

Cultural Proximity and Bilateral Trade in the European Union

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ABSTRACT

Since its origins, the European Union has been focused on removing the barriers to the full integration of its members' economies. But while formal institutions have adapted, have informal social norms also changed? In this paper, I use the variables from the World Values Survey to estimate the cultural "distance" between countries, with the goal of examining the extent to which cultural distance and bilateral trade are related. Gravity regressions are used to determine the extent to which cultural distance affects trade flows; I find that cultural distance reduces trade, but less for EU members than for the rest of the world. I then explore the determinants of cultural distance. For most country-pairs in the sample, trade is found to increase rather than decrease the cultural distance between countries, but for EU members, trade reduces cultural distance.

Keywords: trade, culture, gravity, European Union

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I. Introduction and Literature Review

The history of the European Union is an ongoing story of removing barriers and promoting integration. From the removal of tariffs, promised by the Treaty of Rome and achieved by 1968, to the Single European Act guaranteeing a complete internal market, to Maastricht's goal of a common monetary policy, the continual theme is integration. But while the formal institutions and laws governing economic interactions have changed, have the EU countries' underlying cultures—the norms and beliefs of their citizens—changed as well? Further, to what extent has trade in goods influenced this cultural change? This paper focuses on the relationship between culture and trade. This is a complex relationship, since it is likely both that the cultural differences between countries affect the trade that occurs between them, and that the goods that countries trade lead to changes in culture as well. The direction of these links is not clear, however. It is possible that countries that are closer together in cultural terms may trade more, since a similar culture gives individuals an advantage in terms of communication—but it is also possible that, if trade is based on comparative advantage, countries with different cultures may trade more. Likewise, trade may allow the flow of ideas, causing countries' cultures to become more similar, or it may cause nations to become more entrenched in their own cultural differences.

It is important first of all to define what is meant by the word “culture.” The terms “culture,” “institutions,” “norms,” “social capital,” and so on have become ubiquitous in the economics literature, and yet a clear definition of each term has not yet been agreed upon. Douglass North, in his 1993 Nobel Prize lecture, stated the following: “Institutions are the humanly devised constraints that structure human interaction. They are made up of formal constraints (rules, laws,

constitutions), informal constraints (norms of behavior, conventions, and self imposed codes of conduct), and their enforcement characteristics. Together they define the incentive structure of societies and specifically economies.”² North’s informal constraints (norms and codes of conduct) are what I think of as culture. White and Tadesse (2008) define culture as a “population’s shared habits and traditions, learned beliefs and customs, attitudes, norms, and values” (1079). While the formal means of enforcing institutions (laws, constitutions) may change only slowly and in discrete ways, the informal means (culture) may change more quickly – and changes in culture, over time, lead to changes in formal institutions. Guiso *et al.* (2006) claim that culture remains “fairly unchanged from generation to generation” (23), but on the contrary, I believe that culture can indeed change; in particular, it may change when individuals in a country are exposed to other beliefs and values, such as can occur through trade.

Gravity models explore the determinants of bilateral trade and include both “pull” and “push” factors to explain what helps or hinders the individuals in two countries when engaging in international trade. Many authors (Melitz 2008, Guo 2004, Hutchinson 2005) have shown that speaking a common language facilitates international trade transactions. As well, if two countries share a colonizer, they may employ a common framework for interactions (Bastos and Silva 2008). A common language and a common colonizer are often included as dummy variables in gravity regressions and are usually thought to be stable over time. But if culture can change, and changes more when countries are exposed to international trade, then it is important to consider measures of culture that can change over time.

² http://nobelprize.org/nobel_prizes/economics/laureates/1993/north-lecture.html

The World Values Survey, an international survey undertaken in almost 100 countries over the last 30 years, provides a way to measure changes in culture over time. The World Values Survey provides data for five waves of surveys: 1981-1984, 1989-1993, 1994-1998, 1999-2004, and 2005-2008, although not every country is surveyed in every wave. On average, 1400 individuals are interviewed in each country, and the survey is nationally representative. Respondents are asked questions such as “Generally speaking, would you say that most people can be trusted or that you need to be very careful in dealing with people?” Answers to such questions over a 30-year time period may show a change in social norms over time.

Sociologists have used the World Values Survey questionnaires to study happiness, democratization, and modernity (Inglehart and Welzel 2005, Inglehart and Baker 2000, Inglehart *et al.* 2008). Economists have particularly focused on trust and how it affects per-capita GDP (Knack and Keefer 1997, La Porta *et al.* 1997, Beugelsdijk 2006). Tabellini (2010) uses the World Values Survey to measure the effect of culture on economic development in the regions of Europe, using regional data for 8 countries. Other surveys have also been used to measure culture. Guiso *et al.* (2009) use the Eurobarometer surveys to examine how bilateral trust affects bilateral trade, but they include only 17 European countries. Disdier and Mayer (2007) also use Eurobarometer surveys, finding that the opinions of the EU15 citizens regarding new entrants have an effect on bilateral trade. Only the World Values Survey, however, provides data on all 27 European Union countries, as well as a large set of industrial and developing countries around the world.

In this paper, I examine the difference between countries' norms as a way of explaining the trade flowing between them, and I also show whether trade itself can help to explain these cultural differences. As countries engage in trade, they discover the ideas, methods, and technologies that are embodied in the goods that they import. Such repeated exposure to foreign ideas may lead to changes in social norms. The Silk Route is a historical example of trade that enabled cultural change. As Chan (2007) puts it, "Learning useful foreign values is similar to acquiring useful foreign technologies" (737), and he shows how openness leads to trust. Kónya (2006) states that "cultural costs differ from physical ones in that they can be eliminated by learning" (494). Coyne and Williamson (2009) show how openness (measured by the share of exports and imports in GDP) affects a measure of culture derived from WVS surveys, but they do not examine bilateral relationships.

Section II describes the empirical framework to be used in the regressions, and Section III identifies empirical issues to be addressed. Section IV presents the results. Section V concludes.

II. The Trade and Culture Relationship

The goal of this paper is to determine both how cultural differences affect bilateral trade, and how bilateral trade affects cultural differences, and to see how these relationships differ for European Union countries. The World Values Survey is used to construct a measure of the cultural distance between two countries.

Measurement of cultural distance

To measure cultural distance, I use four variables from the World Values Survey. Tabellini (2010) and Coyne and Williamson (2009) use these same four variables to construct their measure of culture: *trust*, *respect*, *control*, and *obedience*. *Trust* is the percentage of respondents who agree that “most people can be trusted.” Trust may affect trade because a high level of trust in others may reduce transaction costs, leading to a greater ability and willingness to engage in international transactions. *Respect* is the percentage of respondents who say that “tolerance and respect for other people” is a quality that it is important for children to learn at home. If an individual has a high respect measure, the individual may be more willing to engage with those outside their immediate network. *Control* is the average response (from 1 to 100) that indicates how much “freedom of choice and control in life” respondents feel. Individuals who feel that they can control their lives are more likely to try to improve their own well-being. *Obedience* is the percentage of respondents who say that “obedience” is a quality that it is important for children to learn at home. A society emphasizing this quality may be one that discourages risk-taking and pursues fewer outside transactions. Tables 1A to 1D show the trust, respect, control, and obedience measures for each of the 27 European Union countries.³

The four variables are merged into one cultural distance variable as follows. For each country, I find the average level of trust, respect, control, and obedience. Overall cultural distance is then:

$$\sqrt{(trust1 - trust2)^2 + (respect1 - respect2)^2 + (control1 - control2)^2 + (obedience1 - obedience2)^2}$$

For example, in the 2005-2008 period, among the first 12 members of the European Union, the pair of countries that was most culturally “near” to each other was Germany and Italy, with a

³ The numbers for the United Kingdom represent Great Britain only, as Northern Ireland was not surveyed in every period.

cultural distance score of 13.17, and the country-pair that was the most culturally “far” from each other was Germany and the United Kingdom, with a cultural distance of 32.58. In the 2005-2008 wave of the World Values Survey, *trust* was 33.8 for Germany, 27.5 for Italy, and 30.0 for the U.K.; *respect* was 75.1 in Germany, 74.4 in Italy, and 85.3 in the U.K.; *control* was 68 in Germany, 63 in Italy, and 73 in the U.K.; and *obedience* was 15.6 in Germany, 26.3 in Italy, and 46.2 in the U.K. In the whole sample, Hong Kong in 2005-2008 is the most culturally distant from its trading partners, while Spain in 1981-1984 is the culturally most near.

How does cultural distance affect trade?

I use the gravity model to establish the determinants of bilateral trade. The augmented gravity model contains both the basic gravity variables (GDP of the exporter and importer, as well as the distance between them) and an additional set of explanatory variables. The full model is as follows: $Exports_{ij} = f(\text{Cultural Distance}_{ij}, GDP_i, GDP_j, \text{Distance}_{ij}, \text{GDP per capita}_i, \text{GDP per capita}_j, \text{Remoteness}_i, \text{Remoteness}_j, \text{Common Border}_{ij}, \text{Landlocked}_{ij}, \text{Common Language}_{ij}, \text{Common Colonizer}_{ij})$, where Cultural Distance is as described above, $Exports_{ij}$ represents real exports from country i to country j (nominal exports in current U.S. dollars divided by the U.S. CPI); GDP_i is the gross domestic product of country i in constant 2000 U.S. dollars; GDP_j is the gross domestic product of country j ; Distance_{ij} is the great-circle distance between the capital cities of countries i and j ; GDP per capita_i and GDP per capita_j are GDP divided by population for countries i and j , respectively; Remoteness_i is the average distance of country i from its trading partners, weighted by GDP and Remoteness_j is the same for country j ;⁴ and the additional variables are dummies indicate, respectively, whether the two countries share a border; whether either or both of the countries is landlocked (this is not a binary variable, but rather can take the

⁴ Remoteness_i is therefore calculated as $1/\sum_j (\text{GDP}_j \times \text{Distance}_{ij})$, and Remoteness_j as $1/\sum_i (\text{GDP}_i \times \text{Distance}_{ij})$.

values of 0, 1, or 2); whether they have a common language; and whether they share the same colonizer. The expectation is that an increase in the GDP of either the exporting or importing country will raise exports. An increase in distance is expected to reduce exports. An increase in either country's level of development (GDP per capita) is expected to raise exports. A rise in remoteness is predicted to raise the level of trade between a given pair of countries. The idea behind remoteness is that, if a country-pair is far from other potential trading partners, the pair's trade may be higher than otherwise. Head (2003) uses the example of Australia and New Zealand as compared to Austria and Portugal. The two pairs are of roughly equal size in terms of GDP, and their capitals are the same distance apart—yet Australia and New Zealand trade nine times as much with each other as do Austria and Portugal. This is because their alternative trading partners are so distant that Australia and New Zealand are in some sense forced to rely on each other more than the traditional gravity regressors would imply. Such remoteness variables have been found (by Anderson and van Wincoop 2003, among others) to be highly significant in gravity regressions. All of the dummy variables are expected to have positive coefficients, representing increased trade, other than being landlocked, which is predicted to reduce exports.

Data on exports from each country to every other country in the world are made available by the IMF in its *Direction of Trade Statistics*. (Data prior to the year 2000 were graciously provided by Andrew K. Rose.) Data on GDP and population are taken from the World Bank's *World Development Indicators*. Distance is calculated using the great-circle method, and remoteness is calculated as the GDP-weighted average of a country's distance from all of its trading partners. The gravity dummy variables were obtained from Andy Rose (<http://faculty.haas.berkeley.edu/arose/>).

As well as the standard gravity variables, I also include dummy variables representing EU membership to see whether belonging to the European Union raises or lowers the trade between a pair of countries, holding constant their GDPs, the distance between them, and so on. I first include a dummy variable (*EU*) that is equal to 1 if both countries are members of the EU. I next include a dummy variable (*EUold*) that is equal to 1 if both countries are among the first 12 members of the EU (i.e., had joined by 1986); this set includes Belgium, Denmark, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, and the United Kingdom. In the same regression, I include a dummy variable (*EUnew*) that is equal to 1 if both countries are among the most recent 12 entrants to the EU; this includes Bulgaria, Cyprus, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Romania, Slovakia, and Slovenia. Finally, I run regressions that include a dummy variable (*EUoldnew*) that is equal to 1 if one of the trading partners is among the first 12 members of the EU and the other trader is among the most recent 12. After showing the effect of these dummies, I include interaction terms of the EU dummy variables with the cultural distance variable. The goal is to see whether cultural distance has a stronger or weaker effect on trade if both countries are members of the European Union.

How does trade affect cultural distance?

After showing the effect of cultural distance on trade, I next want to see how trade affects cultural distance. My expectation is that cultural distance falls as trade increases. Of course, many other variables are likely to affect the cultural distance between two countries. Per-capita GDP indicates a country's level of development, and the level of development is likely to affect

culture. Geographical distance and sharing a border may affect cultural distance, since geographical proximity provides individuals with more opportunities to interact. Speaking a common language facilitates communication and so is likely to reduce cultural distance. Sharing a common colonizer is likely to reduce cultural distance, since it implies sharing a set of common founding institutions. Countries that are more similar in terms of religion and countries with common legal origins are likely to be less culturally distant.

The cultural distance model is thus: $Cultural\ Distance_{ij} = f(Exports_{ij}, (GDP\ per\ capita_i - GDP\ per\ capita_j), Distance_{ij}, Common\ Border_{ij}, Common\ Language_{ij}, Common\ Colonizer_{ij}, Religious\ Similarity_{ij}, Common\ Legal\ Origin_{ij})$, where $Cultural\ Distance_{ij}$ and $Exports_{ij}$ are as defined earlier; $(GDP\ per\ capita_i - GDP\ per\ capita_j)$ is the absolute value of the difference in log per-capita GDP of the two countries; and $Common\ Border_{ij}$, $Common\ Language_{ij}$, and $Common\ Colonizer_{ij}$ are as defined earlier. $Religious\ Similarity_{ij}$ is a variable created from data on religion from La Porta *et al.* (1999), who provide the percentage of a country's residents in 1980 who identify as Catholic, Protestant, Muslim, or Other. I follow Guiso *et al.* (2009) in defining religious similarity as the probability that two randomly-selected individuals in the two countries will follow the same religion; this is calculated by multiplying together the percentage of individuals following a given religion in each country, and then summing over all religions (Catholic, Protestant, Muslim, and Other). $Common\ Legal\ Origin_{ij}$ uses data in La Porta *et al.* (1999) to create a dummy variable equal to 1 if both countries have the same legal origin (English, French, German, Socialist, or Scandinavian).

My expectations are that exports will reduce cultural distance; the difference in GDP per capita will raise cultural distance; geographical distance will raise cultural distance; sharing a border,

speaking a common language, or sharing a common colonizer will reduce cultural distance; religious similarity will reduce cultural distance; and common legal origin will reduce cultural distance.

As in the trade equation, I again add dummies for EU membership (both countries in the EU; both countries among the first 12 members of the EU; both countries among the most recent 12 members of the EU; one country in the first 12 and one country in the most recent 12), and I then add interaction terms of the EU dummies with exports to see whether trade has a larger or smaller effect on cultural distance for EU members.

EU membership has a correlation coefficient of -0.14 with cultural distance; EU countries are less culturally distant than other country-pairs in the sample. EU membership has a correlation coefficient of 0.20 with exports; EU countries trade more than other country-pairs in the sample. The regressions that will be run will show whether the high trade and low cultural distance between EU countries have a causal relationship, or can be explained by the other variables in the gravity and cultural distance equations.

III. Empirical Issues

Specification

The gravity regressions, as is common in the literature, are estimated in log-linear form, with exports, GDP, GDP per capita, and remoteness entering in natural logarithms and with the dummy variables entering directly. Since the World Values Survey is collected in five waves, only five years of trade data can be included. Panel data techniques such as fixed-effects panel

regression might then be the best way to estimate the coefficients. However, this is not a balanced panel; the World Values Survey does not survey every country in every year, and so while trade data are available, the cultural distance variable is not available for every country-pair in every time period. Some countries are only surveyed once, in fact, and so country-pair fixed effects are not possible to estimate in this paper. All regressions therefore include year fixed effects and exporter and importer fixed effects, but not country-pair fixed effects. This is not out of line with other recent papers; Guiso *et al.* (2009) use both exporter and importer fixed effects, while Francois and Manchin (2007) use only importer fixed effects.

Cultural distance

As stated above, cultural distance between two countries is measured as the square root of the sum of the squared differences between each country's trust, respect, control, and obedience measures. This formula is also used by Tadesse and White (2008), although they use other variables in their measure. Other measurement techniques are, of course, possible. De Groot *et al.* (2004) include a dummy variable that is equal to 0 if the difference between the country-pair's institutions exceeds a specified fraction of the sample standard deviation. Tabellini (2010) and Coyne and Williamson (2009) define *culture* as the sum of the trust, respect, and control variables, less the obedience variable, i.e., $trust + respect + control - obedience$, the idea being that trust, respect, and control encourage economic interactions, while obedience discourages such interactions. To measure cultural distance, one could then take the difference between two countries' *culture* variables. Another possibility, also used by Tabellini (2010), is to take the first principal component of the four variables included in the *culture* variable to create a new variable to measure culture; again one could take the difference between two countries' first

principal components to create a cultural distance variable. I have performed both of the variations found in Tabellini (2010) and the results are similar to those presented here.

Selection bias

The log of real exports is used as the dependent variable in the gravity regressions and as an independent variable in the cultural distance regressions; if a country-pair has zero trade, that observation will therefore drop out of the regression. This truncation is not ideal, as the fact that two countries do not trade is something that a trade regression should be able to explain. One method of addressing this problem is to use a Poisson estimator for the gravity equation (Santos Silva and Tenreyro 2006, Westerlund and Wilhelmsson 2009). Most typically, however, researchers use a two-step Heckman procedure to measure the likelihood that a country-pair will experience positive trade, and then include that likelihood ratio in the gravity regression. Linders and de Groot (2006) perform a sample selection correction and then note that omitting the instances of zero trade “leads to satisfactory results” (15). Since only 7% of my country-pairs experience zero trade, the Heckman correction does not lead to a different outcome; I therefore do not report these results.

Endogeneity

Since it is likely that both cultural distance influences trade flows, and trade has an impact on cultural distance, then causality may be difficult to establish, and the coefficients in ordinary least squares regressions will be biased. For example, if an omitted variable simultaneously

causes a country-pair's trade flows to be high and cultural distance to be low, then trade and cultural distance will be correlated even if there is no direct relationship between them.⁵

There are two ways that I address this possible problem. The first is through exploiting the timing of the World Values Surveys, which are conducted in waves over a four- to five-year period in each case. Because of this, cultural distance is calculated for the overall period rather than for a particular year; that is, I calculate cultural distance for the 1981-1984 period, the 1989-1993 period, the 1994-1998 period, the 1999-2004 period, and the 2005-2008 period, corresponding to the five waves of the WVS. While I have cultural distance data only for these time periods, I have trade data for every year. I therefore use trade data from the end of the period (i.e., 1984 for the 1981-1984 period, 1993 for the 1989-1993 period, and so on) in the trade regressions, so that cultural distance is primarily determined before the trade takes place. As well, I use trade data from the beginning of the period (i.e., 1981 for the 1981-1984 period, and so on) in the cultural distance regressions, so that trade is primarily determined before cultural distance is measured. The independent variables in the regressions have therefore occurred before the dependent variables have taken place, thereby lessening the causality problem.

The second way that I address the endogeneity problem is through the use of instrumental variables, both for cultural distance (in the trade regression) and for trade (in the cultural distance regression). To be a valid instrument, a variable must be correlated with the variable in question and uncorrelated with the error term in the regression. In the gravity regression, I use two

⁵ The correlation coefficient between exports and cultural distance is in fact -0.08; countries that trade more are more similar in terms of culture.

instruments for cultural distance: the difference in the share of the population that was Protestant in 1980 (from LaPorta *et al.* 1999),⁶ and genetic distance in 1500 (from Spolaore and Wacziarg 2009, based on Cavalli-Sforza *et al.* 1994).⁷ Genetic distance is “a measure associated with the time elapsed since two populations’ last common ancestors” (Spolaore and Wacziarg 2009, 469). As Spolaore and Wacziarg state, “More closely related societies are more likely to learn from each other and adopt each other’s innovations” (470). Desmet *et al.* (2007) find that a measure of culture based on the World Values Survey is strongly related to genetic distance.

I also find instruments for exports to use in the cultural distance equation. I use the latitude of the exporter and importer, the 1980 most-favoured nation average tariff rate (from the WTO), and the remoteness of each trading partner. Each of these is strongly related to trade, but uncorrelated with the error term in the cultural distance equation.

As an estimator, I use the two-step feasible Generalized Method of Moments (GMM) IV estimator, since it is efficient in the presence of arbitrary heteroskedasticity. Summary statistics are shown in Table 2. Data sources are shown in Appendix A, and the 90 countries included in the sample are listed in Appendix B.

IV. Results

⁶ Tabellini (2010) also finds that Protestantism, more than other religions, affects culture. Guiso *et al.* (2009) use a measure of overall religious similarity, but I found that using any religion other than Protestant proved to be a poor instrument.

⁷ Other authors (Coyne and Williamson 2009, Disdier and Mayer 2007) commonly use a lag of the variable in question as its instrument. Unfortunately, such a technique is not possible in this case. Since the World Values Survey is not completed for every country in every time period, lagged cultural distance is not available for a majority of country-pairs.

Table 3 shows the determinants of trade. Column 1, which presents a baseline regression before the EU dummy variables are added, regresses exports on cultural distance, displaying a negative and highly significant relationship. The other explanatory variables do not always have the expected effects; for example, GDP does not have the predicted positive effect. However, the coefficient on GDP per capita is positive and strongly significant. Remoteness is insignificant, but the dummy variables all have the expected signs and are significant at the 99% level: sharing a border raises trade, being landlocked reduces trade, speaking a common language raises trade, and sharing a common colonizer raises trade.

Columns 2 to 4 add the EU dummies. In column 2, a dummy variable is included that is equal to 1 if both the exporter and the importer are members of the European Union. Surprisingly, the coefficient is *negative*, and it is highly significant: two countries trade *less* if they are in the EU than if they are not. Given that we know that the EU countries trade a great deal with each other, it must be that the other gravity variables (especially distance and sharing a border) are providing the explanation for trade within the EU. Column 3 adds two dummies, one that is equal to 1 when the two trading partners are both among the first 12 members of the EU, and another dummy that is equal to 1 if the two trading partners are both among the most recent 12 members to join the EU. Interestingly, we see that the first 12 members trade less among themselves than would a pair of countries with the same gravity characteristics, while the new members trade more among themselves. Column 4 includes a dummy variable that is equal to 1 if one trading partner is among the first 12 members of the EU and the other trading partner is among the 12 most recent members; the coefficient on this variable is insignificantly different from zero.

Table 4 shows the trade regressions with the interaction terms included. The dummies for EU membership are mostly the same as in Table 3 except in the significance level of the dummy representing trade between one of the first 12 members and one of the newest 12 members (which was negative but insignificant in Table 3, and is now negative and significant). The interaction terms tell us whether cultural distance has a stronger or weaker effect on trade for EU members, relative to the baseline negative effect. As before, column 1 presents a baseline regression before any dummy variables or interaction terms are included. In column 2, cultural distance is interacted with the dummy variable representing membership in the EU; the coefficient is positive but insignificantly different from zero. In column 3, cultural distance is interacted with the dummy variable representing the first 12 members of the EU as well as with the dummy variable representing the most recent 12 members. The latter is insignificant, but the interaction term representing the first 12 members is positive and significant. The overall effect of cultural distance on trade for the first 12 members of the EU is thus the sum of the cultural distance coefficient (-0.019) and the coefficient on the interaction term (0.029). Since it is positive overall, we can say that, surprisingly, cultural distance raises rather than lowers trade for the first 12 members of the EU. In column 4, I include an interaction term of cultural distance with the dummy variable that is equal to 1 if one trading partner is among the first 12 members of the EU and the other trading partner is among the most recent 12 members. This coefficient is again positive and significant, but the sum of the cultural distance and interaction term coefficients this time is still negative; cultural distance reduces trade for these country-pairs.

Table 5 presents the determinants of cultural distance. Column 1 is a baseline regression before the dummy variables are added. The coefficient on exports is both highly significant and

positive: holding all else constant, exports *raise* cultural distance. The control variables are all significant and most have the expected signs. Differences in GDP per capita are highly significant and have a positive coefficient; countries that are of similar levels of development are also more similar culturally. Geographical distance also has a positive and significant coefficient; countries that are closer to each other have more similar cultures, due possibly to the increased exposure that close proximity allows. Surprisingly, sharing a border increases cultural distance. The common language dummy has a negative coefficient and is significant at the 90% level; sharing a language reduces cultural distance. The common colonizer dummy is both negative and highly significant; being colonized by the same country reduces a country-pair's cultural distance, possibly because the colonizer imposed similar institutions. Religious similarity and common legal origin both have the expected negative sign and are significant at the 99% level.

Columns 2 to 4 add the EU dummies. Column 2 shows that, if both countries are part of the European Union, their cultural distance increases, holding constant the other variables in the regression. The same is true if both countries are among the first 12 members, as shown in column 3. However, column 3 also shows that, if both countries are among the newest 12 members of the EU, their cultural distance is lower than otherwise. Finally, column 4 shows that older and newer members have higher cultural distance than otherwise.

Table 6 shows the cultural distance regressions with interaction terms. In each column, exports have the same positive sign; holding all else constant, trade increases the cultural distance between countries. However, to see the effect of trade for EU groupings, the coefficients on exports and on the relevant interaction term must be added together. As before, column 1 shows

a baseline regression. In column 2, adding together the exports coefficient (1.18) and the interaction term of exports with EU membership (-3.27) provides a negative number, showing that, for EU members, trade reduces cultural distance. The interaction terms with the dummy variables for the first 12 members and the most recent 12 members are both insignificant (shown in column 3), but the interaction term of exports with the dummy variable representing trade between one of the first 12 members and one of the newest 12 members is negative and significant; the sum of the interaction term coefficient (-4.79) and the exports coefficient (1.88) is negative, showing that trade reduces the cultural distance between the older members and the newer members of the EU.

To enable a comparison of the various impacts on trade and cultural distance, I compute standardized beta coefficients, which show the effect of a 1 standard-deviation change in the independent variable on the standard deviation of the dependent variable; the size of the coefficient therefore indicates the variable's relative importance in explaining the dependent variable. I use the regressions with interaction terms to compute the beta coefficients, which are shown in Tables 7 and 8. In the trade equation, shown in Table 7, the per-capita GDP of the importer and landlocked status are shown to be the most important determinants of trade. Cultural distance is roughly one-third as important as geographical distance in explaining trade. The EU dummies and interaction terms are not as important as the standard gravity variables. In the culture equation, shown in Table 8, exports and distance are shown to be generally the most important explanatory variables in explaining cultural distance. However, in column 2, which includes a dummy variable for EU membership, that variable is that most important explanation for cultural distance, and the interaction term of the EU dummy with exports is highly important

in reducing cultural distance. Similarly, in column 4, cultural distance is shown to be explained by a dummy variable for trade between old and new members of the EU, but the interaction term representing trade between the old and new members is very important in reducing the cultural distance between these countries. The conclusion is apparently that EU membership itself does nothing to reduce cultural distance, but trade between EU members does a great deal to reduce countries' cultural distance.

V. Conclusion

This paper has explored the relationship between exports and cultural distance for 90 countries between 1981 and 2008, focusing on the European Union. There is a negative correlation between exports and cultural distance, but the relationship becomes more complex when control variables are added.

The gravity model shows the effect on bilateral exports of GDP, distance, GDP per capita, remoteness, contiguity, landlocked status, speaking a common language, and having a common colonizer. Cultural distance is added as an explanatory variable, instrumented by genetic distance and the difference in the share of the population identifying as Protestant. The results show that country-pairs that are more culturally distant therefore trade less, except for country-pairs that are both among the first 12 members of the EU. Country-pairs that are both in the European Union, or that are both among the first 12 members, trade less than otherwise, but country-pairs that are among the most recent entrants trade more than other.

To determine the causes of cultural distance, I regress cultural distance on per-capita GDP differences, distance, contiguity, speaking a common language, having a common colonizer, being more similar in terms of religion, and having a common legal origin. I include exports to see whether trade reduces or raises cultural distance, instrumenting exports with remoteness, latitude, and tariffs. The results show that, holding constant the other determinants of cultural distance, exports raise rather than lower cultural distance for the average country-pair. However, exports reduce cultural distance for country-pairs in the European Union and country-pairs in which one country is among the oldest members of the EU and the other country is among the newest.

Many of the European Union's policies have been aimed at reducing the barriers between EU countries. Using the World Values Survey as a way of measuring culture, this paper has shown that being part of the EU raises a country-pair's cultural distance; while EU membership is negatively correlated with cultural distance, this is explained by their similar per-capita GDPs and close geographical proximity, not their EU membership. However, the trade that is encouraged by the EU's policies of integration does have an effect of bringing countries closer together in terms of culture.

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Table 1A: <i>Trust</i> in the European Union					
	1981-84	1989-93	1994-98	1999-2004	2005-08
Austria		28.2		31.3	
Belgium	25.1	30.6		29.4	
Bulgaria		28.7	23.7	24.9	19.6
Cyprus					9.7
Czech Republic		27.4	27.2	23.4	
Denmark	45.9	55.5		64.1	
Estonia		27.6	21.1	21.7	
Finland		59.5	47.9	56.8	58.0
France	22.3	21.4		21.4	18.7
Germany	25.9	26.8	32.1	35.9	33.8
Greece				20.5	
Hungary	31.9	23.8	22.5	21.4	
Ireland	40.0	46.8		35.2	
Italy	24.5	32.8		31.8	27.5
Latvia		19.0	23.9	16.7	
Lithuania		30.8	21.3	23.4	
Luxembourg				24.9	
Malta	9.4	22.9		20.4	
Netherlands	38.1	50.3		59.4	42.6
Poland		28.4	16.9	18.3	18.1
Portugal		20.7		9.8	
Romania		15.8	17.9	9.9	19.3
Slovakia		21.3	25.8	15.2	
Slovenia		16.3	15.3	21.2	17.5
Spain	32.2	32.1	28.7	34.5	19.8
Sweden	52.1	59.6	56.6	63.7	65.2
United Kingdom	42.5	42.1	30.4	28.5	30.0

Note: *Trust* is the percentage of respondents who agree that “most people can be trusted.”

Table 1B: <i>Respect</i> in the European Union					
	1981-84	1989-93	1994-98	1999-2004	2005-08
Austria		66.6		71.4	
Belgium	45.3	69.5		83.0	
Bulgaria		51.5	46.4	59.3	53.8
Cyprus					70.6
Czech Republic		66.1	60.0	63.0	
Denmark	57.8	80.9		87.3	
Estonia		70.2	59.6	71.3	
Finland		80.3	82.5	82.7	86.9
France	58.6	78.3		85.2	86.8
Germany	42.0	75.0	88.3	72.0	75.1
Greece				52.5	
Hungary	30.8	61.7	63.5	65.6	
Ireland	55.6	76.4		75.0	
Italy	43.1	66.1		75.0	74.4
Latvia		69.7	72.5	69.5	
Lithuania		56.7	54.1	57.6	
Luxembourg				78.1	
Malta	24.4	41.3		61.0	
Netherlands	57.1	88.1		91.1	86.6
Poland		76.5	81.5	80.1	84.9
Portugal		69.6		65.4	
Romania		56.0	72.1	58.3	59.7
Slovakia		55.2	57.1	57.0	
Slovenia		74.5	72.0	70.1	75.9
Spain	44.2	73.0	75.6	79.7	72.3
Sweden	71.1	90.8	90.4	92.5	93.6
United Kingdom	62.1	79.2	85.9	83.0	85.3

Note: *Respect* is the percentage of respondents who say that “tolerance and respect for other people” is a quality that it is important for children to learn at home.

Table 1C: <i>Control</i> in the European Union					
	1981-84	1989-93	1994-98	1999-2004	2005-08
Austria		76		75	
Belgium	63	65		66	
Bulgaria		52	53	62	58
Cyprus					75
Czech Republic		66	65	69	
Denmark	70	70		73	
Estonia		63	60	60	
Finland		76	77	74	75
France	63	62		64	67
Germany	70	68	69	72	68
Greece				70	
Hungary	68	65	64	62	
Ireland	69	71		73	
Italy	55	64		63	63
Latvia		64	56	58	
Lithuania		66	61	63	
Luxembourg				70	
Malta	71	74		74	
Netherlands	59	62		67	67
Poland		62		62	66
Portugal		66		68	
Romania		63	63	67	76
Slovakia		66	64	63	
Slovenia		64	69	72	75
Spain	65	68	63	67	69
Sweden	70	75	73	74	78
United Kingdom	67	70		72	73

Note: *Control* is the average response (from 1 to 100) that indicates how much “freedom of choice and control in life” respondents feel.

Table 1D: <i>Obedience</i> in the European Union					
	1981-84	1989-93	1994-98	1999-2004	2005-08
Austria		25.5		16.7	
Belgium	28.2	37.4		42.8	
Bulgaria		18.7	20.3	15.8	25.0
Cyprus					49.9
Czech Republic		20.9	14.0	17.2	
Denmark	13.6	20.3		14.4	
Estonia		18.8	27.0	28.5	
Finland		25.6	28.1	30.2	32.8
France	17.6	53.0		35.6	41.2
Germany	15.5	23.9	12.3	13.7	15.9
Greece				10.8	
Hungary	30.9	44.8	30.8	33.3	
Ireland	33.4	35.2		47.9	
Italy	27.3	33.8		27.8	26.3
Latvia		15.3	19.4	20.4	
Lithuania		24.5	22.9	19.7	
Luxembourg				26.1	
Malta	24.0	55.5		41.1	
Netherlands	23.1	33.6		25.5	40.2
Poland		42.0	48.7	32.5	48.8
Portugal		45.6		38.8	
Romania		19.5	13.7	18.8	17.8
Slovakia		35.7	26.8	26.4	
Slovenia		39.8	28.2	25.1	31.7
Spain	29.7	43.0	43.8	48.7	37.2
Sweden	13.3	24.9	15.9	12.7	15.6
United Kingdom	37.1	39.4	49.6	48.8	46.2

Note: *Obedience* is the percentage of respondents who say that “obedience” is a quality that it is important for children to learn at home.

Table 2A: Summary Statistics for the Trade Regressions (Using Export Data for 1984, 1993, 1998, 2004, and 2008)		
	Mean	Standard deviation
$\ln(\text{Exports}_{ij})$	12.61	3.44
Cultural Distance _{ij}	34.31	15.09
$\ln(\text{GDP}_i)$	18.50	1.94
$\ln(\text{GDP}_j)$	18.49	1.97
$\ln(\text{GDP}_i/\text{POP}_i)$	8.53	1.43
$\ln(\text{GDP}_j/\text{POP}_j)$	8.49	1.45
$\ln(\text{Distance}_{ij})$	7.95	0.96
$\ln(\text{Remoteness}_i)$	-32.63	0.32
$\ln(\text{Remoteness}_j)$	-32.63	0.31
Trade Agreement _{ij}	0.043	0.20
Common Border _{ij}	0.045	0.21
Landlocked _{ij}	0.28	0.49
Common Language _{ij}	0.10	0.30
Common Colonizer _{ij}	0.032	0.18
Table 2B: Summary Statistics for the Cultural Distance Regressions (Using Export Data for 1981, 1989, 1994, 1999, 2005)		
	Mean	Standard deviation
$\ln(\text{Exports}_{ij})$	12.27	3.52
Cultural Distance _{ij}	34.66	15.24
$ \ln(\text{GDP}_i/\text{POP}_i) - \ln(\text{GDP}_j/\text{POP}_j) $	1.70	1.25
$\ln(\text{Distance}_{ij})$	7.98	0.95
Common Border _{ij}	0.043	0.20
Common Language _{ij}	0.11	0.31
Common Colonizer _{ij}	0.033	0.18
Religious Similarity _{ij}	0.29	0.27
Common Legal Origin _{ij}	0.27	0.44

Table 3: The Effect of Cultural Distance on Trade (without interaction terms)				
	(1)	(2)	(5)	(6)
<i>EU</i>		-0.24 ^{***} (0.068)		
<i>EUold</i>			-0.99 ^{***} (0.075)	
<i>EUnew</i>			0.41 ^{***} (0.090)	
<i>EUoldnew</i>				-0.024 (0.054)
Cultural Distance _{ij}	-0.029 ^{***} (0.0052)	-0.028 ^{***} (0.0052)	-0.027 ^{***} (0.0051)	-0.029 ^{***} (0.0052)
ln(GDP _i)	-0.33 (0.47)	-0.18 (0.47)	-0.26 (0.47)	-0.30 (0.47)
ln(GDP _j)	-1.26 ^{***} (0.43)	-1.12 ^{***} (0.43)	-1.19 ^{***} (0.43)	-1.23 ^{***} (0.43)
ln(Distance _{ij})	-1.36 ^{***} (0.035)	-1.41 ^{***} (0.040)	-1.40 ^{***} (0.035)	-1.36 ^{***} (0.036)
ln(GDP _i /POP _i)	1.06 ^{***} (0.47)	0.93 ^{***} (0.47)	1.04 ^{***} (0.47)	1.04 ^{***} (0.47)
ln(GDP _j /POP _j)	2.17 ^{***} (0.43)	2.07 ^{***} (0.42)	2.16 ^{***} (0.42)	2.16 ^{***} (0.43)
ln(Remoteness _i)	-0.33 (1.25)	-0.36 (1.25)	-0.63 (1.23)	-0.44 (1.25)
ln(Remoteness _j)	-2.44 (1.81)	-2.80 (1.81)	-3.04 (1.79)	-2.74 (1.81)
Common Border _{ij}	0.29 ^{***} (0.081)	0.25 ^{***} (0.081)	0.33 ^{***} (0.079)	0.28 ^{***} (0.082)
Landlocked _{ij}	-5.40 ^{***} (1.05)	-5.17 ^{***} (1.05)	-5.19 ^{***} (1.05)	-5.35 ^{***} (1.05)
Common Language _{ij}	0.53 ^{***} (0.063)	0.52 ^{***} (0.063)	0.48 ^{***} (0.062)	0.53 ^{***} (0.063)
Common Colonizer _{ij}	1.67 ^{***} (0.13)	1.67 ^{***} (0.13)	1.70 ^{***} (0.13)	1.67 ^{***} (0.13)
R^2	0.82	0.82	0.82	0.82

Note: The dependent variable is the log of real exports from country i to country j . Standard errors are in parentheses and are corrected for heteroskedasticity. A constant term is included but not reported. Genetic distance in the year 1500 and the difference in the percentage of the population that was Protestant in 1980 are used as instruments for cultural distance. All regressions include year fixed effects, exporter fixed effects, and importer fixed effects. The number of observations is 9810. * represents 90% significance; ** represents 95% significance; *** represents 99% significance.

	(1)	(2)	(3)	(4)
<i>EU</i>		-0.47 ^{***} (0.17)		
<i>EUold</i>			-1.75 ^{***} (0.22)	
<i>EUnew</i>			1.32 [*] (0.80)	
<i>EUoldnew</i>				-0.50 [*] (0.27)
Cultural Distance _{ij}	-0.029 ^{***} (0.0052)	-0.031 ^{***} (0.0054)	-0.019 ^{***} (0.0049)	-0.029 ^{***} (0.0052)
Cultural Distance _{ij} × <i>EU</i>		0.0078 (0.0050)		
Cultural Distance _{ij} × <i>EUold</i>			0.029 ^{***} (0.0075)	
Cultural Distance _{ij} × <i>EUnew</i>			-0.042 (0.039)	
Cultural Distance _{ij} × <i>EUoldnew</i>				0.016 [*] (0.0089)
ln(GDP _i)	-0.33 (0.47)	-0.30 (0.47)	-0.10 (0.47)	-0.30 (0.47)
ln(GDP _j)	-1.26 ^{***} (0.43)	-1.19 ^{***} (0.43)	-1.04 ^{**} (0.44)	-1.21 ^{***} (0.43)
ln(Distance _{ij})	-1.36 ^{***} (0.035)	-1.39 ^{***} (0.040)	-1.43 ^{***} (0.035)	-1.36 ^{***} (0.036)
ln(GDP _i /POP _i)	1.06 ^{***} (0.47)	1.04 ^{***} (0.47)	0.94 ^{**} (0.48)	1.06 ^{***} (0.47)
ln(GDP _j /POP _j)	2.17 ^{***} (0.43)	2.07 ^{***} (0.43)	2.06 ^{***} (0.43)	2.14 ^{***} (0.43)
ln(Remoteness _i)	-0.33 (1.25)	-0.30 (1.25)	-0.55 (1.23)	-0.42 (1.24)
ln(Remoteness _j)	-2.44 (1.81)	-1.70 (1.81)	-2.92 (1.80)	-2.66 (1.79)
Common Border _{ij}	0.29 ^{**} (0.081)	0.27 ^{**} (0.082)	0.35 ^{***} (0.079)	0.28 ^{**} (0.081)
Landlocked _{ij}	-5.40 ^{***} (1.05)	-5.29 ^{***} (1.05)	-4.84 ^{***} (1.06)	-5.26 ^{***} (1.05)
Common Language _{ij}	0.53 ^{***} (0.063)	0.52 ^{***} (0.063)	0.49 ^{***} (0.062)	0.53 ^{***} (0.063)
Common Colonizer _{ij}	1.67 ^{***} (0.13)	1.58 ^{***} (0.13)	1.78 ^{***} (0.13)	1.65 ^{***} (0.13)
<i>R</i> ²	0.82	0.82	0.83	0.82

Note: The dependent variable is the log of real exports from country *i* to country *j*. Standard errors are in parentheses and are corrected for heteroskedasticity. A constant term is included but not reported. Genetic distance in the year 1500 and the difference in the percentage of the population that was Protestant in 1980 are used as instruments for cultural distance. All regressions include year fixed effects, exporter fixed effects, and importer fixed effects. The number of observation is 9810. * represents 90% significance; ** represents 95% significance; *** represents 99% significance.

Table 5: The Effect of Trade on Cultural Distance (without interaction terms)				
	(1)	(2)	(3)	(4)
<i>EU</i>		3.39 ^{***} (0.51)		
<i>EUold</i>			7.96 ^{***} (0.84)	
<i>EUnew</i>			-5.42 ^{***} (0.73)	
<i>EUoldnew</i>				2.19 ^{***} (0.53)
ln(Exports _{ij})	1.94 ^{***} (0.29)	1.71 ^{***} (0.29)	2.17 ^{***} (0.32)	1.87 ^{***} (0.29)
ln(GDP _i /POP _i) – ln(GDP _j /POP _j)	2.74 ^{***} (0.13)	2.82 ^{***} (0.13)	2.93 ^{***} (0.13)	2.70 ^{***} (0.13)
ln(Distance _{ij})	5.77 ^{***} (0.46)	6.06 ^{***} (0.46)	6.24 ^{***} (0.50)	5.80 ^{***} (0.45)
Common Border _{ij}	1.13 [*] (0.66)	1.62 ^{**} (0.65)	0.74 (0.66)	1.36 ^{**} (0.66)
Common Language _{ij}	-0.88 [*] (0.51)	-0.79 (0.50)	-0.72 (0.51)	-0.93 [*] (0.51)
Common Colonizer _{ij}	-7.63 ^{***} (0.85)	-7.01 ^{***} (0.84)	-8.27 ^{***} (0.89)	-7.53 ^{***} (0.84)
Religious Similarity _{ij}	-3.46 ^{***} (0.49)	-3.38 ^{***} (0.48)	-3.66 ^{***} (0.49)	-3.59 ^{***} (0.49)
Common Legal Origin _{ij}	-4.53 ^{***} (0.35)	-4.24 ^{***} (0.35)	-4.23 ^{***} (0.36)	-4.28 ^{***} (0.36)
<i>R</i> ²	0.51	0.52	0.51	0.51

Note: The dependent variable is cultural distance between country *i* and country *j*. Standard errors are in parentheses and are corrected for heteroskedasticity. A constant term is included but not reported. Latitude, tariffs in 1980, and remoteness are used as instruments for exports. All regressions include year fixed effects, exporter fixed effects, and importer fixed effects. The number of observations is 9245. * represents 90% significance; ** represents 95% significance; *** represents 99% significance.

Table 6: The Effect of Trade on Cultural Distance (with interaction terms)				
	(1)	(2)	(3)	(4)
<i>EU</i>		49.04 ^{***} (13.29)		
<i>EUold</i>			1.74 (25.33)	
<i>EUnew</i>			1.44 (15.15)	
<i>EUoldnew</i>				67.33 ^{***} (13.27)
ln(Exports _{ij})	1.94 ^{***} (0.29)	1.18 ^{***} (0.25)	2.31 ^{***} (0.33)	1.88 ^{***} (0.27)
ln(Exports _{ij}) × <i>EU</i>		-3.27 ^{***} (0.95)		
ln(Exports _{ij}) × <i>EUold</i>			0.41 (1.51)	
ln(Exports _{ij}) × <i>EUnew</i>			-0.60 (1.30)	
ln(Exports _{ij}) × <i>EUoldnew</i>				-4.79 ^{***} (0.99)
ln(GDP _i /POP _i) – ln(GDP _j /POP _j)	2.74 ^{***} (0.13)	2.45 ^{***} (0.17)	2.95 ^{***} (0.14)	2.75 ^{***} (0.13)
ln(Distance _{ij})	5.77 ^{***} (0.46)	4.88 ^{***} (0.46)	6.43 ^{***} (0.52)	5.55 ^{***} (0.43)
Common Border _{ij}	1.13 [*] (0.66)	3.75 ^{***} (0.91)	0.68 (0.80)	1.45 ^{**} (0.67)
Common Language _{ij}	-0.88 [*] (0.51)	-0.85 [*] (0.50)	-0.77 (0.52)	-1.02 ^{**} (0.50)
Common Colonizer _{ij}	-7.63 ^{***} (0.85)	-4.96 ^{***} (0.93)	-8.35 ^{***} (0.93)	-7.02 ^{***} (0.81)
Religious Similarity _{ij}	-3.46 ^{***} (0.49)	-3.35 ^{***} (0.48)	-3.70 ^{***} (0.51)	-3.50 ^{***} (0.49)
Common Legal Origin _{ij}	-4.53 ^{***} (0.35)	-4.49 ^{***} (0.36)	-4.23 ^{***} (0.36)	-4.43 ^{***} (0.36)
<i>R</i> ²	0.51	0.50	0.50	0.50

Note: The dependent variable is cultural distance between country *i* and country *j*. Standard errors are in parentheses and are corrected for heteroskedasticity. A constant term is included but not reported. Latitude, tariffs in 1980, and remoteness are used as instruments for exports. All regressions include year fixed effects, exporter fixed effects, and importer fixed effects. The number of observations is 9245. * represents 90% significance; ** represents 95% significance; *** represents 99% significance.

Table 7: Beta Coefficients: Trade Equation				
	(1)	(2)	(3)	(4)
<i>EU</i>		-0.05		
<i>EUold</i>			-0.09	
<i>EUnew</i>			0.07	
<i>EUoldnew</i>				-0.03
Cultural Distance _{ij}	-0.13	-0.14	-0.08	-0.13
Cultural Distance _{ij} × <i>EU</i>		0.03		
Cultural Distance _{ij} × <i>EUold</i>			0.04	
Cultural Distance _{ij} × <i>EUnew</i>			-0.05	
Cultural Distance _{ij} × <i>EUoldnew</i>				0.04
ln(GDP _i)	-0.18	-0.17	-0.06	-0.17
ln(GDP _j)	-0.72	-0.68	-0.59	-0.69
ln(Distance _{ij})	-0.38	-0.39	-0.40	-0.38
ln(GDP _i /POP _i)	0.44	0.43	0.39	0.44
ln(GDP _j /POP _j)	0.91	0.87	0.87	0.90
ln(Remoteness _i)	-0.03	-0.03	-0.05	-0.04
ln(Remoteness _j)	-0.22	-0.16	-0.27	-0.24
Common Border _{ij}	0.02	0.02	0.02	0.02
Landlocked _{ij}	-0.77	-0.75	-0.69	-0.75
Common Language _{ij}	0.05	0.05	0.04	0.05
Common Colonizer _{ij}	0.09	0.08	0.09	0.08

Note: A beta coefficient shows the effect of a 1 standard-deviation change in the independent variable on the standard deviation of the dependent variable. The coefficients are calculated based on the regressions in Table 4.

Table 8: Beta Coefficients: Culture Equation				
	(1)	(2)	(3)	(4)
<i>EU</i>		1.12		
<i>EUold</i>			0.02	
<i>EUnew</i>			0.01	
<i>EUoldnew</i>				0.98
$\ln(\text{Exports}_{ij})$	0.45	0.27	0.53	0.43
$\ln(\text{Exports}_{ij}) \times EU$		-1.08		
$\ln(\text{Exports}_{ij}) \times EUold$			0.08	
$\ln(\text{Exports}_{ij}) \times EUnew$			-0.07	
$\ln(\text{Exports}_{ij}) \times EUoldnew$				-0.96
$\ln(\text{GDP}_i/\text{POP}_i) - \ln(\text{GDP}_j/\text{POP}_j)$	0.23	0.20	0.24	0.23
$\ln(\text{Distance}_{ij})$	0.36	0.30	0.40	0.35
Common Border _{ij}	0.02	0.05	0.01	0.02
Common Language _{ij}	-0.02	-0.02	-0.02	-0.02
Common Colonizer _{ij}	-0.09	-0.06	-0.10	-0.08
Religious Similarity _{ij}	-0.06	-0.06	-0.07	-0.06
Common Legal Origin _{ij}	-0.13	-0.13	-0.12	-0.13

Note: A beta coefficient shows the effect of a 1 standard-deviation change in the independent variable on the standard deviation of the dependent variable. The coefficients are calculated based on the regressions in Table 6.

Appendix A: Data Sources

The cultural distance data (comprising the trust, control, respect, and obedience variables) are from the World Values Survey (www.worldvaluessurvey.org).

Export data are from the IMF's *Direction of Trade Statistics*; data prior to the year 2000 were obtained from Andy Rose (<http://faculty.haas.berkeley.edu/aroze/>).

GDP and population data are from the World Bank's *World Development Indicators*.

Distance is calculated using the great-circle method and was obtained from Andy Rose (<http://faculty.haas.berkeley.edu/aroze/>).

The dummy variables representing membership in a trade agreement, contiguity, landlocked status, common language, and common colonizer were obtained from Andy Rose (<http://faculty.haas.berkeley.edu/aroze/>).

The religious similarity variable was calculated from data found in La Porta *et al.* (1999).

The common legal origin variable was constructed from data found in La Porta *et al.* (1999).

Genetic distance in the year 1500 is from Spolaore and Wacziarg (2009), based on Cavalli-Sforza *et al.* (1994).

The difference in the share of the population that identified as Protestant in 1980 is from La Porta *et al.* (1999).

The latitude data are from La Porta *et al.* (1999).

The average MFN tariff rate in 1980 is from the World Trade Organization.

Appendix B: Countries Included

Albania	Germany	Pakistan
Algeria	Ghana	Peru
Argentina	Greece	Philippines
Armenia	Hong Kong	Poland
Australia	Hungary	Portugal
Austria	Iceland	Romania
Azerbaijan	India	Russia
Bangladesh	Indonesia	Rwanda
Belarus	Iran	Saudi Arabia
Belgium	Iraq	Singapore
Bosnia and Herzegovina	Ireland	Slovakia
Brazil	Israel	Slovenia
Bulgaria	Italy	South Africa
Burkina Faso	Japan	South Korea
Canada	Jordan	Spain
Chile	Kyrgyzstan	Sweden
China	Latvia	Switzerland
Colombia	Lithuania	Tanzania
Croatia	Luxembourg	Thailand
Cyprus	Macedonia	Trinidad and Tobago
Czech Republic	Malaysia	Turkey
Denmark	Mali	Uganda
Dominican Republic	Malta	Ukraine
Egypt	Mexico	United Kingdom
El Salvador	Moldova	United States
Estonia	Morocco	Uruguay
Ethiopia	Netherlands	Venezuela
Finland	New Zealand	Vietnam
France	Nigeria	Zambia
Georgia	Norway	Zimbabwe