PUBLIC OPINION AND ENLARGEMENT:

A GRAVITY APPROACH

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CEPS WORKING DOCUMENT NO. 192

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Abstract

Popular support for enlargement of the European Union is a function of how close or how far removed the member states are from the candidate countries. In the absence of country fixed effects or special bilateral relationships (e.g. adjacency, historic rivalry, religious conformity), we can explain approximately 14% of the variation in attitudes across member states and with regard to specific candidate countries using factors related to trade, distance, and relative economic size and structure. Taking special bilateral relations into account we can explain approximately 30%. Once country fixed effects are incorporated, the level of explanation increases to 80%.

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Public Opinion and Enlargement: A Gravity Approach

Popular attitudes within existing member states are important for the success of enlargement. Whether the example is the sequence of Irish referenda – first negative and then positive – the parliamentary debate in the Netherlands, or the offhand comments of the President of the European Convention, what is clear is that public opinion matters. What is less clear is how public opinion is structured. This is true particularly with reference to the attitudes of specific member states toward specific candidate countries. We can make assertions about the sentiments of the French toward the Romanians or the Germans toward the Poles, but there is almost no literature positing a universal set of propositions about how one country should be expected to view another.

The closest that the literature comes to offering a set of principles can be found in the work by Karl Deutsch (et al. 1957: 36). Deutsch argued that lasting communities of integration rely on:

> a matter of mutual sympathy and loyalties; of 'we-feeling,' trust, and mutual consideration; of partial identification in terms of self-images and interests; of mutually successful predictions of behaviour, and of cooperative action in accordance with it – in short, a matter of perpetual dynamic process of mutual attention, communication, perception of needs, and responsiveness in the process of decision-making.

Much of this is difficult to capture directly. Nevertheless, the argument can be simplified for analysis. As Rosamond (2000: 44) suggests, 'the guiding hypothesis of transactionalist work on integration [like Deutsch's], was that a sense of community *among* states would be a function of the level of communication between states.' The assumption is that interaction breeds familiarity which in turn promotes the 'we-feeling' or attitudinal sympathy that Deutsch believed to be a key to success. Hence Deutsch's work became identified as the basis for the 'affinitive' strand of the 'transactions approach' to the study of integration.

The standard critique of Deutsch's work rests on two propositions. First, the data concerning the attitudes in one country toward integration with another simply did not exist, making impossible even a superficial rendering of the principal hypothesis that interaction promotes popular support. Instead, Deutsch focused primarily on the measurement of interaction rather than on the affective change that such interaction brought about. Second, even with an affective change, there is no guarantee that popular support will result in successful integration. Too many intervening variables and institutions stand in the way between popular opinions and political outcomes.

Our contribution addresses only the first concern – the problem of operationalising the underlying hypothesis that transaction (or interaction) promotes a change in popular attitudes or affinities. Using a relatively new series of public opinion data within specific member states regarding enlargement to specific candidate countries we look to see whether geographic distance, trade importance, relative prosperity, and economic structures play a role in shaping attitudes. What we find is that a three-variable model can explain approximately 14% of the variation in attitudes within specific member states toward specific candidate

countries – such as the variation between French, German, and Italian attitudes toward the accession of Romania, or the variation between French attitudes toward Romania and toward Poland. Moreover, with the addition of dummy variables to represent special bilateral relationships – such as adjacency, historic enmity or friendship, or religious conformity – we can increase the level of explanation to approximately 30%. Finally, the introduction of dummy variables to account for country-specific fixed effects not only allows us to demonstrate the robustness of our model, but also brings the level of explained variation up to around 80%.

Such findings do not put to rest all of the criticisms relating to the work of Deutsch and others. However, given the variety of countries involved in any future Europe and the manifest importance of constructing a sense of community between them, these findings do suggest that the time may be ripe for a reconsideration of the affinitive strand of the transactions approach to integration.

The Data and the Model

In contrast to the late 1950s, when Deutsch was writing on integration in the North Atlantic, the Eurobarometer now systematically publishes the results of a survey in which respondents from each member state are asked to declare their support, opposition, or non-response in relation to the accession of each of the potential candidate countries. During the first years of this survey, the list of potential candidates was quite long. By the end of the 1990s, however, it had narrowed down to approximately thirteen.[1] This is our measurement of national affinity.[2]

The approach that we use in analysing this data is based on the 'gravity' model that is widely deployed to analyse trade patterns. This model is characteristically dyadic, which is to say that it focuses on pair-wise relations between countries. Typically, the dependent variable used in a gravity model measures the flow of goods or factors from one country to another. On the right-hand side of the equation, the gravity approach includes measures for income and populations in both countries as well as the relative distance between them. These independent variables are arrayed in product form and the estimation is log-linear (cf. Anderson 1979; Bergstrand 1985).

For our purposes, the <u>dependent variable</u> is the attitudes (ATT_{ij}) of specific member states (subscript i) toward specific candidate countries (subscript j). Because respondents have three choices in response to the Eurobarometer question, we analyse three separate components of attitudes: support (SUP_{ij}); opposition (OPP_{ij}); and non-response (DKN_{ij}).

On the right-hand side of the equation, we focus on ratios or relative measures of income and population rather than the absolute measures favored in the traditional gravity approach. The justification for using ratios derives from the reflective nature of public opinion as opposed to the directive nature of international trade: Our prior is that the attitudes in member states are not actually drawn to the candidate countries as the gravity metaphor would suggest but rather focus on assessments of relative size and importance. Moreover, since relative income size

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[1] Bulgaria, Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Romania, Slovakia, Slovenia, Turkey. Some surveys also include results for Iceland, Norway, and Switzerland, but those are not included in the analysis here. The survey for 1997 omitted Turkey.

[2] Importantly, we do not have to massage the data in order to create a consistent series. The pollsters working for Eurobarometer asked respondents to address a single question throughout the period of our analysis: "For each of the following countries, would you be in favor or against it becoming part of the European Union?" We simply assembled those responses into a pooled cross-section time series.

and relative population size are highly correlated (suggesting problems of collinearity), we have aggregated relative income and population into one variable for relative income per capita ($PCAP_{ij}$) which is the ratio of the per capita income in the candidate country to the per capita income in the member state. This relative per capita income variable is our measure of transactions potential.

In addition, we include separate ratios for the value of exports from the member state to the candidate country as share of the member state's total exports and we include a measure of the distance between the capitals of the member state and the candidate country. These variables are also highly correlated and so we combine them into a single ratio of trade over distance (TBD_{ij}). This trade-over-distance variable is our principal measure of actual transactions.

Finally we include a variable to capture the countervailing influence of redistributive institutions at the European level and specifically the Common Agricultural Policy (CAP). Deutsch's argument did not consider that enlargement would have automatic distributive consequences arising from structural features unrelated to either actual or potential transactions. The reality of the European Union is more complicated. Therefore, we have included the ratio of the agricultural share of total employment of the candidate country relative to the agricultural share of total employment in the member state (AGG_{ij}). This variable captures an important negative consequence of the enlargement process, which is the threat that the candidate countries pose to the size and functioning of the CAP. This prior is elaborated in greater detail below.[3]

The general model for our estimation of the problem is as follows:

$$ATT_{ij} = a + b_1 pcap_{ij} + b_2 tbd_{ij} + b_3 agg_{ij} + U_{ij} \qquad (1)$$

As written, those variables in upper case are in ratio or nominal form, while those variables in lower case are in log form. The error term (U_{ij}) is normally distributed around zero.[4]

Estimation Strategy and Theoretical Expectations

The three components of attitudes – support, opposition, and non-response – are obviously interrelated insofar as they sum to 100% of respondents.[5] Hence in establishing the theoretical

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[3] The data are readily available. The source of our public opinion data is the Eurobarometer polling previously cited and culled from volumes 45, 47, 49, 51 and 53 of the published annexes of statistical tables. The data for GDP per capita and value added in the agricultural sector comes from the European Commission's *Annual Macroeconomic Database*. The trade data is from the *Direction of Trade Statistics* of the International Monetary Fund. And the geographic data is constructed from the *National Geographic*. A copy of the entire dataset is available upon request from the authors.

[4] The model specification is based on curve-fitting rather than strong a priori motivations. The gravity model is typically estimated as log-linear. We made estimates using percentages on the left-hand side of the equation and ratios on the right-hand side; logs on both sides; and percentages on the left-hand side with logs on the right-hand side. Of the three specifications, all provided strong estimates but the third consistently offered the highest level of explained variation. Therefore in the estimates that we report, the percentages of popular attitudes are expressed as a function of the logs of relative income, relative trade share over distance, and relative agricultural size.

[5] This boundedness also means that standard ordinary least squares (OLS) regression techniques will produce biased estimates of the coefficients on our independent variables. Therefore, we have used a weighted least squares (WLS) regression technique in order to derive minimum chi-squared estimates of the coefficients (Greene 1993: 653-655). These estimates are based on a recalculation of the dependent variable into logits (to escape from its original boundedness) and an initial estimation by OLS (in order to generate the weights for the WLS). Because the initial weights are estimated from the model, with every change in the model we have

expectations, it is important not to over-determine the outcome by anticipating each variable to play a distinctive role with respect to each component. Even where the statistics show that to be the case, it is always conceivable that at least one partial correlation will be the spurious result of the other. A summary of expectations is provided in Table 1.

Table 1. Theoretical Expectations

	SUP_{ij}	OPP_{ij}	DKN_{ij}
$pcap_{ij}$	+	-	?
tbd_{ij}	+	?	-
agg_{ij}	-	+	?

Note: The value of those relationships marked by "?" is determined by the balance between the other two relationships.

List of Variables:
SUP_{ij} is support for the accession of candidate j by member state i
OPP_{ij} is opposition to the accession of candidate j by member state i
DKN_{ij} is non-response in relation to candidate j by member state i
$pcap_{ij}$ is per capita income in candidate j relative to member state i
tbd_{ij} is relative importance of exports to candidate j from member state i divided by the distance between the capitals of the two countries
agg_{ij} is agriculture share of employment in candidate j relative to member state i.

Relative GDP Per Capita ($pcap_{ij}$)

Relative income per capita is important for two reasons. The first relates to transactions potential. Simply put, the presumption is that respondents will see more advantages to developing closer economic relations with relatively rich candidates than with relatively poor candidates. Therefore, the expectation is that support will correlate positively with relative income per capita and opposition will correlate negatively. The relationship between this variable and non-response rates is indeterminate.

The second importance of relative income per capita is institutional and arises from the fact that per capita income is the trigger for the allocation of regional and structural funds. In broad terms, countries with lower per capita income are net beneficiaries of these funds and countries with higher per capita incomes are net contributors. Therefore, the expectation again is that support among the member states will decline for relatively poor candidate countries and increase for relatively wealthy candidate countries. Reciprocally, opposition should increase for relatively poor countries and it should decrease for relatively wealthy ones. There is no general proposition to suggest a relationship between relative per capita income and non-response.

Trade Importance Divided by Distance (tbd_{ij})

Trade importance and distance are correlated insofar as countries which are geographically closer should be expected to trade more heavily with one-another. In terms of attitudes, however, these two factors should be expected to have different influences. Relative trade importance should have a positive impact on support for accession and a negative impact on opposition because membership can only be expected to strengthen the economic relationship between the member state being polled and the candidate country in question. The expectation

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recalculated the weights.

in terms of non-response rates is indeterminate. By contrast, distance should have a powerful and positive influence on non-response rates which in turn should lower both support and opposition. The reciprocal of distance should be negative in terms of non-response rates and positive in terms of support and opposition. Taken together, therefore, the combined variable of trade importance divided by distance should have a strongly positive influence on support (where the two factors work in tandem), a more ambiguous influence on opposition (where the two factors work in against each other), and a strongly negative influence on non-response rates (where the negative impact of the distance reciprocal should be expected to predominate over the indeterminate impact of trade importance).

Relative Importance of National Agricultural Production (agg$_{ij}$)

The relative importance of agriculture is institutionally determined by the structure of the Common Agricultural Policy (CAP) and by the underlying desire in some member states to protect agricultural markets. In terms of the CAP, candidates with a relatively large agricultural sector should be expected to draw upon relatively large agricultural supports. Hence the expectation is that this ratio will correlate negatively with support and positively with opposition for the candidate's accession. The relationship between the relative importance of agriculture and the level of non-response is indeterminate.

The role of market competition reinforces these expectations. Existing agricultural producers will have a reinforcing aversion to enlargement toward candidates that are also large agricultural producers. Here again the expectation is that the relative importance of agriculture will correlate negatively with support and positively with opposition. The relationship with non-response is again indeterminate.

Preliminary Empirical Results

The results of the estimation correspond closely with the theoretical expectations. In summary form the data suggest that:

- Respondents in the member states are more likely to be supportive and less likely to be opposed to candidate countries with relatively high income per capita;

- support also increases with the relative importance of the candidate country as an export market for the member state or as the relative distance between the capitals of the two countries diminishes;

- an increase in the distance between the capitals of the member state and candidate country corresponds with a rise in non-response rates; and

- the relative size of the agricultural sector decreases support and increases opposition.

These estimates are summarised in Table 2. Because of the model specification (see notes), the values of the coefficients are difficult to interpret. Only the sign (+/-) and the statistical significance are relevant for our purposes.

Table 2. Empirical Results, 1996-2000 (Weighted Least Squares)

N=945	SUP_{ij}	OPP_{ij}	DKN_{ij}
CONSTANT	0.74	-0.93	-2.55
	(5.6)	(-6.3)	(-25.4)
$pcap_{ij}$	0.09	-0.16	0.09
	(2.6)	(-4.1)	(3.4)
tbd_{ij}	0.06	0.01	-0.10
	(6.9)	(1.1)	(-15.9)
agg_{ij}	-0.10	0.10	0.02
	(-4.1)	(3.8)	(1.0)
ADJUSTED R^2	0.12	0.11	0.23

Note: t-statistics in parentheses. All coefficients with a t-statistic above 2 (or less than -2) are significant at the conventional 5% threshold. Those with a t-statistic above 2.6 (or less than -2.6) are significant at the 1% threshold. Coefficients in boxes are expected to be 'spurious' even though they may be statistically significant at a high threshold.

List of Variables:
SUP_{ij} is support for the accession of candidate j by member state i
OPP_{ij} is opposition to the accession of candidate j by member state i
DKN_{ij} is non-response in relation to candidate j by member state i
$pcap_{ij}$ is per capita income in candidate j relative to member state i
tbd_{ij} is relative importance of exports to candidate j from member state i divided by the
distance between the capitals of the two countries
agg_{ij} is agriculture share of employment in candidate j relative to member state i.

The level of explained variation differs across the three components of popular attitudes from a high of 23% in reference to non-response rates to a low of 11% in reference to opposition. When this explained variation is aggregated in proportion to the actual level of response in each category – over the period, being 43% support, 34% opposition, and 23% non-response – it is possible to conclude that 14% of attitudes can be explained as a result of the model.

This high level of explanation is surprising insofar as much of the theoretical expectations are predicated upon data or upon relationships that are unlikely to be wholly transparent to public opinion. The assumption that respondents will have significant knowledge of the relative income per capita or agricultural size of thirteen different countries is difficult to support empirically. The assumption that respondents will be able to translate this knowledge into an estimation of projected EU financial flows is still more difficult to support. Hence much of the theoretical argument so far rests upon the presumption that even a vague understanding of economic and demographic structures of the candidate countries is sufficient to drive attitudes toward enlargement. The next step in our analysis is to test the robustness of this presumption.

Special Relationships

Our preliminary empirical results reveal only part of the story. Where countries already have preconceived attitudes toward one-another as a result of historical interaction or participation in some larger community, we would expect popular attitudes to differ markedly from our very simple underlying model. By the same token, where interaction between countries is very intense, it is possible that this interaction will have negative as well as positive implications, generating rivalry and antipathy instead of affinity. The question is whether such pre-existing relationships can account for much of the explanatory force of the variables for trade-by-distance, relative income per capita, or agricultural employment.

In order to capture such divergences from the underlying model, we introduce an array of dyadic dummy variables as place-holders for special relationships. These variables are dyadic in the sense that they operate on a pair-wise basis (i.e. matching specific member states to specific candidate countries) and they are dummy variables in the sense that they represent performance relative to the model. If we change the underlying model, the significance of these variables will change as well.

We tested an array of variables but settled on five that have the most intuitive appeal – common borders, Greece-Turkey, Greece-Cyprus, Catholic countries, and Nordic-Baltic states. We thought to test for linguistic similarity, but found virtually no instances beyond the cases of Greece-Cyprus and Finland-Estonia both of which are already accounted for in the dummies we selected. We also thought to test for religious affinity more broadly, coding countries as Orthodox and Protestant as well as Catholic, however, the absence of a coherent overarching hierarchy in either the Orthodox or Protestant cases makes this 'common religion' variable less intuitive than a Catholic variable on its own. Finally, we tried a variable pairing Austria and Germany with the Czech Republic in order to accept the possible influence of remaining controversy over the postwar Benes decrees. However this variable did not emerge as significant in any of our regressions and so we chose to discard it from the final analysis.

The theoretical expectations for these variables are straightforward with the exception of common borders. The variable for Greece-Turkey should show relatively low support and high opposition because of the historic conflict between these countries. The variable for Greece-Cyprus should show high support and low opposition because of the strong cultural links between Greece and the Greek part of Cyprus. The Catholic variable should show high support and low opposition on the presumption that Catholics share a common identity centred on the Church. And the Nordic-Baltic variable should show high support and low opposition because of the close relations between these countries. In none of these cases do we have an expectation about the influence of 'special relationships' on non-response rates.

The variable for common borders is more problematic because it suggests two contrasting interpretations. Within the context of Deutch's theory, we should expect the common border variable to pick up positive externalities from close interaction. In that case, the existence of a common border should operate in much the same manner as the trade-by-distance variable, increasing support and decreasing non-response rates. Within the context of the model, however, the common border variable may pick up only negative externalities – associated with fear of the 'other', cross-border crime, rivalry, etc. This might result because most of the positive externalities associated with intense interaction will already have been captured in the trade-by-distance variable. Hence the statistical outcome would be a decrease in support and an increase in opposition associated with the common border – holding the relationship with non-response rates to be indeterminate. The theoretical expectations for the whole of the array are summarised in Table 3.

The empirical results correspond broadly with our theoretical expectations. To begin with, the array of 'special relationships' improves the capacity of the model to explain variation in attitudes considerably. The adjusted-R^2 increases from a weighted average of 0.14 to 0.30. Moreover, this increase in explained variation does not come at the expense of the underlying model. Each of our three main independent variables maintains the appropriate sign in relation to the attitudes expressed and in some cases the precision (or statistical significance) of the estimate is enhanced. These results are presented in Table 4.

Table 3. Theoretical Expectations – Special Relationships

	SUP_{ij}	OPP_{ij}	DKN_{ij}
Common Border$_{ij}$	+ / -	? / +	- /?
Greece$_i$-Turkey$_j$	-	+	?
Greece$_i$-Cyprus$_j$	+	-	?
Catholic$_{ij}$	+	-	?
Nordic$_i$-Baltic$_j$	+	-	?

Note: The value of those relationships marked by "?" is determined by the balance between the other two relationships.

List of Variables:
SUP_{ij} is support for the accession of candidate j by member state i
OPP_{ij} is opposition to the accession of candidate j by member state i
DKN_{ij} is non-response in relation to candidate j by member state i
Common Border$_{ij}$ is shared border between member state i and candidate j
Greece$_i$-Turkey$_j$ is member state Greece and candidate Turkey
Greece$_i$-Cyprus$_j$ is member state Greece and candiate Cyprus
Catholic$_{ij}$ is both member state i and candidate j have majority Catholic populations
Nordic$_i$-Baltic$_j$ is member state i is Nordic and candidate j is Baltic.

Table 4. Empirical Results with Special Relationships, 1996-2000 (Weighted Least Squares)

N=945	SUP_{ij}	OPP_{ij}	DKN_{ij}
CONSTANT	0.86	-0.92	-2.6
	(6.3)	(-5.7)	(-23.0)
pcap$_{ij}$	0.13	-0.21	0.10
	(4.2)	(-5.7)	(3.9)
tbd$_{ij}$	0.06	0.02	-0.10
	(6.7)	(1.5)	(-14.2)
agg$_{ij}$	-0.11	0.09	0.04
	(-5.4)	(3.9)	(2.3)
Common Border$_{ij}$	-0.29	0.27	0.11
	(-3.3)	(2.7)	(1.5)
Greece$_i$-Turkey$_j$	-1.35	1.52	-0.84
	(-5.0)	(5.2)	(-3.5)
Greece$_i$-Cyprus$_j$	1.64	-1.45	-1.24
	(6.6)	(-4.3)	(-5.5)
Catholic$_{ij}$	-0.22	0.07	0.21
	(-6.3)	(1.8)	(7.1)
Nordic$_i$-Baltic$_j$	0.89	-0.92	-0.21
	(11.7)	(-9.6)	(-3.1)
ADJUSTED R^2	0.34	0.25	0.30

Note: t-statistics in parentheses. All coefficients with a t-statistic above 2 (or less than -2) are significant at the conventional 5% threshold. Those with a t-statistic above 2.6 (or less than -2.6) are significant at the 1% threshold. Coefficients in boxes are expected to be 'spurious' even though they may be statistically significant at a high threshold.

List of Variables:
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tbd_{ij} is relative importance of exports to candidate j from member state i divided by the
        distance between the capitals of the two countries
agg_{ij} is agriculture share of employment in candidate j relative to member state i
Common Border$_{ij}$ is shared border between member state i and candidate j
Greece$_i$-Turkey$_j$ is member state Greece and candidate Turkey
Greece$_i$-Cyprus$_j$ is member state Greece and candiate Cyprus
Catholic$_{ij}$ is both member state i and candidate j have majority Catholic populations
Nordic$_i$-Baltic$_j$ is member state i is Nordic and candidate j is Baltic.

In terms of the specific 'special relationship' variables, the results support our theoretical expectations with only one exception. The variables for Greece-Turkey, Greece-Cyprus, and Nordic-Baltic relations all yield the expected signs at very high levels of statistical significance. Greek support for Cyprus and Nordic support for Baltic candidates both outperform the expectations of the model. Greek support for Turkish membership is much below what the basic model would predict. Meanwhile, the outcome for the common border variable is to generate lower support and higher opposition than the basic model would predict. This seems to conform with the expectation that most of the positive effects of interaction on national affinities have been accounted for by the trade and distance variable.

The results for the Catholic variable are both surprising and counterintuitive. Catholic member states show less (and _not_ more) support for Catholic candidate countries than the underlying model would predict. We have no explanation for this outcome. However, as the variable is highly significant we have retained it for further analysis.

Country Fixed Effects

The second step in evaluating the robustness of the model is to consider the differences between countries. The principal objective of the modelling exercise is to develop an understanding of the structure of national attitudes in terms which are divorced from national idiosyncrasy. However, it would be illusory to pretend that national idiosyncrasy does not exist or that it is not important in the attitudes that the people of one country may hold toward another. Therefore we introduced an array of (monadic) country specific variables to capture the fixed effects of specific member states or candidate countries. As with the dyadic variables that we used to capture special relationships, these country-specific dummies reveal performance in relation to the model.

In the testing of multiple country fixed effects, we deployed two different strategies for selecting the countries to ignore.[6] In a first iteration we ignored the role of the smallest

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[6] In our preliminary analysis of country fixed-effects we introduced each country dummy in turn in order to assess whether any given country could obviate the observed relationships in our model. The result was reassuring. With the exception of Austria (as reported in the text), no individual country predominated over any general effect. Therefore, we turned our attention to the problems posed by the whole array of country fixed effects. As we have no theoretical prior for singling out countries, the array lies at the center of our findings. The difficulty is that – for statistical reasons – not all countries can be included in the array at the same time. The

countries – Luxembourg among the member states and Malta among the accession countries. In the second iteration we ignored the role of the largest countries in both samples – Germany and Poland. Because of its unique position in the enlargement process, we retained the dummy for Turkey in both iterations. The results of these two trials very similar and so only that which ignores Germany and Poland is reported in Table 5.[7]

Table 5. Empirical Results with Country Fixed-Effects, 1996-2000 (Weighted Least Squares)
Panel A. Dyadic (Pair-wise) Variables

N=945	SUP_{ij}	OPP_{ij}	DKN_{ij}
CONSTANT	0.03	-0.68	-1.81
	(0.2)	(-5.0)	(-19.3)
$pcap_{ij}$	-0.00	-0.02	0.05
	(-0.0)	(-0.4)	(1.5)
tbd_{ij}	0.04	-0.02	-0.03
	(4.5)	(-2.4)	(-5.1)
agg_{ij}	-0.00	0.00	0.00
	(-0.1)	(0.1)	(0.4)
Common Border$_{ij}$	0.19	-0.07	-0.10
	(3.6)	(-1.2)	(-2.5)
Greece$_i$-Turkey$_j$	-1.62	1.56	-0.54
	(-10.2)	(9.9)	(-4.3)
Greece$_i$-Cyprus$_j$	1.54	-1.68	-0.87
	(10.3)	(-9.3)	(-7.2)
Catholic$_{ij}$	-0.11	0.12	0.02
	(-3.4)	(3.5)	(0.8)
Nordic$_i$-Baltic$_j$	0.65	-0.60	-0.31
	(10.9)	(-8.7)	(-6.6)
Adjusted R^2	0.79	0.80	0.83

Note: Country fixed effects are presented in Panel B. t-statistics in parentheses. All coefficients with a t-statistic above 2 (or less than -2) are significant at the conventional 5% threshold. Those with a t-statistic above 2.6 (or less than -2.6) are significant at the 1% threshold. Coefficients in boxes are expected to be 'spurious' even though they may be statistically significant at a high threshold.

List of Variables:
SUP_{ij} is support for the accession of candidate j by member state i
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Catholic$_{ij}$ is both member state i and candidate j have majority Catholic populations
Nordic$_i$-Baltic$_j$ is member state i is Nordic and candidate j is Baltic.

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dummy variables representing at least one member state and one candidate country must be left out of the analysis.

[7] This choice may seem curious – why ignore large countries instead of small? The answer is that we choose to remove the fixed effects of smaller countries because we believe these are more likely to distort the analysis overall.

Panel B. Monadic (Country Specific) Variables.

N=945	SUP$_{ij}$	OPP$_{ij}$	DKN$_{ij}$
Member States			
Austria	-0.21***	0.07	0.13**
Belgium	0.12*	0.06	-0.14***
Denmark	0.77***	-0.52***	-0.43***
Finland	0.56***	-0.44***	-0.15***
France	-0.06	0.05	-0.03
Greece	0.89***	-0.67***	-0.34***
Ireland	0.48***	-1.17***	0.70***
Italy	0.56***	-0.66***	0.12**
Luxembourg	0.23***	0.09	-0.21***
Netherlands	0.95***	-0.71***	-0.42***
Portugal	0.42***	-0.91***	0.50***
Spain	0.85***	-1.52***	0.54***
Sweden	0.90***	-1.23***	0.22**
United Kingdom	0.32***	-0.73***	0.50***
Candidate Countries			
Bulgaria	-0.36***	0.27***	0.19***
Cyprus	-0.09	-0.09	-0.03
Czech Republic	-0.11*	-0.04	0.13***
Estonia	-0.30***	0.22***	0.17***
Hungary	0.13**	-0.15**	-0.03
Latvia	-0.33***	0.23***	0.20***
Lithuania	-0.31***	0.20***	0.19***
Malta	0.23***	-0.28***	0.01
Romania	-0.43***	0.39***	0.12**
Slovakia	-0.29***	0.20***	0.17***
Slovenia	-0.41***	0.30***	0.18***
Turkey	-0.68***	0.66***	0.10*
Adjusted R^2 (memorandum)	0.79	0.80	0.83

Note: * significant at the 5% level, ** significant at the 1% level, *** significant at the 0.1% level.

Variables: SUP$_{ij}$ is support for the accession of candidate j by member state i
OPP$_{ij}$ is opposition to the accession of candidate j by member state i
DKN$_{ij}$ is non-response in relation to candidate j by member state i.

Any direct interpretation of the coefficients on specific country fixed effects is difficult to make with certainty. To begin with, we have no strong theoretical prior as to which expression(s) of attitudes will be most affected – support, opposition, or non-response. Therefore we have little basis for distinguishing between meaningful and spurious correlations. We may notice that Austria appears less supportive of enlargement in relation to the model than any other member state or that Turkey attracts substantially less support in relation to the model than any other candidate. Yet the statistical analysis of country fixed effects adds little beyond such suggestions.

The implications for the model as a whole are more easily substantiated. The inclusion of the array of country fixed effects variables forces us to reconsider the importance of relative per capita income in the determination of member state attitudes about enlarging the European Union to particular candidate countries. We have no clear explanation for this outcome except to suggest that our presumption that a vague understanding of relative income is sufficient to drive attitudes for the reasons we outlined is incorrect or overdrawn. The same reasoning applies to the variable for the relative importance of agriculture in total employment. Again, as our theoretical expectations were predicated upon somewhat unrealistic information requirements, the mitigation of this statistical relationship is unproblematic (and indeed vaguely reassuring).

The model is clearly more successful in terms of actual (as opposed to potential) transactions. The variable for trade over distance retains its expected sign and a high level of statistical significance. Trade and distance play a strong role in determining relative levels of support and non-response rates.

Geographic contiguity remains important as well. Once country-fixed effects are incorporated, the dummy variable for common borders changes sign but retains a high statistical significance. Moreover the relationship resembles that for the trade-by-distance variable. Our explanation for this change is that what we had originally interpreted as the negative externalities of adjacency were actually the country-fixed effects of Austria, the country which accounts for the greatest number of common borders. Once the Austrian fixed effects are separated out, the remaining influence of common borders is positive – as Deutsch's theory would suggest.[8] However, the fact that Austria is less supportive of enlargement than the model would predict may be due to the existence of strong negative externalities arising from its adjacency with many of the candidate countries.

Conclusion

This analysis of public opinion and enlargement provides strong evidence that a link between popular affinity and economic interaction does exist. Using a gravity model that incorporates variables for trade and distance as well as relative economic structures, we can explain approximately 14% of the variation of attitudes within specific member states toward specific candidate countries. By expanding the analysis to include the effects of historic relationships, we can increase the explained variation to 30%. And with the incorporation of dummy variables for country-specific fixed effects, the cumulative explained variation increases to 80%. At the same time, the importance of structural variables within the basic model diminishes leaving only those variables related to trade and distance as statistically significant.

The empirical contribution of this study does not address all of the criticisms that have been made of the affinitive strand of the transactions approach to integration theory. Our findings leave open two alternative pathways for research. One concerns affective outcome of interaction between countries – why do trade and distance matter in public opinion? Authors like Deutsch and others have posited a number of explanations and yet these remain to be tested. The second pathway for research lies in understanding why public opinion matters for the stability of a more pluralistic European Union. Our objective has so far been limited to

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[8] Austria is not the only source of the negative coefficient on adjacency. The Greece-Turkey relationship is important as well. In earlier iterations of our research, we included only country fixed effects and common borders but not the full array of dyadic relationship dummies. The coefficients on common borders remained persistently negative and with a high level of statistical significance.

understanding what shapes attitudes between countries. Clearly, however, that is only part of the larger story at work.

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