figure 1. The differences are shown for the initial period (i.e. before the Uruguay Round) and after the implementation of all MFN reductions, which have been negotiated in the Uruguay Round. Almost all reduced tariffs are implemented by the year 1999. Figure 1 clearly demonstrates that for each two-digit CN commodity group, Polish tariffs are visibly higher than those of the EU even after the UR. Of course, due to aggregation, the differences for 2-digit commodity groups as shown in the Figure 1 are significantly smaller than those for desegregated 6-digit tariff lines.

3.2 Duties for agricultural products

We use the term “agricultural product” in accordance with the definition provided in the Agreement on Agriculture of the WTO⁶. It comprises all products of 2-digit commodity groups from 01 to 24 of HS and some products from groups 29, 33, 35, 41, 4, 50, 51 52 and 53.⁷ Comparison of tariffs was elaborated for 8-digit tariff lines of the CN classification. The comparison was based on Polish and EU schedules of concession. We took into consideration bound tariffs after implementation of UR reductions reflecting bound levels of tariffs. These duties will be fully implemented in the year 2000.

One of the problems with a tariff comparison for agricultural goods is that the EU schedule of commitments is far more detailed than the Polish one. The latter was prepared at the 4-digit level of HS classification, whereas the EU schedule presented its level of concessions at a more disaggregated (8-digit) level. Therefore, for sake of feasibility of comparison, we “imposed” the Polish schedule on that of the European Union. Furthermore we analyzed only MFN tariffs. All other (important) elements of the final package of agricultural UR negotiations were neglected. In particular, we did not take into consideration the following elements:

⁵ Many of these products were identified as sensitive products below. Some of these tariffs (like HS 87) are unbound.

⁶ The precise definition of agricultural products for the purpose of UR negotiations is contained in Annex I of the Agreement on Agriculture, GATT Secretariat 1994.

⁷ See Annex I to the Agreement on Agriculture.

- The Special Safeguard Clause (SSG), enabling the imposition of additional duties in case that imports exceed the so-called trigger level, or the import price falls below the trigger price. If applied, an SSG raises the level of protectionism for a given good.
- Tariff quotas enabling minimum access to the domestic market for the importer at lower tariffs than the “bound” level. The “tariffication”, i.e. calculation of tariff equivalents, resulted in many cases in very high import tariffs.
- Reduction of export subsidies by 36% (in money terms) for developed countries.
- Reduction of domestic support by 20% in the period of six years.

Unfortunately, sometimes we were not able to compare directly the level of commitments of two partners. In some cases the EU commitment was at the same time in *ad valorem* and specific terms whereas Poland had either only *ad valorem* duties or so called *specific* ceiling commitments. Therefore the result of our comparative analysis should be treated with some caution.

Only a very general picture can be given of the real degree of protection due to difficulties in comparing schedules of agricultural commitments of both partners. These difficulties include the fact that first, in the EU the applied rates are usually the same as those in the schedule of commitments, whereas the Polish rates applied, are quite often significantly lower than the ceiling binding in the schedule of commitments. This general observation is probably relevant for majority of Central and East European Countries (see Baldwin et al., 1997). Without extensive studies thus it is impossible to compare directly specific with *ad valorem* commitments of both partners; In many cases the real levels of protection are significantly decreased by tariff quotas, while in some cases they are increased by application of special safeguard.

Insert Table 2 about here.

Having in mind all above mentioned limitations, our comparisons of both schedules of commitments suggest that Polish levels of commitments are significantly higher than those applied by the European Union in the majority of cases. This is mainly a result of both that (a) in the majority of cases a maximal level of EU commitment applied to one or a few tariff lines (at 8-digit level of aggregation) is also applied by Poland but to the whole 2-digit group of products (containing 10-30 tariff lines), as well as (b) some agricultural products of the temperate zone - traditionally manufactured in Poland – have significantly higher bound (but not applied) levels of protection in comparison with EU (e.g. honey, onion, carrot or tomatoes).

A more elaborate economic comparison of levels of agricultural commitments should take into consideration a comparison of applied duties in Poland with the level of WTO commitments. In the majority of cases, the former duties are lower. On the one hand, this means that despite high levels of “bound” duties the current, real level of applied protection is significantly lower. According to the study of Buckwell et al. (1997), Polish prices were at around 60% of the EU price levels. On the other hand, this large free room for a discretionary policy resulting from ceiling bindings, can make the Polish administration vulnerable to domestic protectionist farm lobbies (European Commission, 1997). Furthermore, more detailed work should attempt a systemic comparison of *ad valorem* tariffs with tariff equivalents of specific duties. The WTO Secretariat on the basis of data supplied by the EU already did this sort of exercise. The results of such a comparison are reported in Table 2, which demonstrates that EU maximal tariffs, resulting from UR “tariffication”, are quite high.

The analysis of tariff comparisons was aimed at selecting sensitive commodity groups, which might undergo important trade and production changes after Polish accession to the EU. At the end of this stage, a number of commodity groups (see Table 3) were selected.⁸ The selected commodities are highly heterogeneous in terms of their importance for total Polish imports. The selected products account for 29.2% of total Polish imports in 1992 and 27.9% in 1996. Only oil and petrol accounts for more than 10% of total Polish imports in 1992 and only five other commodities account for more than 1% of total imports in 1992 or 1996. In turn, Polish imports of several commodities account for less than 0.05% of total Polish trade. All commodity groups show a large variance of growth rates between 1992 and 1996. Furthermore, imports of several products concentrate only on a few countries. Therefore, the projections of some commodity groups are less reliable than for others.

⁸ We thank Mrs. Małgorzata Słojewska from the Ministry of Economic Affairs in Warsaw for her help in defining sensitive commodities.

Several criteria, however, justify this selection. First, some large sectors of the economy are traditionally considered, in all developed countries, as being “sensitive”. The best examples of this sort of sensitivity are textiles and iron and steel. Second, the motor car (complex) industry is considered to be sensitive in Poland. The administration tried for many years to attract FDI to this sector *inter alia* by keeping a high level of protection. Almost all commodities of HS 87 group (Vehicles other than railway or tramway) are “unbound”. The relatively high level of external protection within this commodity group caused disappointment of third countries⁹. Also mineral oil tariffs are unbound in Poland and can be described in a similar way. Some products are sensitive because there were strong domestic lobbies calling for protection. This sort of collective action, perfectly in line with political economy predictions, was observable for example in the production of gelatin and harvesting machinery. Agricultural products like starch, yolk, dairy products had high rates of growth of imports in the past. Given difficulties of a large number Polish small farmers these sectors could be treated as sensitive too.

In Table 3 we present differences between Polish and EU tariffs after the Uruguay Round for the selected commodity groups. Large differences in some cases indicate that the adoption of CET will decrease significantly the level of protection *vis a vis* third countries.

Insert Table 3 about here.

4. Imports Predictions by Gravity Models

4.1 Gravity Models

Tariff comparisons alone, however, are not completely informative on the potential short run costs of trade liberalisation. Thus starting from these commodities one would like to make forecasts of the import growth rates for such commodities. A standard method for predicting import growth for selected commodities are “gravity model” estimations (Linnemann, 1966, and Linder, 1961). Trade simulations based on this approach (see Baldwin, 1991) have already provided excellent predictions of trade between OECD and East European countries both for total trade as well as trade with disaggregated commodity groups. We apply this method to estimate import growth for the selected commodity groups.¹⁰

Gravity models state that “normal” (or potential) trade flows between two regions are influenced by three factors: First, the demand for products in the importing country and the supply in the exporting country have positive influences on the bilateral import level. Second, the distance between the two countries influences bilateral imports negatively. Finally, tariffs influence trade negatively.

In consequence, predictions based on the gravity model proceed in a three-step procedure: In the first step the “normal” bilateral trade of a “reference” group¹¹ of countries is estimated. This is achieved by relating the volume of bilateral trade to the importer’s demand (i.e. GDP and GDP per capita), the exporter’s supply (i.e. GDP and GDP per capita), and trade costs, which are assumed to be proportional to distance. Furthermore a set of “dummy” variables which capture membership in a trade zone is included. The estimated gravity equation can thus be formalised as follows:

$$M = b_1 + b_2 Y_X + b_3 Y_M + b_4 y_M + b_5 y_X - b_6 d + b_7 DUMMIES + e, \quad (1)$$

where Y_X stands for the aggregate total output of the exporting country, Y_M for the aggregate total output of the importing country, y_X and y_M are the output per capita of the exporting and the importing countries, respectively, and d the distance the capital cities of the trade partners measured either as the shortest transport distance (direct rail, street or sea distance). *Dummies* is a matrix of dummy variables accounting for positive effects of preferential trade agreements (EU, EFTA, free trade agreements between EU and EFTA countries).¹² In this equation, Y_X and Y_M are expected to have a positive coefficient, since the larger

⁹ India contested import regime for automobiles in Poland (on 28 September 1995) in the framework of WTO Dispute Settlement system (WT/DS/19). On 16 July 1996 both parties notified a mutually agreed solution.

¹⁰ The reduction in tariffs for Polish exports will increase the trade potential of certain sectors of the Polish economy. A number of contributions applying a similar methodology as this study to trade developments establish this (see Hamilton and Winters, 1991, Holzmann and Zukowska-Gagelmann, 1996, Brenton and Mauro, 1998, and Fidrmuc, 1998 and 1999b). This approach is more appropriate for analysis of trade in selected, narrowly defined products than general or partial equilibrium modelling (see Francois and Reinert, 1997).

¹¹ In our case the group of reference countries is composed of all OECD countries.

¹² Following Fidrmuc (1999b), we assume below that the association agreements between the European Union and Central European countries can be approximated by free trade agreements between EU and EFTA countries.

is GDP, the larger will be the demand in the importing country and the supply of the exporting country. The per capita GDP levels reflect similarity of preferences of countries on the same level of development (Linder, 1961, and Markusen, 1986). In total trade, the coefficients of GDP per capita are expected to be positive meaning that similar countries trade more. In turn, these coefficients may also be negative for some commodity groups indicating that rich countries (high GDP per capita) trade less in these commodities.

In the second step, we compute predictions of the “normal” Polish trade with the EU and other countries after the accession can by substituting the relevant variables for Poland and its trade partners into estimated equation for selected commodities. Finally, we calculate the differences (growth potential) between the realised import volume in 1996 and that predicted on the basis of the reference groups.

Although gravity estimation is a widely accepted method there are a number of methodological restrictions, which have to be taken into account. First, the estimates derived from equation (1) can be interpreted as “normal” imports. Experience of former countries joining EU such as Spain, Austria or Sweden suggests that this “normal” level of imports is not reached immediately after accession. Firms aiming to export to Poland will need some time before they fully establish trade relations, find new market potentials, and in general adapt to the new circumstances. This suggests that prediction of trade derived from gravity models is long run by definition and requires an additional assumption concerning the adjustment to this long run level.

4.2 Data and Estimation Results

We estimate (1) using bilateral imports of 27 selected products among 22 OECD countries.¹³ This reference region was chosen mainly due to comparably high data reliability. Moreover, Polish imports are concentrated on these countries and countries, which could converge to OECD level of development in the period used for imports predictions (Central and East European countries and newly industrialised countries). We used the most recently available complete trade data set on world trade at the time of estimation (1994) in the World Trade database provided by the United Nations. The air distance measured the distance between the capitals of the countries. GDP and GDP per capita measures were taken from the OECD (Main Economic Indicators database).

Insert Table 4 about here.

Table 4 presents estimation results. Although we estimate (1) for very detailed commodities, the estimates for these commodities are significant and provide relatively good fits. The \bar{R}^2 values, which measure the share of the variance in the previous imports explained by our regressions, is in general around 0.40 and more. This suggests that the gravity models can explain a substantial part of the variance in the import and that predicative power should be relatively high despite the smallness of most commodity groups. Only in the case of “chassis with engines” the values are very low suggesting that forecasts may not be very reliable for this commodity group. Furthermore the GDP levels of the importing country (Y_M) as shown in Table 4 have the predicted sign and are highly significant in all instances, the GDP levels of the exporting country (Y_X) fail to have the predicted sign in the case of milk and cheese, only, but for this product group the coefficient remains insignificant. For all other product groups the coefficient is positive and highly significant. The coefficients of GDP per capita of both the exporting and importing countries tend to take on different signs for different commodities and are individually insignificant in a number of commodity groups. In fact, we found large and negative effects of GDP per capita on imports of a few commodities (for example iron and steel, and leather apparel), only. F-tests for joint significance of the two variables, however, indicate that together the variables are significant. Furthermore experimentation with specifications excluding y_M and y_X indicated that exclusion reduces the R^2 substantially. This leads us to conclude that per capita GDP levels should remain in the forecast equation. Thus all further results are based on the specification reported in Table 4.

4.3 Predictions of Polish Imports by Selected Products

The predictions of Polish imports after the accession to the European Union are computed for 35 countries accounting for 80% to 100% of Polish total trade by selected products in 1996. Thus, the omitted

¹³ We omit the pairs of countries with no trade volumes of selected commodities. Therefore, the number of available observation differs by commodity groups.

countries account only for a small part of total EU and Polish trade. In all of the selected commodity groups except for petrol we are able to capture over 80% of Polish trade with the world in the commodities under consideration. For 23 commodities we capture over 90% of Polish trade. Therefore, the used data are in most respects very precise in terms of covered trade. The only commodity group, where data problems are severe, are mineral oil (here the lack of oil exporting countries can be felt).

Nevertheless, it is necessary to aggregate these detailed predictions to broader regions in order to reduce their variance. In addition to the prediction of total trade, this paper predicts import effects according to current member states of the European Union and Central and East European Countries (CEECs)¹⁴ separately. The reason for this is that we expect a different behaviour of trade with CEECs and with the EU than in trade with other countries. Imports from the European Union have been largely liberalised (with the exception of a number of sensitive commodities) under the Europe agreements. Simultaneously, the pace of trade liberalization with CEFTA countries was almost the same as with the EU states. Therefore, changes in imports from these countries cannot be expected to be large for a majority of commodities. In turn, imports from CEECs as well as the former Soviet Union are subject to bilateral and multilateral trade restrictions. Thus changes in imports may be much larger. On the other hand, trade relations of Poland to the CEECs are closer now than those of most EU countries which may lead to trade diversion effects once Poland joins the EU.

To calculate our import projections, we assume that Poland joins the European Union at about the same time with the other first wave candidate countries (Czech Republic, Hungary and Slovenia). This assumption implies that Polish trade to these countries will behave as to EU countries. Furthermore, Polish imports from the other CEECs will be regulated according to the European Agreements. In turn, we make trade predictions for 35 major trade partners of Poland including all OECD countries, Central and Eastern European countries, and newly industrialised countries (see footnote to Table 4). Therefore, the application of parameters estimated for the smaller set of the most developed countries reflects the assumption of the underlying structural changes in the other countries.

Throughout we report import projection as average annual growth rates from the 1997 level to 2010 meaning that we do not have to specify explicitly the accession date and transition periods. Nevertheless, our growth assumptions are consistent with accession in 2003 to 2005. These assumptions are based on the expectations of the European Commission and international institutions (OECD, IMF, and UN). We chose 1997 as a base year, since 1996 is the year with the most recent available data for detailed commodities. The upper time horizon for our simulations is chosen as 2010, since by this time the trade adjustments, which follow accession into the European Union, will have completed. Furthermore, forecasting for a longer horizon becomes very uncertain. All estimates are average annual growth rates under the assumption that Poland joins the European Union since we are interested in long run effects rather than short run dynamics.¹⁵

For a comparison with the selected products, we also estimate (1) for total imports. We predict an average annual import growth of 5.3%. In the light of the previous trade growth of Poland, this additional effect seems to be relatively small. This result is similar to other recent simulations of trade of Central and East European countries (see Brenton and Mauro, 1998). Thus, the forecasted growth is largely comparable to trade growth in OECD countries in the previous decade. For example, Swedish (annual import growth of 4.4% in average between 1988 and 1997) and Dutch imports (4.9%) grew significantly slower in the last decade, while the imports of the European Union grew nearly at the same rate (5.6%).

We also predict significant differences in trade growth of Polish imports by selected regions, which show significant trade diversion during the accession to the European Union. In particular, import growth from CEECs will be close to zero. The inspection of individual results shows that the estimated trade growth is mainly with the countries participating in the first wave of the enlargement of the European Union.

Table 5 presents import projections as average annual growth for individual commodities between 1997 and 2010. We find a vast heterogeneity among products. Part of this heterogeneity is explained by the expected external tariff changes. The size of the predicted import growth with CEECs our sample is positively correlated with the differences in tariff rates. However the correlation coefficient is 0.38 and is significant at the 10% confidence level, only.

¹⁴ CEECs include associated countries (Bulgaria, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia, and Slovenia), selected former Soviet union countries (Belarus, Russia, and the Ukraine), and selected countries of former Yugoslavia (Croatia).

¹⁵ These short run dynamics are strongly influenced by business cycle phenomena, which cannot be predicted seven years in advance.

In order to generalise the results, we form four groups of commodities (see Table 5). First, a number of commodities, most of which registered a relatively large import growth in the time period from 1992 to 1996, should be negatively affected by the EU accession. These commodities already exceed their forecasted long run level of imports of Poland. The commodities belonging to this group are intermediate products of the car industry (cabs for motor vehicles, chassis with engines) and petroleum.¹⁶ The reason for this is that these commodities (in particular cabs for motor vehicles, and chassis with engines) have experienced extremely high import growth rates already prior to 1997. Furthermore, gravity model fits and, hence, its predicative power is very low in the case of chassis with engines. Second, no major changes should be expected compared to the current level of imports for a number of machinery items: agricultural and harvesting machinery, other machinery and trailers and semi-trailers as well as leather (of sheep and other animals).

Insert Table 5 about here.

Third, a further set of commodities will experience only relatively small (0-9.9%) annual increases in imports. This group of commodities includes antibiotics, float and polished glass, iron and steel, machine tools, tractors, textile and clothing, vitamins, dish washing machines as well as starch and gelatine. These commodities share the feature that they are, in general, relatively widely defined commodity groups, which are in many instances considered sensitive.

Finally, we predict annual average growth rates of over 10% for some commodities. This growth could represent a significant burden on the domestic producers and adjustment costs for the Polish economy. These are narrowly defined sensitive products including buses, leather apparel, travel goods (such as handbags etc.), electric motors, parts of motor vehicle, telecommunications equipment, television receivers, domestic electric appliances, vehicles for transport of goods, and milk and cheese. These commodities also belong to the group of the so called sensitive commodities. In contrast to the third group of products, however, they are characterised by being narrowly defined groups.

In conclusion, our predictions suggest strong negative import trade growth relative to 1997 only for a small group of products. These forecasts, however, are burdened with statistical problems and seem to be less reliable. In another group of commodities including mainly machinery products, changes are relatively small. In most broadly defined commodities, however, imports will rise by up to 10%, while import growth of the more narrowly defined sensitive commodities will exceed the 10% level.

One way to check for the size of these effects is to compare them to past annual growth rates in these commodities. For this purpose, Table 5 also reports the annual growth rates for separate commodities between 1993 and 1996. Indeed, only few commodities have ever experienced growth rates lower than 10% and in most cases figures are in the range of 20% to 50%. That is relative to the level of import growth in these commodities (or the amount of structural change undergone by the Polish economy) today our predicted effects are not huge and out of the ordinary.

Alternatively, one could assess the importance of the expected import shock on the Polish economy in terms of the percentage of total imports of the Polish economy that are found in each group. Looking at the results in this way shows that the first group accounts for around 9% of total Polish imports, the second group (non-affected commodities) for about only 2%, and the third group (less strongly affected commodities) for over 16%. Group 4, which represents the most strongly affected commodities, accounted for only just over 1% of total Polish imports. In consequence, by far the largest share of the import volume considered in this study belongs to the less strongly affected commodities, while the strongly affected commodities account for only a small share of the total import volume. This leads us to conclude that, in general, our estimates do not give strong support to any dramatic protectionist measures.

4.4 Trade Forecasts by Regions

When proceeding by regions, our results are more differentiated. Trade with the European Union seems already to have stabilised. Double-digit growth rates from the EU are in general predicted in the same commodity groups as in the overall imports. The only exceptions to this are buses and iron and steel, where imports from the EU will increase substantially less than in total trade, and trailers, where larger imports might be expected. The group of strongly negatively affected commodities also remains unchanged.

¹⁶ This hints at the relatively high consumption of energy in transition countries relative to OECD countries.

Trade with CEECs, in contrast, will follow slightly different lines. Currently, trade relations with CEECs are relatively closer than between EU countries for a number of sensitive products. In consequence, a reorientation of trade (trade diversion) away from Central and Eastern European countries to the EU will be found in a number of commodities. This applies to agricultural machinery, antibiotics, harvesting machinery, parts of motor vehicles, other machinery, machine tools, vitamins, dish washing machines, and starch and gelatines.

In a number of other commodities, growth of imports from the Central and Eastern European will be much slower than total trade growth. This applies in particular to electric motors, vehicles, telecommunications equipment and domestic electric appliances. Only for three commodity groups (leather apparel, television receivers, textiles and clothing), trade with CEECs will grow substantially faster than total trade.

In sum, trade with CEECs is subject to a number of changes. On the one hand, existing preferential treatments relative to the CEECs may lead to increased growth of imports from the other parts of the world or the EU at the expense of trade growth with the former countries. In other commodities, EU accession could imply significant import growth from CEECs (for example travel goods) as well.

A number of common features can be noticed for each of the commodity groups: First, for group one (commodities with declining imports), imports from CEECs and EU will decline, although this result has to be taken subject to the problems mentioned above. For the commodities of the second group (no change), import growth is, in general, negative for CEECs, but slightly positive for the EU. The only exception to this is leather, where the pattern of development is exactly reversed. The commodities of the third group, representing the largest group in our analysis, in general, experience the clearest trade diversion. A very strong decline in imports from CEECs is often accompanied by an increase in the imports from the EU. In the last group (products characterised by strong growth), both imports from CEECs and EU will rise, although the predicted growth rates for CEE imports are substantially smaller for many commodities.

5. Conclusions

Trade liberalisation ensures an improvement of the allocation of resources. However, trade liberalisation may cause significant adjustment costs, as well. The cumulation of adjustment costs in short periods is likely to induce widespread protests, which – especially if they include well organised interest groups such as trade unions and farmers – may induce significant additional political losses for the economy. Trade liberalisation, including the accession to the European Union, thus may have a strong and negative impact on some groups, although the reduction of production in sensitive areas is likely to be welfare increasing in the long run.

This paper deals with the potential short run threats of EU enlargement for CEECs. The example of Poland illustrates that reductions in external tariffs of more than 10 percentage points for a relatively high number of manufacturing products (about 14% of all 6-digit commodities) will represent a part of the accession to the European Union. For agricultural products, our comparison suggests even larger changes although our measurement may overestimate the true need for adjustment. Furthermore the paper highlights substantial differences in import potential between commodities: For a small group of products, which includes mainly intermediate products in automotive industry and oil products, strong negative import trade growth relative to 1997 is predicted. These forecasts, however, are burdened with statistical problems. In another group of commodities, which consists mainly of machinery products, the predicted impact of the accession is relatively small. In most broadly defined commodities (antibiotics, float and polished glass, iron and steel, machine tools, tractors, textile and clothing, vitamins, dish washing machines as well as starch and gelatine), however, imports will rise by up to 10%, while in the more narrowly defined sensitive commodities (buses, leather apparel, travel goods, electric motors, motor vehicle parts, telecommunications equipment, television receivers, domestic electric appliances, vehicles for transport of goods, milk and cheese) import growth will exceed the 10% level.

Thus, we conclude that the adjustment cost argument may be of some relevance for some commodity groups. The question is, however, how large the adjustment costs are relative to the total economy welfare. Insofar as this study encompasses those products where fears are largest, our results are representative. Those products, where annual growth will exceed 10%, are few and trade growth has been large over the last years in almost all commodities, so that relative to the turbulence of previous years the additional impact of tariff liberalisation is small. This leads us to conclude that relative to the massive restructuring of the Polish economy in its recent history the additional impact will be small. Furthermore, commodity groups with extremely high trade growth only account for about 1% of total Polish imports.

This means that adjustment cost arguments are relevant only for a small group of selected commodities and cannot be applied to sensitive commodities in general.

Our results, however, also indicate a potential political problem. In a number of broadly defined commodity groups (iron and steel, textiles and clothing, etc.) predicted import growth is in a range which may not necessitate political intervention, but is worrying enough for producers and workers in these sectors. The producers of these commodity groups often represent well-organised interest groups, which could oppose accession even in the case of relatively small losses. This may increase opposition against accession, and may distract attention from more strongly affected sectors or the realisation of the welfare gains from trade liberalisation.

Therefore, Given the unquestionable desirability of EU accession, policy should be concerned with minimising adjustment costs in addition to achievement of the long run efficiency. Radical “jumps” to EU tariffs could increase adjustment costs, while more moderate liberalisation could dilute these effects in time. This suggests that the best strategy for the Polish government is to liberalise tariffs slowly towards the EU levels. Furthermore, national policy should consider the introduction of liberalisation steps as part of the pre-accession strategy to the European Union. In particular, this should include a reformulation of industrial policy, which has to aim at contraction of sectors with bad prospects after trade liberalisation. We should keep in mind that too extensive transition periods in one area will most likely have to be accompanied by further restrictions in other areas (including for example labour movement), in addition to direct distortions implied by trade barriers.

Literature

- Aturupane, C., Djankov, S. and Hoekman, B. (1999) 'Horizontal and Vertical Intra-Industry Trade between Eastern Europe and the European Union', *Weltwirtschaftliches Archiv* 135, 62-81.
- Baldwin, Richard E. (1993) 'The Potential for Trade between EFTA and Central and Eastern Europe', Occasional Paper No. 44, EFTA, Geneva.
- Baldwin, Richard E. (1994) 'Towards an Integrated Europe', CEPR, London.
- Baldwin, Richard E. and Francois, J. F. and R. Portes (1997) 'The Costs and Benefits of Eastern Enlargement: The Impact on the EU and Central Europe', *Economic Policy*, London.
- Bhagwati, J. N. and Srinivasan, T. N. (1994) *Lectures on International Trade*, MIT, Massachusetts.
- Brenton, P. and F. Di Mauro (1998) "Is there Any Potential in Trade in Sensitive Industrial Products Between the CEECs and the EU?", *World Economy*, 21, pp. 285-304
- Buckwell S.A., Haynes A, Davidova S, Couboin V, Kwiecinski A, (1995) Feasibility of an agricultural strategy to prepare the countries of Central and eastern Europe for EU accession, Report to European Commission, D-G. 1, 4.01.1995.
- Cheikbossian G. and M. Maurel (1997) 'The New Geography of East European Trade', CEPR Discussion Paper No. 1580, London.
- Collins, S.M. and Rodrick, D. (1991) 'Eastern Europe and the Soviet Union in the World Economy', Institute for International Economics, No. 32, Washington DC.
- European Commission (1997): *European Economy* no. 2, 1997. The CAP and enlargement. Agrifood price developments in five associated countries. Safin M., Guba W., Country study on Poland, Annex 1, p. 71.
- Fidrmuc, Jan (1999a) Political Support for Reforms: Economics of Voting in Transition Countries, forthcoming: *European Economic Review*.
- Fidrmuc, Jarko (1998) 'Core and Periphery of World Economy', paper presented at European Meeting of Econometric Society in Berlin.
- Fidrmuc, Jarko (1999b) 'Trade Diversion in 'Left-Outs' in Eastward Enlargement of European Union; The Case of Slovakia', forthcoming in *Europe-Asia Studies* 51(4).
- Fidrmuc, Jarko (1999c) 'Verification of The New Trade Theory in EU's Trade with CEECs', paper presented at CEPR Annual Transition Economics Summer Workshop for Young Academics in Budapest May 17 – 26, 1999, and European Meeting of the Econometric Society in Santiago de Compostela, August 1999.
- Fidrmuc, Jarko, Grozea-Helmenstein, D. Wörgötter, A., (1999) 'East-West Intra-Industry Trade Dynamics', *Weltwirtschaftliches Archiv* 135 (2), forthcoming.
- Findlay, R., Wellisz S. (1995) 'Endogenous Tariffs, the Political Economy and Welfare', in: P. Neary (Ed.), *International Trade*, Vol. 1', Elgar, Aldershot
- Francois, J. F., and Reinert, K. A. (1997) 'Applied Methods for Trade Policy Analysis: An Overview' In Francois, J. F., and Reinert, K. A. (Eds.) *Applied Methods for Trade Policy Analysis*, Cambridge University Press.

- Gasiorek, M. and Smith A. (1994) 'Modelling the Effect of Central and East European Trade the European Community', in: The European Commission: 'Economic Interpenetration between the European Union and Eastern Europe', European Economy No. 6, Brussels.
- Grossmann, Gene M. and Helpman, Elhanan (1994) Protection for Sale American Economic Review, Vol. 84, No.4, pp 833-850
- Hamilton, C. B. and Kniest, P. (1991) 'Trade Liberalisation, Structural Adjustment and Intra-Industry Trade', Weltwirtschaftliches Archiv Vol. 127, No. 2, pp. 356-67.
- Hamilton C. B. and Winters L.A. (1992) 'Opening up International Trade with Eastern Europe', Economic Policy, Vol. 7: 78-115.
- Hilman, Arye L (1989) The political economy of protection, Chur: Harwood
- Holzmann R., Thimann C., Petz A. (1994) 'Pressure to Adjust Consequences for the OECD Countries for the Reforms in Eastern Europe', Empirica, Vol. 21, No. 2: 197-220.
- Holzmann, R. and K. Zukowska-Gagelmann (1996) "Exportchancen und Importschocks: Eine Untersuchung zur Asymetrie der Handelsanpassung der OECD-Länder im Gefolge der Marktöffnung in Mittel- und Osteuropa", In Holzmann, R. and R. Neck (Eds.), Ostöffnung: Wirtschaftliche Folgen für Österreich, Manzsche Verlags- Universitätsbuchhandlung, Wien, 1996.
- Krueger, A. (1974) 'The political economy of rent seeking society', The American Economic Review Vol. 64, No. 3, pp. 291-303.
- Krugman, P. (1991) 'Increasing Returns and Economic Geography', Journal of Political Economy No. 31.
- Linder, S. (1961) 'An Essay on Trade and Transformation', Uppsala: Almqvist and Wiksells.
- Maliszewska, M., Michalek, J. J. and A. Smith (1999) 'EU Accession and Poland's External Trade Policy', Economic Discussion Papers no. 45, Faculty of Economic Sciences, Warsaw University, Warszawa .
- Markusen, J. R. (1986) 'Explaining the Volume of Trade: An Eclectic Approach', American Economic Review Vol. 76.
- Mayer, Wolfgang (1984) Endogenous Tariff Formation, American Economic Review, Vol. 74 No. 5 pp 970-985
- Pichelmann, K. (1998) 'The Economic Consequences of eastern Enlargement of the European Union, The Austrian View', Project Report commissioned by Bruno-Kreisky-Forum, Institute for Advanced Studies, Vienna.
- Plucinski E. (1996), 'Integracja polskiej gospodarki z rynkiem Unii Europejskiej a wewnatrzgaleziowy podzial pracy' (Integration of Polish economy with the EU and the intra-industry trade), Instytut Gospodarki Swiatowej.
- Rodrik, D. (1995a) 'Getting Interventions Right: How South Korea and Taiwan Grew Rich', Economic Policy 0(20), April 1995, pp 53-97.
- Rodrik, D. (1995b) ' Political Economy of Trade Policy' In Grossman, G. M., and Rogoff, K., (Eds.) Handbook of International Economics, Volume 3, Elsevier Amsterdam, pp. 1457-94.
- Swierkocki J., Robowski M., and Woreta R. (1998), 'Mekury - handel zagraniczny Polski: niektóre zjawiska w latach 1994-96' (Polish foreign trade: some characteristic features in 1994-96), Instytut Europejski w Lodzi, p. 4.
- Welfe, W. et al. (1997) Long-Term Strategy Scenarios for the Polish Economy, paper presented at 4th ASED CE Research Seminar, Paris.

Table 1: Comparison of Polish and Union's External MFN Duties for Non-Agricultural Products

Difference in percentage points	Number of 6-digit tariff lines	Cumulated number of tariff lines	Percent of cumulated tariff lines
More than 30	27	27	0.63
25-30	15	42	0.98
20-25	22	64	1.49
15-20	131	195	4.53
12-15	304	499	11.59
10-12	92	591	13.72
7-10	1073	1664	38.63
5-10	945	2609	60.58
3-5	798	3407	79.10
0-3	892	4299	99.81
<0	8	4307	100.00
Total	4307		

Table 2: Average Import Duties Applied by EU on Principal Agricultural Goods in 1997

4-digit HS commodity group	Description of commodity group	Number of tariff lines	Simple average rate applied in 1997	Minimal rate	Maximal rates
0102	Live bovine animals	13	78.6	0.0	120.2
0201	Meat of bovine animals, fresh or chilled	6	107.5	93.9	124.7
0210	Meat and edible meat offal	26	57.6	2.0	826.2
0302	Fish fresh or chilled	71	11.3	0.0	23.0
0304	Fish fillets	69	11.4	0.0	18.0
0306	Crustaceans whether or not in shell	28	12.5	6.0	18.0
0401	Milk and cream, not concentrated	5	59.3	6.6	134.6
0405	Butter and other fats	2	11.7	11.7	11.7
0406	Cheese and curd	37	60.2	1.3	156.3
0407	Bird's eggs	4	19.8	10.6	35.3
0603	Cut flowers and flowers buds	12	17.1	14.2	20.0
0803	Bananas including plantains	3	64.2	18.7	155.1
0901	Coffee	6	10.5	3.3	15.8
0902	Tea	4	1.1	0.0	4.4
1001	Wheat and meslin	34	76.8	17.6	106.6
1005	Maize (corn)	16	48.7	0.0	95.9
1006	Rice	33	92.3	10.6	141.2
1201	Soya beans	2	0.0	0.0	0.0
1206	Sunflowers seeds	3	0.0	0.0	0.0
1207	Oilseeds and oleaginous fruits	18	0.0	0.0	0.0
1511	Palm oil and its fractions	6	10.0	2.7	17.6
1517	Margarine	6	19.1	4.0	42.1
1604	Prepared & preserved fish	36	18.8	5.5	25.0
1605	Crustaceans, mollusks	9	17.5	0.0	26.0
1701	Cane and beet sugar	4	61.8	18.7	78.8
1806	Chocolate and other food preparations	13	14.7	9.3	36.3
1902	Pasta	11	29.1	11.9	57.4
2009	Fruit and vegetable juices	124	31.0	12.0	113.8
2204	Wine of fresh grapes	116	19.9	0.3	46.7
2303	Starch and similar residue	5	75.1	0.0	375.6
2304	Soybean oil cake and other solid resid.	1	0.0	0.0	0.0
2401	Tobacco unmanufactured	21	18.8	13.0	45.5

Comment: Averages take into account *ad valorem* equivalents of specific rates, calculated as the simple average of in- and out-of-quota rates, were applicable. These estimates were based on data supplied by the EU Commission.

Source: *Trade Policy Review: European Union, Report by the Secretariat*, doc. WT/TPR/S/30, dated 20.10.1997, Table IV.1, p. 85.

Table 3: Tariffs in Poland (PL) and in European Union (EU) before and after Uruguay Round (UR) for selected sensitive sectors

Description	Label	HS code	PL tariff before UR (or applied if unbound)	Type of commitments	PL tariff after UR ^a	EU tariff before UR	EU tariff after UR	Difference between PL and EU tariffs after UR
Agricultural machinery	AGM	8432	15.0	Bound	9.0	3.5	0.0	9.0
Antibiotics	ANT	2941	10.0	Bound	6.5	6.1	0.4	6.1
Travel goods	BAG	4202	31.3	Bound	18.8	6.4	4.4	14.3
Buses	BUS	8702	35.0	Unbound	35.0	15.2	12.7	22.3
Cabs f. motor vehicles	CAB	8707	17.5	Unbound	17.5	7.9	4.5	13.0
Chassis with engines	CHA	8706	23.3	Unbound	23.3	11.7	9.9	13.4
Electric motors	EMT	8501	15.0	Bound	9.0	3.4	1.8	7.2
Float and polished glass	GLA	7005	15.0	Bound	9.0	3.8	2.0	7.0
Harvesting machinery	HVM	8433	15.0	Bound	8.7	3.5	0.0	8.7
Iron and steel	IRO	72-73	19.6	Bound	11.8	5.2	0.8	10.9
Leather apparel	LAP	4203	35.0	Bound	21.0	8.2	6.1	14.9
Leather	LEA	4107	30.0	Bound	18.0	2.6	1.5	16.5
Vehicles f. transp. of goods	LKW	8704	35.0	Unbound	35.0	14.1	11.8	23.2
Parts motor vehicles	MTP	8708	7.5	Unbound	7.5	6.0	3.8	3.7
Petroleum oil	OIL	2710	24.5	Unbound	24.5	0.0	0.0	24.5
Other machinery	OTM	8438	15.0	Bound	7.8	3.8	1.7	6.1
Telecomm. equipment	TEL	8527	30.0	Bound	18.0	6.9	5.5	12.5
Machine-tools	TOO	8459	15.0	Bound	9.0	4.7	2.4	6.6
Tractors	TRA	8701	35.0	Unbound	35.0	11.1	5.0	30.1
Trailers and semi-trailers	TVI	8528	30.0	Bound	21.0	13.8	9.0	12.1
Television receivers	TVI	8716	16.8	Unbound	16.8	5.0	2.4	14.4
Textiles and clothing	TXT	51-63	21.6	Bound	13.1	10.1	7.9	5.2
Vitamins	VIT	2936	10.0	Bound	5.0	4.6	0.0	5.0
Dish washing machines	WMA	8422	15.8	Bound	8.8	3.7	1.9	7.0
Domestic electrical Appliances	APL	8509	19.2	Bound	11.5	4.6	2.2	9.3
Milk and cheese	MLK	3501	80.0	Bound	51.0	9.3	5.4	45.6
Starch	STR ^c	3505	15.0	Specific ^b	9.0	13.0	8.3	0.7
Gelatine	STR ^c	3503	60.0	Specific ^b	38.0	12.0	7.7	30.3

Note: ^a bound or applied if unbound, ^b specific agricultural commitments (normally in ECU/T), ^c estimated together.

Figure 1: Comparison of Differences (in percentage points) between bound tariff rates of Poland and EU before (1994) and after (1998) UR Reductions

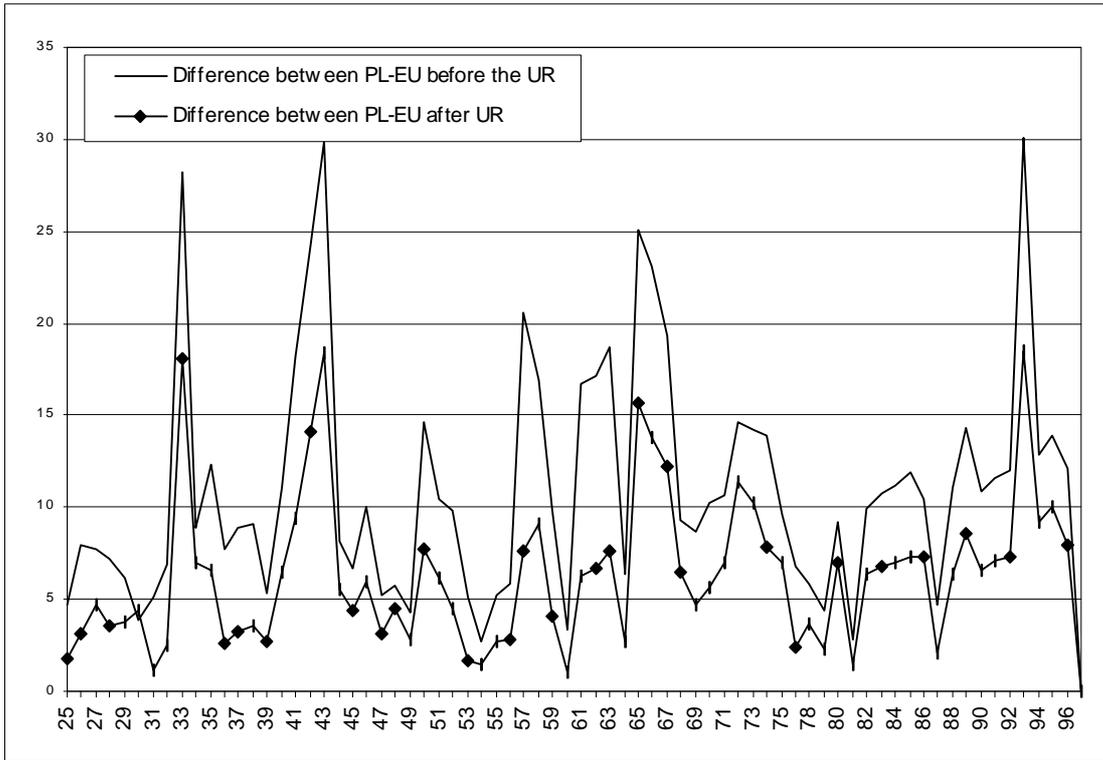


Table 4: Estimations of Gravity Models

	Total Trade	Agricultural machinery	Antibiotics	Dom. electr. Appliances	Travel goods	Buses	Cabs f. automobiles	Chassis with engines	Electric motors	Polished glass	Harvesting machinery	Iron and steel	Leather apparel	Leather
	TOT	AGM	ANT	APL	BAG	BUS	CAB	CHA	EMT	GLA	HVM	IRO	LAP	LEA
n. of observations	462	414	395	409	448	201	277	201	414	286	412	446	422	455
Adjusted R2	0.8637	0.4921	0.4447	0.5102	0.6557	0.3292	0.3497	0.0880	0.6877	0.3565	0.4369	0.6011	0.6220	0.5219
Constant	-4.436 (-4.469)	-18.328 (-7.679)	-12.268 (-4.135)	-15.600 (-4.616)	-14.598 (-6.453)	14.317 (-3.416)	-7.732 (-1.975)	2.823 (-0.391)	-24.720 (-8.005)	5.461 (-1.518)	-18.261 (-6.193)	-5.205 (-1.805)	5.986 (-2.366)	-7.549 (-2.698)
GDP of importing country	0.801 (24.782)	0.534 (7.074)	0.633 (6.638)	0.604 (5.380)	0.781 (10.251)	0.296 (2.019)	0.542 (4.156)	0.379 (2.347)	0.930 (12.709)	0.402 (3.133)	0.523 (6.133)	1.182 (14.710)	0.853 (11.201)	1.118 (14.818)
GDP of exporting country	0.763 (26.386)	0.575 (8.011)	0.757 (8.611)	1.251 (11.859)	1.265 (19.295)	0.075 (0.411)	0.647 (5.026)	0.357 (2.067)	1.468 (20.799)	1.004 (7.408)	0.595 (7.139)	1.100 (14.257)	1.310 (16.492)	0.755 (9.708)
GDP per capita, imp. country	-0.011 (-0.186)	0.463 (2.886)	-0.246 (-1.332)	-0.027 (-0.136)	0.901 (5.701)	-0.115 (-0.384)	0.445 (1.514)	-0.909 (-1.671)	-0.281 (-1.751)	-0.309 (-1.020)	0.264 (1.258)	-0.920 (-4.825)	0.303 (1.636)	-0.821 (-4.234)
GDP per capita, exp. country	0.381 (6.091)	1.360 (7.700)	1.196 (5.364)	0.534 (2.004)	-0.707 (-5.842)	-0.133 (-0.431)	0.201 (0.580)	0.386 (1.061)	0.977 (4.116)	-0.556 (-2.038)	1.377 (5.791)	0.269 (1.392)	-2.231 (-14.930)	-0.016 (-0.077)
Distance	-0.670 (-8.921)	-0.890 (-5.917)	-0.903 (-5.239)	-0.985 (-4.648)	-0.959 (-5.890)	-1.292 (-4.724)	-1.157 (-5.073)	-0.326 (-0.907)	-0.859 (-5.539)	-1.166 (-4.744)	-0.765 (-4.111)	-1.038 (-6.181)	-1.236 (-7.149)	-0.264 (-1.589)
Dummy: EC12	0.420 (2.530)	0.012 (0.033)	0.505 (1.245)	1.742 (3.800)	0.728 (1.921)	-0.594 (-1.054)	-0.138 (-0.278)	1.154 (1.384)	0.218 (0.656)	-0.324 (-0.550)	0.263 (0.596)	0.587 (1.552)	0.580 (1.486)	1.918 (5.054)
Dummy: EFTA	0.150 (0.609)	-0.526 (-1.076)	-1.539 (-2.571)	0.942 (1.299)	-0.049 (-0.097)	-1.193 (-1.208)	-0.951 (-1.164)	1.786 (1.565)	1.569 (3.176)	-1.515 (-1.705)	-0.043 (-0.080)	1.855 (3.590)	0.814 (1.254)	1.766 (3.160)
Dummy: EU-EFTA	0.260 (1.468)	-0.622 (-1.787)	-0.492 (-1.048)	1.083 (2.286)	0.045 (0.120)	-1.090 (-1.705)	-0.717 (-1.299)	1.126 (1.273)	0.599 (1.731)	-0.663 (-1.139)	-0.120 (-0.272)	1.261 (3.253)	0.420 (1.069)	1.643 (4.303)
Dummy: NAFTA	1.462 (9.347)	2.603 (6.778)	0.686 (1.905)	2.296 (6.115)	-0.009 (-0.032)	3.900 (5.294)	3.517 (7.016)	3.287 (1.823)	1.531 (2.323)	1.545 (3.173)	2.499 (5.309)	0.899 (2.717)	0.315 (0.718)	0.982 (1.809)
Dummy: Borders	0.417 (3.548)	0.748 (2.992)	0.083 (0.295)	0.297 (0.914)	0.697 (2.684)	1.112 (2.382)	1.124 (2.518)	0.294 (0.631)	0.374 (1.603)	1.484 (3.942)	1.015 (3.668)	0.549 (2.321)	0.321 (0.986)	0.893 (3.341)

Reference indicators**A: Share of selected commodities in Polish trade**

Share in 1992	100.0	0.1	0.7	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.2	3.2	0.0	0.0
Share in 1996	100.0	0.2	0.5	0.1	0.1	0.0	1.2	0.3	0.0	0.1	0.2	3.6	0.0	0.5

B: Share of countries^a used for trade predictions in Polish trade in selected commodities

Share in 1992	92.3	99.4	98.4	100.0	94.6	97.4	100.0	98.5	89.7	93.2	70.2	95.5	97.5
Share in 1996	98.7	99.9	100.0	100.0	100.0	97.9	100.0	97.7	93.4	98.1	82.7	100.0	93.4

Table 4: Continued

	Vehicles f. transp.	Milk and cheese	Parts motor vehicles	Petroleum oil	Other machinery	Starch	Telecomm. equip.	Machine- tools	Tractors	Trailers and semi-trailers	Television receivers	Textiles and clothing	Vitamins	Dish wash. machines
	LKW	MLK	MTP	OIL	OTM	STR	TEL	TOO	TRA	TRL	TVI	TXT	VIT	WMA
n. of observations	321	403	450	408	427	434	369	385	309	399	397	462	353	425
Adjusted R2	0.4656	0.4882	0.7214	0.4321	0.5665	0.5135	0.4289	0.6557	0.4158	0.6039	0.5388	0.7007	0.4481	0.6242
Constant	-15.237 (-3.742)	-5.717 (-1.625)	-17.266 (-6.589)	11.712 (-2.894)	-16.712 (-6.385)	-24.765 (-8.852)	-17.071 (-3.369)	-22.255 (-8.024)	-12.107 (-3.364)	-12.169 (-4.062)	-2.493 (-0.672)	5.302 (-3.380)	-17.228 (-4.708)	-22.883 (-7.704)
GDP of importing country	0.369 (3.065)	0.923 (8.645)	0.998 (14.599)	1.008 (7.343)	0.715 (9.251)	0.747 (7.741)	0.458 (3.851)	0.931 (11.832)	0.598 (5.031)	0.736 (8.229)	0.542 (5.002)	0.753 (15.262)	0.486 (4.369)	0.854 (10.338)
GDP of exporting country	1.154 (9.404)	-0.195 (-1.913)	1.580 (21.333)	1.053 (7.624)	0.849 (10.762)	0.692 (7.389)	1.164 (10.008)	1.529 (20.757)	1.401 (12.598)	1.010 (12.269)	1.535 (16.398)	0.830 (19.355)	0.742 (7.405)	1.097 (14.438)
GDP per capita, imp. country	0.251 (1.062)	-0.270 (-1.201)	-0.124 (-0.685)	-0.485 (-1.749)	-0.397 (-2.107)	0.591 (2.907)	0.366 (1.352)	-0.391 (-2.114)	-0.071 (-0.267)	0.197 (0.929)	0.078 (0.318)	-0.127 (-1.130)	0.153 (0.675)	-0.413 (-1.911)
GDP per capita, exp. country	0.579 (1.725)	1.063 (4.663)	0.280 (1.753)	-0.686 (-1.878)	1.517 (8.534)	1.718 (8.107)	0.558 (1.428)	0.723 (3.661)	-0.372 (-1.273)	0.466 (2.323)	-0.870 (-3.085)	-0.982 (-8.452)	1.601 (5.816)	1.406 (6.918)
Distance	-0.681 (-3.288)	-0.601 (-2.889)	-1.082 (-7.173)	-2.283 (-8.399)	-0.944 (-5.857)	-1.160 (-6.204)	-0.966 (-3.907)	-0.769 (-5.170)	-0.402 (-1.745)	-1.370 (-7.699)	-1.334 (-5.977)	-0.566 (-5.418)	-1.136 (-5.209)	-0.645 (-3.983)
Dummy: EC12	1.707 (3.654)	2.860 (6.033)	0.897 (2.667)	-0.200 (-0.337)	-0.048 (-0.127)	0.443 (1.036)	2.077 (3.524)	0.048 (0.147)	0.872 (1.756)	0.686 (1.705)	1.806 (3.394)	1.409 (6.199)	-0.289 (-0.595)	0.808 (2.364)
Dummy: EFTA	0.733 (0.878)	-0.925 (-1.086)	0.978 (2.060)	-2.044 (-1.872)	-0.302 (-0.563)	-1.790 (-2.634)	-1.038 (-1.354)	1.298 (2.280)	2.135 (2.771)	0.458 (0.784)	0.946 (0.973)	0.932 (2.400)	-1.744 (-2.285)	1.328 (2.577)
Dummy: EU-EFTA	0.627 (1.291)	0.543 (1.076)	0.410 (1.137)	-0.573 (-0.855)	-0.171 (-0.479)	-1.126 (-2.430)	-0.574 (-0.886)	0.759 (2.097)	0.774 (1.561)	0.454 (1.160)	1.433 (2.717)	0.989 (3.751)	-1.891 (-3.469)	0.743 (1.970)
Dummy: NAFTA	4.111 (3.514)	0.220 (0.206)	2.615 (5.761)	2.192 (2.075)	0.531 (2.032)	1.009 (3.097)	2.445 (2.109)	0.497 (1.826)	2.157 (2.820)	2.246 (5.368)	2.145 (3.955)	1.153 (5.219)	0.291 (0.743)	1.191 (3.391)
Dummy: Borders	1.304 (3.728)	1.797 (5.597)	0.194 (0.699)	0.121 (0.250)	0.485 (2.061)	0.470 (1.768)	-0.401 (-0.953)	0.459 (1.728)	1.127 (3.110)	0.890 (3.233)	0.003 (0.007)	0.639 (3.704)	0.791 (2.292)	0.579 (2.221)

Reference indicators**A: Share of selected commodities in Polish trade**

share in 1992	0.6	0.8	0.9	13.6	1.2	0.4	0.3	0.4	0.0	0.2	0.4	4.3	0.3	1.0
share in 1996	0.4	0.1	1.9	7.1	0.6	0.4	0.3	0.3	0.1	0.3	0.1	8.5	0.3	0.6

B: Share of countries used for trade predictions^a in Polish trade in selected commodities

Share in 1992	98.2	95.4	96.8	70.3	99.8	86.1	100.0	99.2	57.7	93.8	91.5	89.4	99.1	100.0
Share in 1996	98.2	85.4	95.8	60.9	100.0	82.0	100.0	97.4	84.3	99.3	100.0	96.5	99.8	100.0

Note: ^a The countries selected for trade predictions include: Australia, Austria, Belarus, Belgium, Bulgaria, Canada, Croatia, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Japan, Latvia, Lithuania, Netherlands, New Zealand, Norway, Poland, Portugal, Romania, Russia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey, UK, Ukraine, US. The covariance matrices of the coefficients are corrected for possible heteroscedasticity. T-values within parentheses.

Table 5: Development (1993-1996) and Projections (Average Annual Growth Rates, 1997-2010) of Polish Imports

Description	Label	Development of total imports				Import projections		
		1993	1994	1995	1996	Total	EU	CEE
Total Trade	TOT	21.3	12.4	39.4	27.1	5.3	6.9	-0.7
Negatively affected commodities:	Group I							
Cabs f. motor vehicles	CAB	276.4	101.6	136.6	50.6	-22.7	-22.8	-24.0
Chassis with engines	CHA	15357.0	174.1	308.2	-25.2	-14.9	-15.8	-10.4
Petroleum oil	OIL	2.3	2.8	25.0	48.8	-9.7	-4.5	-10.9
Commdities with no significant effect:	Group II							
Agricultural machinery	AGM	-20.4	54.3	52.0	65.4	-0.7	0.1	-10.5
Harvesting machinery	HVM	-34.4	29.5	137.7	9.3	-0.7	0.0	-10.2
Leather	LEA	1468.0	28.4	53.2	32.1	-4.5	-4.3	-3.4
Other machinery	OTM	-23.3	2.9	58.9	-14.4	-3.1	-3.0	-7.0
Trailers and semi-trailers	TRL	18.7	14.7	64.8	46.5	-1.1	-1.2	-1.2
Commodities with small positive effects:	Group III							
Antibiotics	ANT	35.3	-22.2	36.3	19.5	4.0	4.9	-8.7
Float and polished glass	GLA	26.5	41.7	47.2	8.1	2.3	0.0	2.7
Iron and steel	IRO	26.0	14.9	52.8	10.7	2.8	7.1	-10.1
Parts motor vehicles	MTP	48.5	15.1	72.0	64.1	9.0	10.1	-8.2
Starch and gelatine	STR	12.0	29.9	50.7	22.4	1.9	5.3	-16.0
Machine-tools	TOO	-25.4	-9.2	25.0	53.7	4.1	4.7	-12.1
Tractors	TRA	35.7	7.8	17.8	124.1	6.0	12.9	-9.0
Textiles and clothing	TXT	300.6	17.8	26.0	10.1	3.5	-0.4	13.3
Vitamins	VIT	-2.6	2.2	17.4	8.8	4.3	4.8	-7.0
Dish washing machines	WMA	-23.8	-2.5	43.7	22.6	2.4	2.5	-8.2
Commodities with large positive effects:	Group IV							
Domestic electrical Appliances	APL	-18.8	15.2	70.8	89.2	15.8	16.2	1.9
Travel goods	BAG	135.6	-25.7	-19.5	11.0	16.5	15.0	20.8
Buses	BUS	101.0	-10.5	-33.6	-55.5	20.2	4.6	23.6
Electric motors	EMT	43.8	-11.6	50.7	16.3	16.0	16.4	-0.9
Leather apparel	LAP	309.5	41.7	28.6	13.4	21.2	0.9	56.5
Vehicles f. transport of goods	LKW	50.4	-27.5	-7.7	40.8	15.5	15.8	6.7
Milk and cheese	MLK	-29.8	-40.8	-5.5	-1.4	22.1	22.2	25.7
Telecommunication equipment	TEL	-8.2	-69.9	52.5	120.4	17.4	17.6	8.4
Television receivers	TVI	18.4	-26.6	12.7	56.8	10.9	10.2	23.0

Appendix (Not for Publication)

TABLE A1: Selected Commodity Groups as received from the Ministry of Economic Affairs

Label	HS-Co.	Description	SITC-CODE
OIL	2710 00	Petroleum oils and oils obtained from bituminous	333, 334
VIT	2936	Provitamins and vitamins, natural or reproduced by Synthesis (including natural concentrates), derivatives thereof used primarily as vitamins, and intermixtures of the foregoing, whether or not in any solvent:	5411 54292
ANT	2941	Antibiotics:	5413,5421
MLK	3501	Milk and Cheese	022, 023, 024
YOL	3502	Albumin, of various kinds	0253, 59223
GEL	3503	Gelatines, etc	59224
STR	3505	Starches and Dextrin u and modified starches	592
SHL	4102	Sheep and Lamb furs and Leather	6115
LEA	4107	Leather of other animals, without hair on, other than leather of heading No 4108 or 4109:	61
BAG	4202	Trunks, suit-cases, vanity-cases, executive-cases, brief-cases, school satchels, spectacle cases, binocular cases, camera cases, musical instrument cases, gun cases, holsters and similar containers; travelling-bags, toilet bags, rucksacks, handbags, shopping-bags, wallets, purses, map-cases, cigarette-cases, tobacco-pouches, tool bags, sports bags, bottle-cases, jewellery boxes, powder-boxes, cutlery cases and similar containers, of leather or of composition leather, of sheeting of plastics, of textile materials, of vulcanised fibre or of paperboard, or wholly or mainly covered with such materials: -Trunks, suit-cases, vanity cases, executive-cases, brief-cases, school satchels and similar containers	83
LAP	4203	Articles of apparel and clothing accessories, of leather or of composition leather:	8481
TXT	51-63	Total Textiles (No individual description)	26, 65, 84
GLA	7005	Float glass and surface ground or polished glass, sheets, whether or not having an absorbent or reflecting layer, but not otherwise worked:	6644
IRO	72-73	Iron and steel (No individual description)	281, 282, 67
WMA	8422	Dish washing machines; machinery for cleaning or drying bottles or other containers; machinery for filling, closing, sealing, capsuling or labelling bottles, cans, boxes, bags or other containers; other packing or wrapping machinery; machinery for aerating beverages: -Dish washing machines:	7452 7753
AGM	8432	Agricultural, horticultural or forestry machinery for soil preparation or cultivation; lawn or sports-ground rollers:	7211 7219
HVM	8433	Harvesting or threshing machinery, including straw or fodder balers; grass or hay mowers; machines for cleaning, sorting or grading eggs, fruit or other agricultural produce, other than machinery of heading No 8437: -Mowers for lawns, parks or sports grounds:	7212 7213
OTM	8438	Machinery, not specified or included elsewhere in this chapter, for the industrial preparation or manufacture of food or drink, other than machinery for the extraction or preparation of animal or fixed vegetable fats or oils:	727
TOO	8459	Machine-tools (including way-type unit head machines) for drilling, boring, milling, threading or tapping by removing metal, other than lathes of heading No 8458:	731
EMT	8501	Electric motors and generators (excluding generating sets):	7161, 7162, 71632
APL	8509	Electro-mechanical domestic appliances, with self-contained electric motor:	7757
TEL	8527	Reception apparatus for radio-telephony, radio-telegraphy or radio-broadcasting, whether or not combined, in the same housing, with sound recording or reproducing apparatus or a clock: - Radio-broadcast receivers capable of operating without an external source of power, including apparatus capable of receiving also radio-telephony or radio-telegraphy:	762
TVI	8528	Television receivers (including video Monitors and video projectors), whether or not Combined, in the same housing, with Radio-broadcast receivers or sound or video recording or reproducing apparatus:	761
TRA	8701	Tractors (other than tractors of heading No 8709):	722
BUS	8702	Motor vehicles for the transport of ten or more persons, including the driver:	7831
LKW	8704	Motor vehicles for the transport of goods:	7821
CHA	8706 00	Chassis fitted with engines, for the motor vehicles of headings Nos 8701 to 8705: -Chassis for tractors falling within heading No 870	7841
CAB	8707	Bodies (including cabs), for the motor vehicles of headings Nos 8701 to 8705:	7842
MTP	8708	Parts and accessories of the motor vehicles of headings Nos 8701 to 8705:	7843
TVI	8716	Trailers and semi-trailers; other vehicles, not mechanically propelled; parts thereof:	786