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Capturing Regional Integration Effects in the Presence of Other Trade Shocks: The Impact of the Europe Agreement on Poland's Imports

by

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Abstract

This paper investigates the impact of the European Agreement on Poland's imports using econometric models applied to highly disaggregated trade data. This allows for the controlling for other influences on Poland's trade patterns, specifically the effects of other trade agreements and for the emergence of China. The results show that the European Agreement had transitory but significant trade diverting effects.

JEL classification: F15

Keywords: Economic integration, trade creation and diversion.

Outline

Non-Technical Summary

There were a number of studies in the early 1990's trying to investigate in advance of Poland's integration into the EU what integration would do the pattern of Poland's trade and whether these changes would be beneficial to Poland. In 1991 Poland, like a number of other Central and Eastern European Countries (CEECs) had signed an association agreement with the EU in preparation for entry into the EU. These European Agreements came into force in 1992 and established the (phased) creation of free trade in Polish-EU trade in non-agricultural products from 2002.

The studies completed in advance gave mixed assessments of the extent of trade potential and of the extent to which Poland's trade had already been diverted away from its former Soviet bloc trading patterns. This created some uncertainty as to the net benefits of integration, and as to whether trade creation would or would not dominate trade divertion. In static terms at least the net benefits would depend on this balance of trade effects; net trade creating free trade areas being viewed in general as net welfare increasing.

In this study we revisited the issue after the European Agreement had been fully implemented to see whether we could establish after the event whether discriminatory liberalisation of its imports from the EU had been net trade creating or diverting for Poland overall. The complication facing our work was that the Agreement was phased in and during the period of implementation of the Agreement there had been a number of other important changes in Poland's trade regime. Poland has simultaneously established disciminatory trade agreements with a range of other countries (the Vesegrad countries through membership of the Central European Free Trade Area and with EFTA, the Baltic countries and a few other specific countries).This period also witnessed the emergence of China as a major exporter; Poland increasing its share of imports from this source from 0.1% at the start of the 1990s to 4% by 2003.

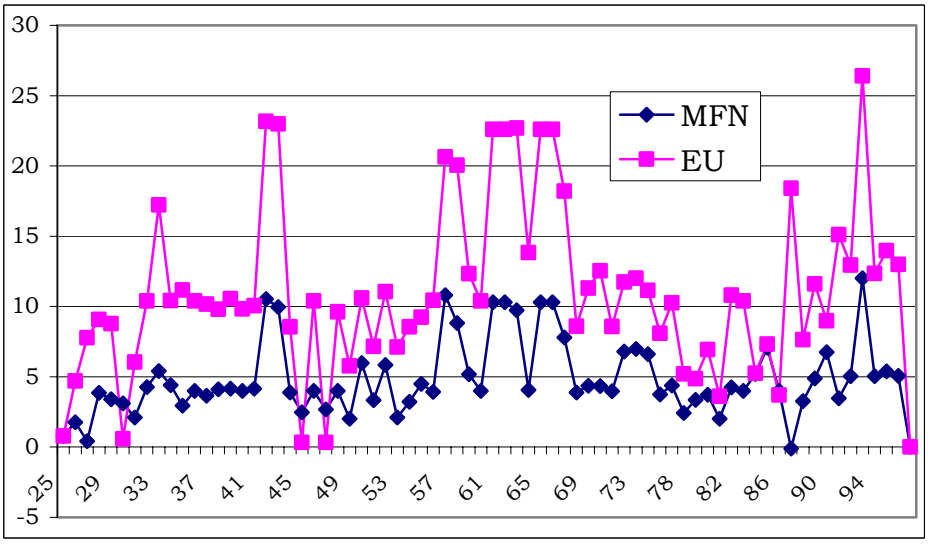
In order to investigate the effect of the trade reforms with EU we had to be able to control for the influence of these other reforms and shocks and to allow for the differential phasing of the reforms across different products. We therefore econometrically model changes in Polish imports at the highly disaggregated level over the period 1995 to 2005 to capture to effects of the phased reforms of tariffs on imports from the EU, while at the same time controlling for the other changes affecting Poland's imports. The models were typically estimated with over 20,000 observations.

The clear conclusion from the panel data econometric analysis is that the Europe Agreements overall had transitory but significant import growth and diversion effects for Poland; the trade diversion substantially dominating the trade creation. In static terms, at least, the Europe Agreement was likely over the implementation period to have been net welfare lowering for Poland.

1 Introduction

In preparation for EU entry Poland, like a number of other Central and Eastern European Countries (CEEC), signed an association agreement with the EU in 1991. The core of the European Agreements, which came into force in 1992, concerned trade policy and the phased creation of a free trade area in non-agricultural products from 2002. More rapid liberalisation was required of the EU, with completion of the liberalisation of imports from Poland by the end of 1997. In the case of Polish imports from the EU the liberalisation of industrial products was completed by the end of 2002, though about 40% of products were liberalised in 1993 and the majority of the remaining industrial tariff reductions were phased in between 1995 and 1999.

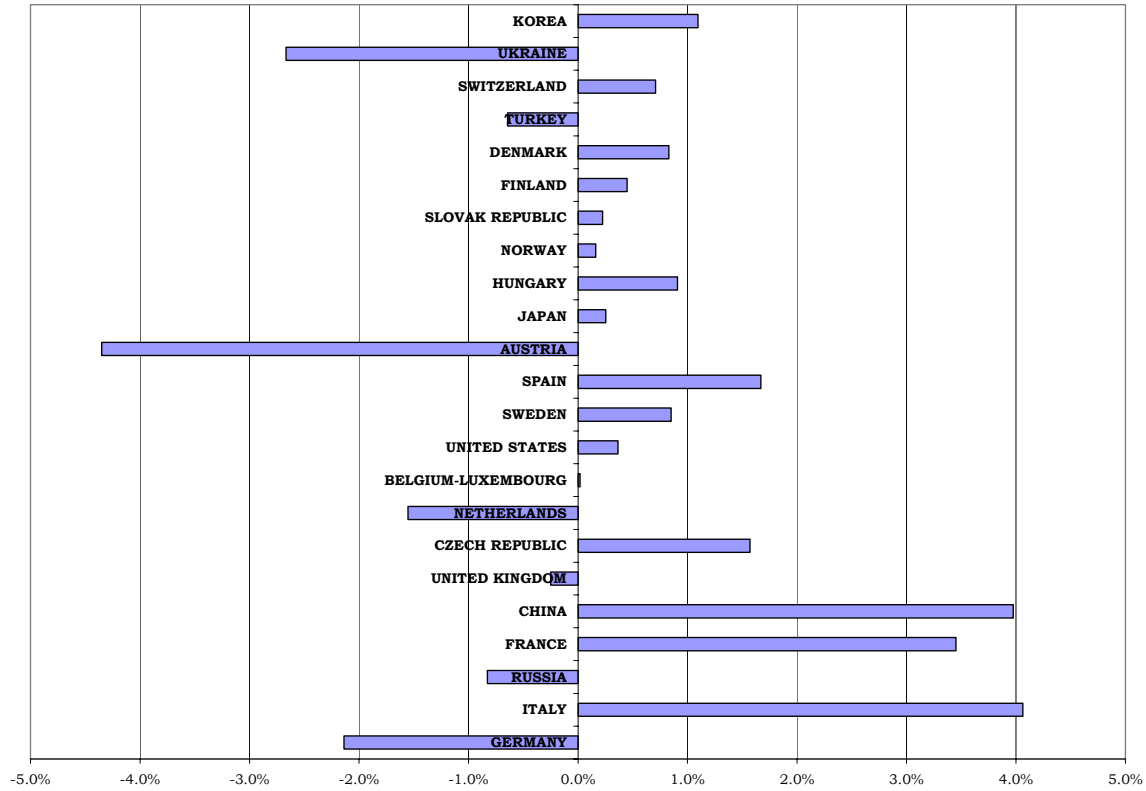
Figure 1Tariffs decrease form 1995 to 2002 for different industrial groups of products (CN2), percentage change



The Poland-EU Association Agreement is one of the many preferential trading arrangements that have been negotiated in recent years and that are reshaping bilateral trade patterns; creating and diverting trade. The balance of these trade creation and diversion effects is central to evaluating the overall merits of this second best form of trade liberalisation. Empirical estimations of these two effects is complicated in the present context by a number of factors. Firstly, the discriminatory liberalisation was phased in at different rates over time on different product lines. Secondly, Poland was simultaneously introducing other bilaterally discriminatory trade reforms at the same time. In 1992 Poland,

along with the Vesegrad countries (Hungary, Czech Republic, Slovakia, Slovenia, Romania and Bulgaria), signed up to membership of CEFTA (Central European Free Trade Area) and to (phased) reciprocal liberalisation of this regions trade from 1993 onwards. Poland has implemented FTAs also with EFTA countries, the Baltic States (Estonia, Latvia and Lithuania), Turkey, Faroe Islands and Israel. Thirdly, Poland's import structure during the 1990s (like many other countries) has been strongly influenced by the emergence of China as a major exporter. At the start of the 1990s China only accounted for about 0.1% of Poland's imports, but by 2003 was the fourth largest source of imports (accounting for about 4% of Poland's imports). Figure 2 shows the changes in the geographical origin of Poland's imports over the period 1991 – 2003. Finally, the process of adjusting to re-orienting trade away from Eastern to Western Europe was differentially advanced as far as specific bilateral trade relations were concerned. The results of Baldwin (1994), for example, show that exports to the CEECs of some countries (eg. Poland, Finland and UK) should have been 4 to 11 times higher than actual exports in 1989, while German exports to the CEEC were already (approximately) at their potential level by this time.

Figure 2 Share changes in geographical structure in Polish import from 1991 to 2003



Ex post studies of the impact of discriminatory trade liberalisation often rely on relatively aggregated trade effects, and on trade changes after specific dates or policy events. Given the variation in the liberalisation across goods and time in the present study, it will be essential to analyse how actual tariff changes at the disaggregate or product level affected trade flows. Further the use of disaggregated trade and tariff level data will allow us to separate the trade creating and diverting effects of the Europe Agreement on Poland's imports from the influences of CEFTA and the shock of China's emergence of a trading power on Poland's imports. The analysis is specific therefore to one CEEC country, but the research method has wider relevance to other CEEC and liberalising countries implementing multiple bilateral or regional trade agreements in the presence of other trade shocks.

In the next section the existing empirical work on measuring regional integration effects for CEECs is reviewed. The theoretical and analytical frameworks for the subsequent empirical analysis are set out in Section 3. Section 4 provides an outline of the data and estimation method used. The empirical results are provided and discussed in Section 5. Section 6 concludes.

2. Studies of EU-Eastern European Integration

A substantial number of studies have been concerned with ex-ante prediction of the effects of trade reform and European integration on Poland's and other CEEC's exports. The emphasis was on exploring trade potential, that is volume of trade effects, often using a gravity model methodology (eg. Wang and Winters, 1991; Hamilton and Winters, 1992; Baldwin, 1994). These studies typically identified the potential for large but Western Europe trade volume increases, with trade being diverted away from the CMEA countries of the former Soviet block.

Gros and Gonciarz (1996) argue that Baldwin (1994) uses overvalued estimates of the CEEC's GDP, and as a result over-states the degree of trade potential between the EU and CEECs. Using adjusted GDP figures these authors estimate the trade potentials from a gravity model for 1989 and compare them with actual trade for 1992. They conclude that the CEECs had adjusted very quickly to their change in trade regime, and that the projections for 1992 do not indicate any unused export potential for the EU exports to the CEECs. Using a similar methodology Nilsson (2000) reaches similar conclusions about the CEEC's import potential from the EU, for an analysis which updates the gravity modelling to the mid-1990s. The danger with all of this strand of analysis, especially where in-sample prediction is used, is that systematic differences between actual and predicted trade flows may capture specification error in the estimated gravity model rather than trade potential (se Egger, 2002; Greenaway and Milner, 2002). This is also not a methodology that is useful for capturing the effects of a specific policy change, including capturing the separation of trade creation from trade diversion effects.

Alternative forms of analysis, partial or general equilibrium, are often more suited to disentangling trade creation and trade diversion effects. Marczewski (1999), for example, uses partial equilibrium methods to estimate the effects of greater EU integration on Poland's imports, using data for 1996 and finding trade creation overall to dominate trade diversion. Regional dummy variables (inter and extra) have been used in gravity models (using ex-post approaches) to try to capture separate trade creation and diversion effects, including for the case of EU integration effects on Polish trade (eg. Fidimuc, Huber and Michalak, 2001). The estimated coefficients on the dummy variables may capture a range of policy and other (including misspecification) effects rather than the regional trade policy effect under investigation. It is also the case that gravity modelling is invariably used to

model total trade flows or at least broad aggregates of trade. In which case it does not allow the investigator to comment on trade creation and diversion effects at the disaggregate level.

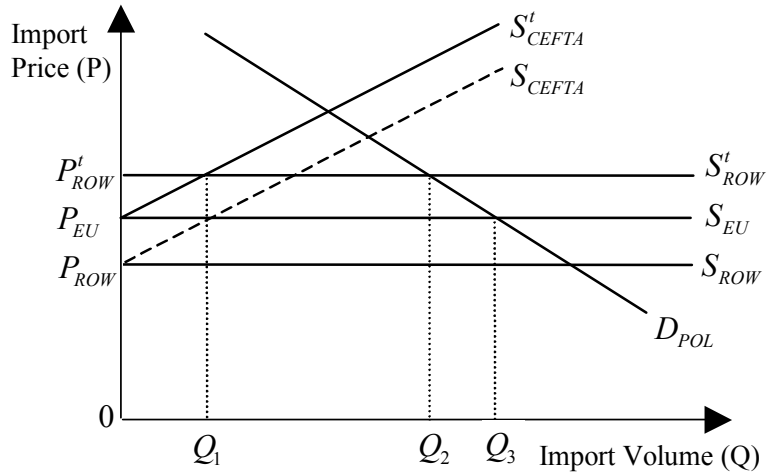
The present work is not in the traditions of any of the earlier work, which have used gravity modelling, partial equilibrium methods or computable general equilibrium methods. It uses instead an econometric approach to the modelling of trade at the commodity level (albeit on a comprehensive basis) to capture the revealed or ex post effect of a specific trade policy change (namely the change in the Polish tariff vis-a- vis EU imports) and to separate this from the effects of other policy changes (Polish membership of CEFTA) and other developments (the re-orientation of the Polish economy and the emergence of China as a major exporting nation).

3. The Analytic Framework

In Figure 3 we represent the simple partial equilibrium analysis of Poland's liberalisation of a specific manufacturing import from the EU. D^I_{Pol} is Poland's demand for the imported good (domestic consumption less domestic production), which can be supplied by the EU (S_{EU}), CEFTA countries (S_{CEFTA}) or by the Rest of the World (S_{ROW}). We represent the EU and ROW as large, constant (higher and lower) cost suppliers to Poland (respectively) and CEFTA as a smaller and a rising cost supplier. With a uniform (for convenience specific) MFN tariff on imports and given demand and supply conditions Poland imports OQ_2 volume of imports at the tariff-inclusive price P^t_{ROW}, with OQ_1 volume of imports coming from CEFTA countries and Q_1Q_2 coming from the ROW. If the MFN tariff on imports is eliminated only on imports from the EU, then the import price for the product on the Polish market falls to P_{EU} and the demand for imports expands to OQ_3. The increase in imports (Q_3Q_2) is some mixture of increased consumption by domestic consumers and displacement of domestic production by imports. Although not pure trade creation in a Vinerian sense, we usually represent this trade expansion as trade creation. But now not only is the Q_3Q_2 volume of imports sourced from the EU, so too is the rest of the total volume OQ_2. The discriminatory tariff removal has diverted trade from both CEFTA countries and the ROW. In this type of case the balance of trade creation and diversion effects are strictly ambiguous, depending on the shape of the import demand function and the volume of pre-

tariff reform imports. As drawn, it is the case that trade diversion dominates trade creation. But in some sectors one may anticipate the reverse balance of effects. Indeed if the EU is the lowest cost and dominant supplier, the reduction of tariff against EU imports can only generate trade creation effects.

Figure 3 Trade creation and diversion under alternative conditions



It is evident from Figure 3 that there are tariff revenue, domestic distributional and net welfare effects for the Polish economy. In the absence of domestic market distortions the balance of net welfare effects will depend upon the balance of trade creation (positively) and diversion (negatively). The present analysis is fundamentally concerned with trade rather than welfare, and we therefore concentrate here on the complications of capturing the trade effects where tariff reform (in this case between Poland and the EU) is not the only source of change.

If the tariffs on imports is eliminated simultaneously on imports from the EU and CEFTA (and the relevant supply curve is S_{CEFTA} rather than S^t_{CEFTA} at price P_{EU}) then the volume of imports OQ_1 is not diverted from CEFTA sources, but Q_1Q_2 remains diverted from the rest of the world. Of course if the liberalisation of trade with CEFTA is less than in the case of trade with the EU, some of the amount of OQ_1, will still be diverted to EU sources. On the other hand if the liberalisation is introduced more quickly from the CEFTA suppliers than for EU sources of supply, there may be some expansion of Polish imports from CEFTA.

Note also that besides the complications in practice of the phasing of tariff reforms, other things may well be changing over time. With the entry of China and any reductions of

prices (represented by the downward movement of S_{ROW} and S^t_{ROW} in Figure 3), then the configuration of relative prices can change over time. If S^t_{ROW} falls below S_{EU} in Figure 3 then the trade diversion effects are lost. By contrast if $S_{EU}<S_{ROW}$ initially and only trade creation arises from discriminatory liberalisation of EU imports, the downward shift of S_{ROW} may cause a switchover from the sector experiencing trade creation only to experiencing trade diversion only ($S^t_{ROW}>S_{EU}$). Further note that the estimation of trade effects are complicated by structural and income change in Poland which might shift D_{POL} (in Figure 3) inwards or outwards. This complication is particularly relevant if we are considering the implications of tariff reform introduced over many or most of the sectors of the economy, with resulting feedback and income effects in general equilibrium.

Computable general equilibrium techniques are clearly preferable to partial equilibrium ones when analysing trade policy changes in a complex environment. They are not necessarily very effective, however, at capturing changes in trading conditions, since there have to be exogenously set and revised by the policy analyst. Further CGE methods are very data demanding and tend not to be applied with high levels of data disaggregation.

4. Estimation Method and Data

We adopt a specification of the regression analysis that is similar to that used by Clausing (2001) to investigate trade creation and diversion associated with NAFTA. The input demand (D) function for product from source k is given by equation (1)

$$\ln D_{ik} = \alpha_0 + \alpha_1 \ln P_i + \alpha_2 \ln(1 + t_{ik}) + \alpha_3 Z \qquad (1)$$

where

i is a product

P_i is the price of the product

t_{ik} is the ad valorem tariff on product: from source k

Z is a vector of other factors (such as the exchange rate, incomes) that may vary over time.

Assuming that we start from an equilibrium level of trade, then changes in the demand for imports resulting from any changes over time (t) in a right handside variable will result in changes in actual imports (M_{ik}). Thus:

$$\Delta \ln M_{ikt} = \beta_0 + \beta_1 \Delta \ln P_i + \beta_2 \Delta \ln(1 + t_{ik}) + \beta_3 \Delta Z \qquad (2)$$

To measure the direct trade growth (β_2) in product *i* from source *k* associated with the liberalisation of the tariff from that specific source, we strictly need to control for changes in price *(P)* and in other factors *(Z)*. Here we have data on M_{ikt} and on t_{ik}, and seek to capture for other factors that change over time by including year time *(T)* dummies (for all but one year). The actual trade growth (where *k* = *EU*) equation estimation is given by:

$$\Delta \ln M_{i(EU)t} = \beta_0 + \beta_2 \Delta \ln(1 + t_{i(EU)}) + \beta_t \Delta T \qquad (3)$$

where *T* = specific year dummy

In the present context we will estimate equation 3 for Poland's imports from source *k= EU*, given the tariff and other changes affecting imports from the EU over the period 1995 to 2002. In order to check on the robustness of any findings based on equation 3 we also add a variable to capture the potential for responsiveness of imports to tariff changes, namely the pre-tariff liberalisation share or amount of EU imports in total Polish imports in a particular product (ie. $\ln\left(\frac{M_{i(EU)}}{\Sigma M_{ik}}\right)_{t-1}$ or $InM_{i(EU)t-1}$) . If EU captures a large share of the Polish market in a particular product *(i)* pre-liberalisation, there is scope for trade creation only. Alternatively if the EU share of the market is low, then tariff liberalisation may lead to tariff diversion only or to no import growth at all (if the EU remains a uncompetitive supplier even with a tariff preference). Thus the alternative extended specification is either:

$$\Delta \ln M_{i(EU)t} = \beta_0 + \beta_2 \Delta \ln(1 + t_{i(EU)}) + \beta_4 \ln(\frac{M_{i(EU)}}{\sum M_{ik}})_{t-1} + \beta_t \Delta T \qquad (4a) \text{ or}$$

$$\Delta \ln M_{i(EU)t} = \beta'_0 + \beta'_2 \Delta \ln(1 + t_{i(EU)}) + \beta'_4 \ln M_{i(EU)_{t-1}} + \beta'_t \Delta T \qquad (4b)$$

In order to ascertain the extent to which trade growth from the EU $\ln M_{i(EU)_{t-1}}$ is associated with trade creation and/or trade diversion, we estimated also the import response from non-liberalised sources (i.e. from the rest of the world (ROW)) as follows:

$$\Delta \ln M_{i(ROW)_t} = \mu_o + \mu_i \Delta \ln\left(1 + t_{i(EU}\right) + \mu_2 \Delta \ln\left(1 + t_{i(ROW)}\right) + \mu_t T \qquad (4)$$

Again T is a time dummy for each specific year and $t_{i(ROW)}$ is given by the MFN tariff. For the same reasons as above we allow for variations in the scope for trade diversion in a particular product by including the lagged share or amount of the imports, as follows:

$$\Delta \ln M_{i(ROW)t} = \mu_o + \mu_1 \Delta \ln\left(1 + t_{i(EU)}\right) + \mu_2 \Delta \ln\left(1 + t_{i(ROW)}\right) + \mu_3 \ln\left(\frac{M_{i(EU)}}{\Sigma M_{ik}}\right)_{t-1} + \mu_t T \quad 5(a)$$

Alternatively:

$$\Delta \ln M_{i(ROW)t} = \mu_0' + \mu_1' \ln\left(1 + t_{i(EU)}\right) + \mu_2' \Delta \ln\left(1 + t_{i(ROW)}\right) + \mu_3' \ln M_{i(EU)t-1} + \mu_t' T \quad 5(b)$$

(Note that to allow for the added complications discussed earlier about the Polish trade liberalisation with CEFTA countries and about the entry of China into international trade we can define *ROW* to include and exclude CEFTA and China).

Data

The data for trade flows for all Poland's manufactured imports (M_{ik}, where k is imports from all sources or EU or ROW) is taken from the PC-TAS data base (available from UNCTAD/WTO International Trade Centre) for the period 1995 – 2002 with i set at the 6 digit level of the CN classification. The tariff data for the same period was obtained from the Polish International Trade Centre, with $t_{i(EU)}$ set at those applied by the Europe Agreements and $t_{i(ROW)}$ at Poland's WTO-bound MFN rates. Given that the tariff data is at the 10 digit of CN classification, it was necessary to aggregate the tariff data somewhat to concord it with the trade data.

The resulting data allows us to estimate the trade growth and diversion models above, pooling the data but including year-dummies and estimated using STATA. A problem experienced when using disaggregate data on trade flows is that of zero-valued entries. It is present in this case. We experimented with alternative methods used by other researchers elsewhere (eg. arbitrary substitution of small values), but report here on the results that drop the zero trade values from the data. The results are not highly sensitive to the method used. Indeed in the case of the trade diversion estimates the dropping of zero values is not a problem, but for the trade growth equations we are only capturing trade growth where some trade already exists.

5 Results

The core results relate to the trade growth equations (equation 3) and the trade diversion equation (equation 4). These are reported in Table 1 in columns (1) and (2) respectively. The trade growth equation for Polish imports from the EU has the expected sign (negative) on the 'own' tariff variable; a percentage point fall in the EU tariff is estimated (holding other terms constant) to lead on average to a 0.95% increase in imports from the EU. Similarly the trade diversion equation has the expected negative sign on the 'own' (ROW or MFN tariff change) and expected positive sign on the 'cross' (EU tariff change); a percentage point fall in the MFN tariff is estimated to lead (ceteris paribus) to a 3.33% increase in imports from the ROW, and a percentage point fall in the EU tariff to lead to a 1.28% fall in imports from the ROW.

Table 1 Growth of Polish Imports from EU and the rest of the World (based equations): 1995-2002

	Dependent variable Import Growth from:	
Independent variales	**EU**	**ROW**
	(1)	**(2)**
Tariff change on imports from:		
EU	-0.9540	1.2790
	(0.003)	(0.002)
ROW		-3.3273
		(0.000)
Year dummy for:		
1996	0.8203	0.7406
	(0.000)	(0.000)
1997	0.7459	0.6836
	(0.000)	(0.000)
1998	0.6603	0.7127
	(0.000)	(0.000)
1999	0.5743	0.2163
	(0.000)	(0.000)
2000	0.6438	0.6438
	(0.000)	(0.000)
2001	0.5961	0.5843
	(0.000)	(0.000)
2002	0.5456	0.9681
	(0.000)	(0.000)
Constant	-0.5741	-0.5380
	(0.000)	(0.000)
Number of observations	22,003	21,165
F	161.11	115.80
Prob (F)	0.0000	0.0000
R^2 (within)	0.0644	0.0551

P value are in parentheses

The results clearly show the potential for trade growth substantially driven by trade diversion; with a one percentage point change in the EU tariff only leading to a 0.95% increase imports from the EU and 1.28% fall in imports from the rest of the world. Whether trade diversion actually exceeds trade (import) growth or not, of course, depends on the existing (pre-tariff reduction) amounts of imports from the EU and ROW. In fact when the above elasticities are applied to existing trade volumes for the actual reductions in tariffs on Polish imports from the EU for the years (1996 – 2002) we find that import growth consistently exceeded trade diversion (see Table 2). The estimated trade diversion,

however, also consistently exceeded trade creation; both effects diminishing sharply after 1999.

Table 2 Estimated Import Growth, Trade Diversion and Trade Creation Effects (based equations) (millions UD $)[1]

	Import Growth	Trade Diversion	Trade Creation
1996	458	334	124
1997	528	380	148
1998	438	323	115
1999	456	310	146
2000	21	14	7
2001	5.9	5.3	0.7
2002	6.1	5.1	1.1

The exact magnitude of all these effects reported on in Table 2 is sensitive to the specification of the trade growth and trade diversion equations. In Table 3 we reported on the extended versions of their equations; equation 4a or 4b version of the trade growth equation and equation 5a or 5b version of the trade diversion equation. The estimate of 'own' tariff elasticity in the EU import growth equation (columns 1 and 2 of Table 3) increases or declines if we include the pre-tariff lowering share or amount of EU imports. In both cases the results indicate that actual import growth is (on average) lower when there is already a high share of amount imports. The coefficient of the 'own' tariff is however sensitive to how this potential for responsiveness is measured. This sensitivity may reflect a degree of endogeneity between the pattern of tariff reforms and the existing pattern of EU imports.

[1] Based on applying average tariff change in each year multiplied by the value of import in that year and by the elasticity of imports with respect to tariff change from the base equation.

Table 3 Growth of Polish Imports from EU and the Rest of the World (extended equations): 1995-2002

	Dependent variable Import Growth from:			
Independent variales	**EU**	**EU**	**ROW**	**ROW**
	(1)	**(2)**	**(3)**	**(4)**
Tariff change on imports from:				
EU	-1.2990	-0.5614	0.9966	0.8587
	(0.000)	(0.004)	(0.017)	(0.037)
ROW			-2.9607	-2.9084
			(0.000)	(0.000)
Share of importsfrom EU in total imports (lagged)	-0.684		-0.8239	
	(0.000)		(0.000)	
Amount of imports from EU (lagged)		-0.8420		-0.3988
		(0.000)		(0.000)
(plus year dummies not reported)				
Constant	2.21553	4.4331	-3,8942	1,8300
	(0.000)	(0.000)	(0.000)	(0.000)
Number of observations	22,003	22,003	20,101	20,081
F	304.52	3784.30	247,21	292.01
Prob (F)	0.0000	0.0000	0.0000	0.0000
R^2 (within)	0.1278	0.6454	0.1280	0.1479

P value are in parentheses

The 'own' tariff elasticity for the rest of the world is consistently higher in both the estimates of the base and extended equations (ranging from -3.33 in Table 2 to -2.91 and –2.96 in Table 3) than the 'own' tariff elasticity for imports from the EU. This may be because Poland's activities of comparative disadvantage in manufacturing are more likely to be subject to competition from outside the EU. We also know that the Europe Agreements were introduced alongside other 'shocks' to Polish imports, namely the extension of preferential access to CEFTA countries (and to EFTA) and the rise of China as a major manufacturing exporter. But interestingly when we exclude the other free trade (FTA) countries or China from the rest of world in estimating the trade diversion equation (see Table 4), the 'own' tariff elasticity (ie on the ROW or MFN tariff change) effect increases further (to -4.45 or -4.75 in Table 4). Polish imports are more responsive, on average, to a tariff reduction on imports from non-FTA or Chinese sources than they are from the other geographical areas of the rest of the world. But also what is interesting is that the 'cross' tariff effects in Table 4 are also larger. In Table 1 a one percentage point reduction in the tariff on EU imports on average reduces the whole of the ROW imports by

1.28%. With the FTA countries (China) excluded from the rest of the world, the import reduction is 1.8%, (1.38%) for one percentage point reduction in the EU tariff. In other words the EU Europe Agreement had a greater trade diversion effect, as you might expect, on non-tariff preference–receiving countries than on preference-receiving countries. It also had a greater effect on non-Chinese/non-preference receiving countries than it did on China.

Table 4 Change in Polish Imports from the Rest of the World with Geographical Exclusions: 1995-2002

	Dependent variable Import Growth from ROW Excluding:	
Independent variales	**"FTA countries" (1)**	**China (2)**
Tariff change on imports from:		
EU	1.800	1.38
	(0.000)	(0.004)
ROW	-4.453	-4.75
	(0.000)	(0.000)
(plus year dummies not reported)		
Constant	-0.424	-0.50
	(0.000)	(0.000)
Number of observations	18,784	18,549
F	119.12	153.42
Prob (F)	0.0000	0.0000
R^2 (within)	0.0637	0.0818

P value are in parentheses

6 Conclusions

The clear conclusion from this panel data econometric analysis of Poland's import responses to MFN and preferential tariff reforms at the detailed product level is that the Europe Agreements had transitory but significant import growth and diversion effects. Indeed, contrary to the predictions of some ex-ante analysis this study finds that a trade-diverting source of growth of Poland's imports from the EU substantially dominated the trade-creating source of growth. In seeking to capture this balance of effects it was important to allow for some heterogeneity in the outside countries (ie rest of world) from

whom there was source substitution induced by the Europe Agreements. The econometric method allows control for other trade shocks, and for the estimation of different diversion effects for different groups of countries. We find, for example, that there was less diversion of Polish imports from other preference receiving countries. Further we find that China was less affected on average by trade diversion than other non-preference receiving countries.

We do not report here on the variation in the pattern of trade effects across the manufacturing sector, but the research method and data lend themselves to exploring such variation. Indeed the use of this type of econometric approach is very attractive for ex-post analysis, allowing as it does for control of other, non-trade policy influences on trade flows and for analysis at a level of disaggregation of the trade flows that corresponds to that at which tariffs are changing.

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