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CULTURAL BIASES IN ECONOMIC EXCHANGE?*

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Abstract

How much do cultural biases affect economic exchange? We try to answer this question by using data on bilateral trust between European countries. We document that this trust is affected not only by the characteristics of the country being trusted, but also by cultural aspects of the match between trusting country and trusted country, such as religion, history of conflicts, and genetic and somatic similarities. We then find that lower bilateral trust leads to less trade between two countries, less portfolio investment, and less direct investment, even after controlling for the characteristics of the two countries. This effect is stronger for goods that are more trust intensive. Our results suggest that perceptions rooted in culture are important (and generally omitted) determinants of economic exchange.

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We always have been, we are, and I hope that we always shall be detested in France.

Duke of Wellington

There are remarkable differences in the level of trust among European managers. When asked to score fellow managers of different countries on the basis of their trustworthiness their responses implied the following ranking (where 1 is the best and 5 the worst):[1]

	Great Britain	France	Germany	Italy	Spain
British view	1	4	2	5	3
French view	4	2	1	5	3
German view	2	3	1	5	4
Italian view	3	2	1	4	5
Spanish view	2	4	1	5	3

Among these managers there seem to be some common views: everyone ranks German managers relatively high and Italian ones relatively low. There is also a "home-country bias": managers trust their fellow countrymen more than what managers from other countries rank them. For instance, Italian managers rank themselves fourth in trustworthiness, while they are ranked fifth (last) by every other group. More surprisingly, there are some match-specific attitudes. French managers rate British managers much lower than any other ones except the Italians, which seems at odds with the ranking chosen by every other group. However, the British managers reciprocate this attitude (as the Duke of Wellington's opening quote seems to suggest).

These facts are not peculiar to this dataset. As we will show, they are exactly replicated in an independent and broader survey (Eurobarometer). In this paper, we use this larger dataset to explain why the perception of trustworthiness differs so greatly across Europe. We also use it to explore the economic consequences of these different perceptions.

To disentangle the country-specific components of trust from the match-specific ones we regress bilateral trust on fixed effects for the country receiving trust (country-of-destination fixed effects) and fixed effects for the country trusting (country-of-origin fixed effects). The country-of-destination fixed effects capture the common view about the trustworthiness of a

[1]The survey was carried out by the 3i/Cranfield European Enterprise Center on a total of 1,016 managers (managing companies under 500 employees) from five major European Community countries: Great Britain (433 responses), France (127), Germany (135), Italy (185) and Spain (136). See Burns et al. (1993).

country, which derive from the quality of the law and its enforcement. The country-of-origin fixed effects capture possible systematic differences in the way different populations answer the survey.

We then try to explain bilateral trust, after controlling for the above fixed effects, with differences in information and culture. We find that geographical distance between two countries, their proximity, and the commonality between the two languages have a significant effect on bilateral trust. By contrast, bilateral trust is negatively correlated with a country's exposure in the domestic newspapers of another country. Sharing the same legal origin (a variable that could proxy both for information and for culture) has a positive and significant effect on the level of trust, as long as we do not control for the common linguistic root. Once we control for linguistic root, the commonality-of-law effect halves and becomes insignificant, suggesting that most of the effect comes from cultural commonalities.

As a first pure measure for a country's cultural tradition, we use commonality of religion. Religion had (and still has) a great impact on what is taught in school and how it is taught. Hence, we expect that two countries with the same religion tend to have similar cultures and therefore will trust each other more. Indeed, we find this to be the case. A pair of countries where 90% of citizens share the same religion (e.g., Italy and Spain) has a level of bilateral trust one quarter of a standard deviation higher.

To further measure cultural similarity between two populations we introduce two new variables. First, the genetic distance between two populations that - as Ammerman and Cavalli-Sforza (1985) claim - reflects the history of invasions during the Neolithic Age and thus their common linguistic and cultural roots. As DeBruine (2002) has shown in an experiment, people trust people who look like them more than those who do not. We find this to be true also in our sample. A one standard deviation increase in genetic distance reduces the level of bilateral trust by 1.8 standard deviations.

Second, we derive from Biasutti (1954) an indicator of somatic distance, based on the average frequency of specific traits (hair color, height, etc.) present in the indigenous population. People trust more other people who look like them. A one standard deviation increase in somatic distance decreases trust by one quarter of a standard deviation. When we use both the aforementioned variables, only the latter remains significant.

Finally, to capture the effect of more recent aspects of the cultural tradition, we use a country's history of wars. People's priors can be affected by their education and in particular by the history they study in school. For instance, Italian education emphasizes the struggles that led to the reunification of the country in the nineteenth century. Since the major battles during this period were fought against Austria, Italian students may develop, as our data shows, a negative image of Austrians. We find that countries with a long history of wars tend to trust each other less. France and England, which have a record 198 years of war (more than ten times the average of 19) should exhibit a bilateral trust that is 0.7 of a standard deviation lower than average, which fully accounts for the lower bilateral trust we observe between the two countries.

Once we establish the cultural roots of trust, we move to study the effect of trust on international trade and investments. Unlike Anderson and Mercouiller (2002), De Groot et al. (2004), Berkowitz, Moenius, and Pistor (2006), Ranjan and Lee (2006), and Nunn (2007), who look at the effect of country level institutional variables (either for the importing or the exporting country) on trade, we look at the effect of a match-specific variable (bilateral trust) on trade and investments.

We find that a higher level of bilateral trust can explain cross country trade beyond what extended gravity models can account for, even after controlling for the better estimates of transportation costs suggested by Giuliano, Spilimbergo, and Tonon (2006). At sample means, a one standard deviation increase in the importer's trust toward the exporter raises exports by 10%. Consistent with a trust-based explanation, we find that trust matters more for trade in goods that Rauch (1999) classifies as differentiated goods, which can vary greatly in quality.

We then instrument trust with its long-term cultural components (the commonality in religion and in ethnic origin) and obtain much larger coefficients. In spite of the fact that we pass the test of overidentifying restrictions, this difference suggests that culture is likely to affect trade through other channels besides trust.

We find similar results when we analyze the pattern of foreign direct investments (FDI) and portfolio investments. A country is more willing to invest in another (either directly or via the equity market) when it trusts its citizens more. Not only do these latter results confirm our trade ones, but they also suggest that cultural effects are not limited to unsophisticated consumers, but are also present among sophisticated professionals such as mutual fund managers.

Our combined results suggest that cultural relationships affect trust and are an important omitted factor in international trade and investments. In this respect, our paper is part of a new strand of literature that looks at the effect of culture on economic and political outcomes (Barro and McCleary 2003; Fernández and Fogli 2007; Giuliano 2007; Guiso, Sapienza, and

Zingales 2003, 2004a, 2006, 2008a, 2008b; and Tabellini 2007, 2008).

Since genetically similar countries trust each other more and, thus, can transfer technology faster and more effectively, our results explain the correlation between level of development and genetic distance found by Spolaore and Wacziarg (2009). Finally, our results are validated in a micro setting by Bottazzi, Da Rin, and Hellmann (2006), who find that that venture capitalists are more likely to invest in start-ups of countries they trust more.

In our attempt to explain several international exchange puzzles, our paper is similar to Portes and Rey (2005). However, they do not consider trust as a key determinant, but differences in information, measured as telephone traffic between two countries and number of local foreign bank branches.[2]

I Bilateral trust

A Measuring trust

We obtain our measures of trust from a set of surveys conducted by Eurobarometer and sponsored by the European Commission. The surveys were designed to measure public awareness of, and attitudes toward the Common Market and other European Community institutions (see the Online Data Appendix for details). They were conducted on a representative sample of the total population of age 16 (or 15 depending on the wave) and older: about 1,000 individuals per country. The set of countries sampled varies over time with the enlargement of the European Union: there were 5 in 1970 (France, Belgium, The Netherlands, Germany and Italy), when the first survey was conducted, and has grown to 17 in 1995, the last survey to which we have access (besides the 5 countries above, Luxembourg, Denmark, Ireland, Great Britain, Northern Ireland, Greece, Spain, Portugal, Norway, Sweden, Finland, and Austria are also included).

One distinct feature of these surveys is that respondents were asked to report how much they trust their fellow citizens and how much they trust the citizens of each of the countries in the European Union. More specifically, they were asked the following: "I would like to ask you

[2]Our paper is also related to Morse and Shive (2006), Cohen (2008), and Vlachos (2004). Morse and Shive (2006) relate portfolio choices to the degree of patriotism of a country. Cohen (2008) shows that employees' bias toward investing in their own company is not due to information, but to some form of loyalty toward their company, which can easily be interpreted as trust. Both these papers, thus, illustrate one specific dimension in which cultural biases can affect economic choices. Our paper can be seen as a generalization of Rauch and Trindade (2002). They find that the percentage of ethnic Chinese in a country helps predict the level of trade beyond the standard specification. We show this result is not specific to ethnic networks. Any cultural barrier (or lack thereof) significantly impacts trade and investments.

a question about how much trust you have in people from various countries. For each, please tell me whether you have a lot of trust, some trust, not very much trust or no trust at all."

In some of the surveys, this same question was also asked with reference to citizens of a number of non-European Union countries, including the United States, Russia, Switzerland, China, Japan, Turkey, and some Eastern and Central European countries (Bulgaria, Slovakia, Romania, Hungary, Poland, Slovenia, and Czech Republic). To ensure a relative degree of homogeneity in trading rule and living standards, we restrict our analysis to the countries belonging to the European Economic Area: European Union members plus Norway. These are also the countries for which we have both the trust from and to, thereby making the matrix quadratic.[3]

As in every survey, there may be some doubts about the way people interpret the trust question. First, there is some ambiguity on how to interpret it. In a trust game, the level of trust maps into the amount of money you are willing to risk. Here, this mapping is missing. Second, we are concerned whether a high level of trust reflects a high trust in a generic citizen of a different country or a better ability to identify the trustworthy people in a different country, which translates into a higher willingness to trust them.

To address these doubts, in a separate survey we asked a sample of 1,990 individuals both the question above and the two following ones: 1) "Suppose that a random person you do not know personally receives by mistake a sum of 1000 euros that belong to you. He or she is aware that the money belongs to you and knows your name and address. He or she can keep the money without incurring in any punishment. According to you what is the probability (a number between zero and 100) that he or she returns the money?" and 2) "How good are you (very good, good, not very good, not good at all) in detecting people who are trustworthy?" (Guiso, Sapienza, and Zingales, 2008c). We find that the first question is highly statistically correlated with the measure of trust used in this paper, while the second one is not (the sign is actually negative, albeit not statistically significant). Hence, these data provide evidence that the reported level of trust reflects the subjective probability that a random person is trustworthy.

There can also be doubts on the external validity of this question. Glaeser et al. (2000), for instance, raise doubts on the validity of the World Values Survey trust question (which is similar to the one we use), by showing that it is not correlated with the sender behavior in the standard trust game (Berg, Dickhaut, and McCabe 1995). However, Sapienza, Toldra, and

[3] In the NBER working paper version we also considered the full rectangular matrix of trust.

Zingales (2007) argue that the sender behavior in the trust game is not a good measure of trust, because it is affected by other regarding preferences. From the trust game we can derive a better indicator of trust: the sender's expectation about the receiver's behavior. Sapienza, Toldra, and Zingales (2007) show that the World Values Survey trust question as well as other similar trust questions are strongly correlated with these expectations. Furthermore, in a sample of Dutch households, Guiso, Sapienza, and Zingales (2008c) find a correlation between the answer to the WVS question on trust and the decision to invest in equity. Thus, this survey-based measure does have some external validity.

This World Values Survey-type of question measures generalized trust, the trust people have toward a random member of an identifiable group (e.g., Guiso, Sapienza, and Zingales 2004a; McEvily et al. 2006). This is different from personalized trust, the mutual trust people developed through repeated interactions (Greif 1993), which is more important in relational contracts.

For our purposes, we first re-coded the answers to the trust question setting them to 1 (no trust at all), 2 (not very much trust), 3 (some trust), and 4 (a lot of trust). We then aggregated responses by country and year computing the mean value of the responses to each survey.

Table I shows the average level of trust that citizens from each country have toward citizens of other countries. There is considerable variation in the level of trust exhibited from one country to another. The average level of trust ranges from a minimum trust of 2.13 (the trust of Portuguese toward Austrians) to a maximum of 3.69 (the trust of Finns toward Finns).

Besides this variability, in Table I we find the same three regularities found in the small survey presented in the introduction. First, there are systematic differences in how much a given country trusts and how much it is trusted by others (see the last row and last column of Table I). For instance, Panel B shows the Portuguese and the Greeks are those who trust the least and the Swedish those who trust the most.

To isolate these country specific factors we run the following regression:

$$Trust_{ijt} = \kappa_i + \lambda_j + \sum_{t=1}^{n} \gamma_t Year_t + \epsilon_{ijt}, \tag{1}$$

where $Trust_{ijt}$ is the trust of country i for country j in the survey done at time t, κ_i a country of origin fixed effect, λ_j a country of destination fixed effect, and $Year_t$ calendar year dummies.

Since we are interested in trust across different populations, we drop all the observations when $i = j$.

In Figure I we report the fixed effects of the country of origin and the country of destination relative to Ireland (the actual estimates are reported in the online Appendix). A Swedish citizen trusts others 17% more on average than an Irish citizen and 27% more than a Greek citizen. The least trusted population are the Italians (like in the introductory example), while the most trusted ones are the Swedes. Interestingly, there is a correlation between trusting and being trusted. Nordic countries are at the top of the level of trustworthiness and tend to trust others the most. While not definitive proof, this fact suggests that people excessively apply the level of trustworthiness of their own countrymen to people from other countries. This result is also consistent with experimental evidence in Glaeser et al. (2000) and Sapienza, Toldra, and Zingales (2007).

If all (or almost all) the variation in the data were explained by the attitude citizens of a country have toward trust (being trusted), there would be little hope for relative trust to be able to affect the patterns of bilateral trade. However, country-of-origin fixed effects and country-of- destination fixed effects explain only 64% of the variability in trust. There remains a considerable portion to be explained with match-specific variables. The British, for instance, tend to trust the French even less than they trust the Italians and the Spanish and much less than they trust the Belgians and the Dutch. The French reciprocate by trusting the British as much as they trust (little) the Greeks.

II What explains bilateral differences in trust?

In this section we try to explain bilateral trust with match-specific variables, after controlling for country fixed effects. To avoid understating the standard errors due to repeated observations, we follow Bertrand, Duflo, and Mullainathan (2004) and collapse the data by averaging over time the residuals of regressing trust on calendar year dummies. Hence, our regression will be

$$Tr\bar{u}st_{ij} = \kappa_i + \lambda_j + \beta X_{ij} + \epsilon_{ij}, \tag{2}$$

where $Tr\bar{u}st_{ij}$ is the residuals of regressing trust on calendar year dummies averaged over time and X_{ij} match-specific variables that we will describe momentarily.

A Determinants of Bilateral Trust

Why countries should differ in their trust toward the same population? One possibility is that these variations are just noise and as such, it should not be correlated with any possible determinants. Another possibility is that these variations arise from differences in the information sets: more informed countries will have a better estimate whereas more poorly informed will have a worse one. The alternative is that there might be some sort of bias: either in the perception or in the behavior. The British might have a distorted view of French reliability or the French might derive a special pleasure from breaching the trust of a British person. For the moment we are going to collapse both these latter explanations, which are difficult to separate, under the term of "cultural determinants," but we will return to this later.

A.1 Proxies for information

As measures of information, we use the geographical distance between the two countries, their proximity, and the commonality between the two languages. The geographical distance between two countries is the log of distance in kilometers between the major cities (usually the capital) of the respective countries.[4] We also add a dummy variable to indicate when two countries share a common land border (Frankel, Stein, and Wei 1995). As measure of language commonality we use an indicator variable equal to 1 if two countries share the same official language.[5] We use the transportation cost estimates introduced by Giuliano, Spilimbergo, and Tonon (2006) as an additional measure of distance. These transportation costs are measured using shipping companies' quotes collected from Import Export Wizard (a shipping company providing transportation quotes around the world.[6]

To measure the level of information the citizens of one country have about citizens of another, we follow Portes and Rey (2005) and collect the number of times the country toward which trust is expressed appears in the headlines of a major newspaper in country that expresses the trust. In Factiva we searched the newspaper with the highest circulation for each country. For each

[4] This measure is from Frankel, Stein, and Wei (1995). We also tried our regressions with alternative measures of distance between two countries and the results did not change substantially. Specifically, we used distance in radians of the unit circle between country centroids (Boisso and Ferrantino, 1997) and the great circle between the largest cities (Fitzpatrick and Modlin, 1986).

[5] This variable is from Jon Haveman's website: `http://www.macalester.edu/research/economics/PAGE/HAVEMAN/Trade.Resources/TradeData.html`.

[6] `http://www.importexportwizard.com` Specifically, we use the cost in U.S. dollars of transporting a 1000 kg of unspecified freight type load (including machinery, chemicals, etc.) with no special handling required, using the optimal combination of going through land and water to transport the goods.

pair of countries i and j we recorded the number of articles in the newspaper of country i that mentioned country j or its citizens in the headline. We divided this number by the number of total news stories on foreign countries.[7]

In addition to these measures, we use the La Porta et al. (1998) classification of legal origin and construct a dummy variable equal to 1 when the legal system of two countries is derived from the same legal family (i.e., French, German, Scandinavian, English). Commonality in legal origin may in principle reflect the fact that citizens of countries having similar legal systems trust each other more because there is less fear of the unknown. The legal tradition is likely to be very highly correlated with a common heritage and other cultural variables. Thus, controlling for common legal origin, we underestimate the potential effect of culture in biasing the perception of trustworthiness.

A.2 Proxies for culture

The first proxy for culture is an indicator of religious similarity equal to the empirical probability that two randomly chosen individuals in two countries will share the same religion. We obtain this measure by taking the product of the fraction of individuals in country j and in country i who have religion k and then we sum across all religions k (k = Catholic, Protestant, Jewish, Muslim, Hindu, Buddhist, Orthodox, no-religion, other affiliation). To calculate this variable we use the percentage of people belonging to each religious denomination from the World Values Survey (see Guiso, Sapienza, and Zingales [2003]).

Although religious differences are rooted in past history, this history is relatively recent (300–400 years) and could reflect some comparative advantage in trading. For this reason, we resort to ethnic differences to capture deeper cultural roots. Much of the ethnic variation in Europe reflects Neolithic invasions: two-thirds of Europeans descend from Asian invaders and one-third from African invaders (Cavalli-Sforza 2000).[8]

To measure these ethnic differences, we use the genetic distance between indigenous populations as developed by Cavalli-Sforza, Menozzi, and Piazza (1996).[9] This measure is based on

[7]In Factiva we were unable to locate any newspaper from Greece and Finland. Hence, when we use press coverage the size of sample drops.

[8]Giuliano, Spilimbergo, and Tonon (2006) claim that genetic distance is simply a proxy for transportation costs, at least in the Neolithic Age. Historical transportation costs, however, are not identical to current ones. Before the creation of several tunnels the Alps represented a formidable barrier to communication between Italy and the neighboring countries. Hence, when we control for today's transportation costs in the regressions, genetic (or somatic) distance captures the historical transportation costs, which led to different cultural enclaves.

[9]See also Menozzi, Piazza, and Cavalli-Sforza (1978).

the existence of genetic or DNA polymorphism (a situation in which a gene or a DNA sequence exist in at least two different forms [alleles]). A simple example of polymorphism is the ABO blood groups classification. While ABO alleles are present in all populations, the frequency of each allele varies substantially across populations. For example, the O allele is frequent in 61% of African populations and 98% of American Natives populations. These frequency differences in alleles hold true for other genes or DNA sequences, as well. As a first approximation, Cavalli-Sforza, Menozzi, and Piazza (1996) derive a measure of the differences in the genetic composition between two populations by summing the differences in frequencies of these polymorphisms.[10]

As an alternative measure of distance between two populations, we derive an indicator of somatic distance, based on the average frequency of specific traits in the indigenous population reported in Biasutti (1954). For height, hair color (pigmentation), and cephalic index (the ratio of the length and width of the skull), Biasutti (1954) draws a map of the prevailing traits in each country in Europe. For each trait, European Union countries fall into three different categories. For hair color we have "Blond prevails," "Mix of blond and dark," and "Dark prevails." We arbitrarily assign the score of 1 to the first, 2 to the second and 3 to the third. When one's country somatic characteristics belong to more than one category, we take the country's most prevalent category. We then compute the somatic distance between two countries as the sum of the absolute value of the difference in each of these traits (see online Appendix for more details). Somatic and genetic distances are highly correlated (0.53). Hence, we will be able to use only one at a time.

Besides proxies for cultural distance, both somatic and genetic distances can be interpreted as measures of genetic dissimilarities. As DeBruine (2002) has shown in an experiment, people trust people who look like them more than those who do not. Hence, these two variables might proxy for a genetic element in trust, rather than for a cultural one. Either way, however, they are a source of a potential bias that distorts an objective assessment of the trustworthiness of a foreign population.

To capture these long term elements of culture, we also use a measure of linguistic common roots created by Fearon (2003). It is based on a count of the number of common branches two languages share in the language trees as reported by *Ethnologue*.[11]

[10] For a more detailed description of this measure see the online Appendix.

[11] `http://www.ethnologue.com`. Two languages that come from completely different families have zero branches in common, whereas (say) English and French have one branch in common because they are both Indo-European but English is Germanic and French is Romance. Fearon (2003) argues that for a measure of cultural distance, the move from zero to one common node is more meaningful than a move from, say, 5 to 6, so that a transformation

As a last measure of culture we compute the number of years a country pair has been engaged in a war between 1000 and 1970. Since "history is very much a mythical construction, in the sense that it is a representation of the past linked to the establishment of an identity in the present" (Friedman 1992), we reconstruct wars using today's borders. Cultural formation at school is a vehicle for prolonging the memory of facts that took place many years ago (this is why we count wars over almost a millennium). Presumably, countries that have a long history of wars and conflict will mistrust each other. As Table I shows, the clear tendency of the French to trust the British less than any other country may reflect the 198 years these two countries waged war against each other since year 1000.

The summary statistics of these variables are reported in Table II (Panels A, C, D, and E), computed for the different samples used in the paper.

B Empirical results

In Table III we report the results of our estimates on the determinants of trust according to equation (2). Our dependent variable is average residual trust.[12] Since in regression (1) we removed the effect of a country-of-origin factor and a country-of-destination factor, this specification tries to capture the match-specific factor that drives trust. To correct for potential geographical clustering of our standard errors, all our OLS regressions report spatial corrected standard error (Conley 1999).[13]

We start by regressing the average residual trust of country i's citizens towards citizens of country j on our proxies for differences in the information sets (column (1)). If familiarity breeds trust, we should expect that distance and common language have a positive effect on trust. More information, however, allows us to make more precise inferences about other populations' trustworthiness, which does not necessarily imply more or less trust on average.

Common language has a positive effect on trust, but in the basic specification this effect is not statistically significant. By contrast, a greater distance between two countries reduces the level of trust between them. One standard deviation increase in log distance decreases trust by

with "diminishing returns" is better than simply counting common nodes. So, we will use linguistic common roots = # common nodes/(1 + # common nodes), though we also tried other specifications with similar results.

[12] We obtained similar results (not reported) when we use as dependent variable median trust or the percentage of individuals trusting a lot.

[13] Since we have both the trust from France to Great Britain and from Great Britain to France, and all the bilateral regressors for this pair of countries is unchanged, we need to assume that their residuals are not independent. For this reason, in a previous version we clustered the standard errors at the pair-of-countries level, with very similar results.

one fourth of a standard deviation. The common border dummy has a negative sign, but it is not statistically significant.

In column (2), we introduce our cultural variables. The results show that cultural factors are important overall. The three cultural proxies are jointly statistically significant with an F-test of 21.6. Countries with a long history of wars tend to trust each other less. France and England, for example, that have a record of 198 years of war (more than ten times the average of 19) should exhibit a bilateral trust that is 0.7 of a standard deviation lower than average, which accounts for the lower bilateral trust we observe between them. Religious similarity has a positive impact on trust, compared to a case where no common religion is shared, a match where 90% of the citizens share the same religion (e.g., Italy and Spain) raises trust by 15 percentage points (corresponding to 40% of its standard deviation).

The coefficient of somatic distance shows that citizens of one country tend to be more trusting towards citizens of other countries that are somatically closer. A one standard deviation increase in somatic distance lowers bilateral trust by one-quarter of a standard deviation. If we modify our measure of somatic distance to include only differences in the more visible traits (hair and height), the effect is even stronger (not reported).

In column (3), we substitute somatic distance with genetic distance. The effect is similar but stronger. One standard deviation increase in genetic distance lowers bilateral trust by 1.8 standard deviation. When we introduce both in the regression (column (4)), the genetic distance coefficient drops dramatically and loses statistical significance. This is not surprising given the high correlation between these two variables. Since both are trying to capture the same dimension, we will drop the least significant of the two (i.e., genetic distance) from the following regressions.

Alesina and La Ferrara (2002) document that in the United States differences in income are important factors in explaining trust within a community. In column (5), we try to see whether these ideas also apply to trust across communities (or countries) by inserting the relative difference in gross domestic product per capita as an additional regressor. Confirming Alesina and La Ferrara (2002), this variable has a negative and statistically significant effect on trust, but its insertion does not change the magnitude of the coefficients of the other variables substantially.

Another possibility is that our cultural variables are a proxy for differences in the legal origin. If countries with a similar legal system understand each other more and trust more, it is ambiguous whether this is an information effect or a cultural effect. For this reason, in column

(6), we introduce an indicator variable equal to one if two countries have the same legal origin. Not surprisingly, this variable has a positive and statistically significant effect. Countries with a common legal origin have a one-fourth of a standard deviation higher trust. This effect reduces the impact of two of the other three cultural variables (religion similarity and somatic distance), but they remains statistically significant.

Another variable that may proxy for culture, but may also proxy for ease in (verbal) communication is the commonality in linguistic roots. When we insert it in column (7), we find that it has a positive but not statistically significant effect. Interestingly, commonality of linguistic roots reduces the effect of common legal origin (which becomes insignificant), but does not affect the other cultural proxies, which remain statistically significant. Thus, even when we control for variables that, at least in part, proxy for culture, our cultural variables retain an economically and statistically significant effect.

Giuliano, Spilimbergo, and Tonon (2006) claim that genetic distance is just a proxy for transportation costs, which are mis-measured by the log distance between two countries. If this were the case, trust might simply be the result of trade, with little or no cultural effect. To address this concern, we add transportation costs to the regression (column (8)). Transportation costs have a negative effect on trust, but this effect is not statistically significant. More importantly, the coefficients of all the other variables (in particular, somatic distance) are not affected. This result is not specific to somatic distance; with genetic distance, we reach similar conclusions.

Finally, in column (9) we introduce a direct measure of the knowledge that citizens of country i have regarding the citizens of country j, as measured by press coverage. The coefficient is negative and statistically significant. The most likely interpretation of this result is that newspapers tend to report bad news and this creates a negative bias, which is stronger when more news about a country are reported. All the other results remain the same.

III The Effect of Trust on Trade

Now that we have a better sense of the determinants of bilateral trust we can explore its effects. Is it true that trust (or lack thereof) has first order economic effects, as suggested by Arrow (1972)?[14] More importantly, can we establish that some cultural factors impact economic

[14] For a simple model of how small differences in trust can have first order effects on economic decisions see section I of Guiso, Sapienza, and Zingales (2004b).

exchange? To do so, we try to see what the effect of trust is when inserted in traditional models of economic exchange across countries. We start with trade of goods and services.

A Data

The first variables we use is data on trade of goods and services assembled by Statistics of Canada. The World Trade Database is derived from United Nations COMTRADE data; its advantage over other datasets is that it provides bilateral trade statistics at the 4-digit Standard International Trade Classification (SITC) level.[15] This database provides a time-series of trade value, disaggregated according to trading partner and 4-digit SITC level for the period 1970–1996. Of this long panel we only use data for the years that trust survey data are available (1970, 1976, 1980, 1986, 1990, 1993, 1994, and 1996). The sample statistics for the data are reported in Panel C of Table 3.[16]

B Empirical Results

Table IV estimates the effect of trust on the amount of trade between two countries according to the following model:

$$LogExport_{jit} = \kappa_i * Year_t + \lambda_j * Year_t + \beta Trust_{ijt} + \delta X_{ij} + \epsilon_{ijt}, \tag{3}$$

where $export_{jit}$ is the export of country j in country i in year t aggregated over 4-digit SITC industries. $Trust_{ijt}$ is the trust of citizens of country i for citizens of country j in the survey in year t, and X_{ij} bilateral specific variables, which do not vary over time such as distance. κ_i a country of origin fixed effect, λ_j a country of destination fixed effect, and $Year_t$ calendar year dummies.

De facto, regression (3) is a standard gravity regression (e.g., Anderson and van Wincoop [2003]), with the addition of our measure of trust of the importing country toward the exporting one, the Giuliano, Spilimbergo, and Tonon (2006) measure of transportation costs, country fixed

[15] We also used an aggregate OECD dataset, based on custom data, and found very similar results.

[16] In a robustness test, as a dependent variable we used the log of the average level of export in the years following each survey: 1970–1974 with the 1970 survey, 1975–1979 with the 1976 survey, 1980–1984 with the 1980 survey, 1985–1988 with the 1986 survey, 1989–1991 with the 1990 survey, 1992 with the 1992 survey, 1993 with the 1993 survey data, 1994 with the 1994 survey data, and 1995–1996 with the 1996. The results (available from the authors) are unchanged.

effects both for the importing and the exporting countries, and calendar year dummies. Following Anderson and van Wincoop (2003) we insert fixed exporter-by-year and importer-by-year fixed effects to account for time-variant frictions. [17] Since we are looking at European countries and aggregate the statistics at the country level we do not have any zero flow observations, which could bias the estimates (Linders and de Groot (2006)).[18] The standard errors reported in brackets are corrected for spatial correlation (Conley 1999).

As in the standard gravity equation, a greater distance between two countries negatively affects the level of exports, while the presence of a common border and of a common language positively affects it. All these effects are highly statistically significant. As in Giuliano, Spilimbergo, and Tonon (2006), the transportation costs measure has a negative effect on trade, which is statistically significant at the 5% level.[19]

After controlling for all these variables, our measure of trust has a positive and statistically significant effect on trade. The effect is also economically very large. One standard deviation increase in trust increases exports to a country by 10 percentage points, equal to 1.6 standard deviations.

In column (2), we test the robustness of this result to the insertion of an indicator variable for commonality of legal origin. This variable can capture the fact that similar institutions foster more trade because they provide more guarantee to the parties involved (De Groot et al. 2004; Vlachos 2004). Alternatively, it can capture part of the cultural effect. This indicator variable has a positive and statistically significant effect on trade. Countries with the same legal tradition trade among themselves 1.5 times more. We find a similar effect when we introduce the commonality of linguistic roots, which does not have a statistically significant impact on trade (column (3)).

Another possible objection is that trust might pick up some other cultural similarities such as commonalities in taste. If two countries share the same taste for consumption (for example, for cheese), they might trade more. To address this problem we construct an index of similarity in consumption patterns across countries. This index is calculated computing domestic con-

[17]Our results are even stronger if instead of the interaction terms we include exporter fixed effect, importer fixed effect, and year fixed effect (see Guiso, Sapienza, and Zingales [2004b]) Anderson and van Wincoop (2003) argue against the insertion of "remoteness" into the gravity equation. Our results are unchanged if we add a measure of remoteness.

[18]For a theoretical justification of the use of the gravity equation see Helpman and Krugman (1985).

[19]In an unreported regression, we also controlled for the geographical barriers used by Giuliano, Spilimbergo, and Tonon (2006): the presence of a common sea and the presence of a mountain chain between two countries. These variables are not significant and do not affect the other results.

sumption as the sum of gross domestic production in each ISIC code plus imports and minus exports between 1989 and 1994. For each pair of countries, then, we compute the correlation in consumption across ISIC sectors.[20]

When we insert this variable in the OLS specification of our trade regression (column (4)), the sign is negative, but not statistically significant. The size and the statistical significance of the coefficient of trust are unaffected. A similar concern is that countries with a more similar structure of production trade with each other more. To address it, we create an index of production similarity by correlating the GDP data across sectors in the same way as described above. The results (not reported) are unchanged.

There are at least three reasons to worry about these ordinary least squares results. First, while it is possible that trust fosters trade, it is equally possible that trade breeds trust. The second problem is that bilateral trust can capture the effect of other omitted variables (for example the existence of established trading outposts, as suggested by Rauch and Trindade [2002]). Finally, measurement errors in the trust variable may affect our results.

To address these concerns we instrument our trust variable by using the generalized method of moments estimator (GMM-IV), which allows for heteroskedasticity of unknown form. As instruments we use the cultural determinants of trust (commonality of religion and somatic distance). Note that these instruments are time invariant, yet the average level of trust varies over time. These two instruments pass the Hansen J-test for overidentifying restrictions, but were we to add also the history of wars, the test would fail.

The IV estimates are presented in column (5). Not only trust retains its effect on trade, but the size of the coefficient increases four-fold. A possible explanation is that our instruments may be only weakly correlated with trust. If this is the case, then the two stage least squares regressions will be biased and the standard errors misleading. To address this concern, we compute the F statistics for the joint hypothesis that the instruments' coefficients are zero in the first stage regression and report it at the bottom of the table. In this specification, the F-test is 59.66, comfortably above the threshold recommended by Stock and Yogo (2002).

An alternative explanation for the difference in the coefficient is that our trust measure is a noisy measure of the true trust between two countries and the increase in the coefficient would be the result of a reduction in the standard attenuation bias present when variables are measured

[20]Data on consumptions are calculated extracting data from the following dataset `http://econ.worldbank.org/WBSITE/EXTERNAL/EXTDEC/EXTRESEARCH/0,,contentMDK:21085384~pagePK:64214825~piPK:64214943~theSitePK:469382,00.html`

with error. If this is the case, the true economic effect is closer to the GMM-IV estimates, which suggests a much larger result. One standard deviation increase in trust increases export to a country by 63 percentage points. The magnitude of this effect is not very different from the one found by Rauch and Trindade (2002). They find that the presence of ethnic Chinese networks increases the amount of bilateral trade in differentiated goods by 60%.

Alternatively, it is possible that – test of overidentifying restrictions notwithstanding – our instruments are not orthogonal to trade, but pick up a set of cultural, institutional, and legal connections that facilitate trade flows. These cultural effects must be match-specific since the institutional factors are controlled for in the country-of-origin or in the country-of-destination fixed effects. If this is the case, our results suggest the importance of cultural specific factors in trade relationships. These factors can help explain the famous Rose (2000) result (confirmed by Rose and Stanley [2005]) that currency unions are associated to a very large increase in trade. Since most of the countries belonging to currency unions in the Rose (2000) sample were countries very culturally connected, where trust is higher, trade will be naturally higher once the obstacle to trade imposed by national currencies is removed.

In the last column of Table IV, we test whether the impact of trust on trade varies according to what theory would suggest. Our hypothesis predicts that trust should matter more for goods whose quality can differ more. For these goods, contracts are more difficult to write and hence they are more likely to leave gaps, where trust plays a very important role. Rauch (1999) distinguishes between goods traded in an organized exchange, goods with a reference price, and differentiated goods. Clearly, goods can be traded in an organized exchange only if they are very homogenous in quality. Similarly, they can have a reference price, only if they are not too dissimilar in their intrinsic quality. Hence, Rauch's (1999) classification can also be interpreted as a classification of the degree of trust-intensiveness of the different goods.[21]

For this reason, in the last column of Table IV, we aggregate exports for two sub-sample of industries (organized exchange and differentiated goods), then, we run the regression by using the interaction between trust and whether the good is classified as a differentiated good. The effect of trust appears to be economically and statistically indistinguishable from zero for the sample of homogenous goods, which are traded in organized exchanges. By contrast, the effect is quantitatively large and statistically different from zero (and from the coefficient for

[21] Rauch (1999) made a "conservative" and a "liberal" classifications of industries. To minimize ambiguity we excluded industries that were classified in different ways under the two classifications and run our regressions only for organized exchange goods and differentiated goods.

homogenous goods) for differentiated goods: trade in differentiated goods increases by 39% in response to a one-standard deviation increase in trust.

IV Foreign direct investment

If trust has an impact on trade, it should have an even a bigger impact on the willingness to invest in a country. For this reason, we study the impact of trust on foreign direct investments (FDI).

A Data

Statistics on FDI transactions and positions are based on the database developed by the OECD Directorate for Financial, Fiscal and Enterprise Affairs. These statistics are compiled according to the concept used for balance of payments (flows) and international investment positions (stocks) statistics. We only use data for countries that belong to the European Economic Area for the years when trust survey data are available (1970, 1976, 1980, 1986, 1990, 1993, 1994, and 1996).

According to the classification used in the balance of payment accounts, a foreign direct investment enterprise is an incorporated enterprise in which a foreign investor (a resident of another country) has at least 10% of the shares or voting power. As for trade, we restrict our attention to EEA country members, where the same rules for FDI apply. Summary statistics are reported in Table II, Panel D.

B Empirical Results

Table V reports the effect of country i's trust towards people of country j on the foreign direct investments of country i in country j. The specification is as in regression (3) except that the dependent variable is the log of the stock of FDI from country i to country j. Spatial standard errors are reported in brackets.

Column (1) reports the basic specification where, in addition to mean trust, we have country fixed effects, border, language, distance, and press coverage.[22] The impact of trust is positive and statistically significant. One standard deviation increase in trust raises the level of FDI by

[22]Since number of years at war was significant in the trade regressions, we also inserted it here. Dropping it does not impact the significance and the magnitude of other results.

27%. This result is robust to adding an interaction between the importer and exporter country fixed effects and year dummies (not reported).

In column (2), we insert the Giuliano, Spilimbergo, and Tonon (2006) measure of transportation costs. Transportation costs should not have a direct effect on FDI, but could have an indirect one. Transportation costs act as a barrier to trade, which might induce direct investment as a substitute to export. Alternatively, transportation costs might act as a proxy for other cultural barriers not captured by our measure of trust. There is also another, economic not cultural effect that goes in opposite direction: the larger transportation costs, the larger the FDI monitoring costs. By contrast, common legal rules facilitate FDI monitoring and reduces the importance of transportation costs. Transportation costs have a negative coefficient, which is borderline statistically significant at the 10% level, suggesting that the second interpretation is more likely. When we introduce transportation costs, the effect of trust drops by 30% and becomes statistically insignificant at conventional levels.

However, when we introduce an indicator variable for common law origin (column (3)), the coefficient of transportation costs drops almost to zero and becomes statistically insignificant (suggesting that it was a proxy for some cultural effect), while the effect of trust returns significant, but only at the 10% level. Countries with the same origin of the law have more than four times the level of FDI in each other. This result is consistent with Bottazzi, Da Rin, and Hellmann (2006), who find that venture capitalists are more likely to invest in start ups of countries they trust more. The picture remains unchanged when we control for commonality of linguistic roots (column (4)).

Finally, in column (5) we report the IV regression where we use religion similarity and somatic distance as instruments. When we do so, the coefficient of trust increases dramatically and is highly statistically significant. As reported in the table, these two instruments pass the Hansen J-test for overidentifying restrictions. It is not surprising that the magnitude of the impact of trust on FDI is twice as large as the impact on trade. Since FDI are long-term investments, they are more subject to contract incompleteness than any other trade, even the trade of differentiated goods. As such, they should be very trust intensive. Nevertheless, the large difference between OLS estimates and IV ones is worrisome. In principle, it could be a problem of weak instruments. However, the F-test on the coefficients of the instruments in the first stage regression is equal to $F(2, 328) = 24.34$. Alternatively, it could be due to the fact that other cultural factors, correlated with religion similarity and somatic distance, greatly affect FDI. In this later case, this result suggests that cultural relationships are an important omitted factor in FDI investments.

V International Portfolio Diversification

Finally, we investigate whether trust affects also the pattern of portfolio investments. By construction, portfolio investments involve investments in minority positions in foreign companies. Hence, if we do find evidence for the effect of trust, we cannot attribute it to selective behavior by the citizens of the country hosting the investment. If French derive a special pleasure from hurting Brits, they will be unable to do it selectively when the Brits have invested in a minority position because their actions would mostly affect the other investors, who represent the vast majority and are unlikely to be Brits.

This is a very demanding test, because the effect of trust on portfolio allocations is likely to be small for two reasons. First, most portfolio investments are in traded securities that are heavily monitored and regulated, where the risk of misappropriation is somewhat limited. Second, we have data only for portfolio allocations of mutual funds, which are run by sophisticated managers less likely to be subject to this type of biases.

A Data

Ideally, we would like to have data on the international diversification of individual investors; however, these data are not available on a consistent basis. Hence, we resort to portfolio data from institutional investors.

The data we use is from Morningstar, which kindly provided us with the geographical breakdown of equity investment of European mutual funds disaggregated by country of origin. We exclude funds located in Luxembourg and Ireland when they are affiliated with companies located in other European countries.

This dataset includes all funds that report their positions to Morningstar (including balanced and flexible funds, for example). Note that bonds investments are not included. Sample statistics are reported in Panel E of Table III.

B Empirical Results

Table VI reports the empirical results. The dependent variable is the percentage of the equity portfolio of mutual funds located in country i that is invested in equity of country j, where $i \neq j$.

In a traditional portfolio model, the only explanatory variables would be the inverse of the covariance of stock market returns and the weight of the country i 's stock market in the world portfolio. Since we include country fixed effects (and the data are just one cross section), this latter variable is absorbed by them. The benchmark model would have only the inverse of the covariance of stock market returns as explanatory variable.

To this benchmark, we add the standard proxies for information: a dummy for common borders, a dummy for common language, the logarithm of the distance between the two capitals plus our trust variable.

As column (1) (Table VI) shows, of all the traditional proxies for information only the distance is significant with a negative sign. The degree of trust country i has toward country j has a positive and statistically significant effect on the percentage of equity invested by country i in country j. One standard deviation increase of the trust of people in country i toward people of country j increases the portfolio share of country i in country j by 3 percentage points, which corresponds to an 88% increase in the mean share. This result is robust to adding an interaction between the importer and exporter country fixed effects and year dummies (not reported).

In column (2), we introduce Portes and Rey's (2005) measure of press coverage, which represents a proxy for information.[23] As in Portes and Rey (2005), the effect of press coverage is positive and statistically significant. Needless to say, this correlation could reflect the incentives that national press has in reporting information about countries where national investors invest more. Controlling for this additional variable does not reduce the effect of trust. In fact, the estimated coefficient is larger and remains statistically significant at the 5% level, in spite of the loss of observations.

In column (4), we control also for common origin of the law. Not surprisingly, this variable has a positive and statistically significant effect on the portfolio investments. This effect is very strong: on average, a country invests 8 percentage points more in the equity of another country

[23] We also try a specification with the other control variables present in Portes and Rey (2005): telephone traffic and foreign bank branches. Unfortunately, the overlap between the two samples is small (6 countries) and even trying to integrate it we end up with only 78 observations. In such a regression, the coefficient of trust is quantitatively similar, but loses statistically significance.

if they share the same legal origin. As for trade and FDI, the effect of commonality of legal origin captures some of the effect of trust and the coefficient of trust drops to a third. In this case, it also becomes statistically insignificant.

As previously discussed, the effect of commonality of law is at least in part a cultural effect. To separate the cultural aspect from the familiarity component, we follow Vlachos (2004) and construct an index of similarity in security law based on the work of La Porta, López-de-Silanes, and Shleifer (2006). This measure is computed as the sum of the absolute difference between the score in the 21 dimensions of the security law analyzed by La Porta, López-de-Silanes, and Shleifer (2006). If common law captures the similarity of legislation, the effect should be captured by the distance in security law.

As column (4) shows, distance in security law has a positive (not negative as expected) effect on portfolio investment and this effect is not statistically significant. When we control for this measure, the effect of trust returns significant and strong. Hence, commonality of law was in part capturing the effect culture has on trust.

This interpretation is further supported by the results in column (5). When we introduce commonality of linguistic roots, the effect is positive and statistically significant and the effect of trust is reduced by one third, but still retains statistical significance.

In column (6), we instrument our measure of trust with commonality of religion and somatic distance and the coefficient of trust more than doubles. As in the previous cases, this change cannot be attributed to weak instruments (the F-test on the coefficients of the instruments in the first stage regression is equal to $F(2, 64) = 13.53$) and the two instruments pass the Hansen J-test for overidentifying restrictions. Thus, either the true effect is obscured in the OLS regression by measurement errors or the instruments are capturing some other cultural links that affect also portfolio investments. Either way also these results point to the importance of trust and cultural links as important and generally omitted factors in portfolio investments.

Overall, these results suggest that an increase in trust has an economically and statistically significant effect on the level of trade, direct investments, and portfolio investments. In most of our analysis, we have referred to these effects as cultural effects because we could not distinguish among three explanations. In other words, British expectations about French trustworthiness may reflect a cultural bias of the British. Alternatively, they could reflect a cultural idiosyncrasy of the French who enjoy treating the British in a different way. Finally, they could be the result of a bad equilibrium where French misbehave more with the British because the British expect them to do so. The latter explanation finds support in an experiment, where people are shown to be less likely to behave in a trustworthy way when they are communicated that their opponents have low expectations about their level of trustworthiness (Reuben, Sapienza, and Zingales 2008). Hence, British mistrust may be self-fulfilling.

When we talk about trade and foreign direct investments, all three explanations are equally plausible. For portfolio investment, however, the latter two explanations are implausible. French companies cannot hurt British investors independently of German or Italian ones. Consequently, when we find that the level of mistrust leads the British to invest less in France, it is not because the French behave differently toward them, but because Brits have a biased perception of the trustworthiness of French people.

VI Conclusions

In this paper we show that trust among European countries differs in systematic ways, which are correlated to their different cultural heritages. Even after controlling for a country's institutional characteristics and for differences in the information sets, historical and cultural variables affect the propensity of the citizens of one country to trust the citizens of another country.

These differences in trust seem to have economically important effects on trade, portfolio investments, and foreign direct investments. These macro results are confirmed in a micro study by Bottazzi, Da Rin, and Hellmann (2006). They find that the trust of a venture capitalist's country toward another country positively affects his propensity to invest in a start up of that country.

Note that both these results are obtained within the boundaries of the old European Union, which comprises fairly culturally homogenous nations. Given that culture represents an important barrier to integration even inside the old European Union, its effect might be much larger on world trade.

Cultural differences might also explain why Rose (2000) find that historically currency unions have boosted trade by 235%, while Baldwin (2005) find that the Euro currency union increased trade by only 9%. The unions studied by Rose (2000) are among countries with very close cultural roots, such as Belgium and Luxembourg. By contrast, as this paper documents there are still important cultural barriers within the European Union.

While our results are suggestive that these effects can be economically important, they do not allow us to derive any welfare conclusion. First, we identify these effects by looking at within-country variations. As a result, our methodology cannot identify the impact of the average level of trust on the total volume of trade and, subsequently, the welfare implications of our results. If we assume that the effect estimated using within country variations applies also between countries, then we have that the British perception of the trustworthiness of Dutch and French makes them trade 30% more with the former than with the latter. Second, we document only effects on quantities not on welfare. If it is costless for British to substitute French cheese with identical cheese coming from other countries they trust more, then the utility loss they suffer could be minimal. If that is not the case (and to our taste you cannot easily substitute a French cheese with a Dutch one), then the welfare losses can be substantial. Only future research will be able to tell.

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Table I:

The Trust Matrix

	Countries of destination:															
Countries of origin:	Aus	Bel	UK	Den	NL	Fin	Fra	Ger	Gre	Ire	Ita	Nor	Por	Spa	Swe	**Average**
Austria	3.56	2.95	2.61	2.95	2.95	2.94	2.62	3.09	2.52	2.55	2.43	3.00	2.50	2.58	3.05	2.82
Belgium	2.83	3.28	2.84	3.01	2.90	2.92	2.92	2.75	2.45	2.75	2.40	2.91	2.53	2.59	2.99	2.80
United Kingdom	2.89	2.91	3.29	3.13	3.16	2.98	2.32	2.62	2.54	2.61	2.51	3.06	2.74	2.47	3.03	2.82
Denmark	3.22	3.18	3.22	3.39	3.33	3.20	2.86	3.12	2.61	3.02	2.53	3.50	2.67	2.66	3.41	3.06
Netherland	2.90	3.18	3.00	3.29	3.28	3.25	2.72	2.84	2.59	2.80	2.35	3.30	2.74	2.64	3.34	2.95
Finland	3.29	3.07	3.18	3.30	3.14	3.69	2.92	2.89	2.68	2.92	2.51	3.48	2.67	2.61	3.35	3.05
France	2.70	3.07	2.55	2.96	2.94	2.91	3.18	2.74	2.53	2.72	2.43	2.97	2.59	2.68	2.99	2.80
Germany	2.98	2.84	2.69	2.97	2.90	2.85	2.85	3.50	2.51	2.59	2.36	2.92	2.48	2.66	2.99	2.81
Greece	2.32	2.60	2.34	2.56	2.55	2.42	2.78	2.31	3.21	2.55	2.33	2.40	2.60	2.71	2.51	2.55
Ireland	2.93	2.93	2.81	2.99	3.00	2.92	2.81	2.78	2.50	3.33	2.65	2.93	2.65	2.64	2.92	2.85
Italy	2.66	2.64	2.51	2.70	2.77	2.78	2.66	2.63	2.40	2.37	2.80	2.78	2.32	2.64	2.89	2.64
Norway	.	3.18	3.27	3.53	3.26	.	2.93	2.99	2.52	3.01	2.65	.	2.60	2.56	.	2.95
Portugal	2.13	2.66	2.66	2.66	2.70	2.18	2.91	2.54	2.41	2.51	2.55	2.22	3.29	2.59	2.24	2.55
Spain	2.65	2.73	2.31	2.73	2.85	2.71	2.37	2.66	2.47	2.57	2.61	2.79	2.51	3.32	2.84	2.67
Sweden	3.53	3.23	3.43	3.57	3.33	3.49	3.04	3.13	2.88	3.26	2.81	3.65	2.97	2.86	3.59	3.25
Average	2.90	2.96	2.85	3.05	3.00	2.95	2.79	2.84	2.59	2.77	2.53	2.99	2.66	2.68	3.01	

This table displays the average level of trust from citizens of country of origin (rows) to citizens of country of destination (columns). Trust is calculated by taking the average response to the following question: "I would like to ask you a question about how much trust you have in people from various countries. For each, please tell me whether you have a lot of trust, some trust, not very much trust or no trust at all." The answers are coded in the following way: =1 (no trust at all), =2 (not very much trust), =3 (some trust), =4 (a lot of trust).

Table II:

Summary Statistics

Panel A: Trust and control variables

	Mean	Median	Std. Dev.	Min	Max	N
Average trust	0.06	0.04	0.30	-0.62	0.90	207
Log of distance	7.08	7.18	0.64	5.16	8.12	207
Common Border	0.14	0.00	0.35	0.00	1.00	207
Common Language	0.04	0.00	0.19	0.00	1.00	207
Same legal origin	0.27	0.00	0.45	0.00	1.00	207
Religious similarity	0.29	0.23	0.26	0.00	0.87	207
Genetic distance (F_{ST} values x10000)	73.66	63.00	54.80	9.00	289.00	207
Somatic distance	2.56	3.00	1.26	0.00	5.00	207
Fraction of years at war (1000-1970)	0.02	0.00	0.03	0.00	0.20	207
Linguistic common roots	0.51	0.50	0.24	0.00	0.94	180
Transportation costs	186.13	185.00	17.09	160.00	249.00	207
Press coverage	0.03	0.01	0.04	0.00	0.31	179

Panel B: Statistics of Canada

	Mean	Median	Std. Dev.	Min	Max	N
Log of export to partner country	14.78	14.79	1.58	9.94	17.83	595
Average trust from importer to exporter	2.74	2.74	0.28	1.99	3.57	595
Press coverage	0.04	0.02	0.05	0.00	0.31	595
Log of distance	6.86	7.01	0.69	5.16	8.12	595
Common Border	0.21	0.00	0.41	0.00	1.00	595
Common Language	0.06	0.00	0.24	0.00	1.00	595
Religious similarity	0.33	0.32	0.26	0.00	0.87	595
Somatic distance	2.49	3.00	1.21	0.00	5.00	595
Same origin of the law	0.30	0.00	0.46	0.00	1.00	595
Transportation costs	5.19	5.18	0.08	5.08	5.52	595
Linguistic common roots	0.56	0.50	0.17	0.00	0.94	573
Correlation of consumption by industry	0.89	0.90	0.06	0.72	0.99	474

Panel C: OECD Foreign Direct Investment

	Mean	Median	Std. Dev.	Min	Max	N
Outward stock of FDI (log)	21.10	21.40	2.14	12.42	24.18	439
Average trust from country to each partner	2.77	2.77	0.27	2.10	3.53	439
Press coverage	0.05	0.04	0.06	0.00	0.31	439
Log of distance	6.78	6.96	0.72	5.16	8.12	439
Common Border	0.24	0.00	0.43	0.00	1.00	439
Common Language	0.09	0.00	0.28	0.00	1.00	439
Same legal origin	0.32	0.00	0.47	0.00	1.00	439
Religious similarity	0.37	0.34	0.23	0.01	0.87	439
Somatic distance	2.67	3.00	1.27	0.00	5.00	439
Linguistic common roots	0.56	0.50	0.21	0.00	0.94	413
Transportation costs	5.18	5.15	0.09	5.08	5.52	439

Panel D: Porfolio data (Morningstar)

	Mean	Median	Std. Dev.	Min	Max	N
Percentage invested in partner country	0.04	0.03	0.03	0.00	0.14	108
Inverse Covariance of stock market returns	-0.07	-0.04	0.15	-0.59	0.13	108
Common Border	0.21	0.00	0.41	0.00	1.00	108
Common Language	0.03	0.00	0.14	0.00	1.00	108
Log of distance	6.80	6.97	0.64	5.16	7.86	108
Press coverage	0.04	0.02	0.04	0.00	0.18	98
Average trust from investing country to partner	2.89	2.89	0.30	2.31	3.65	108
Religious similarity	0.31	0.29	0.25	0.01	0.87	108
Somatic distance	2.69	3.00	1.25	0.00	5.00	108
Distance in the characteristics of security laws (LLSV)	7.32	6.67	2.37	1.83	12.40	108
Linguistic common roots	0.63	0.67	0.13	0.50	0.94	89
Same legal origin	0.25	0.00	0.44	0.00	1.00	108

Panel A contains summary statistics for trust and for the bilateral controls. Trust is calculated by taking the average response to the following question: "I would like to ask you a question about how much trust you have in people from various countries. For each, please tell me whether you have a lot of trust, some trust, not very much trust or no trust at all". The answers are coded in the following way: =1 (no trust at all), =2 (not very much trust), =3 (some trust), =4 (a lot of trust). The sample statistics presented here for trust are obtained after collapsing the data by taking time averages (after partialling out time effects). Distance is the log distance between the capital of two countries. Common border is a dummy variable equal to 1 if two countries share at least one border (it is coded 1, if countries are the same). Common language is an indicator variable equal to 1 if the two countries share the same official language. Same legal origin is a dummy variable that is equal to 1 if two countries share the same origin of law (i.e., English, French, German, or Scandinavian), following the La Porta et al. (1998) classification. Religious similarity measures the fraction of people with the same religious faith in the two countries. Genetic distance is the coancestry coefficient (Reynolds, Weir, and Cockerham 1983) calculated by Cavalli-Sforza, Menozzi, and Piazza (1996). Somatic distance between two populations is based on the distance between three anthropometric measures: heights, hair colors (pigmentation), and cephalic index (Biasutti 1954). Number of years at war have been calculated using the current nations' borders as definition of the countries. Linguistic common roots is based on a count of the number of common branches two languages share in the language trees as in Fearon (2003). Transportation costs between pair of countries are calculated following Giuliano, Spilimbergo, and Tonon (2006) as the shipping quotes in year 2006 collected by Import Export Wizard (IEW), a shipping company that calculates the surface freight estimates of transportation costs in U.S. dollars for a "1000 kg unspecified freight type load (including machinery, chemicals, etc.) with no special handling required, using the optimal combination of going through land and water to transport the goods." Press coverage is the number of times a country name appears in the headlines of the major newspaper in each country over the total number of foreign news. Panel B shows summary statistics for the trade dataset. The data contains export volume for a panel of 18 European Countries in the period between 1970 and 1996 (Source: Statistics of Canada). The correlation of consumption between pairs of countries is obtained by correlating the level of consumption by ISIC codes between country i and country j for years 1989-94 (Source: Nicita and Olarreaga, 2007). Consumption in each ISIC code/country is defined as GDP plus imports, minus exports. Panel C shows summary statistics for the foreign direct investment data. Outward stock of FDI (log) is from the OECD data and includes a panel between 1970 and 1996 of 18 European countries. Panel D shows summary statistics for the portfolios datasets. The percentage invested in the partner country is the net portfolio investment of a given country into another country defined as the stock of cross-border holdings of equities and long- and short-term debt securities valued at market prices prevailing at the end of 2001 (from Morningstar data) divided by the sum of all foreign equity holdings plus market capitalization-foreign liabilities. The inverse of the covariance of stock market returns is calculated using monthly data for each country (DATASTREAM). Following Vlachos (2004), distance in security law regulation is the sum of the absolute difference between the score in 21 characteristics analyzed in La Porta, López-de-Silanes, and Shleifer (2006).

Table III:

Determinant of Trust

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Common language	0.05	0.09*	0.11*	0.09*	0.08	0.02	0.04	0.05	0.08
	(0.07)	(0.05)	(0.06)	(0.05)	(0.05)	(0.06)	(0.06)	(0.06)	(0.06)
Log (distance)	-0.11***	-0.04*	-0.05*	-0.04	-0.01	-0.01	0.00	0.01	-0.01
	(0.03)	(0.02)	(0.03)	(0.03)	(0.02)	(0.02)	(0.03)	(0.03)	(0.03)
Common border	-0.01	-0.05	-0.01	-0.05	-0.04	-0.04	-0.05	-0.05	-0.03
	(0.05)	(0.04)	(0.04)	(0.04)	(0.03)	(0.03)	(0.04)	(0.04)	(0.04)
Fraction of years at war (1000-1970)		-1.16***	-1.07***	-1.16***	-1.07***	-1.16***	-1.26***	-1.26***	-1.07***
		(0.29)	(0.39)	(0.29)	(0.29)	(0.29)	(0.39)	(0.39)	(0.39)
Religious similarity		0.15***	0.24***	0.15***	0.15***	0.11**	0.13***	0.13***	0.15***
		(0.04)	(0.05)	(0.04)	(0.04)	(0.04)	(0.05)	(0.05)	(0.05)
Somatic distance		-0.06***		-0.06***	-0.05***	-0.04***	-0.04***	-0.04***	-0.03***
		(0.01)		(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Genetic distance			-10.00*	0.06					
			(5.94)	(5.07)					
Differences in GDP per capita (percentage)					-0.14***	-0.14***	-0.13***	-0.13***	-0.09**
					(0.04)	(0.03)	(0.03)	(0.03)	(0.03)
Same legal origin						0.07**	0.05	0.05	0.05
						(0.03)	(0.03)	(0.03)	(0.04)
Linguistic common roots							0.20*	0.20*	0.21*
							(0.11)	(0.11)	(0.11)
Transportation costs*1000								-0.58	-1.05
								(1.00)	(0.96)
Press Coverage									-0.73**
									(0.34)
Observations	207	207	207	207	207	207	180	180	154
R-squared	0.772	0.840	0.806	0.840	0.854	0.858	0.832	0.832	0.837

The dependent variable is the average trust across individuals of a given country toward citizens of other countries. To appropriately estimate the standard errors, we first regressed the observations on year fixed effects, then we took the residual and collapsed the observations by year. Trust is calculated by taking the average response to the following question: “I would like to ask you a question about how much trust you have in people from various countries. For each, please tell me whether you have a lot of trust, some trust, not very much trust or no trust at all". The answers are coded in the following way: =1 (no trust at all), =2 (not very much trust), =3 (some trust), =4 (a lot of trust). All the other variables are reported in the note of Table II. The regressions include country of origin and country of destination fixed effects. Spatial corrected standard error (see Conley 1999) are reported in parenthesis. The symbols ***, **, and * mean that the coefficient is statistically different from zero respectively at the 1%, 5%, and 10% level.

Table IV:

Effect of Trust on Trade

	OLS (1)	OLS (2)	OLS (3)	OLS (4)	IVGMM (5)	OLS (6)
Mean trust of people in importing	0.36**	0.29*	0.25	0.34**	1.20***	0.19
country to people in exporting country	(0.17)	(0.17)	(0.19)	(0.16)	(0.20)	(0.22)
Interaction between trust and						0.83***
diversified good						(0.05)
Common language	0.58***	0.32**	0.37**	0.82***	0.94***	1.04***
	(0.22)	(0.16)	(0.16)	(0.21)	(0.14)	(0.27)
Log (distance)	-0.31***	-0.43***	-0.43***	-0.57***	-0.61***	-0.73***
	(0.09)	(0.09)	(0.09)	(0.10)	(0.07)	(0.12)
Common border	0.49***	0.43***	0.41***	0.41***	0.36***	0.35***
	(0.11)	(0.10)	(0.11)	(0.10)	(0.06)	(0.13)
Press coverage	0.45	-0.03	-0.09	-1.34	-0.89	-2.83**
	(1.05)	(0.93)	(0.94)	(1.0)	(0.60)	(1.12)
Transportation costs	-1.81**	-0.33	-0.28	0.10	0.63	-1.83
	(0.79)	(0.74)	(0.76)	(0.73)	(0.52)	(1.17)
Same legal origin		0.45***	0.43***	0.36***	0.24***	0.57***
		(0.10)	(0.10)	(0.11)	(0.07)	(0.15)
Linguistic common roots			0.09			
			(0.28)			
Correlation of consumption				-0.95	-1.05***	-1.82**
between the two countries				(0.68)	(0.37)	(0.89)
Exporting country fixed effects*years	YES	YES	YES	YES	YES	YES
Importing country fixed effects*years	YES	YES	YES	YES	YES	YES
Observations	595	595	573	474	474	951
R-squared	0.964	0.969	0.970	0.968		0.849
Hansen J statistic					0.090	
Chi-sq p-val					0.764	
Test of excluded instruments:					F(2,349) =59.66	

The dependent variable is the log of the aggregate export volume from country i to country j, for a panel of 17 countries belonging to the European Economic Area during the period 1970-1996. All the other variables are described in the note of Table II. All regressions include an interaction between fixed effects for the country of origin and year and for the destination country and year. All the columns, except column (5), report OLS regressions where the standard errors are corrected for spatial correlation (Conley 1999). The specification in column (5) is estimated using the generalized method of moments instrumental variables estimator (GMM-IV). The instruments are religion diversity and somatic distance. A test of overidentifying restrictions, Hansen's "J" statistic (1982), is also reported for the instrumental variable regression. The test is calculated from the first stage residuals of the estimation procedure. We also report the F-test of the excluded instruments. The first stage regressions are reported in the online appendix of the paper. The symbols ***, **, and * mean that the coefficient is statistically different from zero respectively at the 1% , 5%, and 10% level.

Table V:

Effect of Trust on Foreign Direct Investments

	(1) OLS	(2) OLS	(3) OLS	(4) OLS	(5) IVGMM
Mean trust toward	1.35***	0.94*	0.70	0.84*	6.65***
people in destination country	(0.51)	(0.51)	(0.48)	(0.49)	(1.24)
Common language	0.12	0.17	-0.57*	-0.75**	-2.05***
	(0.31)	(0.29)	(0.30)	(0.38)	(0.43)
Log (distance)	-0.46*	-0.22	-0.48**	-0.56**	-0.70***
	(0.26)	(0.27)	(0.23)	(0.24)	(0.26)
Common border	0.47**	0.44**	0.26	0.34	0.26
	(0.20)	(0.20)	(0.20)	(0.21)	(0.21)
Press coverage	2.65	1.67	0.76	1.00	8.97***
	(2.29)	(2.18)	(2.04)	(2.24)	(2.69)
Transportations costs		-4.55**	-0.23	-0.32	5.13**
		(1.76)	(1.66)	(1.80)	(2.31)
Common law			1.28***	1.36***	1.38***
			(0.27)	(0.31)	(0.26)
Linguistic common roots				-0.86	-2.41***
				(0.55)	(0.66)
Investing country fixed effects*years	YES	YES	YES	YES	YES
Destination country fixed effects*years	YES	YES	YES	YES	YES
Observations	445	445	445	419	419
R-squared	0.854	0.860	0.879	0.880	
Hansen J statistic					0.031
Chi-sq p-val					0.859
Test of excluded					F(2,328) =
instruments in first stage:					24.34

The dependent variable is the log of outward investment (stocks) from the OECD data (1970–1996) for 17 countries belonging to the European Economic Area. The independent variables are defined in the notes of Table II. All regressions include the interaction between fixed effects for the country of origin and year and fixed effect for the destination country and year. All the columns, except column (5), report OLS regressions where the standard errors are corrected for spatial correlation (Conley 1999). The specification in column (5) is estimated using the generalized method of moments instrumental variables estimator (GMM-IV). The instruments are religion diversity and somatic distance. A test of overidentifying restrictions, Hansen's "J" statistic (1982), is also reported for the instrumental variable regression. The test is calculated from the first stage residuals of the estimation procedure. We also report the F-test of the excluded instruments. The first stage regressions are reported in the online appendix of the paper. The standard errors reported in parentheses are corrected for spatial correlation (Conley 1999). The symbols ***, **, and * mean that the coefficient is statistically different from zero respectively at the 1%, 5%, and 10% level.

Table VI:

Effect of Trust on Portfolio Investment

Table VI:

	(1) OLS	(2) OLS	(3) OLS	(4) OLS	(5) OLS	(6) IVGMM
Mean trust toward	0.11***	0.14***	0.04	0.15***	0.09**	0.27**
people in destination country	(0.04)	(0.05)	(0.03)	(0.05)	(0.05)	(0.11)
Inverse Cov. of stock market returns	0.01	-0.00	-0.05	-0.01	-0.05	0.01
of country of origin and destination	(0.03)	(0.04)	(0.04)	(0.04)	(0.06)	(0.07)
Common language	0.02	-0.02	-0.05*	-0.02	-0.01	-0.04
	(0.02)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Log (distance)	-0.06**	-0.04	-0.03	-0.03	-0.04	-0.03
	(0.03)	(0.03)	(0.02)	(0.02)	(0.03)	(0.03)
Common border	-0.01	-0.02	-0.03	-0.02	-0.05*	-0.03
	(0.03)	(0.03)	(0.02)	(0.03)	(0.03)	(0.03)
Press coverage		0.63**	0.30	0.67**	0.57**	0.90***
		(0.25)	(0.20)	(0.26)	(0.26)	(0.33)
Same legal origin			0.08***			
			(0.02)			
Distance in security law regulation*100				0.42	0.86***	0.85***
				(0.26)	(0.26)	(0.30)
Linguistic common roots					0.14***	0.03
					(0.05)	(0.08)
Observations	108	98	98	98	80	80
R-squared	0.371	0.402	0.519	0.412	0.407	
Hansen J statistic						2.277
Chi-sq p-val						0.131
Test of excluded						F(2,44)=
instruments in first stage:						10.18

The dependent variable measures the percentage of net portfolio investment of a given country into another country. Specifically, the dependent variable is the stock of cross-border holdings of equities and long- and short-term debt securities valued at market prices prevailing at the end of 2001 (from Morningstar data) divided by the sum of all foreign equity holdings plus market capitalization- of foreign liabilities. The sample includes all European Union countries. Independent variables are described in the note of Table II. All regressions include fixed effects for the country of origin and for the destination country. All the columns, except column (6), report OLS regressions where the standard errors are corrected for spatial correlation (Conley 1999). The specification in column (6) is estimated using the generalized method of moments instrumental variables estimator (GMM-IV). The instruments are religion diversity and somatic distance. A test of overidentifying restrictions, Hansen's "J" statistic (1982), is also reported for the instrumental variable regression. The test is calculated from the first stage residuals of the estimation procedure. We also report the F-test of the excluded instruments. The first stage regressions are reported in the online appendix of the paper. The symbols ***, **, and * mean that the coefficient is statistically different from zero respectively at the 1%, 5%, and 10% level.

Figure I

Fixed Effects of Country of Origin and Destination Relative to Ireland