Ifo Institute for Economic Research at the University of Munich

The European Union's Trade Potential after the Enlargement in 2004

Michaela Fuchs
Klaus Wohlrabe

Ifo Working Paper No. 21

November 2005

An electronic version of the paper may be downloaded from the Ifo website: www.ifo.de

Ifo Working Paper No. 21

The European Union's Trade Potential after the Enlargement in 2004*

Abstract

The objective of this paper is to investigate the trade potential of the fifteen old EU countries with the ten new members having joined on May 1st, 2004. Our focus lies not so much on the integration process already having taken place, but on the importance of institutional factors for trade. To this aim we estimate a standard gravity model applying both cross-section as well as static and dynamic panel data techniques. We conclude that there is further potential for trade resulting not from the formal accession to the EU, but rather from the successive alignment of the new members´ institutional framework to EU standards.

JEL Code: C21, C23, F10, F15.
Keywords: European integration, gravity model, trade potential, institutions.

Michaela Fuchs
Ifo Institute
Dresden Branch
Einsteinstr..3
01069 Dresden, Germany
Phone: +49(0)351/26476-0
m.fuchs@ifo.de

Klaus Wohlrabe**
Ifo Institute for Economic Research
at the University of Munich
Poschingerstr. 5
80539 Munich, Germany
Phone: +49(0)89/9224-1229
wohlrabe@ifo.de

* We are grateful to Thomas Fuchs for useful and stimulating discussions on this paper. Furthermore we would like to thank Peter Egger, Marcel Thum, Peren Arin and the participants at the conference NoeG, Innsbruck and IEA, Marrakech for helpful comments. The usual disclaimer applies.
** Corresponding Author.

1 Introduction

The Eastern enlargement of the European Union (EU) by ten new members on May 1st, 2004 constitutes an outstanding event in European history. Poland, the Czech Republic, Slovakia, Hungary, Slovenia, Estonia, Latvia, and Lithuania together with Malta and Cyprus[1] joined the EU bringing along more than 75 million new European citizens. The enlargement will affect many of the old and new members' economic affairs. Here, we put emphasis on the foreign trade relations between the 15 old EU countries (EU-15) and the ten new members. Has the formal act of accession created an additional trade potential between them?

A priori an answer is not so easy to give. Many authors estimated big potentials in the trade volume between the EU and the Central and East European countries after the fall of the Iron Curtain, e.g. Winters and Wang (1994), Baldwin (1994). However, the Europe Agreements concluded between the EU and the accession countries in the 1990s lead to a continuous reduction of barriers to trade and to an integration process culminating in the AC-10 entering the European Single Market simultaneously with EU membership. Consequently, recent studies conclude that the trade potential might already be exploited, Breuss and Egger (1999) and Piazolo (2001). Yet there remain informal barriers to trade, resulting from still existing different institutional settings in the old and the new EU members.[2] Entering the EU especially means adopting the Acquis Communautaire, hereby reducing any informal barriers to trade by slowly changing the institutional framework.

The scope of our work is to investigate if the adjustment of the AC-10s' institutional setting to that of the EU-15 might give rise to a further potential in foreign trade between the old and the new member countries. To this end we follow the methodology of the seminal studies undertaken in the early nineties and resort to the gravity model. Using recent data, we first analyze if there still exists further trade potential when taking into account only the commonly used explanatory variables GDP, population, distance as a proxy for transportation costs, and trade bloc dummies. Here, we expect no more trade expansion resulting solely from the AC-10s' accession to the EU, apart from the generally strong connection between GDP and trade volume. Further potential is rather assumed to result from the adjustment of the AC-10s' institutional environment to that of the EU-15. The differences can be quantified by institutional variables indicating the degree of economic freedom in each country. The variables are part of the Index of

[1] Hereafter labeled as AC-10.

[2] Of course they also exist between the single countries of the EU-15, but the differences between them are smaller as compared with the new member states.

Economic Freedom published by the Heritage Foundation. They comprise, among other factors, government intervention, restrictions on foreign business, and the embodiment of property rights. Under the assumption that the institutional environment of the AC-10 converges towards the EU standard further trade expansion can be estimated. Since it is to be expected that the institutional variables did not abruptly change with the accession on May 1st, 2004 the such calculated trade potential can be exploited only in the medium to long run. In all our regressions we not only resort to the commonly used cross-sectional method, but also apply the more sophisticated static and dynamic panel estimation techniques in order to incorporate changes over time. The paper is structured as followed. In section 2, we give a short overview of the link between institutions and trade. Section 3 discusses the gravity model and its empirical applications. In section 4, the data and estimation techniques are presented. The results of our calculations for the EU-15s' export and import potential are reported in sections 5 and 6, respectively. We conclude with a discussion of our findings.

2 Institutions and Trade

In recent years the link between institutions and trade has become more prominent in the economic literature, acknowledging that there are more barriers to trade than tariffs, quotas and distance. Anderson and Marcouiller (2002) point out hidden transaction costs as a source of insecurity in international exchange. They are often related to incomplete or asymmetric information. The importance of information costs that are caused by physical (and cultural) distances is emphasized by Rauch (2001). North (1990) argues that people build institutions in order to reduce imperfect insight and incomplete information. Much research has also been carried out on the impact of institutions on transactions costs and their relation to growth and development.[3] Poor governance is maintained to entail negative externalities for private transactions, thus raising transaction costs and ultimately causing negative effects on growth and development. These arguments can well be applied to international trade, see e.g. Wei (2000). International transactions involve at least two governance systems. That is why the effectiveness of domestic institutions in securing and enforcing property rights in the exchange of goods is an important determinant of trade costs. Moreover, formal rules and regulations influence informal norms of behaviour and inter-personal trust, which affect the conventions of doing business. These, in turn, may also show in risk perceptions and preferences in international

[3]See e.g. Hall and Jones (1999), Olson (1996) or Knack and Keefer (1997).

trade.
Compared to the empirical literature on institutions and growth (see e.g. Frankel and Romer (1999)), the impact of institutions on international trade has been subject of very few empirical studies. Three papers consider empirically the influence of institutions on trade in a gravity model context. Anderson and Marcouiller (2002) estimate how insecurity as a hidden tax on trade reduces bilateral trade. They conclude that inadequate institutions constrain trade as much as tariffs do. In the line of Anderson and Macrouiller, de Groot, Linder, Rietveld, and Subramnian (2004) employ a cross-section gravity model. They find that a similar institutional framework of two countries promotes their bilateral trade. Finally, Babetskaia-Koukhartchouk and Maurel (2004) analyze the effect of joining international institutions such as the WTO and the EU on trade. They estimate the potential for an increase in trade flows based on panel estimations in the case of Russia´s accession to the WTO.

3 The Gravity Model

In the last decades, the gravity model, based on Isaac Newton's law of gravitation, has become a popular instrument in empirical international trade analysis. Tinbergen (1962), Pöyhönen (1963), and Linnemann (1966) were the first to explain the size of bilateral trade flows with gravity-type models. In its basic form, the gravity model states that foreign trade between two countries is a positive function of their incomes, which can be taken as a proxy for the respective supply and demand conditions, and a negative function of the distance between countries (as a proxy for transportation costs). Trade between exporting country i and importing country j (X_{ij}) is the higher the greater the countries' economic strength, generally measured by their GDP ($Y_{i,j}$) or GDP per capita, and the smaller the geographic distance (D_{ij}) between them. Transformed into its logarithmic form, this relationship can be expressed as followed:

$$X_{ij} = \beta_0 + \beta_1 \ln(Y_i) + \beta_2 \ln(Y_j) + \beta_3 \ln(D_{ij}) + u_{ij} \qquad (1)$$

In equation (1), the coefficients are expected to show a positive sign, whereas β_3 should feature a negative sign. Equation (1) represents the basic gravity model. It can be extended by several other variables and dummies indicating for example the membership in regional trade blocs or other trade-stimulating or trade-hampering factors. The gravity model has provided very robust results in its empirical application. However, the theoretical foundations were initially very poor. This has changed over the last decades. Anderson (1979),

Bergstrand (1985), Bergstrand (1989), Feenstra, Markusen, and Rose (2001), or Evenett and Keller (2002) were able to reconcile the gravity model with several trade theories.
The gravity model has increasingly been used to analyze the trade potential between two countries or regions. This line of research has become prominent in the early nineties in dealing with the integration of the former CMEA countries into the international division of labor. Empirical studies with emphasis on trade between the EU and the Central and East European countries include Hamilton and Winters (1992), Winters and Wang (1994), Baldwin (1994), and Christin (1996). In general, the authors assume that foreign trade between the East and West European countries will in the medium term reach the trade intensity existing between countries already well integrated in the world trade system. Under the assumption that trade between these countries follows a "normal", i.e. non-distorted, pattern, a gravity model is then used to estimate this trade pattern. By simply inserting data on the East European countries into the gravity equation with the coefficients resulting from the estimation of the "normal" trade pattern, potential trade flows can be calculated. If potential trade exceeds actual trade, then there is further scope for expansion.
Our study extends this line of research on the trade potential started in the early nineties with the focus on foreign trade between the EU-15 and the AC-10. We estimate the potential for the EU-15s' exports to as well as their imports from the AC-10 with the commonly used variables GDP and distance and furthermore put emphasis on the importance of institutional aspects in promoting international trade.

4 Data and Estimation Methods

Our sample consists of 25 OECD countries plus the AC-10.[4] We use yearly data from 1995 to 2003 for the estimation of exports and imports. Since especially at the beginning of the 1990s the trade pattern of the Central and East European countries underwent dramatic changes due to the economic breakdown after the fall of the Iron Curtain, we don't consider the years before 1995. Foreign trade data was obtained from the IMF's World

[4]The considered countries are Australia, Austria, Belgium/Luxembourg, Canada, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Great Britain, Greece, Hungary, Iceland, Ireland, Italy, Japan, Latvia, Lithuania, Malta, Mexico, Netherlands, New Zealand, Norway, Poland, Portugal, Spain, Slovac Republic, Slovenia, South Korea, Sweden, Switzerland, Turkey, USA. Belgium and Luxembourg are treated as one country.

Trade Statistics.[5] Constant GDP (in 1995 US dollars), GDP per capita, and population data were obtained from the World Bank's World Development Indicators. For the calculation of the distance between the countries we referred to the distance in km between their capitals.[6]
For capturing the changes in the AC-10s´ institutional environment we resort to the Index of Economic Freedom, published yearly by the *Heritage Foundation*[7] and the *Wall Street Journal*. It offers an examination of the factors that contribute most directly to economic freedom and prosperity (see Table 1).

Table 1: Institutional Factors

Factors of Economic freedom	Explanations
Trade Policy	Tariff and non-tariff barriers
Fiscal Burden of Government	Tax rates, government expenditure
Government Intervention in the Economy	Government consumption and production
Monetary Policy	Inflation Rate
Capital Flows and Foreign Investment	Restrictions on foreign investment
Banking and Finance	Restrictions on credit and finance
Wages and Prices	Regulations of wage and price setting mechanisms
Property Rights	Legal environment concerning private property
Regulation	Hindrances in opening and operating a business
Informal Market	Level of corruption and size of the informal market

Economic freedom is defined as "the absence of government coercion or constraint on the production, distribution, or consumption of goods and services beyond the extent necessary for citizens to protect and maintain liberty itself" [8]. The index summarizes ten different factors of economic freedom, which can take on values between 1 (lowest level of state intervention, i.e. highest level of freedom) and 5 (highest level of state intervention, i.e. lowest level of freedom). In analogy to Babetskaia-Koukhartchouk and Maurel (2004) we use the index to analyze the link between economic freedom and

[5]It is common knowledge that trade is not a nominal but a real phenomenon. Unfortunately there are no foreign trade price indices for our sample countries available so that we have to work with nominal figures.

[6]www.indo.com/distance.

[7]http://www.heritage.org.

[8]www.heritage.org/research/features/index/ChapterPDFs/chapter5.pdf,49-50.

trade in the framework of our gravity model.
The question of the proper specification of the gravity model has been increasingly discussed in the literature. While many studies were carried out with cross-sectional estimation methods, Mátyás (1997), Breuss and Egger (1999) or Egger and Pfaffenmayr (2003) pointed out that the panel approach is a more appropriate procedure. In order to compare our results to the ones of the earlier studies, we run our regressions first with cross-sectional data. We use the latest available data and average it over the years 2001 to 2003 in order to minimize exchange rate fluctuations, outliers and changes in the relative prices. In a second step, we take into account the information contained in time and undertake panel regressions over the period 1995 to 2003. Our exact specification of the gravity model is similar to that of Rose (2004) and given by

$$\begin{aligned} \ln(X_{ijt}) &= \beta_0 + \beta_1 \ln(GDP_{it}) + \beta_2 \ln(GDP_{jt}) + \beta_3 \ln(GDPpc_{it}) \\ &\quad + \beta_4 \ln(GDPpc_{jt}) + \beta_5 \ln(Dist_{ij}) + \beta_6 EU_{ij} + \beta_7 NAFTA_{ij} \\ &\quad + \beta_8 CEEC_{ij} + \beta_9 Lang_{ij} + \beta_{10} Border_{ij} + \sum_{i=1}^{10} \beta_{11+i} INST_{it} \\ &\quad + \sum_{j=1}^{10} \beta_{21+j} INST_{jt} + \sum_{k=1}^{8} \beta_{32+k} YEAR_k + c_i + \epsilon_{ijt} \end{aligned} \tag{2}$$

where i and j denote trading partners, t denotes time, and the variables are defined as:

- X_{ijt} denotes the exports and imports respectively between countries i and j at time t,
- GDP is real GDP in 1995 US dollars,
- $GDPpc$ is GDP per capita in 1995 US dollars,
- $Dist$ is the distance between i and j in km,
- EU is a binary variable, which is unity if both trading partners are members of the EU,
- $NAFTA$ is a binary variable, which is unity if i and j are members of the NAFTA,
- $CEEC$ is a binary variable, which is unity if both trading partners belong to the AC-10,

- *Lang* is a binary variable, which is unity if both trading partners share the same official language,
- *Border* is a binary variable, which is unity if both trading partners share a common border,
- $INST$ comprises the institutional variables,
- $YEAR$ represents time dummies for the year 1996-2003, capturing unobserved time effects.
- c_i country-specific effect.
- ϵ_{ijt} represents the omitted other influences on bilateral trade.

All standard variables except the distance variable should feature a positive sign. Postulating that more economic freedom promotes foreign trade we expect the institutional variables to have a negative sign, since 1 represents the highest and 5 the lowest degree of freedom.
We start by employing a simple random and fixed effects estimation to control for country-specific effects. Here, we have to account for dynamic misspecification and heteroskedasticity of the error term. To this end we additionally work with autocorrelated panel techniques for first-order serial correlation as well as for panel-specific correlation and heteroscedasticity following Prais and Winston (1954). For the first specification, we assume that the error term is $\epsilon_{ijt} = \rho\epsilon_{ijt-1} + u_{it}$ and u_{it} is iid.
Furthermore, we take into account a possible endogeneity bias, as increases in trade can be associated with improvements in institutional quality, i.e. all institutional variables are possibly correlated with the residuals and omitted fixed effects. We solve this by employing both an IV regression and a procedure proposed by Hausman and Taylor (1981). This procedure instruments the endogenous variable and exploits the cross-section and dynamic dimensions of the panel data set using fixed-effect estimates. The determination which variables are exogenous (and thus can be used as an instrument) is not an easy task. Additionally to the institutional variables we could further assume the GDP and GDP per capita variables to be endogenous, as these variable can be determined by trade flows, see e.g. Frankel and Romer (1999). We assume that GDP and GDP per capita is exogenous. Besides the institutional variables, we set the EU and the NAFTA dummy as endogenous since the single countries can determine freely to join these trade blocs.[9]

[9]The CEEC dummy cannot be considered as endogenous because it is a geographical description which does not change over time.

In addition to the static analysis of our data, we estimate the effects of institutions on trade growth with a dynamic panel data model in order to account for the influences of the explanatory variables over time. A simple dynamic panel model is given by

$$\ln(X_{ijt}) = \beta_0(\ln(X_{ijt-1})) + \beta_i(Y_{ijt}) + c_i + \epsilon_{ijt}, \tag{3}$$

where Y_{ijt} includes the explanatory variables from (2). Arellano and Bond (1991), Arellano and Bover (1995) and Blundell and Bond (1995) have shown that this model can be consistently and efficiently estimated by using first differences and a system GMM estimation approach. Rewriting (3) we get:

$$\ln(X_{ijt})-\ln(X_{ijt-1}) = \beta_0(\ln(X_{ijt-1})-\ln(X_{ijt-2}))+\beta_i(Y_{ijt}-Y_{ijt-1})+\epsilon_{ijt}-\epsilon_{ijt-1}. \tag{4}$$

The Arellano-Bond estimator requires for its consistency a lack of second order correlation and a valid Sargan test. It uses the lagged differences as instruments, whereas the Blundell-Bond estimator utilizes the lagged levels and lagged differences of the explanatory variables, hereby allowing to use an additional observation in time compared to the Arellano-Bond. Therefore, the Blundell-Bond method is more efficient than the latter one.

5 Export Potentials - Results

Before we estimate the influence of the AC-10s' changing institutional setting on the trade volume, we want to ascertain that further potential neither arises from the ten countries' accession to the EU nor from other trade-fostering factors as depicted in equation (2). Table 3 employs the estimation results for the classical gravity model without institutional variables for the 25 OECD countries whose trade relations are assumed to follow the "normal" trade pattern. We first estimated a cross-section model (column 2). The GDPs of the exporting and importing country as well as the distance between them are highly relevant in explaining the bilateral trade volume. It is interesting to note that based on this estimation membership in the EU as well as a common border have no influence on trade. Calculations of the actual and predicted trade flows between the EU-15 and the AC-10 show, as expected, that there is no further trade potential.[10] Thus, the EU-15 and the AC-10 have basically exploited the high trade potentials expected by the earlier studies. Estimations of cross sections for every year from 1995 to 2003

[10]The calculations can be obtained from the authors upon request.

encourages the finding that the formal accession has not generated further potential in trade, since the EU dummy from these cross-section estimations is insignificant for each time period after 1997.
Column 3 in Table 3 exhibits the results for the pooled OLS estimation, assuming that no variable is endogenous in the sense as given in Wooldridge (2002). Here, the same variables are significant as in the simple cross-section estimation. As it is implausible that there are unobserved individual effects and to explicitly take into account time effects we further estimate a random (RE) and a fixed effects (FE) model. The results are depicted in columns 4 and 5, respectively. Since the Hausman test indicates that there is a systematic difference in the coefficients between these two estimation methods the FE model should be employed. This is confirmed by the fact that GDP per capita of the exporting country is significant only in the FE estimation, whereas in the RE estimation it is not. Column 6 show the estimation results corrected for heteroskedasticity and a possible AR(1) process in the residuals. The coefficients exhibit similar magnitudes. The dynamic panel estimation methods proved not to be consistent. Although that there is a lack of second order autocorrelation both the Sargan as well as the Hansen test point out, that the instruments[11] are correlated with the errors terms. Summing up the results for the estimation of the gravity equation without institutional variables, all the employed estimation methods show that there remains no further potential for the EU-15s' exports to the AC-10.
Table 4 presents the results of the same estimation methods as used above extended by an IV regression and the Hauman-Taylor procedure including the institutional variables both for the exporting and importing country, respectively. The coefficients feature similar values and significance characteristics as in Table 3. We left out the RE coefficients as the the Hausman test points out to the FE model. In the IV case it chooses the RE model. Again the dynamic models fail, as the instruments are correlated with the error term and can therefore not be used for potential calculations. The majority of the institutional coefficients show the expected negative signs. In some cases the coefficients are positive, e.g. of *Capital Flows and Foreign Investment* (FE, HT), *Property Rights* (FE, HT, and RE IV) and *Regulation* (FE). In this case liberalization measures in these policy areas would lead to a slight decrease in exports. The coefficients of *Trade Policy* are insignificant, except for the RE IV case, both for the exporting as well as the importing country. This results gives assurance that the trade pattern of the selected sample of countries is indeed not distorted by tariff and non-tariff barriers.

[11]The lagged differences in the Arellano-Bond case and lagged differences and lagged levels in the Blundell-Bond case.

For the calculation of the EU-15s' export potential to the AC-10 we use only the variables which are at least significant at the 10% level for both for country i and j. In the case of both the fixed-effects as well as the Hausman-Taylor estimation these are

- *Fiscal Burden of Government*,
- *Monetary Policy*,
- *Wages and Prices*,
- *Property Rights*,
- *Regulation*.

The calculation of the trade potential is based on the assumption that the accession countries' institutional variables will reach the level of the corresponding trading partners in the EU-15. The algebraic calculation is straightforward

$$\Delta \ln X_{ij} = \exp\left[\hat{\alpha}_i(INST_i - INST_j) + \hat{\alpha}_j(INST_i - INST_j)\right] - 1, \qquad (5)$$

where $\hat{\alpha}_{i,j}$ represents the coefficient of the respective institutional variable and $INST_{i,j}$ stands for its value.

Table 2: Export potential for Germany

	Fiscal	*Monetary*	*WP*	*PR*	*Regulation*	sum
CYP	0.00	0.00	0.00	0.00	0.00	0.00
CZR	0.00	0.09	0.00	0.00	0.00	0.09
EST	0.00	0.09	0.00	0.00	0.00	0.09
HUN	0.00	0.19	0.10	0.00	0.00	0.29
LAT	0.00	0.00	0.00	0.00	0.00	0.00
LIT	0.00	0.00	0.00	0.00	0.00	0.00
MAL	0.00	0.00	0.10	0.00	0.00	0.10
POL	0.00	0.19	0.10	0.00	0.00	0.29
SLR	0.00	0.19	0.10	0.00	0.00	0.29
SLV	0.00	0.19	0.00	0.00	0.00	0.19

We choose Germany as an example and demonstrate the resulting export potential with each of the AC-10 in Table 2. If a factor of economic freedom for an accession country exhibits a lower value than for Germany we set the export potential to zero, because we assume that the accession country

will not experience a worsening of its institutional environment after the enlargement.[12] This is completely the case for *Fiscal Burden of Government*, *Property Rights*, and *Regulation*. In these areas, all of the AC-10 have already achieved a higher degree of economic freedom than Germany. The chance for an additional increase in exports mainly results from a liberalization of the monetary policy in six out of the ten new members. The second chance lies in a further deregulation of wage and price setting mechanisms in Hungary, Malta, Poland and Slovakia. Summing up over all relevant institutional variables (last column), Germany could achieve the highest export growth towards Hungary, Poland and Slovakia. According to our FE estimation, it would result in an additional plus of 29%.

Likewise, Table 5 reports all export potentials the old EU members could realize with each of the AC-10. We report the calculations for all of the four relevant estimation techniques depicted in Table 4. Again, a value of zero indicates that the accession country possesses a better institutional environment than its trading partner. This is especially the case for the three Baltic countries, regardless of the estimation technique. Among the EU-15, Denmark could gain most from the alignment of the AC-10's institutional setting to its own. The last row depicts the export potential the old EU members would achieve if the AC-10 brought their respective institutional environment into line with the average institutional setting over all the EU-15. According to our fixed- effects estimation, the least export potential can be gained with Latvia and Lithuania; it would only amount to a further growth of 4%. On the other side, the EU-15 could credit itself with an additional export plus of 29% respectively if Hungary, Poland, and Slovakia adopted the same degree of economic freedom.

There exist quite large differences in the magnitude of the export potentials when considering the four different estimates. In the case of the latter four countries, the range for an additional export growth goes from 24% to up to 76%. This is partly due to the varying number as well as the significance of the institutional variables in each estimation. The FGLS results offer only three significant variables, out of which two are not significant in the fixed-effects and the Hausman-Taylor procedure (*Government Intervention in the Economy* and *Capital Flows and Foreign Investment*). Random-effects with instrumental variables yields four significant variables. Here, *Trade Policy* is highly significant, which contradicts the fact that most of the tariff and non-tariff barriers between the EU-15 and the AC-10 were continuously abolished in the Nineties. Furthermore, the estimated coefficient on *Informal Market* for the exporting country shows a very high value. This is the main reason

[12]However, we cannot completely exclude such a deterioration.

why the export potential calculated with RE IV so highly exceeds the potentials calculated with the other three estimation methods, where overall the results are quite close together.
Apart from the features of the respective estimation techniques, the results on the export potential must also be interpreted carefully, because a new EU member country cannot adopt all changes in its institutional environment at the same time. Thus they have to be interpreted as ceteris paribus, i.e. other changes in their economic environment are not considered here. In spite of these limitations, we can conclude that there exists a substantial export potential for the old EU members due to future changes in the AC-10s' institutional setting.

6 Import Potentials - Results

For the estimation of the EU-15s' import potential from the AC-10, i.e. the ten new members' export potential to the old members, we proceed in the same way as in the above section. The results for the import side (see Table 6) are similar to the ones obtained from the export regression when not taking into account the institutional variables (see Table 3). Again, when deciding between the FE and RE model, the Hausman test points towards the former. Arellano-Bond and Blundel-Bond proved again not to be applicable for the same reasons as in the exports regressions.
Table 7 includes the institutional variables in the estimations. The same interpretations as for the export side applies. A only difference is that the Hausman test points out to the FE IV model in contrast to the RE IV model for the export regressions.
As with the export potential, the coefficients feature similar values and significance characteristics. For the calculation of the EU-15s' import potential we again use the institutional variables at least significant at the 10% level. For the fixed-effects estimation, these are

- *Trade Policy*,
- *Monetary Policy*
- *Property Rights*,
- *Regulation*,
- *Informal Market*.

The calculation follows equation (3). Table 8 reports the import potential for each of the old EU members with the AC-10. Taking the average of the

EU-15 and the FE results as a basis, imports from Malta could grow the strongest, followed again by Poland, the Czech Republic, Latvia, and Slovakia. These countries have the chance on their turn of further expanding their exports to the EU-15. The least import potential for the old EU members can be gained with Cyprus and Hungary.
As with the export potential, there exist quite large differences between the four different estimates. Import potentials are the smallest with GLS and Hausman-Taylor, again partly based on the relatively small amount of significant institutional variables. As Table 10 shows, in the fixed-effects estimation it is only *Capital Flows and Foreign Investment* that contributes to an additional growth of imports. In the fixed-effects results, on the contrary, the five significant institutional variables feature all much higher coefficients in absolute terms than the other three estimates. Again, this is especially the case for *Informal Market* of the importing country. Since, according to the Index of Economic Freedom, some of the mew EU members still have some way to go in order to reach the average EU level, this is where the relatively big import potential from some countries originates.
For the results on the import potential, the same caution must be used as for the exports. On the whole, we can establish that the EU-15s' potential imports from the ten new member countries, i.e. the AC-10's exports into the old EU members, even exceeds the potential exports of the EU-15 into the AC-10 because of an assimilation of their institutional standards.

7 Summary

The objective of our study was to find out if the 15 old EU members could expect an additional trade potential with the ten accession countries resulting from the alignment of their institutional environment to EU standards. For the calculation of potential export and import flows we resorted to the well-known gravity model. A cross section estimation of the gravity model with the most commonly used variables showed, as expected, no further potential for trade expansion. We then extended our basic gravity model by adding institutional variables indicating the degree of the respective countries´ economic freedom. They comprise the level of corruption, the size of the informal market, and the legal environment concerning private property, among other things. To explicitly take into account time effects we additionally ran static and dynamic panel-based regressions. The dynamic panel regressions proved not to be consistent. The results indicate both a remaining potential for exports as well as for imports. Imports into the EU-15 will be especially fostered by the fight against corruption and the informal market

in the new EU member countries.
We have to make two reservations on our findings. First, we don't take into account other factors spurring or hampering growth that could influence the potential for trade. Particularly, it is well possible that the still higher GDP growth in many of the AC-10 may also result in a higher trade potential. Second, although the AC-10 have to adopt the Acquis Communautaire their institutional environment will not converge immediately towards the EU level. The calculated trade potentials can only be gained in the medium to long run.

References

Anderson, J. (1979): "A theoretical foundation for the gravity equation," *American Economic Review*, 69(1), 106–116.

Anderson, J., and D. Marcouiller (2002): "Insecurity and the pattern of trade: an empirical investigation," *Review of Economics and Statistics*, 83(2), 342–351.

Arellano, M., and S. Bond (1991): "Some test of specification for panel data: Monte Carlo evidence and an application to employment equations," *Review of Economic Studies*, 58(2), 127–134.

Arellano, M., and O. Bover (1995): "Another look at the instrumental variables estimation of error-components models," *Journal of Econometrics*, 68(1), 29–51.

Babetskaia-Koukhartchouk, O., and M. Maurel (2004): "Russians´s accession to the WTO: What potential for trade increase?," *Journal of Comparative Economics*, 32(4), 680–699.

Baldwin, R. (1994): *Towards an integrated Europe*. Centre for Economic Policy Research, London.

Bergstrand, J. (1985): "The gravity equation in international trade - Some microeconomic foundations and empirical evidence," *Review of Economics and Statistics*, 67(3), 474–481.

——— (1989): "The generalized gravity equation, monopolistic competition and the factor-proportions theory in international trade," *Review of Economics and Statistics*, 71(1), 143–153.

Blundell, R., and S. Bond (1995): "Initial conditions and moment restrictions in dynamic panel data models," *Journal of Econometrics*, 87(1), 115–143.

Breuss, F., and P. Egger (1999): "How reliable are estimations of east-west trade potentials based on cross-section gravity analysis," *Empirica*, 26(2), 81–94.

Christin, D. (1996): "The long run volume of East Europe´s foreign trade: An Estimate," *Economics of Planning*, 29(1), 1–24.

de Groot, H., G. Linder, P. Rietveld, and U. Subramnian (2004): "The instituational determinants of bilateral trade patterns," *Kyklos*, 57(1), 103–124.

Egger, P., and M. Pfaffenmayr (2003): "The proper panel econometric specification of the gravity equation: A three way model with bilateral interaction effects," *Empirical Economics*, 28(3), 571–580.

Evenett, S., and W. Keller (2002): "On theories explaining the success of the gravity equation," *Journal of Political Economics*, 110(2), 281–316.

Feenstra, R., J. Markusen, and A. Rose (2001): "Using the gravity equation to differentiate among alternative theories of trade," *Canadian Journal of Economics*, 30(2), 430–447.

Frankel, J., and D. Romer (1999): "Does trade cause growth?," *American Economic Review*, 89(3), 379–399.

Hall, R., and C. Jones (1999): "Why do some countries produce so much more output per worker than others?," *Quarterly Journal of Economics*, 114(1), 83–116.

Hamilton, C., and A. Winters (1992): "Opening up international trade with Eastern Europe," *Economic Policy*, 14, 77–116.

Hausman, J., and W. Taylor (1981): "Panel data and unobservable individual effects," *Econometrica*, 49(6), 1277–1298.

Knack, S., and P. Keefer (1997): "Institutions and economic performance: Cross-country tests using alternative measures," *Economics and Politics*, 7(3), 207–227.

Linnemann, H. (1966): *An econometric study of international trade flows*. North-Holland, Amsterdam.

MÁTYÁS, L. (1997): "Proper econometric specification of the gravity model," *World Economy*, 20(3), 363–368.

NORTH, D. (1990): *Institutions, institutional change and economic performance*. Cambridge University Press, Cambridge.

OLSON, M. (1996): "Big bills left on the sidewald: Why some nations are rich, and other poor," *Journal of Economic Perspectives*, 10(2), 3–24.

PIAZOLO, D. (2001): *The integration process between Eastern and Western Europe*. Springer, Berlin Heidelberg.

PRAIS, S., AND C. WINSTON (1954): "Trend Estimators and Serial Correlation," Discussion Paper 383, Cowles Foundation.

PÖYHÖNEN, P. (1963): "A tentative model for the volume of trade between countries," *Weltwirtschaftliches Archiv*, 90(1), 93–99.

RAUCH, J. (2001): "Business and social networks in international trade," *Journal of Economic Literature*, 39(4), 1117–1203.

ROSE, A. (2004): "Do we really know that the WTO increases trade?," *American Economic Review*, 94(1), 98–114.

TINBERGEN, J. (1962): *Shaping the world economy. Suggestions for an international economic policy*. The Twentieth Century Fund, New York.

WEI, S. (2000): "Natural openness and good government," Working Paper 7765, NBER.

WINTERS, A., AND Z. WANG (1994): *Eastern Europe´s international trade*. Manchester University Press, Manchester, New York.

WOOLDRIDGE, J. (2002): *Econometric Analysis of Cross Section and Panel Data*. MIT Press, Cambridge.

Table 3: Benchmark results - Exports

	Static Estimators					Dynamic Estimators	
	CS	OLS	RE	FE	FGLS	AB	BB
X_{ijt-1}						0.219***	0.745***
						(0.024)	(0.012)
GDP_i	0.975***	1.017***	1.019***	1.173***	1.033***	1.600***	0.239***
	(0.020)	(0.007)	(0.019)	(0.136)	(0.010)	(0.244)	(0.014)
GDP_j	0.873***	0.890***	0.904***	1.818***	0.888***	2.746***	0.189***
	(0.020)	(0.007)	(0.019)	(0.136)	(0.010)	(0.249)	(0.013)
$GDPpc_i$	-0.016	-0.003	0.044	0.441***	0.006	0.620***	-0.066***
	(0.042)	(0.014)	(0.037)	(0.123)	(0.020)	(0.231)	(0.013)
$GDPpc_j$	-0.011	-0.002	0.029	0.152	-0.006	-0.049	0.016
	(0.042)	(0.014)	(0.037)	(0.123)	(0.020)	(0.232)	(0.013)
$Dist_{ij}$	-1.139***	-1.130***	-1.097***		-1.136***	-0.012***	-0.147***
	(0.038)	(0.036)	(0.033)		(0.019)	(0.002)	(0.026)
EU_{ij}	0.038	0.053	0.202*		0.112	-0.031***	0.521***
	(0.111)	(0.103)	(0.094)		(0.077)	(0.007)	(0.088)
$NAFTA_{ij}$	1.107*	0.942*	1.045*		0.846	-0.044	0.918
	(0.611)	(0.572)	(0.531)		(1.556)	(0.042)	(1.199)
$CEEC_{ij}$	1.087***	1.127***	1.257**		0.860***	0.009	0.737***
	(0.178)	(0.167)	(0.153)		(0.087)	(0.013)	(0.157)
$Lang_{ij}$	0.441***	0.551***	0.689**		0.536***	-0.040***	-0.302**
	(0.135)	(0.127)	(0.145)		(0.105)	(0.068)	(0.150)
$Border_{ij}$	0.185	0.172	0.197		0.407***	-0.011	-0.029
	(0.165)	(0.155)	(0.149)		(0.105)	(0.016)	(0.227)
Observations	1190	10710	10710	10710	10710	8330	9520
R^2	0.82	0.83	0.83	0.57			
Hausman				0.000			
1st order AC						0.000	0.000
2nd order AC						0.852	0.196
Sargan						0.052	
Hansen							0.000

Notes: Regressand: log exports. Intercept and time dummies included but not reported. Standard errors are in parenthesis. ***, **, and *, indicate significance at 1%, 5%, and 10%, respectively. CS = Cross Section, OLS = pooled OLS, FE = Fixed effects, RE = Random Effects, FGLS = Feasible GLS, AB = Arellano Bond, BB = Blundell Bond.

Table 4: Estimation results with institutional variables - Exports

	Static Estimators				Dynamic Estimators	
	FE	FGLS	HT	RE IV	AB	BB
X_{ijt-1}					0.187***	0.826***
GDP_i	0.658***	0.983***	0.927***	0.939***	1.129***	0.166***
GDP_j	1.504***	0.883***	1.235***	0.875***	2.482***	0.158***
$GDPpc_i$	0.693***	-0.063	0.611***	0.004	0.777***	-0.030***
$GDPpc_j$	0.161	-0.017	0.243**	0.015	-0.053	0.009
$Dist_{ij}$		-1.122***	-2.676***	-1.135***	-0.009***	-0.174***
EU_{ij}		-0.056	-9.023	-0.127	-0.021***	0.152***
$NAFTA_{ij}$		1.258	135.510	1.196**	-0.040	-0.407
$CEEC_{ij}$		1.304***	1.209	1.414***	0.002	0.867***
$Lang_{ij}$		0.282***	1.847	0.0339***	-0.040***	0.125*
$Border_{ij}$		0.337***	-8.527	0.160	0.006	-0.519***
$Trade_i$	-0.014	0.018	-0.010	0.095***	-0.017	0.028***
$Trade_j$	0.019	0.005	0.023	-0.101***	0.005	-0.027**
$Fiscal_i$	-0.052***	-0.012	-0.053***	-0.089	-0.040**	-0.018*
$Fiscal_j$	0.047**	0.094***	0.048***	0.068	0.067***	0.066***
$Interv_i$	-0.106***	-0.069***	-0.104***	-0.179***	-0.024*	-0.16**
$Interv_j$	-0.003	0.046**	0.001	-0.079	-0.003	0.004
$Monetary_i$	-0.044***	-0.109***	-0.040***	-0.082***	-0.016	-0.081***
$Monetary_j$	-0.042***	-0.039***	-0.040**	-0.168***	-0.000	-0.009
$Capital_i$	0.011	-0.045***	0.017	0.021	-0.020	-0.010
$Capital_j$	0.034*	0.034***	0.034**	-0.096**	0.058**	-0.026
$Banking_i$	0.013	-0.040***	0.013	-0.048	0.012	-0.011
$Banking_j$	-0.057***	-0.029	-0.060***	-0.146***	0.013	0.010
WP_i	-0.031*	-0.179***	-0.035**	-0.054**	-0.116***	-0.048***
WP_j	-0.061***	-0.003	-0.057**	-0.169***	-0.044	0.030
PR_i	0.103***	0.073***	0.106***	0.113***	0.038	0.020
PR_j	0.070***	-0.003	0.078***	0.005	0.043	-0.009
Reg_i	0.050***	-0.057***	-0.042***	-0.081***	-0.018	-0.007
Reg_j	0.065***	0.032	0.067***	-0.008	0.001	0.048***
IM_i	-0.070	-0.332***	-0.111	0.561*	-0.132	-0.156
IM_j	-0.007	0.017	-0.011	-0.062*	0.021	0.035**
Observations	10710	10710	10710	9520	8330	9520
R^2	0.53			0.186		
Hausman	0.000					
2nd order AC					0.795	0.190
Sargan					0.026	
Hansen						0.006

Notes: Regressand: log exports. Intercept and time dummies included but not reported. ***, **, and *, indicate significance at 1%, 5%, and 10%, respectively. FE = Fixed effects, FGLS = Feasible GLS, HT = Hausman-Taylor, RE = Random Effects IV, AB = Arellano Bond, BB = Blundell Bond.

Table 5: EU´s export potential with the AC-10

	Cyprus				Czech Republic				Estonia				Hungary				Latvia			
	FE	GLS	HT	IV	FE	GLS	HT	IV	FE	GLS	HT	IV	FE	GLS	HT	IV	FE	GLS	HT	IV
AUS	0.00	0.03	0.03	0.00	0.09	0.16	0.08	0.29	0.09	0.16	0.11	0.28	0.29	0.34	0.27	0.90	0.00	0.00	0.00	0.00
BEL	0.00	0.05	0.03	0.00	0.09	0.17	0.08	0.29	0.09	0.16	0.11	0.28	0.29	0.36	0.27	0.90	0.00	0.01	0.00	0.00
DEN	0.21	0.01	0.21	1.32	0.45	0.16	0.18	0.54	0.21	0.16	0.08	0.28	0.65	0.34	0.38	1.22	0.36	0.00	0.10	0.25
FIN	0.00	0.03	0.00	0.00	0.22	0.16	0.09	0.29	0.09	0.16	0.08	0.28	0.41	0.34	0.27	0.90	0.12	0.00	0.00	0.00
FRA	0.19	0.00	0.23	0.00	0.09	0.16	0.08	0.29	0.09	0.16	0.11	0.28	0.29	0.34	0.27	0.90	0.00	0.00	0.00	0.00
GER	0.00	0.06	0.03	0.00	0.09	0.18	0.08	0.29	0.09	0.17	0.11	0.28	0.29	0.37	0.27	0.90	0.00	0.02	0.00	0.00
GBR	0.00	0.03	0.00	0.00	0.22	0.16	0.09	0.29	0.09	0.16	0.08	0.28	0.41	0.34	0.27	0.90	0.12	0.00	0.00	0.00
GRE	0.42	0.02	0.47	0.65	0.19	0.00	0.20	0.01	0.19	0.00	0.23	0.28	0.28	0.16	0.29	0.57	0.00	0.00	0.00	0.00
IRE	0.00	0.05	0.00	0.00	0.13	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.31	0.17	0.18	0.54	0.13	0.01	0.01	0.00
ITA	0.19	0.03	0.23	0.28	0.09	0.16	0.08	0.29	0.09	0.16	0.11	0.28	0.29	0.34	0.27	0.90	0.00	0.00	0.00	0.00
NET	0.00	0.05	0.03	0.00	0.00	0.01	0.00	0.01	0.00	0.00	0.03	0.00	0.19	0.17	0.18	0.54	0.00	0.01	0.00	0.00
POR	0.19	0.03	0.23	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.03	0.00	0.19	0.16	0.18	0.54	0.00	0.00	0.00	0.00
SPA	0.19	0.02	0.23	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.03	0.00	0.19	0.16	0.18	0.54	0.00	0.00	0.00	0.00
SWE	0.00	0.03	0.03	0.00	0.09	0.17	0.08	0.29	0.09	0.16	0.11	0.28	0.29	0.36	0.27	0.90	0.00	0.01	0.00	0.00
EU	0.08	0.03	0.10	0.00	0.10	0.10	0.05	0.18	0.06	0.10	0.07	0.17	0.29	0.28	0.24	0.76	0.04	0.00	0.00	0.00
	Lithuania				Malta				Poland				Slovac Republic				Slovenia			
	FE	GLS	HT	IV	FE	GLS	HT	IV	FE	GLS	HT	IV	FE	GLS	HT	IV	FE	GLS	HT	IV
AUS	0.00	0.00	0.00	0.00	0.10	0.03	0.12	0.26	0.29	0.36	0.27	0.90	0.29	0.34	0.27	0.90	0.29	0.36	0.20	0.66
BEL	0.00	0.01	0.00	0.00	0.10	0.05	0.12	0.26	0.29	0.37	0.27	0.90	0.29	0.36	0.27	0.90	0.29	0.37	0.20	0.66
DEN	0.36	0.01	0.01	0.25	0.33	0.03	0.20	0.57	0.65	0.36	0.38	1.22	0.65	0.34	0.38	1.22	0.41	0.36	0.27	0.91
FIN	0.12	0.00	0.00	0.00	0.10	0.03	0.10	0.26	0.41	0.36	0.27	0.90	0.41	0.34	0.27	0.90	0.19	0.36	0.17	0.66
FRA	0.00	0.00	0.00	0.00	0.29	0.00	0.32	0.26	0.29	0.34	0.27	0.90	0.29	0.34	0.27	0.90	0.19	0.36	0.20	0.66
GER	0.00	0.02	0.00	0.00	0.10	0.06	0.12	0.26	0.29	0.38	0.27	0.90	0.29	0.37	0.27	0.90	0.19	0.38	0.20	0.66
GBR	0.12	0.00	0.00	0.00	0.10	0.03	0.10	0.26	0.41	0.36	0.27	0.90	0.41	0.34	0.27	0.90	0.19	0.36	0.17	0.66
GRE	0.00	0.00	0.00	0.00	0.42	0.02	0.47	0.01	0.28	0.16	0.29	0.29	0.28	0.16	0.29	0.57	0.09	0.16	0.11	0.58
IRE	0.13	0.01	0.00	0.00	0.10	0.05	0.10	0.26	0.32	0.18	0.19	0.54	0.31	0.17	0.18	0.54	0.10	0.18	0.09	0.30
ITA	0.00	0.00	0.00	0.00	0.29	0.03	0.32	0.26	0.29	0.36	0.27	0.90	0.29	0.34	0.27	0.90	0.19	0.36	0.20	0.66
NET	0.00	0.01	0.00	0.00	0.10	0.05	0.12	0.26	0.19	0.18	0.18	0.54	0.19	0.17	0.18	0.54	0.09	0.18	0.11	0.30
POR	0.00	0.00	0.00	0.00	0.29	0.03	0.32	0.26	0.19	0.17	0.18	0.54	0.19	0.16	0.18	0.54	0.09	0.17	0.11	0.30
SPA	0.00	0.00	0.00	0.00	0.29	0.02	0.32	0.26	0.19	0.17	0.18	0.54	0.19	0.16	0.18	0.54	0.09	0.17	0.11	0.30
SWE	0.00	0.01	0.00	0.00	0.10	0.03	0.12	0.26	0.29	0.37	0.27	0.90	0.29	0.36	0.27	0.90	0.19	0.37	0.20	0.66
EU	0.04	0.00	0.00	0.00	0.17	0.03	0.19	0.26	0.29	0.29	0.24	0.76	0.29	0.28	0.24	0.76	0.15	0.29	0.16	0.52

Table 6: Benchmark results - Imports

	Static Estimators					Dynamic Estimators	
	CS	OLS	RE	FE	FGLS	AB	BB
X_{ijt-1}						0.272***	0.668***
						(0.022)	(0.013)
GDP_i	0.838***	0.859***	0.868***	1.868***	0.848***	3.249***	0.239***
	(0.017)	(0.006)	(0.017)	(0.132)	(0.030)	(0.215)	(0.015)
GDP_j	0.959***	0.999***	1.005***	1.292***	1.032***	0.722***	0.305***
	(0.017)	(0.006)	(0.017)	(0.132)	(0.029)	(0.219)	(0.015)
$GDPpc_i$	-0.015	0.037***	0.102***	0.674***	0.126	-0.622***	0.020
	(0.037)	(0.013)	(0.037)	(0.120)	(0.091)	(0.198)	(0.013)
$GDPpc_j$	-0.032	0.040***	0.064***	0.251**	0.005	0.126	-0.042***
	(0.037)	(0.013)	(0.037)	(0.120)	(0.032)	(0.204)	(0.013)
$Dist_{ij}$	-0.993***	-0.977***	-0.992***		-1.066***	-0.011***	-0.180***
	(0.033)	(0.011)	(0.031)		(0.064)	(0.002)	(0.025)
EU_{ij}	-0.0033	0.034	0.202		0.013	-0.032***	0.430***
	(0.111)	(0.033)	(0.090)		(0.083)	(0.006)	(0.084)
$NAFTA_{ij}$	0.996*	0.920***	0.844*		0.757*	-0.061	1.938
	(0.532)	(0.184)	(0.531)		(0.416)	(0.037)	(1.181)
$CEEC_{ij}$	1.104***	1.077***	1.130***		0.855***	-0.001	0.642***
	(0.155)	(0.054)	(0.153)		(0.274)	(0.011)	(0.149)
$Lang_{ij}$	0.342***	0.479***	0.470***		0.463***	-0.041***	-0.501***
	(0.118)	(0.041)	(0.145)		(0.144)	(0.009)	(0.145)
$Border_{ij}$	0.287**	0.294***	0.254*		0.281***	-0.002	-0.075
	(0.165)	(0.155)	(0.136)		(0.059)	(0.010)	(0.232)
Observations	1190	10710	10710	10710	10710	8330	9520
R^2	0.82	0.85	0.85	0.61			
Hausman				0.000			
2nd order AC						0.312	0.693
Sargan						0.053	0.000
Hansen							

Notes: Regressand: log imports. Intercept and time dummies included but not reported. Standard errors in paranthesis. ***, **, and *, indicate significance at 1%, 5%, and 10%, respectively. CS = Cross Section, OLS = pooled OLS, FE = Fixed effects, RE = Random Effects, FGLS = Feasible GLS, AB = Arellano Bond, BB = Blundell Bond.

Table 7: Estimation results with institutional variables - Imports

	Static Estimators				Dynamic Estimators	
	FE	FGLS	HT	FE IV	AB	BB
X_{ijt-1}					0.215***	0.766***
GDP_i	1.644***	0.822***	1.163***	1.639***	2.999***	0.191***
GDP_j	0.731***	0.982***	1.212***	0.397	0.437*	0.222***
$GDPpc_i$	0.711***	0.120*	0.631***	0.184	-0.334	-0.004
$GDPpc_j$	0.271**	-0.007	0.352***	-0.025	0.205	-0.010
$Dist_{ij}$		-1.048***	-2.110**		-0.008***	-0.198***
EU_{ij}		-0.146**	-8.281**		-0.020***	0.193***
$NAFTA_{ij}$		1.151***	16.350		-0.061*	-0.042
$CEEC_{ij}$		1.146***	0.269		0.008	1.020***
$Lang_{ij}$		0.261***	0.561		-0.052***	0.134**
$Border_{ij}$		0.277***	-1.208		0.009	-0.542***
$Trade_i$	-0.048***	-0.096***	-0.059***	0.098***	-0.050***	-0.018*
$Trade_j$	0.058***	0.032	0.051**	0.075	0.038	0.018
$Fiscal_i$	0.009	0.019	0.015	-0.227***	-0.032**	-0.033***
$Fiscal_j$	-0.007	0.014	-0.010	-0.113*	-0.041*	-0.022
$Interv_i$	-0.025***	-0.027	-0.031***	-0.094***	0.014	-0.009
$Interv_j$	-0.026	0.000	0.011	0.222**	-0.008	-0.006
$Monetary_i$	0.007	-0.015	-0.001	0.104***	0.095***	0.014
$Monetary_j$	0.054***	-0.056**	-0.058***	-0.010	-0.002	-0.011
$Capital_i$	-0.060***	-0.048*	-0.038***	-0.019	-0.027	-0.020**
$Capital_j$	0.037*	-0.063*	0.035**	0.087***	0.048**	-0.062***
$Banking_i$	-0.058***	-0.020	-0.063***	-0.196***	-0.025	-0.003
$Banking_j$	0.013	-0.066**	0.011	0.070	0.024	-0.024***
WP_i	-0.015	-0.050	-0.002	-0.020	-0.060**	-0.064***
WP_j	-0.029	-0.089***	-0.035	0.047	-0.039	-0.038**
PR_i	0.072***	-0.002	0.062***	0.151***	0.016	0.060***
PR_j	0.089***	-0.116***	0.066***	0.188***	-0.039	-0.065***
Reg_i	0.026*	-0.011	0.012	0.108***	0.011	0.009
Reg_j	0.121***	0.063**	0.121***	0.239***	0.022	0.053***
IM_i	-0.281**	0.044	-0.181	-0.841**	-0.089	0.089
IM_j	-0.057***	-0.052*	-0.054***	-0.108***	-0.022	-0.018
Observations	10710	10710	10710	9520	8330	9520
R^2	0.54					
Hausman	0.000			0.000		
1st order AC					0.000	0.000
2nd order AC					0.495	0.695
Sargan					0.040	
Hansen						0.000

Notes: Regressand: log imports. Intercept and time dummies included but not reported. ***, **, and *, indicate significance at 1%, 5%, and 10%, respectively. FE = Fixed effects, FGLS = Feasible GLS, HT = Hausman-Taylor, RE = Random Effects IV, AB = Arellano Bond, BB = Blundell Bond.

Table 8: EU´s import potential with the AC-10

	Cyprus				Czech Republic				Estonia				Hungary				Latvia			
	FE	GLS	HT	IV	FE	GLS	HT	IV	FE	GLS	HT	IV	FE	GLS	HT	IV	FE	GLS	HT	IV
AUS	0.37	0.12	0.01	0.93	0.97	0.00	0.08	0.25	0.57	0.00	0.08	0.90	0.40	0.00	0.08	0.25	0.97	0.00	0.17	0.56
BEL	0.21	0.25	0.01	0.93	0.69	0.12	0.09	0.25	0.35	0.00	0.08	0.90	0.21	0.12	0.09	0.25	0.69	0.12	0.18	0.56
DEN	0.00	0.08	0.00	1.25	1.33	0.12	0.09	0.25	0.67	0.00	0.08	0.25	0.66	0.12	0.09	0.25	1.33	0.12	0.18	0.56
FIN	0.43	0.12	0.01	0.28	1.33	0.00	0.08	0.25	0.67	0.00	0.08	0.25	0.66	0.00	0.08	0.25	1.33	0.00	0.17	0.56
FRA	0.33	0.00	0.00	0.65	0.66	0.00	0.00	0.00	0.35	0.00	0.00	0.65	0.18	0.00	0.00	0.00	0.66	0.00	0.08	0.25
GER	0.39	0.19	0.05	0.95	0.99	0.06	0.13	0.28	0.57	0.00	0.12	0.92	0.43	0.06	0.13	0.27	0.99	0.06	0.22	0.58
GBR	0.21	0.12	0.01	0.28	0.97	0.00	0.08	0.25	0.41	0.00	0.08	0.25	0.40	0.00	0.08	0.25	0.97	0.00	0.17	0.56
GRE	0.54	0.00	0.00	0.93	0.36	0.00	0.00	0.00	0.34	0.00	0.00	0.65	0.18	0.00	0.00	0.00	0.18	0.00	0.00	0.00
IRE	0.23	0.25	0.01	0.29	0.99	0.12	0.09	0.26	0.41	0.00	0.08	0.25	0.43	0.12	0.09	0.26	0.99	0.12	0.18	0.57
ITA	0.36	0.12	0.01	0.93	0.40	0.00	0.00	0.00	0.17	0.00	0.00	0.65	0.00	0.00	0.00	0.00	0.40	0.00	0.08	0.25
NET	0.61	0.25	0.01	0.93	1.35	0.12	0.09	0.25	0.83	0.00	0.08	0.90	0.69	0.12	0.09	0.25	1.35	0.12	0.18	0.56
POR	0.36	0.12	0.01	0.93	0.66	0.00	0.00	0.00	0.35	0.00	0.00	0.65	0.18	0.00	0.00	0.00	0.66	0.00	0.08	0.25
SPA	0.36	0.12	0.01	0.78	0.66	0.00	0.00	0.00	0.35	0.00	0.00	0.65	0.18	0.00	0.00	0.00	0.66	0.00	0.08	0.25
SWE	0.61	0.25	0.01	0.78	1.35	0.12	0.09	0.25	0.83	0.00	0.08	0.90	0.69	0.12	0.09	0.25	1.35	0.12	0.18	0.56
EU	0.32	0.14	0.01	0.58	0.86	0.02	0.05	0.14	0.43	0.00	0.05	0.51	0.33	0.02	0.05	0.14	0.86	0.02	0.14	0.42

	Lithuania				Malta				Poland				Slovac Republic				Slovenia			
	FE	GLS	HT	IV	FE	GLS	HT	IV	FE	GLS	HT	IV	FE	GLS	HT	IV	FE	GLS	HT	IV
AUS	0.66	0.00	0.17	0.56	1.51	0.12	0.01	0.93	0.99	0.12	0.09	0.25	0.97	0.00	0.17	0.56	0.59	0.12	0.18	1.21
BEL	0.43	0.12	0.18	0.56	1.18	0.25	0.01	0.93	0.71	0.25	0.09	0.25	0.69	0.12	0.18	0.56	0.39	0.25	0.18	1.21
DEN	0.97	0.12	0.18	0.56	1.78	0.25	0.01	0.00	1.35	0.25	0.09	0.25	1.33	0.12	0.18	0.56	0.69	0.25	0.18	0.56
FIN	0.97	0.00	0.17	0.56	1.78	0.12	0.01	0.28	1.35	0.12	0.09	0.25	1.33	0.00	0.17	0.57	0.69	0.12	0.18	0.56
FRA	0.40	0.00	0.08	0.25	1.30	0.00	0.00	0.65	0.66	0.00	0.00	0.00	0.66	0.00	0.08	0.25	0.34	0.00	0.08	0.90
GER	0.69	0.06	0.22	0.58	1.54	0.19	0.05	0.95	1.02	0.19	0.13	0.28	0.99	0.06	0.22	0.59	0.61	0.19	0.22	1.23
GBR	0.66	0.00	0.17	0.56	1.35	0.12	0.01	0.28	0.99	0.12	0.09	0.25	0.97	0.00	0.17	0.57	0.43	0.12	0.18	0.56
GRE	0.00	0.00	0.00	0.00	0.94	0.00	0.00	0.93	0.36	0.00	0.00	0.00	0.18	0.00	0.00	0.00	0.16	0.00	0.00	0.65
IRE	0.69	0.12	0.18	0.57	1.38	0.25	0.01	0.29	1.02	0.25	0.09	0.26	0.99	0.12	0.18	0.57	0.45	0.25	0.18	0.57
ITA	0.18	0.00	0.08	0.25	1.02	0.12	0.01	0.93	0.43	0.12	0.01	0.00	0.40	0.00	0.08	0.25	0.18	0.12	0.09	0.90
NET	0.99	0.12	0.18	0.56	1.97	0.25	0.01	0.93	1.38	0.25	0.09	0.25	1.35	0.12	0.18	0.57	0.87	0.25	0.18	1.21
POR	0.40	0.00	0.08	0.25	1.33	0.12	0.01	0.93	0.69	0.12	0.01	0.00	0.66	0.00	0.08	0.25	0.37	0.12	0.09	0.90
SPA	0.40	0.00	0.08	0.25	1.33	0.12	0.01	0.78	0.69	0.12	0.01	0.00	0.66	0.00	0.08	0.25	0.37	0.12	0.09	0.90
SWE	0.99	0.12	0.18	0.56	1.97	0.25	0.01	0.78	1.38	0.25	0.09	0.25	1.35	0.12	0.18	0.56	0.87	0.25	0.18	1.21
EU	0.57	0.02	0.14	0.42	1.39	0.14	0.01	0.58	0.88	0.14	0.05	0.14	0.86	0.02	0.14	0.42	0.45	0.14	0.14	0.80

Ifo Working Papers

No. 20 Radulescu, D.M. and M. Stimmelmayr, Implementing a Dual Income Tax in Germany: Effects on Investment and Welfare, November 2005.

No. 19 Osterkamp, R. and O. Röhn, Being on Sick Leave – Possible Explanations for Differences of Sick-leave Days Across Countries, November 2005.

No. 18 Kuhlmann, A., Privatization Incentives – A Wage Bargaining Approach, November 2005.

No. 17 Schütz, G. und L. Wößmann, Chancengleichheit im Schulsystem: Internationale deskriptive Evidenz und mögliche Bestimmungsfaktoren, Oktober 2005.

No. 16 Wößmann, L., Ursachen der PISA-Ergebnisse: Untersuchungen auf Basis der internationalen Mikrodaten, August 2005.

No. 15 Flaig, G. and H. Rottmann, Labour Market Institutions and Employment Thresholds. An International Comparison, August 2005.

No. 14 Hülsewig, O., E. Mayer and T. Wollmershäuser, Bank Loan Supply and Monetary Transmission in Germany: An Assessment Based on Matching Impulse Responses, August 2005.

No. 13 Abberger, K., The Use of Qualitative Business Tendency Surveys for Forecasting Business Investing in Germany, June 2005.

No. 12 Thum, M. Korruption und Schattenwirtschaft, Juni 2005.

No. 11 Abberger, K., Qualitative Business Surveys and the Assessment of Employment – A Case Study for Germany, June 2005.

No. 10 Berlemann, M. and F. Nelson, Forecasting Inflation via Experimental Stock Markets: Some Results from Pilot Markets, June 2005.

No. 9 Henzel, S. and T. Wollmershäuser, An Alternative to the Carlson-Parkin Method for the Quantification of Qualitative Inflation Expectations: Evidence from the Ifo World Economic Survey, June 2005.

No. 8 Fuchs, Th. and L. Wößmann, Computers and Student Learning: Bivariate and Multivariate Evidence on the Availability and Use of Computers at Home and at School, May 2005.

No. 7 Werding, M., Survivor Benefits and the Gender Tax-Gap in Public Pension Schemes – Work Incentives and Options for Reform, May 2005.

No. 6 Holzner, Chr., Search Frictions, Credit Constraints and Firm Financed General Training, May 2005.

No. 5 Sülzle, K., Duopolistic Competition between Independent and Collaborative Business-to-Business Marketplaces, March 2005.

No. 4 Becker, Sascha O., K. Ekholm, R. Jäckle and M.-A. Muendler, Location Choice and Employment Decisions: A Comparison of German and Swedish Multinationals, March 2005.

No. 3 Bandholz, H., New Composite Leading Indicators for Hungary and Poland, March 2005.

No. 2 Eggert, W. and M. Kolmar, Contests with Size Effects, January 2005.

No. 1 Hanushek, E. and L. Wößmann, Does Educational Tracking Affect Performance and Inequality? Differences-in-Differences Evidence across Countries, January 2005.