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Je t'aime, moi non plus: Bilateral opinions and international trade

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Je t'aime, moi non plus: Bilateral opinions and international trade*

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Abstract

This paper studies the relationship between bilateral trade patterns and opinions. It uses the Eurobarometer public opinion surveys published by the European Commission, which provide data on the share of the population in each EU member country in favor of each CEEC joining the EU. Our results first suggest that bilateral opinions have a statistically robust and relatively large effect on imports, even when standard and new covariates capturing proximity between countries are controlled for. We interpret this effect as reflecting a positive impact of “bilateral affinity” on trade patterns. We also show that it is possible to go some way towards explaining the variance in bilateral opinions among our sample. Last we provide some preliminary attempt to determine causality between bilateral opinions and imports.

JEL classification: F1.

Keywords: Gravity, bilateral opinions, enlargement.

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1 Introduction

Proximity helps exchanges. This has been an enduring result in the literature since the gravitational law has been proposed by economists as a description of the bilateral commodity flows¹. More debate emerges when it comes to what is a good definition of proximity. Physical distance should clearly enter this definition and always does, usually motivated as a proxy for transportation costs. This primary (inversed) measure of proximity still matters a great deal in trade patterns: In a meta-analysis on the impact of distance on bilateral trade, Disdier and Head (2004) report an average elasticity estimate of -0.89, covering 1052 estimates in 78 studies. They also show that estimates are in fact rising over time since the 1950s, a result arguing against naive expectations about the current level of globalization.

More generally, the impact of proximity on trade can be divided into two components: The reduction of *transaction costs* (freight, but also communication and information costs) and “*bilateral affinity*” between the two countries (which notably influences preferences of consumers). This affinity is itself generated by a complex mixture of exogenous “historical accidents” (good or bad) that arose between the two countries, and more endogenous economic characteristics of the two countries.

Physical distance is clearly an imperfect and incomplete measure of this overall definition of proximity. First, some elements of transaction costs are not directly related to distance (variations in bilateral protectionist measures have no a priori reason to follow distance in a systematic way for instance). Second, bilateral distance has all chances to be a poor measure of bilateral affinity. Consider the example of cultural proximity. We have all reasons to believe that countries sharing similar cultural features have i) more proximate tastes, ii) lower communication and information costs and iii) more trust that individuals in the other country will not adopt an opportunistic behavior in contractual relationships as Guiso et al. (2004) emphasize. All of those will contribute to make trade larger. Cultural proximity is likely to be correlated with physical distance, for the simple reason that a lot of cultural features travel embodied in people, and that migrations are strongly impeded by distance. It is however imperfectly captured by distance. Empirical support for this view can be found in the literature about network effects in international trade. This body of work recently surveyed in Rauch (2001) and Wagner et al. (2002), has repeatedly found that bilateral migration

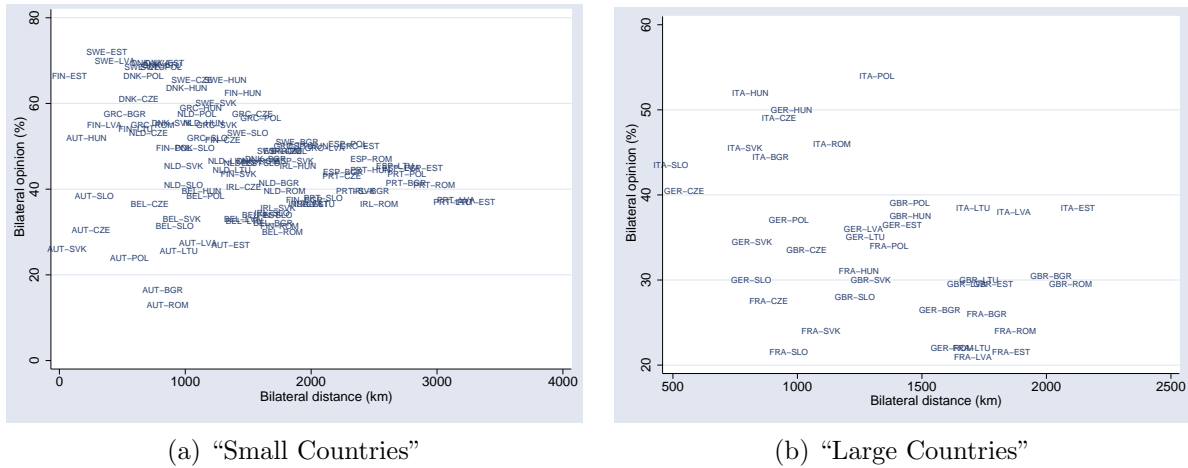
¹Tinbergen, 1962, is often cited as the original study of this kind, but Isard and Peck, 1954, is an earlier study using gravity determinants of trade flows. Hundreds of papers have used the gravity model empirically since then.

is a robust trade-promoting force, even after controlling for bilateral distance. The very robust and large positive impact on trade flows of common language and colonial links that are routinely introduced in gravity equations, is a further sign that cultural aspects of proximity are important in international commerce, in addition to distance. We use here a new type of information, the bilateral opinions expressed by surveyed populations in European Union (EU) member countries about the enlargement to Eastern European countries, to capture more precisely the impact of proximity on trade patterns.

This research has been initially guided by the observation of figure 1. This figure provides for each bilateral relationship between one EU country and one Central and Eastern European Country (CEEC) included in our sample in 2000, the percentage of the population in the considered EU country (before the enlargement of May 2004) favoring the enlargement given the distance separating it from its CEEC partner. Each point of this figure represents one EU-CEEC bilateral relationship and we separate the observations in two panels, one for “small” EU countries (less than 40m inhabitants) and one for “large” EU countries (more than 40m inhabitants). These opinions seem indeed related to bilateral distances (specially for small EU countries), but physical proximity is clearly not the only determinant. For instance, all opinions in Austria are clearly below the European average, despite its relative geographical proximity with CEECs. We hence expect that when introducing bilateral opinions in the set of explanatory variables of bilateral trade patterns, they will i) reduce the independent impact of bilateral distance on trade, i) bring additional information relevant to trade patterns.

Bilateral opinions are of course themselves not random. They are affected by a host of different elements that we will investigate here, some of them stemming from non-economic characteristics of the two countries, some of them deeply affected by the endogenous economic environment, particularly in our case where the question asked relates to the desirability of enlargement and therefore of international integration with a specific trade partner. The intensity of trade flows is likely to be one of those economic determinants of bilateral opinions. We can refer to this influence as the “non-traditional” effects of trade. The relationship between trade patterns and bilateral affinity has rarely been studied in the literature (Guiso et al., 2004 being a recent exception). Several channels can be envisioned to the impact of trade on opinions, one stipulating that large trade volumes helps diffuse information and cultural traits, reduce bilateral ignorances and fears, which might translate

Figure 1: Bilateral opinions of EU citizens in favor of the enlargement in 2000



in better bilateral opinions everything else equal. A reverse argument can however also be used. Opinions can be guided by fears of strengthened competition with the entry of candidate countries. A large bilateral trade volume can thus yield an overall lower level of positive opinions under this view, reflecting demand for protection. This phenomenon is likely to be all the more important that the two countries are specialized in the same industry, in which case expectations of large adjustment costs following the enlargement are high. This is emphasized in recent and related work by Mayda and Rodrik (forthcoming), who find using individual data that the demands for protectionism are significantly higher in industries most exposed to foreign competition. Regarding our sample of countries, note that the number of anti-dumping investigations conducted by EU against CEECs have significantly increased at the end of the 90s. The number of anti-dumping initiations registered only started to decrease substantially in 2002².

While our opinion data are not available at the individual level, they have the advantage of having a bilateral dimension (and also a -short- temporal one). We use these data to investigate the relationship between trade integration and bilateral opinions in both directions. We therefore try to address the following questions: First, is there an influence of opinions on bilateral trade, even after controlling for often used proximity variables? What are the determinants of those bilateral opinions? We also investigate the potential causality and its direction using the drastic trade policy changes over the period as an instrument for trade volumes.

²3 new investigations were initiated in 1996, 5 in 1997, 6 in 1998, 8 in 1999, 6 in 2000, 7 in 2001, and 1 in 2002. Since 2003 any new investigation has been initiated. Source: European Commission.

The remainder of the paper is structured as follows. The related empirical literature is presented in section 2. The data are described in section 3. In section 4 we present our specification and report the results from the contemporaneous correlation. The method used for causality analysis and results of this analysis are detailed in section 5. Section 6 concludes.

2 Related empirical literature

2.1 Bilateral affinity as a determinant of bilateral trade

Several forms of trade partners' bilateral affinity have been studied in the literature, with different mechanisms of influence. Two measures have quite a long history in the gravity equation literature: Linguistic similarity and past colonial links.

International trade tends to be promoted by the linguistic proximity of countries. This finding most often uses the simplest possible measure, a dummy variable set to one when the two countries speak the same language. A typical estimate for this variable is 0.5 (Frankel, 1997 for instance), which means that sharing a language increases trade flows by around 65%. Boisso and Ferrantino (1997) and Melitz (2003) have investigated continuous measures of linguistic similarity. The sample used by Boisso and Ferrantino (1997) consists of about 8000 bilateral export flows estimated year-by-year for the period 1960-1985. Results of estimations show that bilateral trade tends to decrease with the linguistic distance. The influence of this distance is however reduced by one third between 1971 and 1985. Melitz (2003) suggests a more detailed analysis and considers two different measures of the linguistic proximity of trade partners. The first one aims to capture the linguistic communication network and the second measure refers to the direct communication between individuals³. Results of estimations on a very large sample of countries and at five-years interval over the period 1970-1995 confirm the positive influence of shared languages on bilateral trade. Estimated coefficients on both measures of linguistic proximity are positive and statistically significant. Junius and Nitsch (2001) also investigate the impact of language on trade through the inclusion of a bilateral ethno-linguistic fragmentation variable in a gravity study. They find that the product of ethno-linguistic

³The first measure is evaluated by a dummy variable set to one if both countries have the same official language or if a language is possessed by at least 20% of the population of each country. Note that this measure is partially equivalent to the dummy variable "common language" usually introduced in the estimations. The second measure is calculated by adding, for all the languages possessed by at least 4% of the population in each country, the products of the shares of speakers of each language.

fragmentation of partner countries has a positive impact on trade and interpret this as evidence of the importance of cultural proximity in reducing search costs.

Colonial links have also been shown to be trade-enhancing. Several channels can again be envisioned. First, colonizing powers have usually established trade networks in the colonized countries and those networks can persist even after the colonial episode. The importance of formal and informal networks in international trade has been recently emphasized⁴, and colonial links may have helped establish persistent networks. Second, being colonized often involves adoption of the institutional framework of the colonizer (with some variance depending on the colonizer and the colonized country as emphasized by Acemoglu et al., 2001). Such institutions involve legal rules and administrative systems that can affect the ease of international trade through an improvement in the security of transactions or a reduction in communication costs due to similarity in the institutional framework. Note that this can explain why an ancient colony still trades more than expected⁵ with its ex-colonizer, but also why two countries having had the same colonizer have larger than expected bilateral trade flows. Rose (2000) has implemented this using dummies for historical colonial links and for the fact that the two countries has had the same colonizer. The impacts found are extremely large. In his benchmark results for 1990, the colonial relationship raises bilateral trade by a factor of $\exp(1.75) = 5.75$, everything else equal, while having had a common colonizer make countries' bilateral trade $\exp(0.59) - 1 = 80\%$ larger. It is interesting to note also that those coefficients were substantially larger for the year 1970⁶.

Linked to this literature is the body of work studying the existence of business and social network effects in trade, through the estimation of the explanatory power of international migrations patterns on bilateral trade. Wagner et al. (2003) provide a comparison of this set of papers analyzing the immigration-trade link. Immigrants promote exchanges between their origin and host countries in several ways. The first one is linked to a diffusion-of-tastes effect: Immigrants keep at least part of their preference for goods produced in their origin country, which generates an additional demand. Presumably, some locals will also acquire tastes of immigrants on a certain number of

⁴See Rauch (2001) for an overview of this literature.

⁵Expected in the sense of predicted by the gravity equation, i.e. given the economic sizes of both trade partners and the distance between them.

⁶Eichengreen and Irwin (1998) also illustrate this influence. Their research on bilateral trade between countries of the former British Empire and of the British Commonwealth, between the United States and the Philippines, and between the Netherlands and the Indonesia for the years 1949, 1954 and 1964 confirms that these colonial links have a significant influence on trade.

goods. Therefore, if the presence of immigrants is to promote bilateral trade, this channel predicts an effect on imports of the host country and above all for trade in final goods and differentiated goods. Immigrants also bring with them additional information about trade opportunities and demand characteristics in their origin country. They are also connected to the business networks of their origin country, and their better knowledge of the origin country, especially in terms of language, culture and legal framework, entails a reduction in transaction costs. Those last elements should mostly influence trade in differentiated goods, where immigrants' informational advantage is largest. Note that they can have an impact on trade in both directions. The empirical results often find more robust and large estimates for the immigration - exports linkage, providing support for the information channel, rather than the diffusion of preferences.

Another form of proximity between countries is the political one. The relationship between this type of proximity and trade has, to the best of our knowledge, never been investigated in the gravity-like literature. There is a debate among political scientists as to whether bilateral trade has an influence on the most extreme form of bilateral political relationship: Armed conflicts (Barbieri, 2002, is a recent example of such work surveying this literature). However, the impact of political proximity on trade seems to be still uncovered. Some historical examples suggest that the improvement of political relationships between countries promotes economic integration. The process of European integration represents probably the best illustration. The European construction was primarily based on the political will of some countries to improve what had been quite tumultuous international relations in the area even if its fulfilment has afterwards taken place in the economic field. Different methods could be considered for evaluating this proximity, we use here the measure of bilateral vote correlation at the United Nations developed by political scientists.

Last and most related to our work, is the very recent paper by Guiso et al. (2004) on bilateral trust and economic exchanges. They use the Eurobarometer survey, as we do here, but they rely on answers to a different question, the one about the level of bilateral trust between citizens of different countries. Their main argument is that bilateral trust is built in each country through a process in which cultural biases are important, and those later influence bilateral economic relationships. Indeed lack of bilateral trust make people reluctant in starting a contractual relationship, which in return forbids the level of knowledge of potential partners in the other country to increase, and hence trust can never reach a level where trade or investment is expected to be profitable. Introducing this

variable in bilateral trade and FDI equations, they find a robust positive impact of trust on trade flows, less so on FDI.

2.2 The determinants of opinions

How are bilateral opinions determined? They can themselves clearly be related to a certain number of country-specific and dyad-specific characteristics of the two countries. The existing literature has used individual level opinions on the protectionist sentiment (Mayda and Rodrik, forthcoming, O'Rourke and Sinnott, 2001) and on the will in candidate countries to enter the EU (Doyle and Fidrmuc, 2004). They therefore only have “non-dyadic opinions” which they try to explain with “non-dyadic opinions” determinants.

A large number of such determinants have been proposed in those papers. They refer to the economic characteristics of countries and individuals (using essentially information on endowments and industries) and to the non-economic perceptions by citizens. Our research is here closely related to the one by Mayda and Rodrik (forthcoming) on the determinants of individual opinions in relation to international trade.⁷ Several results are of direct interest for our work. First, people with a high level of education and skill disagree strongly with trade restrictions only if their country is human capital abundant. Besides, the degree of trade openness of the sector in which an individual is employed seems to influence his opinion. People belonging to non-traded sectors are more in favor of international trade. Among the traded sectors, individuals in sectors with a comparative disadvantage are more protectionist. A positive relation exists also between the social status⁸ and opinions in favor of international trade. Last, these individual opinions are significantly influenced by various noneconomic elements: every thing else equal, individuals strongly attached to their neighborhood and to their country are more protectionists. On the other hand, those who have greater confidence in political and economic institutions appear more open to international trade. Doyle and Fidrmuc (2004) study the results of an opinion poll conducted in March/April 2002 in which citizens from 13 candidate countries in Eastern Europe are asked whether they would vote for or against EU membership in a referendum. They find that a high level of education, youth, a relatively high income, and living in an urban area increases the support for EU membership,

⁷Individual trade preferences are also studied by O'Rourke and Sinnott (2001). The main results of interest for us are similar to those obtained by Mayda and Rodrik (forthcoming).

⁸Either defined in terms of relative income or the subjective perception of it.

while individuals who should benefit from the EU redistribution system surprisingly do not support membership. Contrary to the two previous papers, Doyle and Fidrmuc (2004) however do not really consider whether the trade theory predictions are backed up by opinions.

Compared to this literature explaining opinions, we have here a bilateral dimension in the data. For example, we know the percentage of Italians supporting the enlargement to Bulgaria and the one in favor of the enlargement to Hungary. This additional dimension allows to focus on new determinants. Consider for instance panel (b) of our figure 1. Italy seems to be a country where opinions about the enlargement are particularly favorable. However there is quite a lot of variance among candidate countries, the opinion being 58% positive in 2000 with respect to Poland membership against only 41% for the three Baltic States. Such bilateral variance can be even more important. For the same year, the level of support for Romanian membership ranges from 13% in Austria to 56% in Greece.

Guiso et al. (2004) attempt to explain how bilateral trust is built between two nations. They also incorporate fixed effects for each of the two countries in the relationship to account for nation-specific characteristics that do not vary over time and makes a country more likely to trust or to be trusted (its long term history of warfare for instance). Their main determinants of trust in terms of significance are the commonality of legal origin, genetic distance, which probably capture a common origin region of both populations, a common history, large population exchanges... The impact of a variable capturing the level of information (number of times the name of the other country is cited in the newspapers) is negative when statistically significant, which they interpret as a negative bias spread by newspapers when they talk about a country. The data used by Guiso et al. (2004) have a bilateral dimension but their study does not include economic determinants of trust. Our contribution can therefore be seen as an intermediate between this type of analysis and the one about protectionist opinions seen above. We bridge the two types of work by studying bilateral opinions about economic integration.

3 Data

Our empirical implementation uses annual data for European countries (14 EU countries and 10 Applicant countries). We have data for seven years: 1992, 1994, and from 1997 to 2001. Separated statistical series for Belgium and Luxembourg have been unavailable until recently (notably on trade

flows), we exclude Luxembourg from the sample of opinions, its weight in the trade flows of Belgium-Luxembourg is usually very low. Besides, Austria, Finland and Sweden are considered in the survey only since their membership and therefore only appear in our sample starting in 1997. The ten CEECs are Bulgaria, Czech Republic, Hungary, Poland, Romania, Slovakia, Slovenia, and the three Baltic States, namely Estonia, Latvia and Lithuania.

Bilateral trade data - between each EU country and each CEEC - consist mostly in aggregated flows (industry-level data are considered in the last part of the paper). Data come from Eurostat, using data from the IMF leaves estimates virtually unchanged. In order to uncover potential differences depending on the direction of the trade flow, the relationship between trade and opinions is studied separately for imports and exports. Our measure of opinions is extracted from the Eurobarometer public opinion surveys published by the European Commission. These biannual⁹ surveys have been conducted since 1973 in each Member State. They present an analysis of public opinion towards the European Union (European institutions, enlargement, support for European construction, etc.). An identical set of questions is asked to representative samples of the population aged fifteen years and over in each Member State. All interviews are face-to-face in people's home and in the appropriate national language. The regular sample consists of 1000 people per country with some exceptions¹⁰. Our measure of opinions is based on the following question:

For each of the following countries, would you be in favor of or against it becoming part of the European Union?

Countries cited in the list are the 10 applicant CEECs, Cyprus, Malta, and (according to the year of the survey) Turkey, other Eastern European countries (e.g. Albania, Bosnia and Herzegovina, Croatia) and Western European countries (Iceland, Norway, Switzerland, and—before their membership—Austria, Finland and Sweden). For reasons of sample homogeneity, our empirical implementation covers only the ten CEECs. Possible answers are “In favour”, “Against”, “Don't know”. Results are expressed as a percentage of the total of the answers. The definition of our opinion variable is based on the percentage of positive answers; in the estimations, these values are drawn into the interval [0;100]. Questions appearing in the Eurobarometer surveys are however not asked at regular intervals. The availability of the chosen question for the evaluation of opinions

⁹These surveys are conducted each Spring and Autumn.

¹⁰Current exceptions are for Luxembourg (600), the United Kingdom (1000 in Great Britain and 300 in Northern Ireland), and Germany (2000 people: 1000 in East Germany and 1000 in West Germany).

limits our analysis to the years 1992, 1994 and from 1997 to 2001. Besides, trade data being annual, we retain the mean of the answers from the spring and autumn surveys.

Table 1 summarizes the opinions' data in each EU country. Average opinions by EU country are calculated for three groups of CEECs. The first group (group A) includes the most economically advanced transition countries, namely Czech Republic, Hungary, Poland, Slovakia, and Slovenia; Baltic States (Estonia, Latvia, and Lithuania) constitute a group (group B) of their own; last, Bulgaria and Romania for the third group (group C). For each group, the average opinion expressed in 2001 and variations of this opinion for the sub-periods 1992-1997 and 1997-2001 are reported in the table. Average opinions and their variations are expressed in percentage.

Table 1: Opinions of EU citizens towards adhesion of CEECs (%)

| Country | Group A | | | Group B | | | Group C | | |
|-----------------|-----------------|------------------|------------------|-----------------|------------------|------------------|-----------------|------------------|------------------|
| | Opinion in 2001 | $\Delta_{01/97}$ | $\Delta_{97/92}$ | Opinion in 2001 | $\Delta_{01/97}$ | $\Delta_{97/92}$ | Opinion in 2001 | $\Delta_{01/97}$ | $\Delta_{97/92}$ |
| Austria | 44.8 | 19.3 | | 35.7 | 28.3 | | 24 | 33.3 | |
| Belgium | 43.4 | 46.6 | -31.8 | 40.7 | 59.6 | -34.5 | 37.5 | 44.3 | -40.9 |
| Denmark | 62.2 | 6.8 | 50.4 | 70.3 | -1.2 | 14.8 | 45.5 | 2.3 | 43.7 |
| Finland | 48 | -2.7 | | 60 | 5.2 | | 34 | -9.7 | |
| France | 28.8 | -11.8 | -21.8 | 20.3 | -13.5 | -31.5 | 26 | -16.1 | -25.9 |
| Germany | 42.8 | 26.5 | -19.4 | 41.3 | 41 | -38 | 27.5 | 39.6 | -39.7 |
| Great Britain | 38.6 | -1.3 | -16.9 | 33 | -5.3 | -9.1 | 35.5 | -5.3 | -11.7 |
| Greece | 62.6 | 12 | 36.9 | 57 | 17.5 | 50.1 | 61.5 | 7 | 16.3 |
| Ireland | 45.2 | 12.8 | 11.7 | 41 | 12.4 | 14.2 | 42 | 5.1 | -5.9 |
| Italy | 49.2 | 9.6 | -9.7 | 39.3 | 10.3 | -8.5 | 46 | 9.5 | -12.2 |
| The Netherlands | 48 | -16.6 | 10.2 | 47.7 | -10.9 | -1.3 | 38.5 | -19.8 | 9.2 |
| Portugal | 47 | 24.2 | -10.4 | 42.3 | 26.4 | -4.2 | 47.5 | 26.7 | -25.8 |
| Spain | 51.2 | 6.3 | -2.5 | 48 | 9.9 | 4 | 50.5 | 1.5 | -1.5 |
| Sweden | 69.8 | 17.4 | | 76.3 | 13.4 | | 59.5 | 23.3 | |
| EU average | 48.7 | | | 46.6 | | | 41.1 | | |

Notes : Group A: Czech Republic, Hungary, Poland, Slovakia, and Slovenia; group B: Estonia, Latvia, and Lithuania; group C: Bulgaria and Romania. Opinions and their variations are in %.

First, we note that the average support for enlargement varies depending on which country you ask them should join (49% for group A, 47% for group B and only 41% for group C). Support for enlargement varies also between the Member States. Interestingly, people in Sweden, followed by people in Greece and Denmark, tend to be most supportive. On the opposite, people France and the United Kingdom tend to be the least supportive in 2001. This first pattern shows that controlling for structural differences in the level of support in each Western European country and also for the average level of support towards each CEEC will be crucial, and we will include country specific

fixed effects as a consequence.

As was already seen graphically in the introduction, the bilateral dimension of data on opinions shows an influence of spatial proximity of countries: Support for Bulgaria and Romania is significantly above EU average in Greece. People in Northern Europe (Denmark, Finland and Sweden) are more likely to support the membership of Baltic States and this support is higher than the one observed for countries of group A. Last, note that differences in terms of favorable opinion tend to increase between countries of group C and countries of groups A and B in several cases over the period 1997-2001.

Figure 2 provides the distribution of public opinion in favor to the enlargement in each EU country. All the observations of our sample are presented irrespective of year or CEECs partner. For each value, the length of the horizontal line is a function of the number of observations. The lighter horizontal line represents the average value. This figure also shows the opinion's concentration in each country. Bilateral opinions are highly concentrated in Spain and on the opposite highly dispersed in Austria and Denmark. This figure confirms and extends over the whole period some of the results of Table 1. In particular, Denmark and Sweden, followed by Greece, are again the highest supporters of the enlargement.

4 Models and Results

4.1 The influence of bilateral opinions on trade

Our theoretical foundation for trade patterns is the standard new trade monopolistic competition-CES demand-Iceberg trade costs model first introduced by Krugman (1980) and used by many since then. Producers operating under increasing returns in each country produce differentiated varieties that they ship, with a cost, to consumers in all countries. Parameter ϕ_{ij} measures the bilateral freeness of trade between country i and country j , involving both actual price-raising trade impediments and the sensitivity of consumers to an increase in price. The utility function contains a preference term a_{ij} representing “bilateral love” of consumers in j for varieties produced in i . The total value of exports from i to j can be written in logs as (see Redding and Venables, 2004 for instance):

$$\ln x_{ij} = \ln(n_i p_i^{1-\sigma}) + \ln \phi_{ij} + (\sigma - 1) \ln a_{ij} + \ln(Y_j P_j^{\sigma-1}), \quad (1)$$

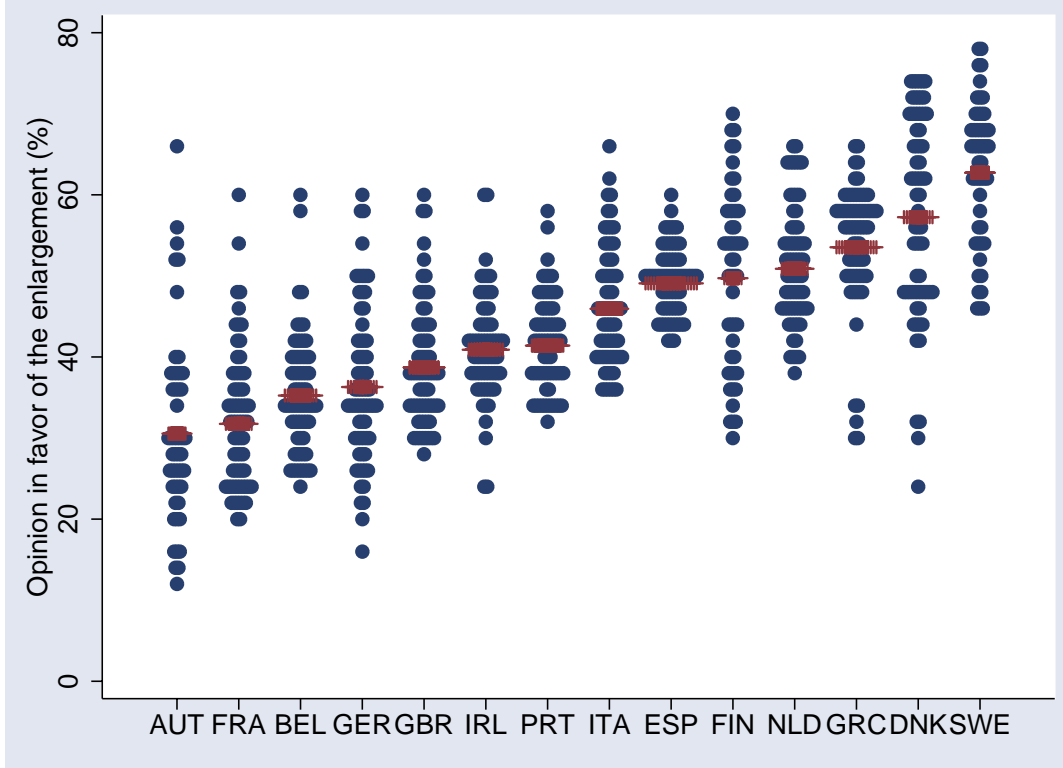


Figure 2: Bilateral opinions expressed in each EU country in favour of enlargement

with n_i and p_i the number of varieties and prices in country i , Y_j and P_j representing the expenditure and price index of the importer country. The gravity equation can be seen as a reduced form of this theoretical trade flow prediction, where the (logged) output of country i proxies for the first term, and the (logged) income of j approximates the last one. Distance, common language and contiguity are usually used for $\ln \phi_{ij} + (\sigma - 1) \ln a_{ij}$. While $n_i p_i^{1-\sigma}$ and $Y_j P_j^{\sigma-1}$ are not totally disconnected from the two GDPs of i and j respectively, they are crude approximations at the best, raising issues on the validity of simple gravity specifications and results.

A specification more consistent with theory involves the use of fixed effects for each importer and exporter (Hummels, 1999 and Redding and Venables, 2004 use this method, notably recommended by Feenstra, 2004, in his recent textbook). The fixed effects fe_i and fe_j incorporate the size effects as in gravity, but also the other origin and destination determinants seen above, the price and the number of varieties of the exporting country and the size of demand and the price index (often referred to as a remoteness term) of the importing country:

$$\ln x_{ij} = fe_i + \ln \phi_{ij} + (\sigma - 1) \ln a_{ij} + fe_j. \quad (2)$$

We will therefore mostly use this specification together with simple gravity.¹¹ Theory predicts unitary income elasticities. Following Anderson and van Wincoop (2003), we impose a unit coefficient on income variables in the fixed effects estimations by dividing trade volumes by the product of both partners' GDPs.

The last step is to specify free-ness of trade and bilateral preferences, ϕ_{ij} and a_{ij} . Trade costs that reduce ϕ_{ij} , are usually seen as consisting of transport costs, protection measures, and information/communication costs (Anderson and van Wincoop, 2004). Bilateral distance and common border are standard proxies for transport costs. Bilateral tariffs will be used here (in a later part of the article) as a measure of trade policy. We use two variables to proxy for information channels about profitable trade opportunities between the two countries. We first use bilateral exchanges of newspapers as a proxy for the ease of communication and quality of reciprocal information. Recent evidence on the impact of business and social networks on trade patterns has also shown that migrants reduce the information costs related to international trade.

$$\ln \phi_{ij} = \delta_1 \ln d_{ij} + \delta_2 \text{cb}_{ij} - (\sigma - 1) \ln \text{tar}_{ij} + \delta_3 \ln \text{news}_{ij} + \delta_4 \ln \text{asylum}_{ij}. \quad (3)$$

Distance (d_{ij}) between trade partners is defined as the sum of the bilateral distances between the biggest cities of countries weighted by the economic sizes of those cities. City population is used as weight. These distances are made available by the CEPII¹². cb_{ij} is a dummy variable set to 1 for pairs of countries that share a common border. Tariffs come from amended version of Jon Haveman's compilation of TRAINS. Flows of newspapers are extracted from COMTRADE database. asylum_{ij} is the share of asylum seekers going to a particular EU member during the period 1988-1993. Data come from Eurostat. Note that data quality for migrations is relatively poor and some values of this variable are missing.

Often, a_{ij} is specified and simplified as a *home bias*, mostly because no bilateral information on preferences is available to the researcher. One of our objectives in this paper is to provide a richer specification of bilateral preferences. A first set of proxy variables identifies characteristics that can

¹¹Alternatively, the independence of irrelevant alternatives property of the CES can be used for estimation (Head and Mayer, 2000). Dividing imports of j from i by imports from self, we get:

$$\ln \left(\frac{x_{ij}}{x_{jj}} \right) = \ln \left(\frac{n_i}{n_j} \right) - (\sigma - 1) \ln \left(\frac{p_i}{p_j} \right) + \ln \left(\frac{\phi_{ij}}{\phi_{jj}} \right) + (\sigma - 1) \ln \left(\frac{a_{ij}}{a_{jj}} \right).$$

This method is also consistent with theory and we will use it in the last parts of this paper.

¹²www.cepii.fr

make tastes of consumers more similar and hence augment the quality of the match between varieties produced in i and tastes of consumers in j . A cultural similarity variable that has been largely used and can proxy for similar preferences is common language. Note that linguistic proximity is hard to measure in our sample: The introduction of a dummy variable is indeed not appropriate because no single pair of countries share a common language in this sample. The use of a continuous measure of the linguistic distance between countries as in Boisso and Ferrantino (1997) or Melitz (2003) is also hard: Similarity indexes are available for a insufficient number of countries and/or only treats Indo-European languages and therefore totally ignores the three Finno-Ugric languages also present in our sample. We use a richer variable of proximity of languages spoken lang_{ij} , that takes into account the language “families” established by linguists¹³ and uses the product of the share of populations speaking a specific language in each of the two trading partners. For each language, we first consider its family and sub-family. For example, French and English are Indo-European languages. Regarding their sub-families, French belongs to the Italic languages and English to the Germanic ones. We then define a language similarity’s index which takes the value of 1 if both countries have the same language, 0.5 if the two languages belong to the same sub-family, 0.25 if the two languages belong to two different sub-families but to the same family and 0 for two languages from two different families. Finally, the linguistic proximity between two countries is calculated by adding, for all the languages spoken by at least 3% of the population in each country, the products of the shares of speakers in each country weighted by the language similarity index. In addition, we control for the bilateral trade in printed books (source: COMTRADE), that should also be related to common cultural traits and therefore similar tastes of consumers.

$$\ln a_{ij} = \alpha_1 \text{lang}_{ij} + \alpha_2 \ln \text{books}_{ij}, \quad (4)$$

The next step is to introduce the bilateral opinions’ variables in the trade equation. The expected effect depends of course on how bilateral opinions are formed. As described in greater details in the next section, we envision several determinants of bilateral opinions on the question under study here. Opinions will reflect dimensions of both a_{ij} and ϕ_{ij} . A long history of violent warfare between i and j is likely to attach a negative image to all products coming from the “ancestral enemy”, reducing a_{ij} , but also to make communication and negotiation of contracts more difficult, which reduces ϕ_{ij} .

¹³www.ethnologue.com

We therefore introduce the variable opin_{ij} , which measures the bilateral opinions, as described in a preceding section and have the following expectations: 1) The impact on trade should be positive, 2) The impact should be larger on imports than on exports because the bilateral affinity has no reason to be strictly reciprocal¹⁴, 3) Variables proxying for a_{ij} and ϕ_{ij} should see their influence reduced when they imperfectly proxy for bilateral affinity, like for distance for instance.

The estimated equations are therefore:

$$\begin{aligned}
\ln x_{ij} = & \beta_0 + \beta_1 \ln y_i + \beta_2 \ln y_j \\
& + \delta_1 \ln d_{ij} + \delta_2 \text{cb}_{ij} - (\sigma - 1) \ln \text{tar}_{ij} + \delta_3 \ln \text{news}_{ij} + \delta_4 \ln \text{asylum}_{ij} \\
& + \alpha_1 \text{lang}_{ij} + \alpha_2 \ln \text{books}_{ij} + \gamma \ln \text{opin}_{ij} + \epsilon_{ij},
\end{aligned} \tag{5}$$

$$\begin{aligned}
\ln(x_{ij}/y_i y_j) = & \text{fe}_i + \text{fe}_j \\
& + \delta_1 \ln d_{ij} + \delta_2 \text{cb}_{ij} - (\sigma - 1) \ln \text{tar}_{ij} + \delta_3 \ln \text{news}_{ij} + \delta_4 \ln \text{asylum}_{ij} \\
& + \alpha_1 \text{lang}_{ij} + \alpha_2 \ln \text{books}_{ij} + \gamma \ln \text{opin}_{ij} + \epsilon_{ij},
\end{aligned} \tag{6}$$

where economic sizes of both countries in the simple gravity equation (y_i, y_j) are measured with their respective GDP. In our sample $i = 1, \dots, n$ is one of the candidate countries, and $j = 1, \dots, N$ is a EU member (before May 1st, 2004). We also run estimations on x_{ji} , the imports of candidate countries from EU members. Year dummies are also introduced in all our estimations. Results of the estimations are reported in Table 2 for imports and Table 3 for exports.

The first three columns of Tables 2 and 3 report results for imports and exports with simple gravity estimation and heteroscedasticity corrected with White's (1980) method. Fixed effects estimation results—our preferred estimates because of the consistency with underlying theory—are reported in columns (4), (5) and (6). The overall high fit of regressions is consistent with what is found in the literature. Regarding usual covariates, the impact of distance is stronger than the usual estimates but this comes from the fact that our sample mainly covers combinations of trading

¹⁴To take a well known example: Guiso et al. (2004) report that the level of bilateral trust between British and French citizens is quite below the average level of trust those two countries inspire to other countries on average. What is more unexpected is that the level of dis-trust of British citizens for French ones is more than twice the reverse level.

Table 2: Influence of bilateral opinions on EU imports

| Dep. Variable: | Imports | | | Ln (imports/product of GDPs) | | |
|-------------------------------|------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|
| Model: | (1) | (2) | (3) | (4) | (5) | (6) |
| intcpt | -9.62 ^a (0.86) | -11.65 ^a (0.91) | -12.17 ^a (0.97) | -10.09 ^a (0.70) | -11.58 ^a (1.02) | -11.85 ^a (1.11) |
| ln GDP EU country | 0.96 ^a (0.03) | 0.99 ^a (0.03) | 1.01 ^a (0.03) | | | |
| ln GDP CEEC | 0.72 ^a (0.03) | 0.70 ^a (0.03) | 0.72 ^a (0.04) | | | |
| ln distance | -1.43 ^a (0.08) | -1.40 ^a (0.07) | -1.43 ^a (0.08) | -2.18 ^a (0.10) | -2.11 ^a (0.10) | -2.09 ^a (0.11) |
| common border | 0.37 ^a (0.13) | 0.44 ^a (0.13) | 0.44 ^a (0.14) | 0.01 (0.11) | -0.01 (0.11) | -0.01 (0.11) |
| ln imports of newspapers | 0.00 (0.00) | 0.00 (0.00) | 0.00 (0.01) | -0.01 ^c (0.00) | -0.01 ^c (0.00) | -0.01 (0.00) |
| ln share asylum seekers | 0.15 ^a (0.02) | 0.15 ^a (0.02) | 0.16 ^a (0.02) | 0.07 ^b (0.03) | 0.06 ^b (0.03) | 0.08 ^b (0.03) |
| language proximity index | -0.37 (0.26) | -0.26 (0.26) | -0.34 (0.29) | 1.18 ^a (0.29) | 1.05 ^a (0.29) | 0.94 ^a (0.34) |
| ln imports of books | 0.01 (0.01) | 0.01 (0.01) | 0.00 (0.01) | 0.01 ^b (0.01) | 0.01 ^b (0.01) | 0.01 (0.01) |
| ln bilateral opinion | | 0.36 ^a (0.08) | | | 0.32 ^b (0.16) | |
| ln bilateral opinion (lagged) | | | 0.39 ^a (0.09) | | | 0.38 ^b (0.17) |
| EU countries fixed effects | no | no | no | yes | yes | yes |
| CEECs fixed effects | no | no | no | yes | yes | yes |
| Time effects | yes | yes | yes | yes | yes | yes |
| N | 679 | 679 | 585 | 679 | 679 | 585 |
| R ² | 0.858 | 0.861 | 0.866 | 0.784 | 0.786 | 0.783 |
| RMSE | 0.705 | 0.698 | 0.688 | 0.578 | 0.576 | 0.575 |

Note: Standard errors in parentheses with ^a, ^b and ^c respectively denoting significance at the 1%, 5% and 10% levels.

Table 3: Influence of bilateral opinions on EU exports

| Dep. Variable: | Exports | | | Ln (exports/product of GDPs) | | |
|-------------------------------|------------------------------|------------------------------|------------------------------|-------------------------------|-------------------------------|-------------------------------|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Model : | | | | | | |
| intcpt | -7.13 ^a (0.74) | -7.73 ^a (0.89) | -8.41 ^a (0.87) | -11.34 ^a (0.63) | -13.35 ^a (1.06) | -10.85 ^a (0.92) |
| ln GDP EU country | 0.91 ^a (0.04) | 0.92 ^a (0.04) | 1.00 ^a (0.04) | | | |
| ln GDP CEEC | 0.70 ^a (0.03) | 0.70 ^a (0.03) | 0.73 ^a (0.03) | | | |
| ln distance | -1.64 ^a (0.07) | -1.63 ^a (0.07) | -1.70 ^a (0.08) | -1.98 ^a (0.09) | -1.88 ^a (0.09) | -2.00 ^a (0.10) |
| common border | -0.16 (0.12) | -0.14 (0.12) | -0.11 (0.13) | -0.10 (0.11) | -0.13 (0.11) | -0.06 (0.11) |
| ln exports of newspapers | 0.02 ^a (0.00) | 0.02 ^a (0.00) | 0.01 (0.01) | 0.01 (0.00) | 0.01 (0.00) | 0.00 (0.00) |
| ln share asylum seekers | 0.10 ^a (0.02) | 0.10 ^a (0.02) | 0.10 ^a (0.02) | 0.02 (0.03) | 0.02 (0.03) | 0.02 (0.03) |
| language proximity index | -0.86 ^a (0.26) | -0.83 ^a (0.26) | -0.91 ^a (0.28) | 0.45 ^c (0.26) | 0.29 (0.25) | 0.36 (0.30) |
| ln exports of books | 0.02 ^b (0.01) | 0.02 ^b (0.01) | 0.01 ^b (0.01) | 0.02 ^a (0.01) | 0.02 ^a (0.01) | 0.02 ^a (0.01) |
| ln bilateral opinion | | 0.10 (0.08) | | | 0.42 ^b (0.18) | |
| ln bilateral opinion (lagged) | | | 0.08 (0.08) | | | 0.07 (0.14) |
| EU countries fixed effects | no | no | no | yes | yes | yes |
| CEECs fixed effects | no | no | no | yes | yes | yes |
| Time effects | yes | yes | yes | yes | yes | yes |
| N | 679 | 679 | 585 | 679 | 679 | 585 |
| R ² | 0.896 | 0.896 | 0.912 | 0.842 | 0.844 | 0.875 |
| RMSE | 0.638 | 0.638 | 0.584 | 0.531 | 0.528 | 0.450 |

Note: Standard errors in parentheses with ^a, ^b and ^c respectively denoting significance at the 1%, 5% and 10% levels.

partners involving ground transportation.¹⁵ Sharing a common border promotes EU imports from CEECs in the gravity equation, but the effect is not robust, and is basically nil for exports to the CEECs.

Column (2) of Table 2 introduces bilateral opinions in the simple gravity framework, and we also account for a potential simultaneity bias between the changes in trade and bilateral opinions by including the lagged value of bilateral opinion in column (3). Point estimates of the bilateral opinion variable are quite stable across specifications. Coefficients of columns (2), (3), (5) and (6) reveals that a 10% rise in the level of positive bilateral opinion is associated with a rise in trade volumes between 3.2% and 3.9%. In our sample, a one standard deviation increase in the opinions variable from the mean value amounts to a 29% rise in the level of positive opinions, which raises bilateral trade by a figure ranging between 9.3% and 11.3%. The magnitude of the effect is therefore substantial in economic terms, in line with the estimates obtained by Guiso et al. (2004) with trust as an explanatory variable, and highly statistically significant. Regressions also reveal that bilateral opinions bring additional information in the explanation of trade patterns, rather than substituting for the impact other variables proxying ϕ_{ij} and a_{ij} . Indeed, most of the variables keep a stable coefficient with the inclusion of bilateral opinions in the gravity specification. Note that the asylum seekers variable has a robust impact on trade flows and contribute substantially to the overall fit of the regression. With the lowest estimates of Table 2, a one-standard deviation increase from the mean of this variable raises bilateral trade by more than 11 percent. We also test if our results are affected by our measure of migration. We use the stock of migrants from CEECs in EU countries (available from the OECD international migration statistics) as an alternative measure of migration. Results, not reported here, suggest a positive and statistically significant effect of migration on trade and the influence of bilateral opinion on trade remains unchanged. The fit of the regression is however slightly smaller. In the fixed effect specification, exchanges of books have a significant positive impact on trade, whereas the flows of newspapers never have¹⁶.

Comparing results from Tables 2 and 3, we see that our main variable of interest loses its positive influence for exports in all except one estimations, which confirms priors if this variable mostly reflects

¹⁵Disdier and Head (2004) find that distance estimates from gravity equations are substantially larger (in absolute value) for intra-continental samples.

¹⁶Note that due to time constraints, newspapers can also be directly printed in the host country, specially when the potential readership is large there. However, we do not think that this is a significant concern in our case. Indeed, our sample includes several small countries (in particular in Eastern Europe) and the market for newspapers from these countries does not seem large enough to make direct investment advantageous.

preferences of consumers. Opinions have no reason to reflect systematically symmetrical bilateral affinity, and we do not have the information on opinions of CEEC citizens on EU countries. The difference in coefficients can therefore be interpreted as evidence that the underlying mechanism is indeed related to the affinity that consumers in the importing country have for the exporting country. Opinions are overall significant and quite large determinants of imports in our sample. Their influence is robust to the inclusion of other proxies for similar preferences and low trade costs we use here, suggesting that it contains additional information on the bilateral affinity of countries that translate into higher trade flows.

4.2 Determinants of bilateral opinions

The formation of opinions can be caused by several different factors. We separate determinants of opinions in a set reflecting bilateral affinity on the one hand and another one reflecting the expected economic gains / losses expected by the population from the enlargement. Additionally, we will always consider for each group of regressions, a fixed effect estimation, in order to account for the unobservable (but strong, see the country-specific patterns in figure 1) systematic country-specific deviations in opinions. All estimations again include year dummies.

One can think that bilateral affinity is primarily constructed by the history of the dyad under consideration. Ancient alliances, intense bilateral migration flows or repeated instances of political and/or cultural conflicts should impact the feeling of citizens about each candidate countries. We use several proxies to capture those historical ties likely to influence opinions. First, we use the number of military incidents (war_{ij}) between the two countries within the period 1870-1989, and $uncorr_{ij}$ which measures the correlation between countries' positions during votes on resolutions in the General Assembly of the United Nations. The data on wars come from the Correlates Of War project database maintained by political scientists.¹⁷ The UN votes correlation is intended to take into account shorter term political proximity. This measure is based on the roll-call votes. This form of vote happens when one Member State requests the recording of the vote so that its stand, or the stand of another Member State, on the issue under discussion is clearly identified. This recording must be requested before the voting is conducted. This annual database created by Gartzke et al. (1999) covers the period 1946-1996. We take the mean value of annual correlation in the votes of the

¹⁷<http://cow2.la.psu.edu/>

two trading partners between 1991 and 1996. As another proxy for cultural and historical ties, we also use an index of religious proximity (relig_{ij}), constructed in a very similar way as the language similarity index.

Bilateral affinity can also be measured by variables used for trade costs and similarity of preferences in the trade equation. A good example is our migration variable. It can proxy an information channel for profitable trading opportunities, but also bilateral affinity of each EU country towards each acceding country. Indeed, during the “immediate transition period” (which we date to be between 1988 and 1993 here), we expect asylum seekers trying to change citizenship and move out of the Eastern Europe country considered to choose the EU country where its chances of positive answer and then integration, success in professional and personal life... are highest (see Hatton, 2004, for recent evidence). The share of asylum seekers going to a particular EU member at this period should therefore reflect in part the bilateral affinity of countries. We therefore include those variables for a_{ij} and ϕ_{ij} as controls here.

The dependent variable is the percentage of respondents in each Member State that supports the enlargement to a given CEEC. These percentages belong to the interval $[0;100]$. We take into account the existence of those upper and lower bounds of the explained variable using a logistic transformation of the data (Greene, 2003). Results of estimations using the first group of variables - bilateral affinity variables - are reported in Table 4.

Results of the estimation based on OLS are presented in column (1). As expected, distance has a negative and robust impact on bilateral opinions. Political proximity (UN votes correlation) and contiguity have a more surprising impact. Contiguity has a significantly negative influence, and political proximity a non significant and weak positive influence. The result on contiguity, surprising at first sight, becomes clearer when recalling the general features of the data. Figure 2 shows indeed that Austrian and German citizens are relatively *not* favorable to the enlargement. However, Austria share a border with four states, the Czech Republic, Hungary, Slovakia and Slovenia; Germany has a common border with the Czech Republic and Poland. On the other extreme, Denmark and Sweden, in which support for enlargement is the highest, do not share any land border with CEECs. The overall fit of the regression is furthermore disappointing. Country specificities seem particularly important in opinion formation and suggests the inclusion of EU countries and CEECs fixed effects in columns (2) and (3). Results in those columns improve largely for the bilateral variables and come

Table 4: Influence of affinity factors on bilateral opinions

| Dep. Variable: | bilateral opinion | | |
|----------------------------|------------------------------|-------------------------------|-------------------------------|
| | (1) | (2) | (3) |
| Model : | | | |
| intcpt | 1.48 (0.92) | -10.72 ^a (2.54) | -15.08 ^a (3.29) |
| nb of conflict years | -0.04 ^a (0.01) | -0.01 ^a (0.00) | -0.02 ^a (0.01) |
| ln UN vote correlation | 0.20 (0.19) | 2.93 ^a (0.55) | 3.75 ^a (0.71) |
| religion proximity index | -0.23 ^a (0.08) | -0.20 ^b (0.10) | -0.28 ^b (0.11) |
| ln distance | -0.33 ^a (0.04) | -0.49 ^a (0.03) | -0.42 ^a (0.04) |
| common border | -0.44 ^a (0.09) | -0.04 (0.06) | 0.07 (0.07) |
| ln share asylum seekers | | | 0.04 ^a (0.02) |
| ln imports of newspapers | | | 0.00 (0.00) |
| language proximity index | | | 0.59 ^a (0.12) |
| ln imports of books | | | 0.00 (0.00) |
| EU countries fixed effects | no | yes | yes |
| CEECs fixed effects | no | yes | yes |
| Time effects | yes | yes | yes |
| N | 887 | 887 | 695 |
| R ² | 0.168 | 0.784 | 0.802 |
| RMSE | 0.486 | 0.251 | 0.252 |

Note: Standard errors in parentheses with ^a and ^b respectively denoting significance at the 1% and 5% levels.

back in line with expectations: Geographical proximity (a short distance and contiguity), combined with high levels of political proximity, linguistic affinity and of our asylum variable are all positively associated with more positive opinions, once the country specificities have been taken into account. Also, and unlike the estimations in the previous section, the R^2 is also much higher when fixed effects are included in the regression. Religious proximity has a negative sign contrary to expectations. Bilateral affinity variables explain a proportion of EU citizens' opinions on enlargement, but the crucial importance of fixed effects point to a large influence of fixed characteristics of each country (EU members and CEECs).

As a second step, we consider economic determinants of opinions. If citizens respond in a rational way to the survey, they should take into account the expected change in their economic situation after the enlargement to each country. Following the same idea as in Mayda and Rodrik (forthcoming) or O'Rourke and Sinnott (2001), we can expect for instance that unskilled workers in a skilled labor abundant country will be all the more worried and therefore express negative opinions that the enlargement concerns an unskilled labor abundant country. High expected costs of adjustment to the enlargement will translate into more negative opinions. Note that the negative impact of distance seen above runs against this argument, as countries should fear proximate countries under this logic, with which trade will be larger after enlargement. We include two variables to capture this cost of adjustment determinant, the trade flows divided by the product of partners' GDPs in each direction, and the difference in GDP per capita. The impact of imports is particularly interesting here, a negative sign would provide support for the political economy explanation of opinion formation, while a positive one would suggest that increased trade contribute to raise bilateral affinity.

The size of the EU country is also taken into account, as it seems to be a crucial empirical determinant of the levels of opinions.¹⁸ The current rate of unemployment might also contribute to fears of job losses in the different member countries after the enlargement. Net contributions to the EU budget might also matter, although the sign of the effect is uncertain. The current level of aid received from the European Commission under the regional policy programmes could generate negative opinions about the enlargement, as enlargement might endanger those programmes and redirect them to the CEECs. On the opposite, large net contributors might fear extended payments

¹⁸This variable can be justified with the well documented fact that large countries are less open to international trade and investment.

to be made to the new entrants. We include net contributions divided by country's GDP as a covariate as well as the amount of agriculture-related subsidies received (per farmer), which is often a key political issue in European countries. Related to this is the overall perception by citizens of the benefits their country enjoyed from membership. People might be more supportive of further integration if they view the history of the EU to date as globally positive for their country. We therefore include an additional question of the Eurobarometer survey on this topic:

“Taking everything into consideration, would you say that (*our country*) has on balance benefited or not from being a member of the European Union?”

Possible answers are: “Benefited”, “Not benefited” or “Don't know”. We retain the percentage of positive answers. Interestingly, this perceived benefit is in fact one of the most robust determinant of positive opinions. The estimations of the influence of economic determinants on bilateral opinions are presented in table 5.

The first four columns introduce imports and the next four exports. Columns (1) and (5) present OLS results and the other ones, fixed-effects estimates. Columns (4) and (8) include lagged values of imports and exports. Imports and exports always have a positive and very significant influence in statistical terms. Furthermore, following the use of lagged values for these variables and the introduction of additional variables and/or of fixed effects, the influence of trade variables tends to increase. Results of estimations indicate that the difference in GDP per capita between the two countries has a significant negative effect on opinions, even when including fixed effects. EU citizens therefore have a better opinion concerning the membership of a candidate country when this country is proximate in terms of development level. The coefficient on the unemployment rate in the EU country is however not significant, which suggests that a deterioration of the economic conjuncture in the EU country does not deteriorate the opinions concerning the enlargement, everything else equal. This suggests that EU citizens did not attribute a bad employment situation in their country to economic relationships with candidate countries.¹⁹ Net contributions to the EU budget are positively associated with opinions about the enlargement, which means that countries receiving the most from the EU have the worst opinions about the enlargement. The fears of a reduction of EU subsidies seem to be a strong determinant of opinions across countries. The agricultural subsidies variable (not

¹⁹This can be related to the empirical work by Marin (2004) on the effects of trade and investment with candidate countries on labor market outcomes in Germany and Austria. Using firm-level data, Marin (2004) shows that the enlargement indeed lead to overall small net job losses in both countries over the transition period.

Table 5: Influence of economic factors on bilateral opinions

| Dep. Variable: | bilateral opinion | | | | | | | |
|---------------------------------------|------------------------------|-----------------------------|-------------------------------|-------------------------------|------------------------------|-----------------------------|-------------------------------|-------------------------------|
| Model : | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| intcpt | 3.75 ^a (0.42) | 18.95 (13.33) | 68.69 ^a (22.18) | 59.22 ^a (21.86) | 3.31 ^a (0.41) | 16.15 (11.76) | 58.83 ^a (21.50) | 68.70 ^a (22.52) |
| ln imports/product of GDPs | 0.10 ^a (0.01) | 0.13 ^a (0.01) | 0.13 ^a (0.01) | | | | | |
| ln imports/product of GDPs (lagged) | | | | 0.13 ^a (0.01) | | | | |
| ln exports/product of GDPs | | | | | 0.08 ^a (0.01) | 0.16 ^a (0.01) | 0.16 ^a (0.01) | |
| ln exports/product of GDPs (lagged) | | | | | | | | 0.17 ^a (0.01) |
| ln population EU country | -0.14 ^a (0.01) | -1.86 (1.48) | -7.41 ^a (2.44) | -6.40 ^a (2.42) | -0.13 ^a (0.01) | -1.47 (1.31) | -6.15 ^a (2.37) | -7.30 ^a (2.48) |
| ln GDP per cap difference | | | -0.17 ^a (0.04) | -0.13 ^a (0.04) | | | -0.20 ^a (0.04) | -0.19 ^a (0.03) |
| ln unemployment EU country | | | -0.06 (0.09) | 0.04 (0.06) | | | -0.06 (0.09) | 0.05 (0.07) |
| ln unemployment CEEC | | | 0.03 (0.04) | 0.00 (0.05) | | | -0.05 (0.04) | 0.01 (0.05) |
| net contribution to EU budget/GDP (%) | | | 0.15 ^a (0.03) | 0.15 ^a (0.03) | | | 0.13 ^a (0.03) | 0.16 ^a (0.03) |
| ln benefited from EC membership | | | 0.46 ^a (0.11) | 0.48 ^a (0.10) | | | 0.42 ^a (0.11) | 0.47 ^a (0.09) |
| EU countries fixed effects | no | yes | yes | yes | no | yes | yes | yes |
| CEECs fixed effects | no | yes | yes | yes | no | yes | yes | yes |
| Time effects | yes | yes | yes | yes | yes | yes | yes | yes |
| N | 864 | 864 | 864 | 777 | 864 | 864 | 864 | 777 |
| R ² | 0.152 | 0.77 | 0.784 | 0.835 | 0.137 | 0.777 | 0.79 | 0.839 |
| RMSE | 0.493 | 0.260 | 0.253 | 0.224 | 0.497 | 0.256 | 0.249 | 0.222 |

Note: Standard errors in parentheses with ^a denoting significance at the 1% level.

reported here) has however no significant influence. The perceived benefit of the EU membership has a strong positive influence on opinions.

In an unreported set of regressions, we include both types of variables (affinity and economic-related). Some determinants have a very robust influence confirming the partial analyses from previous tables. Imports, GDP per capita difference, distance, UN votes correlation, perceived benefits from EC membership, and language proximity, all have stable levels of magnitude and statistical significance in the different specifications. Note that this robust set of determinants incorporate both types of explanations outlined above: Some linked to the economic situation, some linked to affinity factors.

We have identified in the last two sections a reciprocal statistical relationship between bilateral opinions and trade. Those results do however lack insights about the causal link in this relationship and its direction. We now turn to this question.

5 Causality through trade policy

This section will notably try to use the drastic change in trade policy between the two parts of Europe during the transition process as a way to assess whether the large rise in imports following this policy change did impact the opinions in EU member countries. In order to go further than simple correlations, a strategy is to estimate the impact of an exogenous change on trade flows on bilateral opinions. Exogeneity signifying here that the change in trade volumes would themselves not be caused by a change in opinions. Trade policy is generally not the ideal candidate for an instrument. Tariffs (and trade policy in general) have been shown to be largely endogenous, because of the response of governments to demand for protection inside the country (Trefler, 1993, is one of the most famous examples of empirical support of this hypothesis of endogenous protection). In our case however, this concern has reasonable chances to be irrelevant. Indeed, the change in trade policy from EU member countries was not dictated by political economy considerations inside each country, but by the need to respond to the external pressure for membership expressed by CEECs soon after the changes in political regime. As Baldwin and Wyplosz (2003) recall, all CEECs expressed their will to enter the EU in the early nineties. In response, the EU members offered a transition period in which unilateral trade liberalization was a central element. We therefore have the uncommon experiment of a uniform (across members because of the customs union nature of the EU) and

quite drastic fall in tariffs over that period, dictated by an unexpected and dramatic change in the international environment, rather than a change in the demand for protection inside each country, which might of course be affected by a change in opinions. There is an additional dimension to this change: In 1995, Austria, Sweden and Finland joined the Union. At that date, they adopted the common trade policy of the Union, which again constitutes a relatively exogenous change from their formerly independent trade policy. Finally, note that some variance in tariffs exists between CEECs and between sectors within each CEEC. On the one hand, association agreements were signed at different dates²⁰. On the other hand, the trade liberalization was not uniform across sectors and the transition period before tariffs' elimination was longer for sensitive sectors.

Guiso et al. (2004) propose instrumentation of their trade and opinion regressions, using history of war, commonality of religion and genetic distance as instruments for opinions (trust in their paper). There are some problems with this approach however, linked to the fact that i) the level of opinions is primarily determined by fixed effects, ii) their proposed instruments seem to have little explanatory power of bilateral trust. We therefore use a first differences approach here that bypasses the problem of strong fixed effects determinants in levels. Note however that identifying our effects solely on the time variation of our data within pairs of countries is quite demanding, considering the little number of years we have with fully available data. Also, the cross-sectional source of the relationship between trade patterns and opinions, while badly suited to give insights about causality, is interesting per se. We will provide IV regressions on first differences using what we consider to be exogenous and robust determinants of opinions on the one hand (the perceived benefit from the EU, populations, income per capita difference, and the net contribution to the EU budget), and variation in bilateral tariffs for trade on the other hand.

Bilateral tariff data are much harder to collect on a large scale than what could be initially expected, even for such recent years. The main original source is the TRAINS database maintained by UNCTAD and made more user-friendly by Jon Haveman. These data are available at a very detailed HS product level. As a first step, we use here these tariff data combined with trade and production data initially compiled by the World Bank trade group and completed by CEPII (Fontagné et al. 2004) to assess the impact of tariffs at the 3-digit ISIC level for the sample we are interested in.

Table 6 reports results of those regressions, where the log of imports from each CEEC relative

²⁰March 1992 for ex-Czechoslovakia, Hungary and Poland, May 1993 for Romania, December 1993 for Bulgaria, January 1995 for the three Baltic States, and January 1997 for Slovenia.

Table 6: Border effects and bilateral opinions.

| Dep. Variable: Model : | Ln Imports Partner/Own | | | | | |
|-------------------------------|------------------------------|------------------------------|------------------------------|-------------------------------|-------------------------------|-------------------------------|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| intcpt | -6.53 ^a (0.17) | -7.90 ^a (0.41) | -7.01 ^a (0.48) | -6.56 ^a (0.47) | -7.61 ^a (0.73) | -7.60 ^a (0.74) |
| ln rel. production | 0.72 ^a (0.02) | 0.71 ^a (0.02) | 0.66 ^a (0.02) | 0.67 ^a (0.02) | 0.68 ^a (0.04) | 0.68 ^a (0.04) |
| ln rel. prices | -0.82 ^a (0.08) | -0.83 ^a (0.08) | -0.86 ^a (0.13) | -0.92 ^a (0.13) | -0.91 ^a (0.22) | -0.91 ^a (0.22) |
| ln rel. distance | -0.55 ^a (0.04) | -0.53 ^a (0.04) | -0.47 ^a (0.06) | -0.48 ^a (0.06) | -0.59 ^a (0.10) | -0.59 ^a (0.10) |
| common border | 1.16 ^a (0.10) | 1.22 ^a (0.10) | 1.16 ^a (0.13) | 1.17 ^a (0.13) | 1.03 ^a (0.22) | 1.03 ^a (0.22) |
| ln imports of newspapers | 0.03 ^a (0.00) | 0.03 ^a (0.00) | 0.04 ^a (0.01) | 0.03 ^a (0.01) | 0.04 ^a (0.01) | 0.04 ^a (0.01) |
| ln share asylum seekers | 0.31 ^a (0.02) | 0.31 ^a (0.02) | 0.32 ^a (0.03) | 0.37 ^a (0.02) | 0.41 ^a (0.04) | 0.41 ^a (0.04) |
| language proximity index | -1.66 ^a (0.24) | -1.52 ^a (0.24) | -0.91 ^a (0.31) | -0.95 ^a (0.30) | -0.73 (0.51) | -0.73 (0.51) |
| ln imports of books | 0.05 ^a (0.00) | 0.05 ^a (0.00) | 0.05 ^a (0.01) | 0.03 ^a (0.01) | 0.03 ^a (0.01) | 0.03 ^a (0.01) |
| ln bilateral opinion | | 0.32 ^a (0.09) | 0.29 ^a (0.11) | 0.24 ^b (0.10) | 0.48 ^a (0.16) | |
| ln bilateral opinion (lagged) | | | | | | 0.47 ^a (0.17) |
| ln (1+tariff) | | | | -12.06 ^a (0.64) | -12.57 ^a (0.94) | -12.57 ^a (0.94) |
| NTB frequency index | | | | | -0.31 (0.33) | -0.31 (0.33) |
| EU countries fixed effects | no | no | no | no | no | no |
| CEECs fixed effects | no | no | no | no | no | no |
| Time effects | yes | yes | yes | yes | yes | yes |
| N | 8848 | 8848 | 4998 | 4998 | 1781 | 1781 |
| R ² | 0.352 | 0.353 | 0.372 | 0.414 | 0.422 | 0.422 |
| RMSE | 2.274 | 2.272 | 2.238 | 2.162 | 2.192 | 2.192 |

Note: Standard errors in parentheses: ^a and ^b represent respectively statistical significance at the 1% and 5% levels. The reported standard errors take into account the correlation of the error terms for a given importer.

to internal trade is used as the dependent variable. New trade theory of the Dixit-Stiglitz-Krugman type commands that this variable should be explained by relative production, relative prices, relative distance, and other components of relative trade impediments and relative preferences (see footnote 11). Column (1) of Table 6 uses our controls for ϕ_{ij} other than trade policy and the controls used in the preceding section of this paper for a_{ij} . Bilateral opinions are introduced in column (2). The estimates on bilateral opinions, are within the same order of magnitude as in the fixed effects regression of section 4.1. This is expected as both empirical specifications are derived and consistent with the same theoretical model, although Table 6 runs regressions pooled over industries as opposed to regressions on aggregate trade. The price elasticity revealed by the coefficient on tariffs is very high and including tariffs in the regression improves substantially the fit, supporting the idea that the change in trade policy was important in the changes of trade patterns of CEECs during this period. Results remain unchanged when we consider the lagged value of bilateral opinion (column 6).

The next step is to look at regressions in first differences, in order to assess the impact of the change in trade flows within a pair of countries following the trade policy change on bilateral opinions. Due to missing observations for tariffs and in order to have relatively similar time periods for regressions in first differences, we consider here only the years 1992, 1997 and 2001. Column (1) in Table 7 uses the change in bilateral tariffs as a determinant of the change in trade volumes. These trade volumes are divided by the product of both partners' GDPs. The tariff variable has the expected influence and coefficient. The price elasticity estimated from change in tariffs is smaller than in the preceding table although still large (recall that Table 7 runs regressions on aggregate trade, while Table 6 uses industry-level data). In column (2), the change in bilateral opinions is explained by first differences in the most significant explanatory variables from the last section. Results reveal an expected impact of changes in the population of EU country, the difference in GDP per capita between the two countries, perceived benefits from the EU membership and aid received. Column (3) includes the impact of bilateral opinions on trade volumes whereas column (4) introduces bilateral trade as an additional determinant of changes in bilateral opinions. Both variables are not significantly different from 0. This result reveals that the relationships between trade and opinions from the preceding sections are in fact due to cross-sectional variation. The last two columns provide estimates of IV regressions, in order to investigate the effect of more exogenous

shocks to trade and opinions on each other in the within dimension studied here. Equation of column (1) is used as the instrumental equation for the change in trade patterns in column (6). In column (5), instruments for the evolution of bilateral opinions are the variables used in the estimation of column (2). Both coefficients of trade and opinions rise when instrumented. Results suggest that an increase in bilateral opinions for a given pair of country has a positive and significant impact on imports, when instrumented, whereas column (3) reveals that the impact of opinions is not significant in the absence of instrumentation. The influence of imports on opinions is never significant. These results can be interpreted as first evidence that the impact of a rise in opinions causes imports to increase, whereas a change in imports has no measurable impact on opinions in the importing country. Caution is warranted however in interpreting those results, due to the small sample size available here, notably because of the combination of missing opinion and tariff data.

Table 7: Bilateral opinions and EU imports - first differences

| Method: Dep. Variable: Model : | OLS $\Delta \ln \text{ imp/GDPs}$ (1) | OLS $\Delta \ln \text{ opin.}$ (2) | OLS $\Delta \ln \text{ imp/GDPs}$ (3) | OLS $\Delta \ln \text{ opin.}$ (4) | IV $\Delta \ln \text{ imp/GDPs}$ (5) | IV $\Delta \ln \text{ opin.}$ (6) |
|--|---|--|---|--|--|---|
| intcpt | -19.35 (92.00) | 47.34 ^a (16.02) | -15.95 (96.37) | 42.93 ^a (16.46) | 90.20 (107.28) | 24.78 (30.45) |
| $\Delta \ln \text{ tariff}$ | -6.34 ^b (2.74) | | -6.31 ^b (2.75) | | -5.49 ^c (2.86) | |
| $\Delta \ln \text{ EU country pop}$ | | -4.76 ^a (1.81) | | -5.24 ^a (1.75) | | -5.66 ^a (2.00) |
| $\Delta \ln \text{ gdp/cap difference}$ | | -0.19 ^b (0.09) | | -0.15 ^c (0.09) | | -0.16 ^c (0.10) |
| $\Delta \text{ net cont. to EU budget/GDP}$ | | 0.16 ^a (0.02) | | 0.15 ^a (0.02) | | 0.14 ^a (0.03) |
| $\Delta \ln \text{ perceived benefit from EU}$ | | 0.77 ^a (0.07) | | 0.81 ^a (0.07) | | 0.67 ^a (0.12) |
| $\Delta \ln \text{ bilateral opinion}$ | | | 0.04 (0.29) | | 1.14 ^b (0.51) | |
| $\Delta \ln \text{ imports/product of GDPs}$ | | | | -0.02 (0.01) | | 0.05 (0.10) |
| Time effects | yes | yes | yes | yes | yes | yes |
| N | 219 | 250 | 219 | 227 | 219 | 219 |
| R ² | 0.048 | 0.453 | 0.048 | 0.514 | 0.110 | 0.363 |
| RMSE | 0.858 | 0.174 | 0.860 | 0.163 | 0.888 | 0.173 |

Note: Standard errors in parentheses with ^a, ^b and ^c respectively denoting significance at the 1%, 5% and 10% levels.

6 Conclusion

This paper studies the relationship between opinions in favor of the upcoming Eastern enlargement expressed by citizens in current EU countries and trade flows between these two regions of Europe. We use data extracted from the Eurobarometer public opinion surveys published by the European Commission, which allows to study bilateral patterns of trade and opinions. Two central questions are investigated: First, do bilateral opinions and trade flows move together even after controlling for the known forms of proximity existing between two countries? Second, can we go further and assess in which direction does the causality go?

Our results first suggest that bilateral opinions have a statistically robust and relatively large effect on imports, even when standard and new covariates proxying for proximity between countries are controlled for. This result holds both when using standard gravity equations and fixed effects estimations. We interpret this effect as reflecting a positive impact of “bilateral affinity” on trade patterns. The effect on exports is less significant and smaller in magnitude, which supports our interpretation. We also show that it is possible to go some way towards explaining the differences in bilateral opinions among our sample. We use several determinants, based on proxies for affinity, and also on proxies suggested by trade theory and recent empirical work that might explain why some countries are more reluctant to openness in general and with some partners in particular. Finally we add country-specific effects. We show that those country specificities are important, but that the economic determinants also seem to matter and in particular bilateral imports which are positively associated with a good opinion about enlargement. Last we provide a first pass at a causality analysis, which in the case of our sample, shows a stronger impact of bilateral opinions on imports than the reverse.

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