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Impact of Intra-European Trade  
Agreements, 1990–2005:  
Policy Implications for  
the Western Balkans and Ukraine

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Zhaogang Qiao*



## **IMF Working Paper**

European Department

### **Impact of Intra-European Trade Agreements, 1990-2005: Policy Implications for the Western Balkans and Ukraine**

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#### **Abstract**

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The paper provides quantitative estimates of the impact of the European trade agreements on trade flows. It applies both static and dynamic panel estimation techniques. The results are useful to policymakers because new intra-European trade agreements are being negotiated. In the absence of a further expansion of the European Union, estimates of alternative policies may help to clarify the policy debate. The paper also illustrates that the performance of individual countries under the trade agreements can be explained in terms of their macroeconomic environment. The conclusions are likely to be relevant to the western Balkan countries and Ukraine.

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## ACRONYMS

AIC	Akaika information criterion
CEE countries	Central and Eastern European countries comprise the 10 new member states on the continent, the western Balkan countries, Moldova and Ukraine.
CMAE	Council for Mutual Economic Assistance
EEA	European Economic Area
EFTA	European Free Trade Association
Europe Agreements	Agreements between EU and selected CEE countries (Appendix I).
EU	European Union
CEFTA	Central European Free Trade Area (Appendix I)
FTA	Free trade agreement
GDP	Gross domestic product
GSP	Generalized System of Preferences
GMM	Generalized method of moments
IMF	International Monetary Fund
IV	Instrumental variable
MFN	Most-favored nation
NAFTA	North American Free Trade Agreement
OPT	Outward-processing trade
REER	Real effective exchange rate
SAA	Stabilization and Association Agreement.
WBTP	Western Balkan Trade Preferences — unilateral EU trade preferences to imports from the western Balkan countries
Western Balkans	Albania, Bosnia and Herzegovina, Croatia, Macedonia (Former Yugoslav Republic of), Montenegro, and Serbia
WTO	World Trade Organization

## I. INTRODUCTION

1. **Since the European Union (EU) expanded in the early twenty-first century, trade policy toward nonmember European countries has been in a state of flux.** During 2004-07, 10 Central and Eastern European (CEE) countries acceded to the EU and adopted the common external tariff, as well as all EU external trade agreements.<sup>2</sup> In the wake of these changes, trade policies in the region are being reconsidered. The Central European Free Trade Agreement (CEFTA) was modified on December 19, 2006, allowing it to take in western Balkan countries that had previously been excluded. Further afield, the EU and Ukraine are considering adopting a preferential trade agreement.

2. **Trade agreements deserve attention because they contributed significantly to intra-European trade and smoothed the transition to EU membership.** During the 1990s, the EU entered with selected CEE countries into Europe Agreements that included, inter alia, bilateral trade preferences. These agreements were viewed as a stepping stone to EU accession. Parallel to these agreements, the EU concluded a customs union with Turkey in 1996. In some respects, the trade policy aspects of this customs union went beyond the Europe Agreements. There is ample evidence that trade relations with the EU were important for economic developments in CEE countries and Turkey. But there is less clarity about how much individual countries' trade performance benefited from these agreements or, in the case of Turkey, the customs union.

3. **This paper focuses on the impact of EU-instigated trade agreements on bilateral trade flows, abstracting from the wider impact of these agreements.** We quantify which agreements affected trade and when, as well as why, some countries performed better than others. Our focus has important limitations, however. We do not evaluate the contribution of the trade agreements to economic development, which is a more complicated question. Indeed, in the countries with relatively high tariffs, the trade agreements are likely to have diverted trade from the most efficient supplier to less competitive ones, hence reducing economic efficiency.

4. **Our analysis shows that the impact of trade agreements varied by country and over time.** A gravity model is used to estimate the impact of these agreements on bilateral trade flows. The model is specified as a panel of bilateral trade flows over a 16-year period providing over 70,000 observations. The annual impact of each agreement on bilateral trade is estimated in terms of the increase in trade between the countries with the trade agreements. Following common practice, the trade agreements had lengthy phase-in periods, providing economic

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<sup>2</sup> The 10 CEE countries are Bulgaria, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Romania, the Slovak Republic, and Slovenia. CEE countries are these countries as well as the Western Balkan countries (Albania, Bosnia, Croatia, Macedonia (Former Yugoslav Republic of), Montenegro, and Serbia). All bilateral trade agreements used in the analysis are listed in Appendix I.

agents time to adjust. Our estimates confirm the importance of these phase-in periods, as the trade agreements became more effective over time. Furthermore, taking price competitiveness of CEE countries and Turkey as example, we demonstrate that macroeconomic policy and the environment determine whether these countries were able to take advantage of the market-opening provisions of a trade agreement.

5. **Although the Europe Agreements' impact on bilateral trade increased over time, its impact on exports to the EU remained smaller than that of a customs union.** Some three to four years after their entry into force, the Europe Agreements contributed significantly to bilateral trade between the EU and each of the CEE countries. While trade in both directions increased, EU exports to CEE rose much more quickly than CEE exports to the EU. A comparison with the impact of the EU-Turkey customs union suggests that a customs union had a stronger and more symmetric impact on both exports and imports. However, the Europe Agreements had a significantly stronger effect on trade than the trade preferences for the western Balkan countries. This is also true for the CEFTA. More restrictive rules of origin in the western Balkan countries' trade preferences may explain its weak impact. Our study provides detailed quantitative estimates for arguments made in other studies (e.g., Brenton and Manchin, 2003; and Emerson, 2005).

6. **The results of our analysis are important for trade negotiators.** A customs union is superior to a "spaghetti bowl" of free trade agreements, particularly if strict rules of origin apply. We estimate that trade between the EU and the western Balkan countries will significantly benefit from the latter countries' accession to CEFTA. However, they would benefit even more if they joined a customs union with the EU. Negotiators of free trade agreements may also note that the benefits of these agreements are skewed toward the country with the lower import tariffs and the more competitive price level, or implicitly, its exchange rate. This is important for the western Balkan countries, as well as for Ukraine.

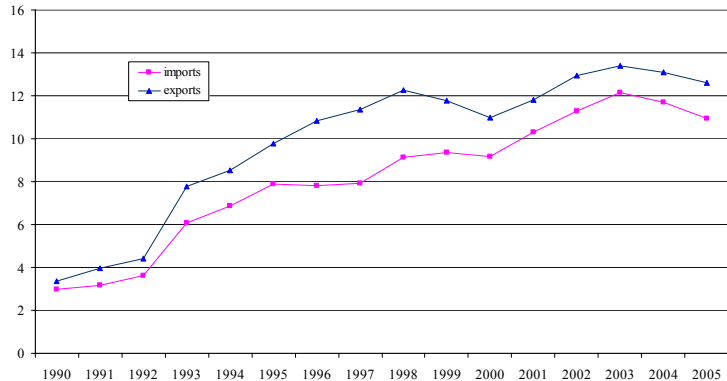
7. **The paper begins by surveying the evolution of trade policies and performance in Section II.** Section III presents the gravity model and the estimates of the impact of the various trading arrangements. Different specifications are used, allowing us to identify the impact by country and over time. Section IV confirms that price competitiveness is a key determinant of countries' ability to fully take advantage of the trade agreement provisions. The policy implications for countries that may wish to reconsider their preferential trade agreement with the EU, such as, for example, the western Balkans and Ukraine, are then discussed in Section V. Section VI offers concluding remarks.

## II. INTRA-EUROPEAN TRADE DEVELOPMENTS AND POLICIES

8. **Since the early 1990s, the share of the CEE New Member States in EU-15 imports has increased rapidly (Figure 1).**

During the same period (1990-2005), these 10 countries increased their share of world trade from under 1 percent to over 3 percent. On average, trade (exports plus imports) in those countries reached almost 100 percent of GDP in 2005, with much larger shares in smaller countries and smaller shares in larger countries.

Figure 1: Share of 10 Central and Eastern European New Member States in External Trade of EU-15, 1990-2005 (percent)



Source: IMF Direction of Trade Statistics.

9. **Developments in the western Balkan countries and Ukraine were not as felicitous.**

The trade-to-GDP ratio and the contribution to world trade are similar to those in the New Member States but have fluctuated more over time. Poor integration with the EU appears to be a major factor in this modest trade performance. The share of exports to the expanded EU (27 countries) in total exports has declined since 2002. During these years, the EU exports gained market share only in Ukraine from a small base (30 percent of total imports).

10. **Trade preferences have provided an important stimulus to intra-European trade.**

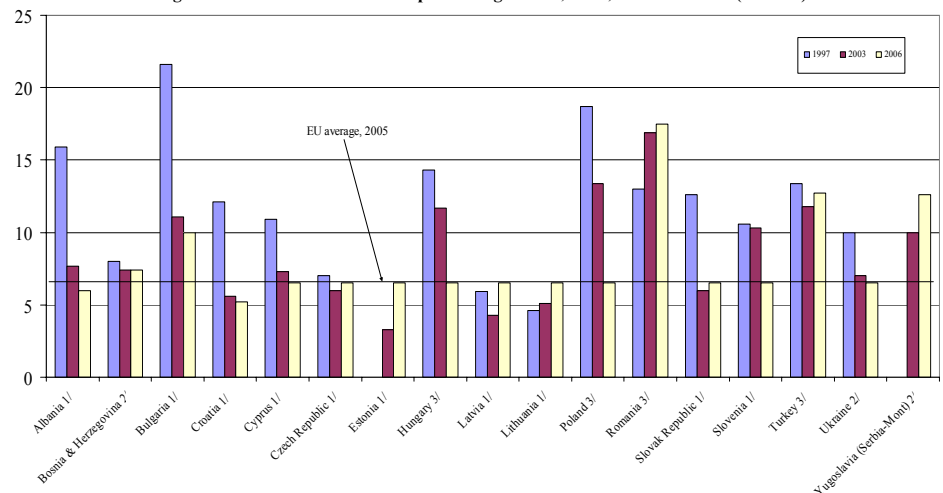
Trade policies have been significantly liberalized since 1990, when the Uruguay Round negotiations were implemented.

However, tariffs and nontariff barriers remain important, both for the EU and for countries in the CEE region.

(Figure 2). The continued prevalence of trade barriers suggests that selectively suspending or removing these

barriers is important. We come back to granting of preferences by removing trade tariff and non-tariff barriers later in the paper when we explain the impact of the trade agreements.

Figure 2. Selected Countries: Simple Average Tariff, 1997, 2003 and 2005 (Percent)



Source: IMF, Trade Policy Division.

Notes: 1/ WTO accession since 1990; 2/ WTO nonmember; 3/ WTO member prior to 1990.



11. **The EU applies a variety of trade preferences to CEE countries, either as part of a trade agreement or unilaterally** (Appendix I). These preferences vary in terms of, (a) the margin of preference for qualifying imports (Table 1) and (b) the rules of origin that determine which imports qualify for the margin of preference. A key aspect of rules of origin is whether “diagonal cumulation” is accepted, that is, whether inputs originating from countries in the zone of cumulation can be counted toward satisfying the rule of the exported product. The main EU trade agreements are listed below:

- Since 1991, the EU and selected CEE countries have negotiated **Europe Agreements**.<sup>3</sup> Over time, these agreements granted duty-free access for all nonagricultural products. However, the EU exports received a higher margin of preference because most CEE countries apply wider tariffs than the EU. On the other hand, the phase-in periods specified in these agreements was longer for the CEE countries than for the EU (Michalek, 2005). Until 1997, the rules of origin were based on bilateral cumulation. Since then, pan-European rules of origin allow goods from all EU, EFTA, and CEFTA countries and Turkey to qualify as satisfying the rules of origin.
- Some trading partners went further and agreed to apply the EU external tariff, hence entering into a **customs union** with the EU. The EU customs union with Andorra and San Marino covers all products, while its customs union with Malta (1971 up to EU accession) and Turkey (since 1996) applies only to nonagricultural products. If a customs union is combined with a revenue-sharing formula, no rules of origin apply. Without a revenue-sharing formula, nonrestrictive rules of origin apply.
- The EU has negotiated **Stabilization and Association Agreements (SAAs)** with Croatia (2001) and Macedonia (2001). These agreements provide market access similar to that of the Europe Agreements.
- The EU and the European Free Trade Association (EFTA) member countries (excluding Switzerland) formed the **European Economic Area (EEA)** in 1994 when they deepened their integration by covering a range of behind-the-border issues, such as competition policy, and by ruling out the use of contingent protection. Imports from EFTA participate in the pan-European rules of origin introduced in 1997.
- The EU has entered into **bilateral trade agreements** with many countries (Appendix Table I.2). The trade preferences specified in these agreements are not as generous as the

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<sup>3</sup> In December 1991, Czechoslovakia, Hungary, and Poland signed the first Europe Agreements. Following their “velvet divorce,” both the Czech and Slovak Republics applied these agreements in 1993. Other countries negotiated similar agreements: Romania in 1993, Bulgaria in 1994, the Baltic countries in 1995, Slovenia in 1997, Macedonia (Former Yugoslav Republic) in 2001 and Croatia in 2001 (Appendix I).

Europe Agreements, and the rules of origin are more restrictive; cumulation is bilateral because only imports from the EU and the trading partner qualify.

**Table 1. EU Import Duties Applied Under Selected Preference Regime Categories, 1999 (percent)**

	MFN- bound tariffs	MFN- applied tariffs	GSP+ MFN	FTA+ MFN	LDC+ MFN	Lomé +GSP +MFN	Lomé+ LDCs+ MFN
All products	7.0	6.9	4.9	3.5	1.9	1.9	1.8
Agricultural products	17.4	17.3	15.7	16.7	10.3	10.3	9.5
Nonagricultural products	4.6	4.5	2.3	0.5	0.0	0.0	0.0

Sources: WTO (2001); and Messerlin (2001).

Notes: MFN denotes most-favored-nation tariff; GSP denotes Generalized System of Preferences; FTA (Free Trade Agreement); Lomé refers to tariffs applied to imports from selected African, Caribbean and Pacific Island Economies; and LDC refers to less developed countries.

**12. In parallel to these agreements, the EU also applied the following unilateral trade preferences to imports from other countries:**

- In 2000 the EU introduced the **Western Balkan Trade Preferences (WBTPs)** for the successor states of the former Socialist Federal Republic of Yugoslavia (excluding Slovenia) and Albania. These preferences were less generous than the Europe Agreements, and the rules of origin were more restrictive: only inputs from the EU and the exporting country qualified toward satisfying the rules of origin.
- The EU grants **unilateral trade preferences** under its Generalized System of Preferences (GSP), selected former colonies under its Lomé and Cotonu Agreements, and preference to imports from the least developed countries under the Everything-but-Arms (EBA) initiative. Although the margin of preferences of these initiatives is generous, they are subject to restrictive rules of origin. We did not include them into our analysis because these preference did not affect the main results that are the focus of this paper.
- Like most other countries, the EU allows for “**outward processing**,” which exempts import duties to the extent that the imports consist of EU-produced components. These preferences are not trading-partner specific and, hence, are also excluded from our analysis.

13. **The CEE countries also negotiated a range of trade agreements with non-EU countries** (Appendix A):<sup>4</sup>

- Regionally, since 1994 trade has been liberalized under the **Central European Free Trade Agreement (CEFTA)** and the **Baltic Free Trade Agreement**. These agreements expanded the benefits of the Europe Agreements and liberalized the rules of origin. Originally, CEFTA was a steppingstone to EU accession, but, in 2006, it was modified to offer membership to all western Balkan countries, as well as Moldova.<sup>5</sup> A transitional period, ending December 31, 2010, allows for a gradual phase-in of the CEFTA provisions. When it enters into force, the amended CEFTA will replace all bilateral trade agreements among the signatories.
- During the 1990s, the CEE countries also negotiated a range of **bilateral agreements**; common partners were the EFTA countries, Israel, and Turkey, with a more complicated mosaic of agreements in the western Balkans (Appendix I).

### III. ECONOMETRIC SPECIFICATION AND RESULTS

14. **The objective of this study is to estimate the impact of the various trade agreements on trade flows.** A traditional gravity model is used to analyze (a) the relative importance of the various trade policy agreements, (b) the impact of these agreements over time, (c) the impact of these agreements on the performance of individual countries, and (d) their impact on bilateral trade flows in individual countries over time. The model uses data from internationally available sources.<sup>6</sup> Following Subramanian and Wei (2003) where they analyze the impact of import tariffs on imports, we focus on the impact of alternative trade policies on imports and, hence, use imports as the dependent variable.

15. **The study focuses on the impact of the trade agreements on bilateral trade flows, not on estimates of potential trade or trade diversion.** Gravity models have also been used to estimate potential trade and, hence, the deviation of actual trade from potential (Bussière,

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<sup>4</sup> Officially, many countries in the region simultaneously granted GSP preferences to selected imports while their exports received GSP preferences in other countries. We excluded all GSP preferences from our analysis.

<sup>5</sup> The amended CEFTA is to enter into force on May 1, 2007, provided that all parties have deposited their instruments of ratification and acceptance of approval with the Depositary by March 31, 2007 (Agreement on Amendment of and Accession to the Central European Free Trade Agreement, Article IV(2)).

<sup>6</sup> Trade, GDP, and population data are available from the IMF's Direction of Trade and World Economic Outlook databases. Distance variables are published on the internet by CEPII ([www.cepii.fr](http://www.cepii.fr)). The various trade agreements and their classification in the econometric analysis are listed in Appendix I.

Fidrmuc, and Schnatz, 2005; European Commission, 2006; and Söderling, 2005). However, we do not deal with this aspect because these models do not provide new insights about which policies are required to realize the estimated potential. Our aim is to identify trade policy options that will boost European integration. We realize that, compared with full trade liberalization in the transition countries, most of the trade agreements may involve trade diversion, especially as recent studies show that most regional trade arrangements are trade diverting, including the EU and the North American Free Trade Agreement (NAFTA) (Dee and Gali, 2005).<sup>7</sup> Still, the EU trade agreements are likely to be worthwhile since they ease the political constraints on further trade liberalization.

### A. Static Model and Results

16. **A gravity model is used to test the impact of trade agreements.** We first specify it in a static setting (“the static model”) and use panel regressions to estimate the impact of trade agreements by exploring the information in the readily available macroeconomic panel data. We obtain precise and largely unbiased results (controlling for time-invariant heterogeneity and testing the endogeneity problem) (Baldwin and Taglioni, 2006). Panel regressions also allow the estimation of the trade agreements’ effects over time, and across country pairs. In the next section, we further explore the information in panel data where we test for robustness using a dynamic model.

17. **The basic static model of our paper is specified below:**  $Y_{ijt}$  are the imports from country  $i$  to country  $j$  at time  $t$ ;  $D_{ijt}$  is a set of trade arrangement dummies; and  $X_{ijt}$  is a set of covariate controls, including the multiple of GDPs of partners, distance, common language, and common border. The theoretical foundation of this model is the constant elasticity of substitution and goods that are differentiated by country of origin (Anderson and van Wincoop, 2003).  $u_{ijt}$  is the error term, with  $\varepsilon_{ij}$  capturing the country-pair effect,  $\mu_t$  capturing the time effect, and  $v_{ijt}$  assumed to be standard normal distributed with no serial correlations. We specified both fixed-effects and random-effects models. In the fixed-effect panel regression, the time-invariant control variables are dropped due to the perfect collinearity of these controls and the country-pair dummies  $\varepsilon_{ij}$ , with their effects captured by  $\varepsilon_{ij}$ . Our Hausman specification test results reject random effect models, so we only report fixed effects model results in Table 2. More specifically, since the year-fixed effect captures the macroeconomic environment changes or economic shocks over time, as standard practice we favor the two-way, rather than the one-way,

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<sup>7</sup> However, others found little evidence that NAFTA had a trade-diverting impact (Krueger, 1999).

fixed effects model. Thus in our paper we only focus on the two-way fixed effects analysis, unless otherwise noted.<sup>8</sup>

$$\ln(Y_{ijt}) = \beta_0 + \sum_{k=1}^K \beta_1 \times D_{ijt}^k + \sum_{l=1}^L \beta_2 \times X_{ijt}^l + u_{ijt}$$

$$u_{ijt} = \varepsilon_{ij} + \mu_t + \nu_{ijt}$$

$$D_{ijt}^k = 1 \text{ if with a trade arrangement between } i \text{ and } j \text{ at time } t$$

$$= 0 \text{ if no trade arrangement.}$$

18. **We test for possible endogeneity between trade and GDP.** Trade and GDP are possibly endogenous as trade contributes to GDP. That is, in the above equation, GDP in  $X_{ijt}$  is correlated with  $u_{ijt}$  and thus the estimated  $\beta_1$  and  $\beta_2$  are both biased. By using lagged GDP as an instrument variable (IV), we are able to control for the possible endogeneity between trade and GDP.<sup>9</sup> Our IV estimation results, as reported in the second column of table 2, are similar to the other estimate, and we interpret this as confirmation that endogeneity is not a major concern.

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<sup>8</sup> For reference of our random effect model results, as well as one-way fixed effect model results, and Hausman specification tests statistics, please refer to Appendix Table II.2.

<sup>9</sup> We did both a  $F$ -test and an AIC test and both of them indicate that GDP multiple is an AR(2) process. For details, see Appendix Table II.1, note 1. Therefore we use the first two lags of GDP multiple as IVs. This also allows us to do an overidentification test to test the weakness of our IVs in the first stage.

**Table 2. Robustness: A Comparison of Static and Dynamic Models**

	Static models		Dynamic models	
	Two-way fixed effects	Instrumental variable two-way fixed effects	Dynamic Model Difference GMM	Dynamic Model System GMM
EU and Europe Agreement countries				
Imports into EU	0.30 [9.24]**	0.23 [3.42]**	0.06 [1.30]	0.44 [9.25]**
Imports into Central and Eastern Europe	0.58 [17.18]**	0.47 [7.11]**	0.14 [3.52]**	0.59 [12.26]**
EU and customs union				
Imports into EU	0.76 [10.58]**	0.74 [5.65]**	0.07 [0.67]	0.45 [7.52]**
Imports into customs agreement country	0.68 [11.05]**	0.62 [4.77]**	0.12 [2.39]*	0.62 [9.49]**
EU and Stability and Association Agreement				
Imports into EU	0.07 [0.94]	0.09 [0.76]	0.15 [1.51]	0.15 [1.70]
Imports into SAA country	0.16 [2.75]**	0.20 [1.41]	0.18 [2.51]*	0.37 [4.70]**
EU and Western Balkan Trade Preferences				
Imports into EU	0.14 [1.19]	-0.35 [0.32]	0.05 [0.40]	-0.09 [-0.95]
Imports into Western Balkan	0.48 [5.93]**	0.36 [3.33]**	0.10 [1.08]	0.36 [4.74]**
CEFTA	0.39 [9.79]**	0.38 [3.67]**	0.08 [2.37]*	0.49 [7.01]**
Bilateral agreements	0.20 [5.79]**	0.15 [2.69]**	0.06 [1.35]	0.51 [9.79]**
EU and EFTA				
EU imports from EFTA member	0.45 [9.60]**	0.43 [3.97]**	0.10 [1.82]	0.47 [7.04]**
EFTA imports from EU member	0.55 [13.32]**	0.52 [4.35]**	0.08 [1.51]	0.48 [6.52]**
EU membership	0.70 [20.99]**	0.64 [11.14]**	0.15 [3.92]**	0.55 [9.39]**
Euro adoption	0.15 [9.78]**	0.16 [2.51]*	0.09 [3.46]**	0.10 [2.98]**
GDP <sup>O</sup> *GDP <sup>P</sup>	0.60 [28.86]**	0.68 [20.98]**	0.19 [6.06]**	0.46 [11.54]**
Lagged (GDP <sup>O</sup> *GDP <sup>P</sup> )	no	no	0.03 [1.09]	-0.11 [-3.13]**
Import lagged 1	no	no	0.21 [8.22]**	0.54 [37.40]**
Import lagged 2	no	no	0.01 [1.02]	0.15 [12.22]**
Controls for other trade agreements 1/	yes	yes	yes	yes
Country fixed effect	yes	yes	yes	yes
Year fixed effect	yes	yes	yes	yes
No. of Observations	71960	71860	56333	63328
No. of Groups	6080	6080	5452	5747
R <sup>2</sup>	0.65			

Source: Authors' estimates.

Note: Robust t-statistics in brackets; \* significant at 5%; \*\* significant at 1%.

1/ Other controls include a trade embargo variable a variable for trade among former CMEA countries and a variable for EU trade with Lome/Cotonou countries. These results are not reported as they are not the focus of the paper.

19. **Our results are consistent with our expectations.** We find that the different trade agreements generally affected bilateral trade positively, but the intensity varied by agreement.<sup>10</sup>

- The **Europe Agreements** are estimated to contribute 23-30 percent to CEE-countries exports to the EU and 47-58 percent to EU exports to the CEE countries (Table 4, static model, column 1-2). The larger impact on EU exports is expected since (a) it is easier for EU firms to satisfy the rules of origin and (b) the EU receives a larger margin of preference in CEE countries than what it grants on its imports. This result may also reflect the commitments to finance projects with grants that are typically exempt from CEE-countries' import duties (Goorman, 2005).
- The impact of a **customs union** is larger than that of the Europe Agreements, and importantly, the benefits of such agreement are symmetrical: because both the EU and its partner have the same tariff level, they grant each other the same margin of preference.
- The results do not show a strong impact of the **SAAs and the Western Balkan Trade Preferences** on bilateral trade. These agreements do not appear to have influenced trade from the partner country to the EU, although there is some evidence of larger EU exports to the partner countries, especially for the WBTPs countries. The lack of EU imports from SAA and WBTP countries may be attributed to the restrictive rules of origin. The significant contribution of the SAA and WBTP countries to EU exports may be related to the grant-financed assistance from the EU to these partner countries.
- **CEFTA** contributes to regional integration almost as much as the Europe Agreements. This is to be expected. The provisions of both agreements are similar, and the rules of origin allow for cumulation.
- **Bilateral agreements** also contribute to trade but less so than CEFTA, possibly because of more restrictive rules of origin in some of the agreements.

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<sup>10</sup> Including an independent variable for GDP per capita would have improved the estimates for EU membership and euro adoption. However, these results may be spurious, as a Pedroni (1999) cointegration test suggests that GDP per capita and GDP may not be cointegrated with trade flows. Hence, we decided to exclude the GDP per capita variable as it has only a minor impact on the estimates for the trade agreements, on which we focus.

- Unlike earlier estimates, our study shows that bilateral trade between the EU and EFTA has benefited from trade policy arrangements. By contrast, earlier estimates of Frankel and Wei (1995) did not find a significant impact of EFTA on bilateral trade.<sup>11</sup> This result may be due to the deeper integration that took effect when the EEA was established in 1994.
- The impact of **EU membership and euro adoption** is in the same range as found by other studies.<sup>12</sup> Table 4, columns 1–2 suggest that EU membership contributes some 64–70 percent to bilateral trade among member countries, and euro adoption is estimated to have contributed an additional 15–16 percent.

## B. Robustness and Dynamic Model

20. **We check for robustness by using a dynamic specification of the same model.** In the static model discussed above, we assume that the previous year's trade is not contributing to the current trade between trading partners, that is, there is no serial correlation in  $v_{ijt}$  (a static model). This is a rigid assumption, since it is very likely that bilateral trade is a dynamic process in which the current trade level has some degree of dependence on the previous level:  $y_{ijt} = \beta * y_{ijt-1} + e_{ijt}$ . We suspect that the static model estimation is misspecified.

21. **We specify a dynamic model by assuming that the error term,  $v_{ijt}$ , in the static model specified above is an AR(2) process,** that is,  $v_{ijt} = \tau_1 v_{ijt-1} + \tau_2 v_{ijt-2} + \eta_{ijt}$ .<sup>13</sup> Now,  $X_{ijt}$  is defined slightly different from the static specification: it includes both strictly exogenous variables and predetermined variables because of the introduction of the dynamic feature. Unlike the fixed effects panel regression approach — where we eliminate the fixed effects by taking the difference between the dependent variable and its average — we use the difference of the dependent variable and its lag in the above equation to eliminate the fixed-country-pair effect. Based on this approach, Arellano and Bond (1991) developed a “difference generalized method of moments” (DGMM) to estimate the coefficients in the above equation. The DGMM uses all lagged dependent variables and predetermined variables as instruments.

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<sup>11</sup> “... a country joining the EC would have experienced an increase in trade with other members of about 50 percent by 1990. No such effect was observed for EFTA.” (Frankel and Wei, 1995, p. 219).

<sup>12</sup> A large literature estimates the impact of a currency union on bilateral trade. Rose (2000) initially estimated the impact to be above 100 percent. Subsequently, however, Rose and van Wincoop (2001) published much lower estimates. Baldwin and Taglioni (2006) estimate the impact of EU membership as 25 percent and the impact of a common currency at 34 percent, which they consider on the high side. Faruquee (2004) estimates the impact of euro adoption to be on average 7-8 percent.

<sup>13</sup> We did both a F-test and an AIC test and both of them indicate that  $(Y_{ijt})$  is an AR(2) process. For details, see Appendix Table II.1, note 1.



22. **The DGMM is an econometrically appropriate estimate assuming that the level variables are not a random walk process** (as discussed below). However, the results cannot be directly compared with other estimates in Table 2 due to the estimation technique used in DGMM. Our trade agreements are 0/1 dummies, which equal 1 after trade agreements came into effect, and equal zero otherwise. When applying the DGMM and taking differences over years, the differenced dummies will be zero except for the year during which the trade agreements entered into force. So the reported trade agreement effects in Table 2 are actually the initial effect during the year that the trade agreement entered into force (these results are comparable to the cohort method results presented in Section C below; by comparing the findings, we will confirm that the trade agreement effects estimated in the static model are robust).

23. **While the results of the above method are useful for our analysis, the DGMM has drawbacks.** In this method, if the dependent variables are close to a random walk, the lagged variables are poor instruments for the differenced dependent variable. Provided the level variables follow a random walk process, the differenced variables cannot be explained or predicted. Bilateral trade and GDP, both of which are instrumented by their own lags, are arguably both subject to a random walk (Faruquee, 2004). So, in Appendix Table II.1, we present the unit root tests to address this issue. The partial findings of unit roots confirm that the issue should be addressed by using a different econometric method.

24. **We use a system GMM estimator to address the problem of weak instruments and the indirect comparability of the DGMM and static results** (Table 2). Arellano and Bover (1995) outlined a modified version of the DGMM estimator which was further developed in Blundell and Bond (1998). The estimator is commonly called system GMM estimator. The system GMM estimates an equation system by bringing back the original equation into the differenced equation, and thus uses the lagged difference variables as instruments for level variables in order to increase efficiency.

25. **Compared with the results of the static model in results, the system GMM estimation suggest a very similar impact of the trade agreements on trade flows** (Table 2). While the estimates of  $GDP^o \times GDP^p$  are quite different from the results of the static model, the estimated impact of the trade agreements are similar and the estimated impact of a customs union on trade flows continues to be larger than a free trade agreement. The system GMM estimates demonstrate that, although the estimate of  $GDP^o \times GDP^p$  can be serious biased, our static model estimates of the trade agreement effects may not be biased. We explain this by

arguing that trade agreement dummies are not correlated with lagged years' trade bilateral levels, while  $GDP^o \times GDP^p$  is highly correlated with lagged trade.<sup>14</sup>

26. **The dynamic model also provides information on the long-term impact of the trade agreements.** This impact can be approximated by the estimated coefficient divided by, unity minus the estimated impact of the lagged imports.<sup>15</sup> The system GMM estimator results show the impact of the lagged imports to be 0.69, thus suggesting that the long-term impact of the listed agreements would be three times as large as the reported coefficient. While this appears to be a very large effect of the trade agreements, it does illustrate the importance of trade policy.

### C. Estimates of the Impact of the Trade Agreements over Time

27. **This section elaborates our static model to capture the over-time impact of the trade agreements by interacting the time and trade agreement dummies** (illustrated in the equation below). This is a less restrictive method than the dynamic model to estimate the dynamic features of the trade agreements, since it does impose a linear relationship between the trade agreements and time. The estimated coefficients on the interaction terms will capture the impact of the trade agreement over time. The large number of observations provides sufficient

variation to allow us to do this. We call these interaction terms,  $\sum_{t=1}^T (D_{ijt}^m \times T)$ , over-time-

agreement dummies, where T represents a set of time dummies. We use two different methods to define T, referred as the calendar-year method and the cohort method respectively.

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<sup>14</sup> To illustrate that the trade agreement effects are not serious biased in our static model, let us specify the following equation:  $Y = b_1 X_1 + b_2 X_2 + e$ , where  $X_1$  is the vector of  $GDP^o \times GDP^p$  and  $X_2$  is the matrix of trade agreement dummies and we assume  $E(X_1 e) \neq 0$  and  $E(X_2 e) = 0$ . An ordinary least squares (OLS) estimation of  $b_1$  is biased by  $(X_2' M X_2)^{-1} X_2' M e$ , but the estimate of  $b_2$  is unbiased because  $E(X_1' e) = 0$ , where  $M = (I - X_1 (X_1' X_1)^{-1} X_1')$ .

<sup>15</sup> In order to keep the illustration simple, let us take the AR(1) process. The dynamic AR(1) model is specified as follows:  $Y_{ijt} = \beta_0 + \beta_1 Y_{ijt-1} + \beta_2 D_{ijt} + \beta_3 X_{ijt} + u_{ijt}$ . If we plug in the lagged period  $Y_{ijt-1} = \beta_0 + \beta_1 Y_{ijt-2} + \beta_2 D_{ijt-1} + \beta_3 X_{ijt-1} + u_{ijt-1}$  and keep doing so until period  $Y_0$  when an initial value was assigned, and if we assume  $D_{ijt} = D_{ijt-1}$ , the estimated long-term effect will be equal to  $(1 + \beta_1 + \beta_1^2 + \beta_1^3 + \dots) \times \beta_2 = \beta_2 / (1 - \beta_1)$ .

$$\ln(Y_{ijt}) = \beta_0 + \beta_1 \times \sum_{t=1}^T (D_{ijt}^m \times T) + \sum_{k \neq m}^K \beta_2 \times D_{ijt}^k + \sum_{l=1}^L \beta_3 \times X_{ijt}^l + u_{ijt}$$

$$u_{ijt} = \varepsilon_{ij} + \mu_t + \nu_{ijt}$$

28. **The calendar-year method is simple to apply but has its drawbacks.** It interacts the trade agreement dummies with calendar-year dummies directly (T is the same as  $\mu_t$  in this case), that is, it treats trade under an agreement the same way irrespective of how long an agreement has been in place. Since trade agreements have been effective at different years between different countries and their impacts on trade are assumed to increase over time, a direct interaction of trade agreements with calendar years will mix some effect of the trade agreements and thus mis-estimate their impacts. For this reason we only discuss the cohort method estimates.

29. **The cohort method estimates the impact of the trade agreements depending on how long they have been in place.**<sup>16</sup> The idea behind this method is consistent with the observation that these agreements have substantial phase-in periods and their impacts become fully effective only gradually. Assuming that these phase-in periods were similar across countries, we can estimate the impact of the Europe Agreements depending on the number of years that the agreements have been in place. In order to apply this idea to our regression analysis, we define trade agreement cohort dummies. These cohort dummies are trade-agreement specific, that is, no matter what calendar year it is, a cohort dummy is equal to 1 if a trade agreement has been in effect for a certain number of years; otherwise, it is zero. As with the first method, we interact trade agreement dummies and cohort dummies to generate time-specific trade agreement dummies, in order to estimate the agreements' impacts over time. The results of this approach are presented in Figure 3. The agreement that has been in force the longest is the Europe Agreement with Romania, as the older Europe Agreements with the Czech Republic, Hungary, Poland, and the Slovak Republic (the Visegrad countries) were superseded when these countries joined the EU.

30. **The method shows that the impact of all trade agreements, except WBTPs, is positive and increasing over time from the first year onward.** The cohort method allows us to estimate the average initial impact of this type of agreement on all countries that were party to them. The result shows that these agreements made, on average, a positive contribution to

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<sup>16</sup> We thank Professor Stephan R. Bond for suggesting this approach.

bilateral trade from the beginning, gradually increasing over time.<sup>17</sup> The main conclusions are as following.

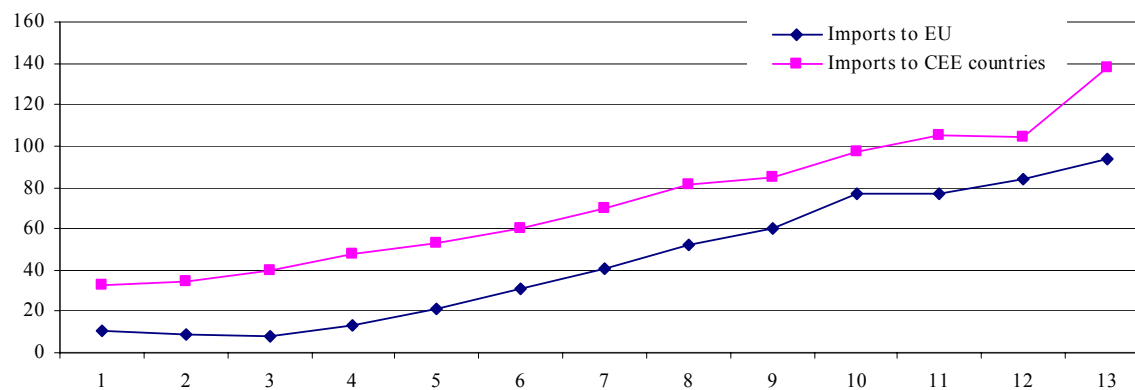
- **The impact of the Europe Agreements increased gradually over time.** The impact of the agreements seems to have stabilized when they were in effect for 10-12 years, doubling EU exports to the region and contributing 80 percent to imports. Following the accession to the EU of 10 new member states in 2004, the sample changes somewhat, and the agreements appear to have a larger impact on trade of the remaining countries with a Europe Agreement.
- **The impact of a Customs Union appears to be more volatile over time,** possibly because only two countries in our sample had a customs agreement with the EU. Our results were likely to have been influenced by Turkey, which was the largest country and experienced volatile trade relations during 1998-2002 (Kaminski and Ng, 2006).
- **The impact of the Western Balkan Trade Preferences (WBTPs) declined over time, in contrast to the impact of the other two.** The results reported for the WBTPs suggest that these agreements had an impact on exports to the EU in 2001, but not thereafter. These results suggest that the WBTPs are not very promising, however we do not have a sufficiently long period to conclude the dynamics of their impact. Meanwhile these agreements contributed to EU exports to the region during all years (Appendix III for detailed reporting of the estimates). These trade patterns may have been the result of the impact of foreign aid or remittances from the EU countries.
- **A customs union appears to have had a stronger impact on trading-partner exports to the EU than the Europe Agreements.** This result is consistent with the observation that, while the rules of origin are an important obstacle for exports to the EU, they are less so for EU exports.

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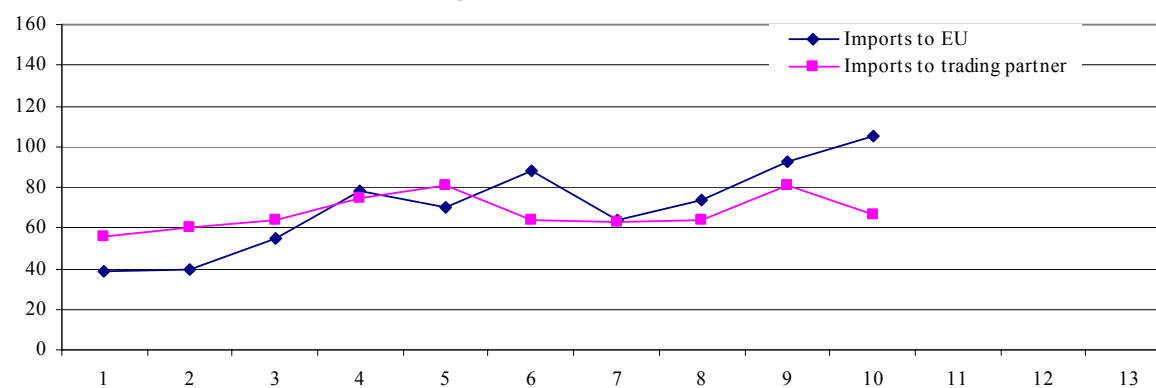
<sup>17</sup> Also, recalling the impact estimated in the DGMM (6 percent impact on CEE countries' imports to EU and 14 percent on EU imports to CEE countries) we can say the finding in our cohort method is a good approximation of reality, especially considering that the estimated impact using the DGMM underestimates as a result of the weak instruments.

**Figure 3. Europe Agreement and Customs Union:  
Impact on Bilateral Trade in Year After the Agreement Entered into Force  
(Percent difference from situation in absence of a trade agreements)**

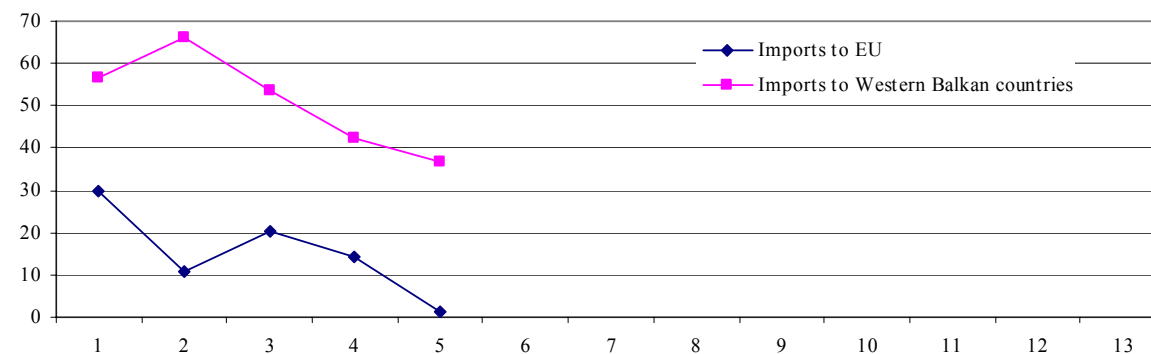
**Figure 3a. Europe Agreements**



**Figure 3b. Customs Union 1/**



**Figure 3c. Western Balkan Trade Agreements**



Source: Authors' estimates as reported in Annex III.

Note: Customs union observations are limited to 10 years, which covers the complete period of the EU-Turkey Agreement.

#### D. Impact of the Trade Agreements on Individual Countries

31. **The empirical framework can also be used to estimate the impact of the trade agreement on the performance of individual countries.** We follow the method applied by Adam, Kosma, and McHugh (2003) and Faruquee (2004) and relax the assumption that the agreements have a common impact on all the countries that sign on to them. We create interactive county and agreement dummies (for example, *Poland\*Europe Agreement*). This variable is used to isolate the impact of the Europe Agreement on Polish trade. In parallel, the aggregate Europe Agreement dummy is redefined to exclude the country for which we estimate the individual effect. The estimation is repeated for each country with an Europe Agreement, in order to identify the impact of the agreement on its individual trade performance. The results are reported in Table 3.

32. **The estimates for the individual countries show that, while EU exports reacted more strongly than its imports in all countries, the results varied by country** (Table 3). EU exports to Romania did particularly well, possibly as a result of Romania's high MFN tariffs (Figure 2). However, EU exports also did well in some of its trading partners with low MFN tariffs, such as the Baltic countries and Albania, since these economies achieved very high trade-to-GDP ratios and hence traded more than expected with the EU. The result that EU exports to Macedonia responded negative to the Stabilization and Association Agreement is surprising but may be due to country specific circumstances during 2001-05.

33. **The impact on partner country exports to the EU was strongest in Bosnia, Poland, Romania, and Turkey.** Bosnia's strong performance could be related to the fact that, as its living standards suggest, its GDP is in fact much higher than officially reported in its statistics (Petrova, 2006). That is, the estimated effect catches up the effect from this mismeasured GDP. The poor performance of Albania's exports on EU markets may be due to country-specific factors, such as the recovery from the financial sector disturbances during the late 1990s.

**Table 3. Impact of EU Agreements on Individual Central and Eastern European Countries**

	Europe Agreement/Customs Union/Western Balkan Agreement	
	Imports to each member country	Imports to EU
Europe Agreements and Stability and Association Agreements		
Bulgaria	0.38 [4.47]**	0.26 [3.28]**
Czech Republic	0.40 [5.69]**	0.30 [4.14]**
Croatia	0.35 [4.90]**	0.17 [2.28]*
Estonia	0.79 [9.74]**	0.57 [5.23]**
Hungary	0.58 [7.59]**	0.48 [6.38]**
Latvia	0.74 [6.62]**	0.31 [2.83]**
Lithuania	0.66 [6.43]**	0.28 [2.90]**
Macedonia (FYROM)	-0.32 [3.64]**	-0.06 [0.49]
Poland	0.60 [6.56]**	1.42 [2.28]*
Romania	1.14 [11.60]**	0.77 [10.31]**
Slovak Republic	0.38 [5.11]**	0.31 [3.61]**
Slovenia	0.33 [7.68]**	0.23 [4.98]**
Customs union:		
Turkey	0.75 [9.05]**	0.87 [12.20]**
Western Balkan Trade Preferences:		
Albania (2001-05)	0.73 [4.79]**	-0.79 [5.20]**
Bosnia (2001-05)	0.40 [3.61]**	1.25 [6.72]**
Serbia and Montenegro (2001-04)	0.11 [0.90]	-0.08 [0.47]

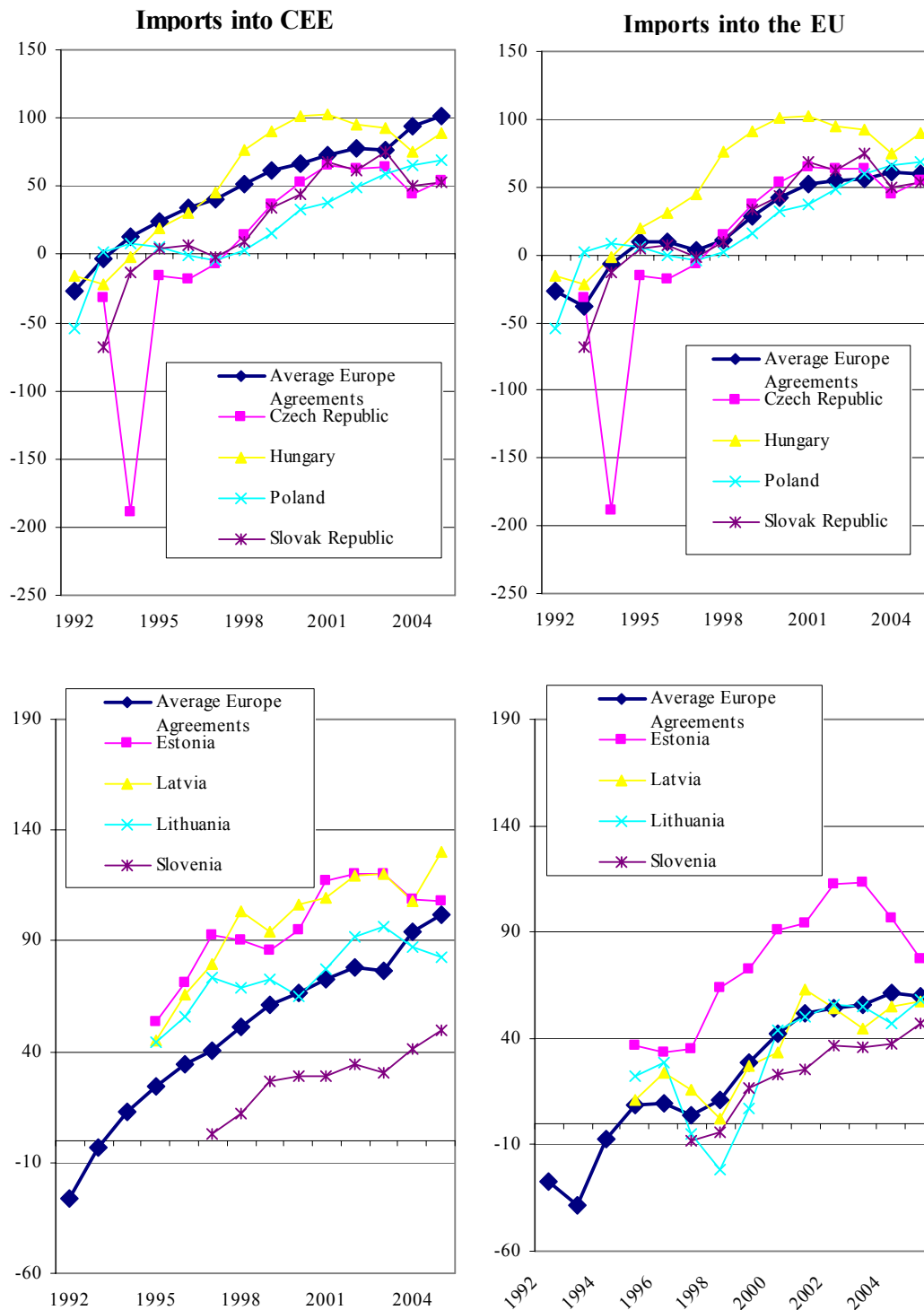
Source: Authors' estimates.

Note: Robust t-statistics in brackets; \* significant at 5%; \*\* significant at 1%.

### E. Impact of the Trade Agreements on Individual Countries over Time

34. **The large number of observations allows us to estimate the trade agreements' over-time impact on the trade performance of individual countries.** We create interaction dummies to estimate the impact of a trade agreement during a particular year for a particular country (for example, *Poland\*1998\*Europe Agreement*). In parallel, we create a new dummy for the Europe Agreement countries that excludes Poland during that year. This procedure is done for each country for each year that the agreements were in force. We present the results of this procedure for the New Member States and the western Balkan countries in Figures 4 and 5.

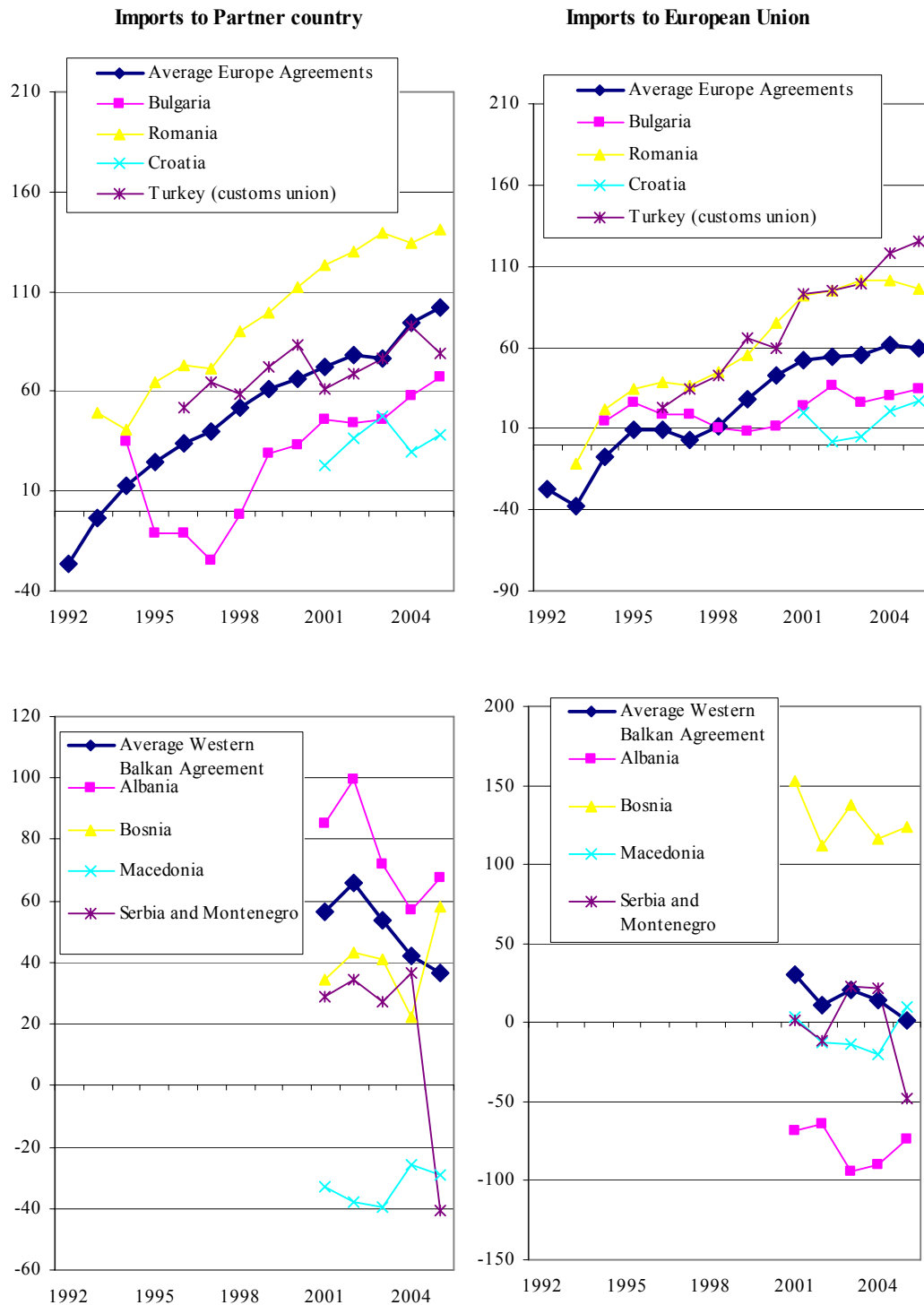
**Figure 4. EU New Member States: Impact of Europe Agreements on Individual Countries (Percent difference from situation in absence of a trade agreements)**



Source: Authors' estimates, as reported in Annex III.



**Figure 5. Selected Countries in Southeast Europe: Impact of Trade Agreements on Individual Countries (Percent difference from situation in absence of a trade agreements)**



Source: Authors' estimates as reported in Annex III.

35. **Over time, individual country estimates show the same upward trend as the estimates for the average impact for the Europe Agreements and the Customs union.**

Across country the estimates were very different though. Hungary, Estonia, Romania, Turkey and Bosnia exports to the EU did particularly well. EU export to Hungary, the three Baltic countries, Romania and Albania did better than average. Clearly some countries performed better than others at a certain point of time.

36. **Political developments in both the EU and in CEE countries influenced trade performance under the trade agreements.**

The “velvet divorce” of the Czech and Slovak Republics in 1993 shows up as an outlier for the performance of the Czech Republic (Figure 4). Similarly, political developments in Serbia and Montenegro in 2004 and 2005 was reflected in their trade statistics and hence the estimated impact of the trade agreements. More generally, the expansion of the EU in 2004 influenced the impact of the EU agreements in 2004 and 2005.

37. **EU exports to CEE countries did not perform better in countries with high tariffs and are to be explored further.**

EU exports did well in Romania, a country with high MFN tariffs, but performed below average in Poland which also had high MFN tariffs. Furthermore, EU exports performed well in Estonia and Latvia, countries with very low MFN tariffs (Figure 2). To us it was a surprise not finding a relationship between EU exports and MFN tariffs across individual countries. Hence, aimed at explaining the country differences, we do further quantitative analyses through exploring the country performance information reported in Figures 4 and 5.

#### IV. DETERMINANTS OF COUNTRY PERFORMANCE

38. **Why is the impact of a trade agreement so different across countries** (see Figures 4 and 5)? In an ideal world, a single trade agreement would have the same impact on different countries, controlling all the other factors. Then how should we interpret the different impacts in our results? In this section, we explain the differences by putting them in context of a certain country’s macroeconomic and policy environment.

39. **We elaborate our explanation of the countries’ performance by illustrating it econometrically.**<sup>18</sup>

In our fixed effects model  $Y_{ijt} = \beta_0 + \beta_1 Y_{ijt-1} + \beta_2 D_{ijt} + \beta_3 X_{ijt} + \varepsilon_{ij} + \mu_t + \nu_{ijt}$ ; where,  $\varepsilon_{ij}$  captures any country-specific effects that do not vary over time, such as the exchange rate regime.  $\mu_t$  captures any specific time effects that do not vary across countries, such as a worldwide economic recession. However, some other effects, such as specific shock to a country, are reflected in  $\nu_{ijt}$ . Suppose those factors or shocks are positively/negatively

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<sup>18</sup> Faruquee (2004) investigates the impact of structural policies on the competitiveness of euro member countries.

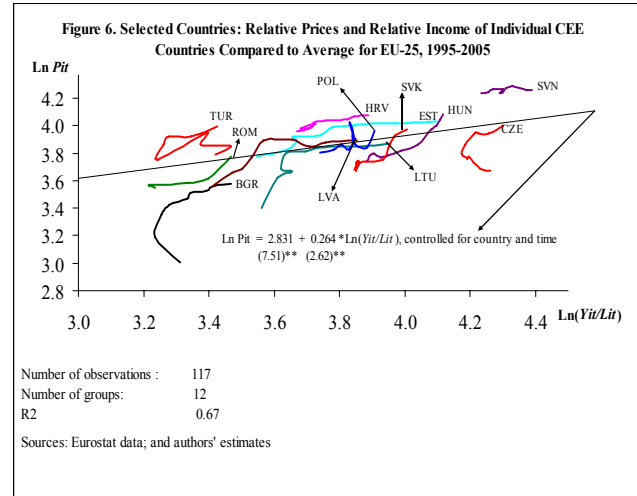
correlated with a certain country's trade preference, which is a shock too, then the estimated coefficients will be larger or smaller between countries as they capture other factor effects. This means that when a trade preferences comes into effect, the real impact depends on the interaction between the trade preference and that country's status quo economic policies and environment. We defined an indicator that measures the status quo based on data that are readily available from the Eurostat website.

### A. Definition and Estimation of a Price Competitiveness Indicator

40. **The competitiveness indicator is defined as the deviation of the CEE countries' price level from its equilibrium level.** By defining the price level in comparison to the average price level of all countries in the region, we implicitly take account of exchange rate movements. The data for this approach are available on line on the Eurostat website for most of the countries in the region. We estimate the equilibrium price level (labeled  $\ln(P_{i,t})$  below) in a panel regression as a function of per capita GDP, as well as fixed-country and fixed-year effects:<sup>19</sup>

$$\ln(P_{i,t}) = \ln(Y_{i,t}/L_{i,t}) + e_{i,t}.$$

41. **Our results allow us to assess the price competitiveness of CEE and western Balkan countries over time.** Figure 6 presents the price level of each country, in logs and compared with the EU-25 average (y-axis) as well as the relative per capita GDP (also in logs and compared with the EU-25 average). Figure 6 places the country name at its most recent observation (2005).<sup>20</sup>



<sup>19</sup> The price competitiveness measure we generated follows Summers and Heston (1991) as discussed in Froot and Rogoff (1995). This measure has certain advantages compared to the real effective exchange rate (REER) measure commonly used in the literature. It is comparable to the REER in that it compares developments in price levels in the CEE countries to the average price level in the EU-25. However, it goes a step further and takes account of developments in per capita income over time by comparing per capita GDP to the average per capita GDP in the EU-25.

<sup>20</sup> The following country codes are used: BGR, Bulgaria; EST, Estonia; HRV, Croatia; HUN, Hungary; LVA, Latvia; MK, Former Yugoslav Republic of Macedonia; POL, Poland; ROM, Romania; SVN, Slovenia; SVK, Slovakia; and TUR, Turkey.

## B. Price Level and Competitiveness

42. **The performance of CEE and western Balkan countries on the EU market is estimated as a function of their deviation from the equilibrium price level.** We estimate the relationship below, where  $TA_{it}$  is the estimated impact of a trade agreement on each country over time, compared with the situation in absence of a trade agreement ( $TA_{it}$  is a certain point estimate in country  $i$  at time  $t$ , as reported in Figure 4 and 5). This is the information that we present in Figures 4 and 5 above; of these, we use only the statistically significant observations as reported in Appendix III. We expect that this performance is a function of the price competitiveness of exports on the EU market. Variable  $EPL_{it}$  is the difference between the estimated price level and the price level, that we would expect given the country's per capita GDP at purchasing power parity:

$$TA_{it} = \beta_1 + \beta_2 PL_{it} + \varepsilon.$$

43. **Our results suggest that the trade-agreements-driven export performance of the CEE countries depends on the price competitiveness in the source country.** Higher prices in the source country have a negative impact on EU imports from that country (Table 4). In principle, this effect should be symmetric; higher prices discourage exports and encourage imports. But we did not find such symmetry in our results. Higher prices affect exports to the EU but have no immediate impact on imports from the EU.

Table 4. Selected countries: Price Competitiveness and Trade Performance, 1996-2005		
	Imports to EU	Imports to EU partner country
$EPL_{it}$	-0.685 (-2.47)*	0.15 -0.57
Country fixed effects	yes	yes
Year fixed effects	yes	yes
No. of observations	76	101
No. of groups	12	12
$R^2$ within	0.76	0.70
Source: Authors' estimates		
Notes: Countries with a significant trade performance under the trade agreement as listed in Appendix III are included. with Robust t-statistics in brackets; * significant at 5 percent level.		

44. **The results illustrate that macroeconomic policies are key determinants of bilateral trade performance driven by trade agreements.** However, the failure to find a relationship on the import side also indicates how limited it is to use only price competitiveness indicators, a simple measure, to explain trade flows.<sup>21</sup>

<sup>21</sup> The asymmetric result may be explained by the fact that CEE exports to the EU have a significant EU content while EU exports to CEE countries have a modest CEE content. This may be illustrated by the correlation between the coefficients of CEE imports to the EU and EU imports to the CEE countries: A regression of the estimated CEE export performance under the agreement on the import performance with fixed and time effects has an estimated coefficient of 0.287 with  $t$ -statistic of 3.17 and  $R^2$  of 0.76.

## V. POLICY IMPLICATIONS

45. **Which of our results are relevant for EU trade policies toward western Balkan countries and Ukraine?** We limit ourselves to commenting on explicit policies affecting these countries, restraining ourselves from commenting on the EU's policies vis-à-vis other countries. Clearly, EU policies with respect to non-European countries would also have an impact on the non-EU countries in Europe. However, we expect these policies to be reformed under a broader WTO agreement, which is beyond the scope of this study.

### A. Implications for Western Balkans

46. **The trade preferences for the western Balkans have been replaced by an extended CEFTA.** Our analysis of the WBTP showed that its impact became weaker over time. Our estimates suggest that CEFTA will increase bilateral trade by 38-49 percent. This indicates that, compared to the WBTP, the extended CEFTA will facilitate integration of western Balkan countries with the EU and each other. Hence we welcome this policy change.

47. **Our analysis, however, also indicates that a customs union of the EU and the western Balkan countries would contribute more to trade than a patchwork of free trade agreements.** The literature is unambiguous that a customs union imposes fewer costs on traders than a free trade area, where private parties are required to comply with cumbersome rules of origin. Our analysis confirms that a customs union with the EU would greatly benefit the exports from western Balkan countries to the EU. This result is particularly important if there is no prospect for EU membership in the short to medium term. As in the case of Turkey, such a customs union could exclude agricultural trade. However, an agreement that would also include agricultural products would have even greater impacts.

48. **In the case of the western Balkans, the disadvantages of a customs union appear to be manageable.** The share of the EU in total trade of the western Balkans is already in the range of 70-90 percent in all countries, except Macedonia. Hence, trade diversion is less of a concern. A customs union will require the adoption of the EU tariffs, which are low for most nonagricultural products. In the region, Croatia and possibly Montenegro have tariffs that are on average slightly lower than the EU; hence, in all other countries the adoption of a customs union would actually lower the simple average tariff.<sup>22</sup>

49. **An EU-western Balkan customs union could set the stage for further cooperation during the period before membership.** A customs union does not require, but is likely to lead to, deeper cooperation, initially in customs administration but over time also in trade in services,

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<sup>22</sup> Since 2005, Montenegro and Serbia became separate countries. Montenegro's simple average tariff appears to be below the EU average.

foreign direct investment, and movement of people. In principle, this cooperation could also be realized without a customs union, but it is likely to be easier with tariff level conversion and closer alignment of customs administrations.

## **B. Implications for Ukraine**

50. **An EU-Ukraine customs union is unlikely to be appropriate in the short to medium term.** The EU's share in Ukraine's external trade is about one-third, less than half the EU share in the trade of western Balkan countries. Hence, a customs union could lead to significant trade diversion. In this context, a bilateral free trade agreement might be more appropriate, particularly if combined with significant trade liberalization of goods and services in Ukraine.

51. **If Ukraine concludes a free trade agreement with the EU, specifying the rules of origin will be important.** CEFTA — with its more liberal rules of origin — was expanded to the western Balkans and Moldova, but it continues to exclude Ukraine. Hence, a bilateral trade agreement has to specify both market access and the rules of origin. Access to the pan-European rules of origin would benefit Ukrainian exports substantially.

52. **Bilateral trade is likely to contribute more to EU exports than to Ukraine exports to the EU.** Trade preferences have a stronger impact on EU exports than on imports, because it is generally easier for EU firms to satisfy the relevant rules of origin than for suppliers who have a smaller domestic market. To compensate for this, a bilateral EU-Ukraine trade agreement could include shorter phase-in periods for Ukrainian exports to the EU, while EU preferential access to Ukraine increases over time.

53. **EU assistance — likely as part of a bilateral trade agreement — will benefit both Ukraine and EU exporting companies.** EU assistance to Ukraine will be subject to the European rules of origin, that is, it will be required to have a minimum European content. Furthermore, grant-financed imports receive duty-free treatment in many countries (Goorman, 2005). Hence even if Ukraine reduces its import duties only gradually, EU exports are likely to grow rapidly thanks to the duty-free grant-financed exports. However, competition from grant-financed imports is likely to be a temporary phenomenon that does not require a specific policy response, provided the grants contribute to investment and growth.

## **C. General Applicable Implications**

54. **Appropriate macroeconomic policies, as measured by price competitiveness, will remain crucial for reaping the benefits of any trade agreement.** Price competitiveness is a function of per capita GDP at purchasing power parity. Our analysis suggests that countries with overvalued exchange rates have difficulty competing in the EU market, notwithstanding the beneficial impact of the bilateral or regional free trade agreements. Competitive price levels require structural policies, notably competition policies and low barriers to entry and exit, a discussion beyond the scope of this paper. Countries negotiating free trade agreements with the

EU, should note that their exports will require a competitive price level to be able to take advantage of such an agreement.

## VI. CONCLUDING REMARKS

55. **A simple gravity model has allowed us to draw important conclusions.** Using the model we have estimated the impact of alternative trade policy arrangements. The strength of our approach is that it provides us with many observations to estimate the impact of various trade arrangements. Its weakness is that it does not estimate how much the trade agreements contribute to trade creation as opposed to trade diversion from other — more efficient — sources. The model, therefore, does not allow us to estimate the welfare impact of these trade agreements.

56. **Bilateral and regional trade agreements are second best to trade liberalization.** Preferential trade agreements are not a substitute for unilateral trade liberalization. In the absence of a customs union, countries remain free to lower their tariffs below the rates applied in their preferential trade partners. In Europe, tariffs in some of the Baltic countries, as well as Malta, were below the EU tariff until the time of EU accession. However, the fact that only 3 out of 12 countries that joined the EU in 2004-07 had tariffs below the EU tariffs illustrates the political difficulty in unilateral trade liberalization. Without a customs union, most European countries adopted higher tariffs. Furthermore, the lack of a customs union forced importers and exporters to satisfy the rules of origin.

57. **Bilateral and regional trade agreements are likely to remain important.** Progress in the Doha round would be welcome and could make many of the preferential trading arrangements superfluous. However, the political obstacles to such progress remain strong. Various studies have highlighted the possibility that preferential trade agreements are sabotaging the prospect for progress toward multilateral trade liberalization and that the cost of negotiating and implementation risk diverting policy makers' attention from the multilateral agenda. However, preferential trading arrangements may also pave the way for multilateral trade negotiations. They increase competition and soften the impact of the remaining tariffs that can be removed only through multilateral trade negotiations.

**Appendix Table I.1. Selected Trade Agreements: List of Member Countries, 1990–2006**

European Union (EU), January 1, 2006	European Union New Member States since 1996 (NMS)		European Free Trade Area (EFTA)		Central European Free Trade Area (CEFTA) (Established December 1992)		European countries that previously belonged to or were associated with the Council for Mutual Economic Assistance (CMEA)		Commonwealth of Independent States (CIS)	
	Bulgaria (2007)	Iceland	Country		Membership period		Countries that previously were part of the Soviet Union		Azerbaijan	
Austria (since 1995)	Bulgaria (2007)	Iceland	Albania		Planned for 2007		Countries that previously were part of the Soviet Union		Azerbaijan	
Belgium	Cyprus (2004)	Norway	Bosnia and Herzegovina		Planned for 2007		Countries that previously were part of the Former Federal Socialist Republic of Yugoslavia		Armenia	
Denmark	Czech Republic (2004)	Switzerland	Bulgaria		1998 July - 2006		Albania 1/		Belarus	
Finland (since 1995)	Hungary (2004)	Finland (until 1994)	Croatia		2003 - 2006		Bulgaria		Georgia	
France		Sweden (until 1994)	Czech Republic		1993 - 2003		Czech Republic		Moldova	
Germany	Latvia (2004)	Austria (until 1994)	Hungary		1993 - 2003		Germany (including former DDR)		Kazakhstan	
Greece	Lithuania (2004)	Liechtenstein	Moldova		Planned for 2007		Hungary		Kyrgyz Republic	
Ireland	Malta (2004)		Macedonia (FYROM)		2006 - Ongoing		Poland		Russian Federation	
Italy	Poland (2004)		Montenegro		Planned for 2007		Romania		Ukraine	
Luxembourg	Romania (2007)		Poland		1993 - 2003		Slovak Republic		Uzbekistan	
Netherlands	Slovak Republic (2004)		Romania		1997-ongoing				Tajikistan	
Portugal	Slovenia (2004)		Serbia		Planned for 2007				Turkmenistan	
Spain			Slovak Republic		1993 - 2003					
Sweden (since 1995)			Slovenia		1996 - 2003					
United Kingdom			United Nations Mission in Kosovo (UNMIK)		Planned for 2007					

Source: WTO, various years and countries, *Trade Policy Reviews*, and Dartmouth on line database at, [http://mba.tuck.dartmouth.edu/cib/research/trade\\_agreements.html](http://mba.tuck.dartmouth.edu/cib/research/trade_agreements.html).

1/ Albania left the CMEA in 1961 and the econometric analysis treats it as if it was never a member.



Appendix Table I.2. European Union: Schedule of Trade Preferences, 1990–2005

Trade Agreements		Selected Trade Preferences 1/	
Agreement	Period	Schedule	Period
<b>Europe agreements or equivalent 2/</b>		Western Balkan trade preferences	
Bulgaria	1994-2006	Albania	2001-05
Czech Republic	1992-2003	Bosnia and Herzegovina	2001-ongoing
Cyprus	1995-2003	Serbia and Montenegro	2001-ongoing
Estonia	1995-2003	UN administered Kosovo	2001-ongoing
Hungary	1992-2003	Lome/Cotonou Agreement	1990-ongoing
Latvia	1995-2003	Selected countries in the Africa, the Caribbean and the Pacific 3/	
Lithuania	1995-2003	Generalized System of Preferences	1990-ongoing
Poland	1992-2003	All developing countries	
Romania	1993-2006	Overseas Countries and Territories	1990-ongoing
Slovak Republic	1992-2003	Selected countries in the Africa, the Caribbean and the Pacific 4/	
Slovenia	1997-2003		
<b>Stabilization and Association Agreements</b>			
Albania	2006-ongoing		
Croatia 5/	2001-ongoing		
Macedonia (FYROM) 6/	2001-ongoing		
<b>Customs Union</b>			
Turkey	1996-ongoing		
Malta	1990-2003		
<b>Free Trade Agreements</b>			
Algeria	2005-ongoing		
Austria	1990-94		
Cyprus	1990-2002		
Chile	2003-ongoing		
Egypt	2004-ongoing		
Finland	1990-94		
Iceland	1990-ongoing		
Israel	2000-ongoing		
Jordan	2002-ongoing		
Lebanon	2003-ongoing		
Liechtenstein	1990-ongoing		
Mexico	2000-ongoing		
Morocco	2000-ongoing		
Norway	1990-ongoing		
South Africa	2000-ongoing		
Sweden	1990-94		
Switzerland	1990-ongoing		
Tunisia	1998-ongoing		

1/ Trade agreements and preferences also include the Association with certain non-European countries and territories as well as trade preferences for selected mediteranean countries (WTO, 2001, p. 31). These agreements are not included in the econometric analysis.

2/ The Agreement with Cyprus of 1995 is treated as equivalent to a Europe Agreement in the analytical part.

3/ The full list is available on [http://ec.europa.eu/comm/trade/issues/bilateral/regions/acp/index\\_en.htm](http://ec.europa.eu/comm/trade/issues/bilateral/regions/acp/index_en.htm).

4/ The full list is available on [http://ec.europa.eu/comm/development/oct\\_new/oct\\_en.cfm](http://ec.europa.eu/comm/development/oct_new/oct_en.cfm).

5/ Croatia's Stabilization and Association Agreement was signed on October, 29 2001 and came into effect on an interim basis.

6/ The EU signed a Stabilization and Association Agreement with Macedonia on April 9, 2001. However, unlike Croatia, Macedonia is not a member of CEFTA (Appendix Table I.3).

Appendix Table I.3. Regional and Bilateral Trade Agreements of Selected European Countries (Year they entered into force) 1990-2005 1/

	Bulgaria	Croatia	Czech Republic	Estonia	Hungary	Latvia	Lithuania	Poland	Romania	Slovak Republic	Slovenia	Ukraine	Turkey
Regional and unilateral agreements		2003 - 2006											
Europe Agreement <sup>2/</sup>	1994	2001	1992-2003	1995-2003	1992-2003	1995-2003	1995-2003	1992-2003	1993	1992-2003	1997-2003		1996 January
EU Customs Union													
EU accession <sup>3/</sup>	2007		2004	2004	2004	2004	2004	2004		2004	2004 May		
FTA with EFTA countries	1993	2001	1992	1996	1994	1996	1996	1994	1993	1992	1995 July		1993 January
Baltic Free Trade Agreement													
Estonia				1994		1994	1994						
Latvia				1994		1994	1994						
Lithuania				1994		1994	1994						
CEFTA	1999	2003	1993		1993			1993	1997	1993	1996		
Bulgaria		2003	1999		1999			1999	1999	1999	1999		
Croatia	2003	2003	2003		2003			2003	2003	2003	2003		
Czech Republic	1999	2003	1993		1993			1993	1997	1993	1996		
Hungary	1999	2003	1993		1993			1993	1997	1993	1996		
Poland	1999	2003	1993		1993			1997	1997	1993	1996		
Romania	1999	2003	1997		1997			1997	1997	1997	1996		
Slovak Republic	1999	2003	1993		1993			1993	1997	1997	1996		
Slovenia	1999	2003	1996		1996			1996	1997	1996	1996		
Commonwealth of Independent States												1994	
Bilateral agreements and CEFTA													
Albania	2003	2003							2004			1997	
Armenia													
Bosnia		2001							2005		2002		1999
Bulgaria		2002						1999	1999 (4)	1999 (4)	1999 (4)		
Croatia	2002		1996	2002	1997			2003 (4)	2003 (4)	2002	1998		
Czech Republic	1996	2002	2002		2001			1993 (4)	1997 (4)	1993	1996 (4)		1998
Estonia	2002		1996	1996	1998			1999		1996	1997		1998
Faroe Islands 6/				1998				1999					
Georgia												1996	
Hungary	1997	2001	1993 (4)	1998				1993 (4)	1997 (4)	1993 (4)	1996 (4)		1998
Israel	2002		1996		1998			1999	2001	1997		1998	
Kyrgyz Republic													
Latvia	2003		1996	1994 (5)	2000	1994 (5)	1994 (5)	1999		1997	1997		1996
Lithuania	2002		1997	1994 (5)	2000	1994 (5)		1997		1997	2002		1998
Macedonia	2000	1997							2004				2000
Moldova	1996	2004							1995		1996 (4)		1996
Poland	1999	2003 (4)	1993 (4)	1999	1993 (4)	1999	1997	1997 (4)	1997 (4)	1993 (4)	1997 (4)		1998
Romania	1999 (4)	2003 (4)	1997		1997 (4)					1997 (4)			
Serbia and Montenegro	2003	2004							2004				
Slovak Republic	1999 (4)	2002	1993	1996	1993 (4)	1997	1997	1993 (4)	1997 (4)	1997 (4)	1996 (4)		1998
Slovenia	1999 (4)	1998	1996 (4)	1997	1996 (4)	1997	1997	1996 (4)	1997 (4)				2000
South Africa			2003										
Ukraine				1996									
Turkey	1999	2002	1998	1998	1998	1996	1998	1996	1998	1998	2000		

Source: WTO, various years, Trade Policy Reviews, and Dartmouth database available at: [http://mba.tuck.dartmouth.edu/cib/research/trade\\_agreements.html](http://mba.tuck.dartmouth.edu/cib/research/trade_agreements.html)

Note: Agreements entering into force during November-December are listed as effective during the following year.

1/ Agreements that officially entered into force in October or later of any year are in the econometric analysis assumed to have become effective during the following year.

2/ Including interim implementation.

3/ Upon accession to the EU, all bilateral and regional agreements were superseded by the EU external agreements.

4/ Upon accession to CEFTA.

5/ Upon entry into force of the Baltic Free Trade Agreement.

6/ Not included in the regressions due to a lack of data.

Appendix Table I.4. Selected European Countries: Regional and Bilateral Trade Agreements, 1990–2005

	Western Balkans (excluding Croatia)				EFTA		
	Albania	Bosnia Herzegovina	Macedonia	Serbia and Montenegro	Moldova	Standard	Exceptions
Regional and unilateral agreements							
EFTA							
EFTA-EU Agreement						1990-ongoing	
Western Balkan Trade Preferences	2001	2001	2001	2001		1990-ongoing	
Commonwealth of Independent States					1999-2000		
Trade embargo with all trading partners							
Bilateral agreements and CEFTA							
Albania		2005	2002	2004	2005		
Armenia					1996		
Bosnia	2005		2002				
Bulgaria	2003			2003	1996	1993-2006	
Chile						2004	
Croatia	2003	2001			2004	1992	
Czech Republic						1992-2003	
Estonia						1996-2003	
Faroe Islands 2/						1993	Switzerland 1995
Georgia							
Hungary							
Iceland			2001			1994-2003	
Israel						1993	
Jordan						2002	
Kyrgyz Republic					1997		
Kosovo (UNMIK) 2/	2003						
Latvia						1996-2003	
Lithuania						1996-2003	
Macedonia	2002	2002				2001	
Mexico						01/01/01	
Moldova	2005					2000	
Morocco						1999	
Palestine						1994-2003	
Poland					1995	1993-2006	
Romania	2004						
Serbia and Montenegro	2004						
Singapore						2003	
Slovak Republic						1992-2003	
Slovenia			2002			1995-2003	
South Africa							
Ukraine							
Turkey			2003			1993	Iceland 1992

1/ Agreements in italics became effective during November -December of the previous year.

2/ Not included in the quantitative analysis due to a lack of data.

Source: WTO, various years, *Trade Policy Reviews*, and Dartmouth database available at, [http://mba.tuck.dartmouth.edu/cib/research/trade\\_agreements.html](http://mba.tuck.dartmouth.edu/cib/research/trade_agreements.html).

## APPENDIX II: UNIT ROOT TEST AND SELECTED STATIC MODEL RESULTS

1. **Prior to testing for unit roots, we aggregate data.** The unit root test cannot be done on the complete disaggregate data set because the cross-section dimension has over 100 observations and contains gaps for years during which trading partners did not trade. By contrast, the time dimension is only 16 years. A panel unit root test had advantages over a time-series unit root test because the panel data provide sufficient data for efficient and robust test results. But if the number of cross-sector observations is too large and time dimension is too small, there will be too much “noise information.” By aggregating the data in a sensible way, the number of cross-sector observations can be dramatically reduced, so that we can obtain a sufficiently smooth time-series cross-section. Furthermore, as we have only 16 years of data, the variation in a single country's series is too small to be applicable for a unit root test. By aggregating our data, we exploit the panel characteristics and generate a sufficiently large time dimension in series.

2. **We conduct a unit root test for EU-CEE trade flows over the 1990–2005 period.** We selected these trade flows because the impact of the European trade agreements on these trade flows is the main focus of our paper and data are available for all years. The test is applied to the imports from the EU to the CEE-8 countries during the period 1990–2005. Furthermore, we exclude Belgium and Luxemburg from the sample of EU-15 countries so that our total number of observations is 13 for a period of 16 years.

**Appendix Table II.1. Results of Unit Root Tests on Trade and GDP**

	LLC	IPS	Hadri	Pesaran
Ln(import)				
Without time trend	-8.327**	-4.367**	23.900**	-1.596*
With time trend	-8.518**	-3.819**	-	-
Ln(GDP*GDP)				
Without time trend	-3.696**	-1.974**	24.994**	-1.419*
With time trend	-9.626**	-3.483**	-	-
Ln(import)/Ln(GDP*GDP)				
	-7.655**	-3.048**	19.861**	-2.587**
	-9.951**	-3.664**	-	-

Source: Author's estimates.

Note 1: We do an AR(2) process unit root test, using two methods. First, the lag length of the autocorrelation process is chosen by a *F*-test. We started with testing down from a lag length of four in our dynamic panel regression. If the highest-order lag is insignificant in our regression results, then we reduce the order by one and we end up with AR(2). The second method is the Akaike information criterion (AIC) method, where the minimized AIC is achieved at AR(2) too. Hence, results of both tests are consistent.

Note 2: The reported Hadri test assumes homoscedastic disturbances across units. Hadri also carries out test results with different assumptions for the error term, and they also reject stationarity for both trade and GDP.

\* indicates rejecting the null hypothesis at 5 percent significant level; \*\* indicates a 1 percent level.

3. **We interpret the result reported in Appendix Table II.1 as follows.** If the tested theta ( $\theta$ ) in the equation below is not equal to zero, the  $y_{it}$  is not a nonstationary process. All the test statistics in the above table, are distributed as standard normal distribution  $N(0,1)$ . The Levin, Lin and Chu test and the Im, Pesaran & Shin test universally rejected the  $H_0$  hypothesis which is there is a unit root in  $Y_{it}$  ( $\ln(import)$ ,  $\ln(GDP_i * GDP_j)$ ). Both of them have large  $t$ -statistics. But these results should be interpreted with caution because both tests recommend a panel with  $T \geq 25$  and  $T \leq 250$  in order to fit to the asymptotic statistic distribution well; otherwise, we may draw the wrong inference. Also, they both crucially depend on the cross-sectional independence assumption. Given the above limitations, we rely more on our test results from the next two tests, both of which support a nonstationary hypothesis. Note that the null hypothesis of the Hadri (2000) test is that the  $y_{it}$  is a stationary process and thus a large  $t$ -value means a rejection of stationary and indicates non-stationarity (unit roots); the null hypothesis of the Pesaran (2003) test is a nonstationary process, and thus a small  $t$ -value means acceptance of the null hypothesis and is thus an indication of nonstationarity. Our findings partially support unit roots on the log imports and log GDP multiples. Three of the four unit root tests in the last panel of Appendix Table II.1 reject non-stationary on  $\ln(import)/\ln(GDP * GDP)$ , the Hadri test being the exception. Hence, the balance of the evidence suggests that imports and GDP are cointegrated.

$$\Delta y_{it} = \theta y_{it-1} + \sum_{L=1}^{P_L} \rho_{iL} \Delta y_{it-L} + \alpha_{mi} d_{mi} + \varepsilon_{it} \quad m = 1, 2, 3$$

where  $d_{mi}$  are specified as  $d_{1t} = \{empty\}$ ,  $d_{2t} = \{1\}$ , and  $d_{3t} = \{1, t\}$  to model with or without the constant, and with or without time-trend effects<sup>23</sup>.

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<sup>23</sup> For a detailed equation specification, please refer to Baltagi (2005).

Appendix Table II.2. Random effect models and Hausman Test Results

	Model 1	Model 2	Model 3	Static Model
	One-way random effects	One-way fixed effects	One-way random effects with year dummies	Two-way fixed effects
EU and Europe Agreement countries				
Imports into EU	0.22 [7.64]**	0.34 [10.76]**	0.31 [10.06]**	0.30 [9.24]**
Imports into Central and Eastern Europe	0.54 [19.00]**	0.62 [19.06]**	0.60 [20.10]**	0.58 [17.18]**
EU and customs union				
Imports into EU	0.63 [10.58]**	0.77 [10.91]**	0.80 [12.88]**	0.76 [10.58]**
Imports into customs agreement country	0.64 [10.09]**	0.69 [11.31]**	0.81 [13.08]**	0.68 [11.05]**
EU and Stability and Association Agreement (SAA)				
Imports into EU	-0.11 [1.55]	0.05 [0.71]	0.05 [0.67]	0.07 [0.94]
Imports into SAA country	-0.13 [2.22]*	0.12 [2.09]*	0.19 [3.45]**	0.16 [2.75]**
EU and Western Balkan				
Imports into EU	-0.34 [3.02]**	0.11 [1.00]	-0.12 [1.06]	0.14 [1.19]
Imports into Western Balkan	0.15 [1.89]	0.46 [5.67]**	0.36 [4.94]**	0.48 [5.93]**
CEFTA				
Both countries member of CEFTA	0.32 [8.99]**	0.43 [11.25]**	0.36 [9.36]**	0.39 [9.79]**
Both countries with bilateral agreement	0.10 [2.82]**	0.23 [6.72]**	0.20 [5.78]**	0.20 [5.79]**
EU and EFTA				
EU imports from EFTA member	0.33 [7.28]**	0.42 [8.96]**	0.46 [10.98]**	0.45 [9.60]**
EFTA imports from EU member	0.40 [9.94]**	0.51 [12.62]**	0.51 [13.62]**	0.55 [13.32]**
EU membership	0.38 [13.47]**	0.67 [20.49]**	0.71 [23.22]**	0.70 [20.99]**
Euro adoption	0.04 [2.54]*	0.10 [7.99]**	0.23 [14.19]**	0.15 [9.78]**
GDP <sup>O</sup> *GDP <sup>P</sup>	0.819	0.526	1.004	0.60 [28.86]**
Lagged import				no -
Controls for other trade agreements	yes	yes	yes	yes
Country fixed effect	yes	yes	yes	yes
Year fixed effect	no	no	yes	yes
No. of Observations	71,860	71,960	71,860	71,960
No. of Groups	6,072	6,080	6,072	6,080
R <sup>2</sup>	0.70	0.65	0.72	0.65
Hausman tests statistics	2,717		1,594	

Source: Authors' estimates.

Note: Robust t-statistics in brackets; \* significant at 5%; \*\* significant at 1%

Appendix Table III.1. Impact of European Trade Agreements on Bilateral Trade, 1990–2006 (percent contribution to growth)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
EU and Europe Agreement countries														
Imports into EU	-0.273 [2.40]*	-0.381 [4.48]**	-0.071 [1.35]	0.09 [1.96]*	0.096 [2.15]*	0.035 [0.78]	0.112 [2.14]*	0.284 [5.89]**	0.424 [8.55]**	0.521 [10.02]**	0.546 [10.91]**	0.557 [10.80]**	0.613 [8.13]**	0.597 [6.91]**
Imports into Central and Eastern Europe	-0.265 [2.23]*	-0.032 [0.41]	0.128 [1.95]	0.244 [5.22]**	0.341 [7.63]**	0.401 [9.49]**	0.515 [12.66]**	0.612 [14.84]**	0.662 [15.52]**	0.726 [16.93]**	0.778 [17.59]**	0.767 [16.55]**	0.942 [11.01]**	1.019 [12.59]**
EU and customs union <sup>1/</sup>														
Imports into EU				0.236 [2.39]**	0.236 [2.39]**	0.38 [3.40]**	0.442 [3.68]**	0.668 [6.53]**	0.564 [5.30]**	0.809 [7.65]**	0.83 [7.89]**	0.601 [4.30]**	1.152 [8.93]**	1.225 [8.49]**
Imports into customs agreement country				0.532 [8.87]**	0.532 [8.87]**	0.563 [9.27]**	0.607 [8.58]**	0.586 [7.99]**	0.658 [8.41]**	0.734 [8.02]**	0.591 [9.49]**	0.609 [9.27]**	0.9 [8.28]**	0.764 [3.70]**
EU and Western Balkan														
Imports into EU										0.299 [1.85]	0.108 [0.65]	0.202 [1.08]	0.144 [0.84]	0.015 [0.08]
Imports into Western Balkan										0.564 [4.27]**	0.66 [6.28]**	0.536 [5.74]**	0.423 [3.80]**	0.366 [2.54]**

1/ Covering the period that the EU had customs union agreements with both Malta and Turkey.

Source: Authors' estimate's.

Appendix Table III.2. Impact of European Trade Agreements on Bilateral Trade, Cohort Analysis (percent contribution to growth)<sup>1/</sup>

	1	2	3	4	5	6	7	8	9	10	11	12	13
EU and Europe Agreement countries (earliest starting at year 1992)													
Imports into EU	0.106 [2.26]*	0.089 [1.89]	0.083 [1.96]*	0.136 [2.70]**	0.215 [4.90]**	0.306 [6.50]**	0.409 [8.07]**	0.518 [10.04]**	0.602 [11.13]**	0.771 [13.02]**	0.773 [14.03]**	0.843 [15.70]**	0.933 [6.95]**
Imports into Central and Eastern Europe	0.327 [6.61]**	0.344 [7.56]**	0.396 [9.55]**	0.474 [11.69]**	0.531 [13.44]**	0.6 [15.15]**	0.694 [17.26]**	0.811 [19.09]**	0.85 [18.60]**	0.973 [17.66]**	1.056 [18.41]**	1.041 [18.26]**	1.381 [13.18]**
EU and customs union <sup>2/</sup>													
Imports into EU	0.389 [3.43]**	0.397 [4.50]**	0.551 [5.79]**	0.785 [4.68]**	0.702 [7.95]**	0.879 [7.34]**	0.642 [5.80]**	0.734 [5.97]**	0.922 [7.07]**	1.051 [8.39]**			
Imports into customs agreement country	0.557 [8.69]**	0.601 [8.32]**	0.636 [8.91]**	0.744 [10.10]**	0.812 [11.10]**	0.639 [10.14]**	0.625 [9.73]**	0.635 [9.70]**	0.811 [9.23]**	0.667 [4.60]**			

Source: Authors' estimates.

1/ We didn't do the Cohort regression for Western Balkan since all the Western Balkan countries has the WBTP started at the same year 2001.

2/ Covering the period that the EU had customs union agreements with both Malta and Turkey.

Appendix Table III.3. Selected Trade Agreements and Countries: Trade Policy Performance of Imports into EU Trading Partners

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Average	-0.265	-0.032	0.128	0.244	0.341	0.401	0.515	0.612	0.662	0.726	0.778	0.767	0.942	1.019
Bulgaria	[2.23]*	[0.41]	[1.95]	[5.22]**	[7.63]**	[9.49]**	[12.66]**	[14.84]**	[15.52]**	[16.93]**	[17.59]**	[16.55]**	[11.01]**	[12.59]**
			0.347	-0.114	-0.11	-0.245	-0.018	0.288	0.33	0.456	0.441	0.461	0.576	0.674
			[2.42]*	[0.91]	[1.05]	[2.32]*	[0.20]	[2.50]*	[2.47]*	[4.07]**	[3.84]**	[3.68]**	[5.66]**	[6.08]**
Czech Republic		-0.176	-0.145	0.164	0.357	0.22	0.364	0.561	0.685	0.725	0.7	0.662	0.737	0.797
		[0.98]	[0.88]	[1.32]	[3.19]**	[1.83]	[3.48]**	[5.42]**	[6.48]**	[6.91]**	[6.41]**	[5.77]**	[8.06]**	[7.85]**
Estonia				0.533	0.714	0.929	0.905	0.856	0.946	1.173	1.199	1.204	1.088	1.082
				[4.67]**	[6.36]**	[8.38]**	[7.40]**	[7.10]**	[8.15]**	[9.29]**	[9.81]**	[9.32]**	[7.99]**	[8.63]**
Hungary	0.004	0.225	0.436	0.551	0.425	0.658	0.843	1.063	1.126	1.052	1.036	1.007	1.071	1.144
	[0.02]	[1.49]	[3.69]**	[5.43]**	[4.18]**	[6.45]**	[8.19]**	[9.67]**	[9.30]**	[9.22]**	[9.42]**	[8.87]**	[10.24]**	[9.36]**
Latvia				0.449	0.66	0.799	1.036	0.94	1.062	1.092	1.198	1.202	1.083	1.305
				[2.73]**	[4.43]**	[5.42]**	[7.35]**	[6.13]**	[7.02]**	[7.31]**	[7.69]**	[7.70]**	[7.80]**	[9.41]**
Lituania				0.44	0.558	0.731	0.69	0.725	0.653	0.769	0.921	0.963	0.876	0.828
				[2.13]*	[2.89]**	[4.52]**	[4.76]**	[4.97]**	[4.26]**	[4.89]**	[6.12]**	[5.60]**	[5.29]**	[6.48]**
Poland	0.061	0.407	0.459	0.564	0.702	0.811	0.895	1.022	0.963	0.945	1.019	1.048	1.137	1.136
	[0.30]	[2.08]*	[2.82]**	[4.66]**	[5.83]**	[6.80]**	[7.12]**	[7.95]**	[7.35]**	[7.23]**	[7.47]**	[7.58]**	[9.91]**	[8.69]**
Romania		0.489	0.408	0.65	0.733	0.712	0.902	0.995	1.121	1.229	1.301	1.396	1.339	1.409
		[3.04]**	[2.87]**	[5.45]**	[5.93]**	[6.04]**	[7.57]**	[8.70]**	[9.13]**	[10.16]**	[9.93]**	[9.62]**	[9.09]**	[10.52]**
Slovak Republic		-0.354	-0.222	-0.03	0.129	0.321	0.416	0.448	0.552	0.662	0.798	0.652	0.636	0.79
		[1.74]	[1.44]	[0.20]	[1.92]	[2.66]**	[3.50]**	[3.51]**	[4.26]**	[4.70]**	[5.38]**	[4.88]**	[5.44]**	[5.83]**
Slovenia					0	0.03	0.12	0.269	0.291	0.29	0.344	0.306	0.41	0.497
					0	[0.47]	[2.00]*	[3.98]**	[4.68]**	[4.46]**	[4.27]**	[4.45]**	[4.07]**	[3.42]**
Customs Union														
Average					0.532	0.563	0.607	0.586	0.658	0.734	0.591	0.609	0.9	0.764
					[8.87]**	[9.27]**	[8.58]**	[7.99]**	[8.41]**	[8.02]**	[9.49]**	[9.27]**	[8.28]**	[3.70]**
Turkey					0.522	0.644	0.588	0.72	0.836	0.616	0.689	0.766	0.925	0.789
					[7.93]**	[9.79]**	[9.03]**	[7.72]**	[8.64]**	[8.69]**	[9.03]**	[10.78]**	[8.29]**	[3.73]**
Stabilization and Association Agreements														
Average										0.097	0.132	0.178	0.17	0.188
										[1.33]	[1.84]	[2.13]*	[1.63]	[1.99]*
Croatia										0.227	0.362	0.479	0.301	0.383
										[3.48]**	[4.49]**	[4.95]**	[0.195]	[3.22]**
Macedonia (FYROM)										-0.329	-0.381	-0.395	-0.256	-0.29
										[2.63]**	[3.79]**	[3.77]**	[1.92]	[2.11]*
Western Balkan Trade Policy														
Average										0.564	0.66	0.536	0.423	0.366
										[4.27]**	[6.28]**	[5.74]**	[3.80]**	[2.54]**
Albania										0.854	0.997	0.72	0.568	0.677
										[2.76]**	[4.68]**	[4.29]**	[2.53]*	[2.23]*
Bosnia										0.345	0.434	0.412	0.225	0.582
										[2.39]*	[3.03]**	[2.57]*	[1.31]	[3.60]**
Serbia and Montenegro										0.288	0.342	0.27	0.364	-0.406
										[2.06]*	[2.62]**	[2.27]*	[2.58]**	[2.13]*

Source: Authors' estimates.

Note: For countries that later joined the EU, we use the estimates of the effect of EU.



Appendix Table III.4. Selected Trade Agreements and Countries: Trade Policy Performance of Imports into EU

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Europe Agreements														
Average	-0.273 [2.40]*	-0.381 [4.48]**	-0.071 [1.35]	0.09 [1.96]*	0.096 [2.15]*	0.035 [0.78]	0.112 [2.14]*	0.284 [5.89]**	0.424 [8.55]**	0.521 [10.02]**	0.546 [10.91]**	0.557 [10.80]**	0.613 [8.13]**	0.597 [6.91]**
Bulgaria			0.146 [1.08]	0.262 [2.00]*	0.19 [1.71]	0.192 [1.65]	0.106 [1.08]	0.084 [0.62]	0.116 [0.83]	0.236 [2.05]*	0.369 [2.93]**	0.264 [2.06]*	0.303 [2.90]**	0.341 [3.03]**
Czech		-0.32 [2.23]*	-1.89 [1.55]	-0.154 [1.41]	-0.179 [1.62]	-0.073 [0.78]	0.143 [1.43]	0.369 [3.47]**	0.529 [4.88]**	0.648 [5.26]**	0.631 [5.49]**	0.641 [6.07]**	0.446 [5.03]**	0.545 [4.94]**
Estonia				0.369 [2.44]*	0.333 [1.98]*	0.351 [1.88]	0.636 [3.83]**	0.729 [5.05]**	0.911 [4.98]**	0.94 [5.10]**	1.122 [6.18]**	1.135 [5.87]**	0.966 [6.79]**	0.773 [4.86]**
Hungary	-0.16 [0.96]	-0.224 [1.56]	-0.022 [0.18]	0.19 [1.77]	0.303 [3.03]**	0.452 [4.33]**	0.759 [5.53]**	0.906 [6.00]**	1.014 [7.44]**	1.024 [8.34]**	0.948 [9.41]**	0.926 [9.41]**	0.749 [7.00]**	0.892 [9.26]**
Latvia				0.108 [0.62]	0.236 [1.45]	0.159 [0.87]	0.024 [0.09]	0.268 [1.59]	0.335 [1.77]	0.631 [3.06]**	0.546 [2.83]**	0.449 [2.78]**	0.553 [3.47]**	0.572 [3.32]**
Lithuania				0.219 [1.39]	0.284 [1.85]	-0.049 [0.36]	-0.217 [0.98]	0.071 [0.39]	0.438 [2.57]*	0.502 [3.36]**	0.557 [3.38]**	0.551 [3.83]**	0.474 [4.31]**	0.585 [4.36]**
Poland	-0.54 [0.37]	0.017 [0.11]	0.082 [0.71]	0.054 [0.67]	-0.009 [0.10]	-0.044 [0.43]	0.026 [0.30]	0.154 [1.80]	0.325 [3.04]**	0.373 [3.35]**	0.49 [3.88]**	0.594 [4.80]**	0.654 [5.44]**	0.691 [6.01]**
Romania		-0.121 [0.00]	0.221 [2.84]**	0.349 [3.69]**	0.388 [4.79]**	0.36 [2.97]**	0.447 [3.51]**	0.548 [3.85]**	0.754 [6.53]**	0.923 [7.12]**	0.949 [7.94]**	1.018 [9.36]**	1.018 [10.01]**	0.962 [7.26]**
Slovak Republic		-0.682 [2.25]*	-0.131 [1.08]	0.045 [0.36]	0.069 [0.49]	-0.015 [0.12]	0.092 [0.68]	0.34 [2.72]**	0.436 [3.61]**	0.682 [4.75]**	0.62 [4.71]**	0.75 [5.37]**	0.502 [5.12]**	0.531 [4.92]**
Slovenia						-0.081 [0.68]	-0.039 [0.43]	0.17 [1.98]*	0.234 [3.88]**	0.258 [4.01]**	0.364 [4.93]**	0.359 [5.06]**	0.371 [4.52]**	0.471 [4.74]**
Customs Union														
Average					0.236 [2.39]**	0.38 [3.40]**	0.442 [3.68]**	0.668 [6.53]**	0.564 [5.30]**	0.809 [7.65]**	0.83 [7.89]**	0.601 [4.30]**	1.152 [8.93]**	1.225 [8.49]**
Turkey					0.228 [3.89]**	0.342 [6.83]**	0.428 [8.44]**	0.657 [12.45]**	0.593 [12.07]**	0.926 [15.23]**	0.95 [16.57]**	0.99 [14.12]**	1.18 [9.10]**	1.253 [8.62]**
Stabilization and Association Agreements														
Average										0.126 [1.17]	-0.045 [0.43]	-0.032 [0.24]	0.013 [0.11]	0.196 [1.64]
Croatia										0.196 [1.97]*	0.015 [0.14]	0.054 [0.45]	0.208 [1.54]	0.272 [2.40]*
Macedonia (FYROM)										0.039 [0.20]	-0.123 [0.68]	-0.134 [0.57]	-0.205 [1.02]	0.1 [0.47]
Western Balkan Trade Policy														
Average										0.299 [1.85]	0.108 [0.65]	0.202 [1.08]	0.144 [0.84]	0.015 [0.08]
Albania										-0.687 [3.08]**	-0.645 [3.21]**	-0.938 [3.31]**	-0.903 [2.88]**	-0.74 [2.44]*
Bosnia										1.53 [5.97]**	1.12 [3.68]**	1.376 [6.15]**	1.162 [5.43]**	1.233 [3.64]**
Serbia and Montenegro										0.013 [0.08]	-0.115 [0.47]	0.225 [0.88]	0.214 [1.05]	-0.476 [2.19]*

Source: authors' estimates.

Note: for countries later joined EU, we use the estimates of the effect of EU.

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