Clash of Civilizations and the Impact of Cultural Differences on Trade

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Abstract

Using data on bilateral trade and measures of culture, this paper evaluates how the impact of cultural differences on trade evolves over time. Moreover, this is the first study to probe Huntington's *Clash of Civilizations* hypothesis from an economic perspective. We analyze the dynamics of the effect of cultural differences on trade and provide evidence that the negative influence of cultural differences on trade is more prominent in the post-Cold War era than during the Cold War. For instance, two countries with distinct religious majorities have 35% lower bilateral trade flows during the post-Cold War period compared to countries sharing the same majority religion, whereas this negative effect is less than half, at 16%, during the Cold War. In addition, we provide an explanation for the differential impact of cultural differences over time. By mapping out the transition of the effects of cultural and ideological dissimilarities, we show that cold-war ideological blocs are the reason for the suppression of cultural differences during the Cold War.

Keywords: Cold War, culture, economic clash, trade.

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1 Introduction

Cultural differences play an important role in economic interactions between countries (Felbermayr and Toubal, 2010; Guiso et al., 2009; Melitz, 2008; Rauch and Trindade, 2002). In this context, cultural differences are considered a source of informational cost and/or a source of uncertainty that acts as a barrier in bilateral trade relations between countries. We add to this line of discussion by scrutinizing how the impact of cultural differences on trade evolves over time and how this impact interacts with the Cold War.

We start by examining whether cultural differences between countries are a trade barrier. Using data on bilateral imports over 1950-2006 and Huntington's (1998) typology of civilizations, we provide evidence that when two countries belong to different civilizations their imports are 20% lower than those of two countries from the same civilization. We further extend the analysis using Ellingsen's measure of religious, ethnic and linguistic groups within countries and examine whether sharing any of these cultural heritages has an impact on countries' trade relations. We show that when two countries have distinct religious majorities, distinct ethnic majorities or distinct linguistic majorities, their trade relations are impeded. For instance, two countries with different dominant ethnicities have 38% lower imports than those sharing the same ethnicity, controlling for standard bilateral trade barriers and time-varying multilateral resistance terms.

However, the main contribution of this paper lies in examining Huntington's *Clash of Civilizations* hypothesis from an economic point of view. Huntington (1993a, 1993b) argues that the great divisions among humankind and the dominating source of clashes in the post-Cold War era will be cultural, and states from different cultures will compete for economic and political power. Although the Clash of Civilizations in the post-Cold War hypothesis has enticed a number of authors into testing it for militarized disputes between countries,[1] its general implications for economic interaction among cultural groups remained overlooked. This is the aim of the present paper.

We analyze the dynamics of the effect of cultural differences on trade and provide evidence

[1] See Chiozza (2002), Henderson and Tucker (2001), Russett et al. (2000).

that the negative influence of cultural differences on trade is larger in the post-Cold War era than during the Cold War. For instance, in the post-Cold War period, two countries with distinct religious majorities have 35% lower imports than those sharing the same religion, whereas this negative effect is less than half, at 16%, during the Cold War. We additionally ask what costs cultural differences bring about and quantify the tariff equivalent costs of cultural differences for standard levels of elasticities of substitution in the literature. While the tariff equivalent cost of cultural differences varies between 0.5% and 8.7% during the Cold War, this additional cost is between 5.8% and 30.4% in the post-Cold War era.

Furthermore, we provide an explanation for the differential effect of culture in the Cold War and the post-Cold War periods. We first assign each country to a cold-war bloc to create an indicator of different ideological alignments. We next show that belonging to different cold-war blocs significantly hampered bilateral trade relations during the Cold War. Subsequently, by mapping out the transition of the effects of cultural and ideological differences throughout years, we show that cold-war ideological blocs are the reason for the suppression of cultural differences. That is why the impact of cultural differences was not as salient during the Cold War and was dwarfed by the effect of ideology. Thus, when the Cold War came to an end, the influence of separate ideological camps was lifted and cultural differences became more prominent. To further support this hypothesis, we show that cultural differences did *not* negatively affect trade relations when two countries were in the same bloc during the Cold War.

Our results are robust to alternative specifications. We estimate a theory-based gravity model of international trade so as to take into account multilateral resistance terms, omission of which leads to biased estimates (Anderson and Van Wincoop, 2003; Baldwin and Taglioni, 2007). We also employ a set of cultural-difference measures that allow us to capture different aspects of culture. Unlike other existing studies (Felbermayr and Toubal, 2010; Giuliano et al., 2006; Guiso et al., 2009; Rauch and Trindade, 2002), our data set contains the entire range of world countries. We control for a large array of measures of geographic barriers as well as historical and policy-related determinants of trade. Moreover, we include time-varying origin

and destination-fixed effects to account for the multilateral resistance terms, while standard errors are clustered at the country pair level. Our results hold when including a rich set of geographic controls, genetic distance as an alternative measure of culture, taking into account political proximity and lagged imports, and carrying out a principal component analysis of cultural difference. The two-step Heckman selection model, the hyperbolic sine transformation method and a probit model also show that our results are robust to the omission of zero trade flows.

This paper adds to the literature on trade and culture by bringing in the dynamics and showing the evolution of the effects of culture. For instance, Felbermayr and Toubal (2010) establish a correlation between culture and trade using scores from the Eurovision Song Contest as a proxy for cultural proximity. Giuliano et al. (2006) question the validity of genetic distance as a proxy for cultural distance in explaining trade relations and show that genetic distance only captures geographic barriers that are reflected in transportation costs across Europe. Guiso et al. (2009), on the other hand, show that bilateral trust between pairs of European countries leads to higher trade between them. Melitz (2008) disentangles the channels of linguistic commonality and finds that ease of communication facilitates trade rather through the ability to communicate directly than through translation.

This study also contributes to the literature in political science and international relations on *Clash of Civilizations* thesis by adding an economic perspective. This strand of the literature has focused largely on the militarized disputes aspect of the thesis and has overlooked its economic implications.[2]

Another strand of related literature looks at trade in the context of the Cold War. Berger et al. (2013) show that during the Cold War imports from the US increased as a result of stronger political influence arising from CIA interventions. Djankov and Freund (2002) study trade between nine Russian regions and fourteen former Soviet republics and find that there is an increasing bias toward domestic trade after the disintegration of the Soviet Union.

The paper proceeds as follows. Section 2 lays out the methodology and describes the data.

[2] For a discussion on the militarized conflict aspect of the thesis, see Chiozza (2002), Henderson and Tucker (2001), Russett et al. (2000).

Section 3 provides baseline estimation results. Section 4 tests Huntington's "The Clash of Civilizations?" hypothesis from an economic perspective. Section 5 proposes an underlying mechanism. Section 6 challenges the sensitivity and robustness of our results. Section 7 concludes.

2 Methodology and Data

We use the standard gravity equation following Anderson and Van Wincoop (2003), who facilitate the estimation of key parameters in a theoretical gravity equation relating bilateral trade to size, bilateral trade barriers and multilateral resistance terms. From the theory, we can derive the gravity equation as:

$$M_{ij} = G\frac{Y_i Y_j}{\tau_{ij}^{\sigma-1}} \tag{1}$$

where $G \equiv \frac{1}{\overline{Y}}\left(\frac{1}{\Omega_i P_j}\right)^{(1-\sigma)}$.

M_{ij} is the nominal value of imports from country i to country j; Y_i and Y_j are country i's and country j's economic sizes, respectively; τ_{ij} is bilateral trade costs; $\overline{Y}$ is world nominal income; σ is the elasticity of substitution between goods; Ω_i and P_j can be thought of as price indices.

τ_{ij} reflects all trade costs, natural and man-made, between country i and country j. In addition to transportation costs, these trade costs might reflect information costs, legal costs, regulatory and institutional costs, cost of business norms and all the remaining costs that altogether accrue up to bilateral trade barriers. This is where we see our measures of cultural difference come into play as one of the bilateral trade barriers. Cultural dissimilarities between countries might act as a source of informational cost and a source of uncertainty that create a barrier in bilateral trade relations.

The gravity equation relates bilateral imports positively to the size of the countries and negatively to the trade barriers between countries ($\sigma > 1$). Bilateral trade barriers, τ_{ij}, are also referred to as "bilateral resistance" terms. Moreover, it is important to notice that the G

term bears the price indices of the two countries.[3] Although Ω_i and P_j could be interpreted as price indices in the model, they cannot be interpreted as price levels in general.[4] These unobservable variables should be better thought of as nonpecuniary trade costs a country has with all its trading partners. Hence, Ω_i and P_j represent average trade barriers of country i and country j, respectively, which we refer to as "multilateral resistance" terms.

Log-linearization of equation (1) gives us the empirical counterpart of the gravity equation that we are going to use throughout:

$$\log M_{ij} = -\log \overline{Y} + \log Y_i Y_j + (1-\sigma)\log \tau_{ij} + (\sigma - 1)\log \Omega_i P_j \tag{2}$$

Bilateral import flows and income variables are measured in current US Dollars (millions). Using real income variables instead would require us to deflate nominal trade values as well. Unfortunately, good price indices for bilateral trade flows are often unavailable. Hence, most authors deflate the nominal trade values using some price index for the U.S. This inappropriate deflation of nominal trade values is a common mistake that yields biased results (Baldwin and Taglioni, 2007). As suggested by Baldwin and Taglioni (2007), this problem can be overcome by including time dummies, which will account for some of the proper conversion factor between U.S. dollars in different years and will thus reduce the bias. Moreover, time-fixed effects allow the intercept to vary across periods in order to account for different distributions in different time periods, which takes care of time-varying trends.

One last pending issue is how to treat multilateral resistance terms. Although multilateral resistance terms are unobservable, their omission might lead to biased estimates as they are a function of bilateral resistance terms (Anderson and Van Wincoop, 2003). To remedy this problem, Anderson and Van Wincoop (2003) suggest that multilateral resistance terms can be accounted for with country-specific dummies in order to get consistent estimates. Feenstra (2002) shows that an estimation strategy with exporting and importing country fixed effects produces consistent estimates. Hence, our estimation strategy is to replace multilateral resis-

[3] Under the assumption of symmetric trade costs, $\tau_{ij} = \tau_{ji}$, Ω_i will be equal to P_i.

[4] With asymmetric trade costs, Ω_i will not be identical to a CES price index. In the literature, it is commonly thought of as exporter's market potential, market openness or remoteness.

tance terms with country fixed effects. It is important to note that the gravitational constant of the physical gravity equation, G, is an unconstant in economics, and it varies over time (Baldwin and Taglioni, 2007). Therefore, with panels such importing and exporting country fixed effects should be time-varying as well. Finally, we have our empirical specification that is a log-linearized version of equation (1) together with time-varying importing and exporting country fixed effects.

Although it is well-acknowledged in the literature that time-varying country fixed effects are required to obtain consistent estimates of the gravity model, execution of such an estimation strategy has proved difficult due to the very high dimensionality of the problem.[5] Depending on the time period and the number of countries covered, the number of dummies can go up to twenty thousand. In a recent paper, Guimarães and Portugal (2010) propose an alternative iterative procedure to estimate linear models with high dimensional fixed effects. This procedure, dubbed "cyclic-ascent" or "zigzag" algorithm, requires running regressions with k explanatory variables in a first step and then computing means of residuals in a second step to acquire the fixed effect estimates that are to be used to reestimate the coefficients of the k explanatory variables. The same steps are repeated until convergence. Consequently, the "zigzag" algorithm allows us to estimate the gravity model with high dimensional time-varying importer and exporter fixed effects and get consistent estimates.

Our focus in estimation is on the cultural barriers to trade. Cultural variables reflect, among other things, business norms, customs, beliefs, trust and information costs. They accrue up to bilateral barriers to trade and, in turn, might impede trade relations between countries. We disaggregate the bilateral trade barriers term and write our variable of interest – namely, cultural difference– from other bilateral trade barriers. Hence, we restate the empirical specification in the following final form:

$$\log Imports_{ijt} = a + \gamma C_{ij} + \alpha_k \tau_{kijt} + R_i * Year_t + R_j * Year_t + \epsilon_{ijt} \tag{3}$$

where $Imports_{ijt}$ is imports from country i to j; a is a constant; C_{ij} is our variable of

[5] See, for instance, Head et al. (2010).

interest, which is a binary variable that captures cultural differences across country pairs; τ_{kijt} represents all of the k control variables we account for as bilateral trade barriers other than culture; R_i is exporting country fixed effects; R_j is importing country fixed effects; $Year_t$ is yearly time fixed effects; and ϵ_{ijt} is the unaccounted-for error term.

2.1 Data

Measure of Trade. As in Berger et al. (2013), trade data come from the Correlates of War Trade Data Set (Barbieri et al., 2008).[6] Within this data set, the majority of the post-WWII data were obtained from the International Monetary Fund's Direction of Trade Statistics.

Measures of Culture. As a first measure of culture 179 countries are classified as members of various civilizations. As described in Huntington (1998), these civilizations are Western, Sinic, Islamic, Hindu, Orthodox, Latin American, African, Buddhist and "Lone" States. The classification and the construction of civilization membership is based on Huntington (1998). Accordingly, each country is assigned to a civilization.

Furthermore, country pairs are formed by pairing each country with one another. To indicate civilizational dissimilarity within a pair we construct a variable, labeled "Different Civilizations," denoting whether a pair of countries belong to different civilizations. This variable is coded as one if in a pair the two countries i and j belong to different civilizations and as zero if both countries belong to the same civilization. Out of 15931 country-pairs, 2875 pairs are formed of countries belonging to the same civilization and 13056 pairs belonging to different civilizations.

As a further measure of cultural difference we use Tanja Ellingsen's "Ethnic Witches' Brew Data Set," which provides us with data on religious, linguistic and ethnic fragmentation within countries between 1945-2001.[7] Ellingsen (2000) collected data on the size, the name and the number of the linguistic, religious, and ethnic dominant groups; the size and the name of the linguistic, religious, and ethnic minority groups as well as ethnic affinities.[8] What is

[6] This data set is available at http://www.correlatesofwar.org/.

[7] The original data by Tanja Ellingsen runs from 1945 to 1994. We use the version of the data by Gartzke and Gleditsch (2006).

[8] She has obtained information from three reference books: *Handbook of the Nations*, *Britannica Book of*

particularly important for our purposes in this data set is the information on the name and proportional size of the largest linguistic, religious, and ethnic groups. Similar to Gartzke and Gleditsch (2006), we have indicator variables for whether the two countries in a pair have the same dominant religion, language and ethnicity. However, we recode these variables so that they take value one when two countries have different majority religion or different majority ethnicity or different majority language.

Other Determinants of Trade. Geographic barriers are proxies for transportation as well as information costs. Correspondingly, we have a range of geographic metrics such as a contiguity variable that takes value one if there is any sort of land or water contiguity between two countries in a pair, and value zero otherwise.[9] Additional geographic distance metrics such as the measure of the great circle (geodesic) distance between the major cities of the countries are also taken into account.[10]

To control for historical, political and institutional links we include dummy variables for whether a pair of countries ever had a colonial relationship, i.e. whether one was a colony of the other at some point in time; had a common colonizer after 1945, i.e. whether the two countries have been colonized by the same third country; and whether the two countries have been part of the same polity.[11] In addition, a dummy variable for whether two countries in a pair have the same legal origins is created. The same legal origins in a pair of countries might reduce information costs related to legal and regulatory systems. Moreover, sharing the same legal origins might enhance trust between interacting parties (Guiso et al., 2009). Hence, we have a binary variable that takes value one if the two countries in a pair have the same legal origins, and zero otherwise. [12]

We also take into account policy related dyadic variables. As such, free trade area (FTA), GATT/WTO membership, common currency and generalized system of preferences (GSP)

the Year and *Demographic Yearbook*.

[9] Contiguity data come from Correlates of War Project, Direct Contiguity Data, 1816-2006, Version 3.1 (Stinnett et al., 2002).

[10] See Head and Mayer (2002) for details.

[11] These data come from CEPII. The data are available at http://www.cepii.fr/anglaisgraph/bdd/distances.htm.

[12] Legal origin indicators (common law, French civil law, German civil law, Scandinavian law, and Socialist law) are from La Porta et al. (1999).

data are from Martin, Mayer and Thoenig (2008) and Thierry Mayer's webpage.[13,14]

3 Baseline Results

We start off with simple correlation coefficients between imports and our measures of culture. We observe in Table 1 that all of the variables of culture indicate a negative relationship between trade flows and dissimilar cultural heritage. Moreover, the different civilizations indicator is highly correlated with different religion and different language. We also observe a high correlation between different language and different ethnicity.

We next extend the standard "gravity" model of bilateral trade relating the natural logarithm of trade to the joint income of the countries, the log of the distance between them and border effects (see Anderson and van Wincoop, 2003) by accounting for dyadic trade barriers and time-varying multilateral resistance terms. Table 2 provides the estimation output. In column (1) of Table 2 we look at how different civilizational memberships impact trade in a gravity equation regression controlling for other determinants of trade flows and time-varying importing and exporting country fixed effects. The effect of different civilizations indicator is both economically and statistically significant. If two countries in a pair belong to different civilizations their import flows drop by 20%.[15]

We extend the basic specification by accounting for a full set of geographic, historical and political, and economic barriers to trade. Distance decreases trade, while contiguity increases trade. Colonial links and common history are commonly considered to reflect historical and institutional backgrounds (Blomberg and Hess, 2006; Glick and Taylor, 2005). Since they might be capturing an element of culture as well, the coefficient on different civilizations variable is reduced with the inclusion of colonial links, common colonizer and same country dummies. Colonial links and common history increase trade relations. Sharing the same legal

[13] Available at http://econ.sciences-po.fr/node/131.

[14] As noted by Anderson and van Wincoop (2004), regional trade agreements may not be exogenous, and therefore, FTA included contemporaneously may suffer from reverse causality. A reasoning for this is that countries might have agreed on a trade agreement since they already have been trading lots for many reasons that are not observed by the econometrician. Consequently, we tried lagging FTA variable to overcome reverse causality up to four-period lags. The results concerning our variables of interest carry over.

[15] Since $[exp(-0.227) - 1] * 100 \simeq -20\%$

origins might proxy for informational costs as well as norms of dealing with property rights (Guiso et al., 2009). Table 2 tells us that countries with the same legal origin trade significantly more. We also take into account policy related variables such as free trade agreements (FTA), GATT/WTO membership, common currency and GSP. As expected, FTAs, common GATT/WTO memberships, common currency and GSP positively affect trade flows. With this entire set of controls, our different civilizations indicator maintains its significant effect.

To reiterate our findings further we investigate the effect of other measures of cultural differences. Using *Ellingsen's Measure* of majority religions, ethnicities and languages within countries we probe the relationship between trade flows and sharing dominant religious, ethnic and linguistic heritages. To this end, we bring in new indicator variables for when the two countries in a pair have different majority religions or different majority ethnicities or different majority languages.

The second column of Table 2 shows that having different dominant religion negatively affects trade relations. Columns (3) and (4) do the same exercise when the two countries have different majority ethnicities and different majority languages, respectively. When the two countries have different dominant ethnicities they have about 38% lower import flows than the two countries with the same dominant ethnicity. On the other hand, two countries with different majority languages have 46% less imports. Columns (5), (6) and (7) look at the effects of three indicators of cultural difference when language is controlled for. We do that in order to show that cultural difference variables on civilizations, religion and ethnicity do not only capture the effect coming from communication channels. As such, we show that even when the communication channel is taken into account previous results carry over. In column (8), we include all of the measures of cultural dissimilarity together and observe that only the different civilizations variable does not survive, and hence, all the variation in cultural dissimilarity can be explained by religion, ethnicity and language.

From the analysis of this section we can conclude that cultural differences negatively affect countries' bilateral trade relations and countries of different cultures trade significantly less than those of the same culture.

4 Economic Clash of Civilizations?

When Samuel Huntington put "The Clash of Civilizations?" hypothesis forward, arguing that "the great divisions among humankind and the dominating source of conflict in the post-Cold War era will be cultural" (Huntington, 1993a), he did not only have military clashes in mind but also economic and political ones. At the micro level, the violent struggles among peoples will result from the fault lines between civilizations, while at the macro level states from different civilizations will compete for economic and political power (Huntington, 1993a). Dissimilarity in culture engenders differences over issues ranging from human rights to immigration and, more importantly in this paper's context, to trade and commerce. Huntington's "The Clash of Civilizations?" hypothesis drew a lot of attention to military conflicts between countries and some authors have tested it from different angles (Chiozza, 2002; Henderson and Tucker, 2001; Russett et al., 2000). Nevertheless, to our knowledge, the economic clash aspect has never been put to rigorous econometric testing. Therefore, we test whether there has been an amplification in the negative effect of cultural differences on trade in the post-Cold War era.

Huntington takes civilizations as the main unit of his analyses. A civilization is defined as "a cultural entity, the highest cultural grouping of people and the broadest level of cultural identity people have short of what distinguishes humans from other species. It is defined both by common objective elements, such as language, history, religion, customs, institutions, and by the subjective self-identification of people".[16] He considers the central defining characteristic of a civilization as its religion; hence, the major civilizations in human history have been closely identified with the world's great religions. These civilizations outlined include the Sinic, Japanese, Hindu, Islamic, Orthodox, Western, Latin American, Buddhist and possibly African civilizations plus "Lone" countries that do not belong to any of the major civilizations.

Huntington argues that identity at any level - personal, tribal, racial, cultural - can only be defined in relation to an "other", a different person, tribe, race, or culture. This brings about a group identity in the simple form of "us" and "them" that nurtures clashes with those that

[16] Huntington (1993a), p.23-24.

are different. Thus, viewing culture as the "cause," peoples tend to clash with other peoples that do not share their culture, world view and values (Huntington, 1998). Such vehement tendencies, long held in check by the Cold War,[17] have been unleashed by the end of the Cold War and form the dominant pattern of global conflict in a post-Cold War world. Such a pattern is not restricted to militarized clashes between cultures, but also economic ones might ensue. For example, economic issues between the United States and Europe are no less serious than those between the United States and Japan, but they do not have the same political salience and emotional intensity, because the differences between American culture and European culture are so much less than those between the American culture and the Japanese culture.[18]

Therefore, using civilizations, religion, ethnicity and language measures, we test whether cultural differences exacerbate economic clashes in the post-Cold War era. First off, to see whether there is seemingly an economic clash of different culture pairs we plot mean log imports calculated for different and same ethnicity pairs and their ratios over the Cold War and the post-Cold War periods.[19] As such, Figure 1 delivers a first-pass understanding of how trade relations between countries with different and same ethnicities evolved over these two time periods. Average imports have increased from the Cold War to the post-Cold War period for both same ethnicity and different ethnicity pairs. This is not very informative, as the two seem to evolve in a similar pattern. However, if we look at the evolution of the ratio of the mean imports of the same ethnicity and different ethnicity pairs, we notice that same ethnicity pairs have more improved trade relations from one period to the next with respect to different ethnicity pairs. The ratio of same ethnicity trade to different ethnicity trade is larger in the post-Cold War era than in the Cold War era, which means that the increase in average trade of same ethnicity pairs is more than the increase in mean trade of different ethnicity pairs.

Next, we carry out regression analyses. A cursory look at Table 3 would convince one that there is a surge in economic clashes in the post-Cold War era. Each cell of a row reports the

[17] By most scholars, Cold War is considered to have lasted between 1945-1991.
[18] Huntington (1993a), p.34.
[19] Same exercise can also be repeated for other measures of culture.

coefficient of a cultural variable of interest from a separate regression in the two respective time periods. The negative effect of belonging to two different civilizations on bilateral trade is much bigger in the post-Cold War era, and the effect is statistically insignificant during the Cold War. In the post-Cold War era, two countries that belong to different civilizations have about 40% less imports than two countries that share the same civilization. This finding is robust and is not subject to the definition of culture. In the following rows of Table 3 we perform the same exercise with our various measures of culture. Both economic significance and statistical significance is stronger in the post-Cold War era than in the Cold War era. For instance, when the two trading partners do not share the same dominant ethnicity, their imports are reduced by 27% during the Cold War; whereas in the post-Cold War epoch they import 51% less than a pair of countries that share these values. Alternatively, in the post-Cold War period, two countries with distinct religious majorities have 35% lower imports than those sharing the same religion, whereas this negative effect is less than half, 16%, during the Cold War.[20]

These findings suggest that in the post-Cold War period countries of different cultural heritage display a stronger economic clash than in the Cold War era, and Chow tests confirm that these coefficients are statistically different from one another. Whether the cultural heritage is a civilization as Huntington classified or a more concrete definition of dominant religious, ethnic and linguistic populations, the results do not change. These results show that the end of the Cold War brought about more conflictual economic relations among countries of heterogeneous cultural backgrounds. In Table 4 we carry out the same analysis with a difference-in-difference strategy instead of splitting the sample. Previous results and interpretations carry over.[21]

In Table 5, we ask what if cultural difference was a tariff and we run an exercise on how

[20] These findings are not inflated due to the time-invariant nature of our variables of interest. On the contrary, they are closer to the lower bound estimates. When we collapse the data to a cross-section by taking the mean imports as dependent variable, the results are qualitatively the same, and in some cases the coefficients on cultural difference variables are even bigger. This is because when we run the regressions in a panel setup we control for many dyadic time-varying determinants of trade as well as time-varying importer and exporter fixed effects.

[21] As a robustness check, we run the same regressions excluding those countries that gained their independence only after the end of the Cold War. These regressions reveal the same conclusions. Therefore, our findings are not an artefact of the newly independent countries. Results are available upon request.

the tariff equivalent costs of cultural dissimilarity would be for different elasticities in the two time periods we consider.[22] From the theory, the regression coefficients correspond to the estimates of $[(1-\sigma)\ln\tau]$, where $(\tau-1)$ would be the tariff equivalent of the cultural barriers to trade. In line with the literature, we calculate the tariff equivalent of cultural trade barriers for elasticities of $\sigma = 5$, $\sigma = 8$, $\sigma = 10$ (see Anderson and van Wincoop, 2004).

We observe in Table 5 that the minimum tariff equivalent cost of cultural dissimilarity is 0.42% during the Cold War, whereas this lower bound estimate is about 5% in the post-Cold War. On the other hand, the maximum tariff equivalent cost of culture during the Cold War is about 9%, while this upper bound estimate is about 31% in the post-Cold War. For example, if we consider an elasticity of 5, the tariff equivalent cost of different ethnicities is 8% during the Cold War, whereas its counterpart in the post-Cold War is about 20%. Anderson and van Wincoop (2003), for instance, calculate a maximum tariff equivalent cost of national borders as 48% (for $\sigma = 5$). In our case, in the post-Cold War period, different languages account for more than half of the estimate of the national border barrier. Different religions and different ethnicities in the post-Cold War period are equal to one forth and forty percent of the estimate of the national border barrier, respectively.

5 Underlying Mechanism

A possible explanation for the mechanism beneath the differential impact of cultural dissimilarity in the Cold War and the post-Cold War periods could be the role ideology and political institutions play during these two time periods. Although cultural differences have always been present, they were suppressed by ideology during the Cold War. Once the Cold War ended, cultural differences are not suppressed anymore and they resurface.

Thus, to understand how the effect of ideology on bilateral trade evolves we construct a different blocs dummy. First, based on Huntington (1998), each and every country is assigned to either the first world or the second world or the third world as they were in the heights of

[22] See, for instance, Blomberg and Hess (2006) and Rose and van Wincoop (2001) for examples on the tariff equivalent costs of trade barriers.

the Cold War. The first world is composed of the United States and its allies, the second world is composed of the Soviet Union and its allies, and the third world is composed of unaligned countries. Then, we create an indicator variable, labelled "Different Blocs," that takes one if the two countries belong to two different superpower camps. In other words, this variable is equal to one if a country in the pair belongs to the first world and the other one belongs to the second world, zero otherwise.

Results are presented in Table 6. A pair of countries that are in different blocs during the Cold War have much lower import flows than those of the same bloc. The effect of belonging to different blocs during the Cold War is so strong that it dwarfs the effect of cultural dissimilarity. However, in the post-Cold War period, the country pairs that were formerly in different blocs started trading and making up for their low levels of prior trade.[23]

One explanation that logically derives from Table 6 is that the impact of ideological differences were so great during the Cold War that suppressed cultural dissimilarities did not play such an important role in trade relations. In fact, if we compare the impact of being in different blocs to belonging to different cultures during the Cold War, the impact of blocs is at least four times greater than the impact of any measure of culture, and this effect is even more than eight times bigger when we contrast ideological blocs with religion (see Table 6, column (2)).

To track the evolution of the impact of cultural dissimilarity and the impact of different blocs, we carry out a further exercise. In estimating the gravity model of imports, we include the interactions of different cultures variables and different blocs variables with year dummies. This way, we can calculate the effects of different cultures and different blocs on imports for every year from 1950 to 2006. In Figure 2, we plot the coefficients of different religion and different blocs together with 95% confidence interval in each year from a regression of log imports on different religion-year interactions, different blocs-year interactions together with all the control variables and time-varying country fixed effects.[24] The results are striking.

[23] An example in a similar vein on political influence is Berger et al. (2013). They show that, during the Cold War, when the CIA intervened in another country successfully, imports from the US increased dramatically.

[24] We carry out the same exercise for different civilizations, different ethnicity and different language variables. The results are similar and available upon request.

Being part of different blocs impedes trade relations during the Cold War. This effect is sizeable both economically and statistically. The impact of different ideological blocs is salient starting from 1955. This could be attributed to the fact that in 1955 Warsaw Pact was formed and communist bloc countries started acting in unison, which can thus be seen as the initiation of two separate camps. From 1955 on this effect remains negative and significant. Toward the final years of the Cold War, however, we observe a decreasing trend (in absolute values) in the negative effect of ideological differences. This effect is less and less negative, and after the demise of the Cold War it is not significant anymore.

On the other hand, throughout most of the Cold War the effect of having different religious backgrounds on bilateral trade lingers around zero and is mostly insignificant. However, towards the end of the Cold War the impact of different religion variable exhibits a jump and almost doubles. This jump is in the year 1986. In 1985 the coefficient on different religion variable is about -0.18, whereas in 1986 this coefficient doubles to -0.35, significant in both cases.

This evidence in the data overlaps with the first signs of the end of the Cold War. In 1985, Mikhail Gorbachev assumed power in the Soviet Union. Immediately after coming to power, liberal-minded Gorbachev started implementing reforms. Consequently, both economic (*Perestroika*) and political (*Glasnost*) liberalization packages were put into effect. At the same time, the relations with the leaders of the U.S. and the U.K. at the time -Ronald Reagan and Margaret Thatcher, respectively- improved considerably.[25] All of these developments, signalled the *de facto* end of the Cold War, which led to a surge in the impact of cultural dissimilarity on trade relations. Therefore, by the demise of the Cold War, ideological blocs and their political institutions are gone and cultural differences are more prominent. Any country can trade with any other, and former ideological foes turn into friends now with an increased trend in their bilateral imports. Cultural differences are at the forefront of the trade fault lines, and as a matter of fact, the impact of cultural identities on economic exchange in the post-Cold War period is enhanced.

[25] For example, the Reykjavík Summit between Ronald Reagan and Mikhail Gorbachev led to the eventual Intermediate-Range Nuclear Forces Treaty between the U.S. and the Soviet Union in 1987. Another example, Margaret Thatcher addressed Mikhail Gorbachev as a man she can do business with.

An alternative interpretation of these findings could be that we are just observing a normalization of trade relations. Cultural differences have always been at the core of inter-group struggle, and this, in turn, plays a role in trade relations. However, Cold War was just an ideological shock that subdued cultural dissimilarity and pacified the salience of the influence of culture. Once the ideological shock of the Cold War is over, a normalization process starts and what is of importance now for inter-group contention is the cultural differences and propinquities between nations that go back long in history.

Lastly, we perform the following test. Suppose in the Cold War era cultural differences were curbed by ideology, then, during the Cold War, if two countries were in the same bloc their trade relations should *not* be negatively affected by cultural dissimilarity. To examine this hypothesis, we create a Same Bloc indicator and regress trade on the triple interaction of Different Religion, Same Bloc and post-Cold War variables. In Table 7, Panel A is the regression of trade on the triple interaction together with usual controls; and Panel B reports the composite effect of Different Religion on trade when the two countries were in the same bloc or not during and after the Cold War.

In Panel B of Table 7, we observe that when two countries were in the same bloc during the Cold War, different religious backgrounds did not negatively affect their trade relations; and, in fact, it is positive. However, for those countries that were not in the same bloc this effect is negative and significant. Whereas, in the post-Cold War period, independently of their former blocs, different religion reduces two countries' imports. Thus, this is further evidence that ideology might have played a role in the differential impact of cultural dissimilarity on trade during and after the Cold War.[26]

6 Sensitivity Analysis

In this section we run robustness tests first by controlling for a rich set of geographic variables. Second, we probe a popular measure of cultural distance –namely, genetic distance variable–

[26] We perform the same exercise for other measures of cultural difference; and the results are similar, by and large. The effect of cultural dissimilarity on trade for the same bloc countries in the Cold War period is either around zero or positive, though less robust.

and test whether our measures of culture survive the inclusion of genetic distance. Third, we investigate whether the impact of culture might actually be capturing the influence of political proximity on trade. Fourth, we test the robustness of our results to the omission of zero trade flows. Fifth, we take lagged patterns of trade into consideration. Finally, we run a principal component analysis.[27]

6.1 Culture vs. Geography

In this subsection we aim at isolating the effect of geography on trade from that of culture. This way we can fend off concerns that what our measures of cultural difference might actually be capturing is the differences in geography and climate.

We start off by creating continental pair dummies among partners. These dummies capture the interaction between and within continents for trading countries. For instance, if both countries in a pair are in Europe that would be captured by a Europe-Europe dummy, or if one country is in Europe and the other one is in Asia that would be captured by an Asia-Europe dummy. All in all, this makes up a total of 21 continental pair dummies.[28]

In addition, we control for a rich set of variables on geographic and climatic differences between countries. These are log of absolute difference in mean elevation of countries (meters above sea level), log of absolute difference in latitudes, log of absolute difference in longitudes, number of landlocked countries, number of island countries, log of absolute difference in mean distance to nearest coastline or navigable river (km), absolute difference in percentage of land area in geographical tropics, absolute difference in percentage of land area in geographical subtropics, absolute difference in percentage of land area in geographical polar regions, absolute difference in percentage of land area in geographical boreal regions, absolute difference in percentage of land area in temperate deserts, absolute difference in percentage of land area

[27] On top of the robustness checks that are presented in this section, we also run robustness tests for conflict involvement, role of minorities and differences in GDP per capita of countries. These regressions are not included in the paper, however, previous results on the effect of cultural differences on trade remain the same.

[28] The whole list of continental pair dummies for trade partner countries is as follows: Africa-Africa, Africa-Asia, Africa-Europe, Africa-Oceania, Africa-North America, Africa-South America, Asia-Asia, Asia-Europe, Asia-Oceania, Asia-North America, Asia-South America, Europe-Europe, Europe-Oceania, Europe-North America, Europe-South America, Oceania-Oceania, Oceania-North America, Oceania-South America, North America-North America, North America-South America and South America-South America.

in tropical deserts, absolute difference in percentage of land area in dry regions, absolute difference in percentage of land area in wet regions and absolute difference in log of hydrocarbons per capita.[29]

Inclusion of geographic and climatic controls would allow us to take into account geographic similarities, and this way we better isolate the effect of cultural differences. The results are presented in Table 8. A very persistent negative effect of cultural differences on bilateral trade in the post-Cold War era holds even when we control for a rich set geographic variables. Thus we may conclude that our measures of cultural difference do not capture any effect coming from geographical differences.

6.2 Our Measures of Culture vs. Genetic Distance

Using genetic distance variable as a proxy for cultural distance has recently become a widespread practice among researchers (Giuliano, Spilimbergo and Tonon, 2006; Guiso, Sapienza and Zingales, 2009; Spolaore and Wacziarg, 2009a, 2009b). Moreover, Desmet et al. (2006) provide empirical support for choosing genetic distance as a proxy for cultural differences measured by the World Values Survey. To that end, we would like to test the sensitivity of our measures of culture against genetic distance variable and see how they fare in comparison.

Genetic distance is a summary measure of differences in allele frequencies across a range of neutral genes (or chromosomal loci). Correspondingly, the index constructed measures the genetic variance between populations as a fraction of the total genetic variance. Given that genetic characteristics are transmitted throughout generations at a regular pace, genetic distance is closely linked to the times when two populations shared common ancestors. It is argued that the degree of genetic distance also reflects cultural distance, for culture can be transmitted across genetically related individuals, and therefore populations that are farther apart genealogically show an average tendency toward greater difference in characteristics that are transmitted with variations from parents to children.[30]

In this strand of the literature, for instance, using genetic distance as a measure of cultural

[29] Data on geography and climate come from Gallup, Mellinger and Sachs (2010).

[30] See Cavalli-Sforza and Feldman (1981), Cavalli-Sforza et al. (1994), Giuliano, Spilimbergo and Tonon (2006) and Spolaore and Wacziarg (2009a).

dissimilarity, researchers tried to explain the differences in the level of development across countries (Spolaore and Wacziarg, 2009a), the effect of culture on the likelihood of conflict involvement of country pairs (Spolaore and Wacziarg, 2009b) or the level of trust populations have for each other (Guiso, Sapienza and Zingales, 2009).

Given the above discussion and the importance of genetic distance in recent times, we deem it necessary to establish the robustness of our results to the inclusion of this variable. The genetic distance data we use are from Spolaore and Wacziarg (2009a) as the genetic distance information on populations is mapped onto countries.

We present the results in Table 9. Before contrasting our measures of culture with genetic distance we, first, would like to consider whether genetic distance has any explanatory power in trade relations when we take into account basic determinants of trade barriers and how it changes after the demise of the Cold War. Giuliano, Spilimbergo and Tonon (2006) suggest that the effect captured by genetic distance is geographic barriers, not cultural ones. The authors show that the same geographic determinants that explain transportation costs also explain genetic distance. In addition, they provide evidence that genetic distance in a gravity equation of bilateral trade has no significance once one controls for transportation costs. Having said that, in the first column of Table 9, without including our measures of culture, we regress import flows on genetic distance, its interaction with a post-Cold War dummy and the entire set of control variables. Genetic distance has a significant negative effect on imports, and this impact is much stronger in the post-Cold War period, a finding that supports our previous results.[31]

Subsequently, we carry on with tests of whether our measures of culture survive genetic distance. In column (2) of Table 9 we observe that, in the post-Cold War period, our binary indicator of different civilizations not only maintains its negative sign and high statistical significance, but it also has a sizeable economic magnitude. In columns (3), (4) and (5) we carry out similar exercises for the robustness of different religious, ethnic and linguistic heritage variables to the inclusion of genetic distance variable. In all three cases our measures

[31] We have run the same specification replacing genetic distance with genetic distance in 1500. The conclusion is the same. Taking genetic distance in 1500 as a long run component of cultural distance, the negative effect is much stronger in the post-Cold War period compared to the Cold War period.

of culture do not suffer from the inclusion of genetic distance, and they are significant. That is to say that even after controlling for genetic distance, countries that have different dominant religions, ethnicities or languages trade less with one another than country pairs that share the same values and this effect is much stronger in the post-Cold War period.

All in all, we can confidently conclude from the above analysis that our measures of culture are not sensitive to the inclusion of genetic distance as a proxy for culture. Therefore, if we believe that genetic distance captures an element of culture, our measures of culture explain some additional constituent of it that is not explained by genetic distance.

6.3 Political Proximity or Cultural Proximity?

Political factors and political interests might be an influential constituent of trade flows between countries. Political proximity might facilitate trade agreements and GSP grants or political tension might ignite economic sanctions and protests among consumers. For instance, Michaels and Zhi (2007) show that American-French relations soured due to the opposition of France to the Iraq War in the United Nations Security Council, and this, in turn, led to a reduction in American imports from France by about 15% and a reduction in French imports from US by about 8%.[32] Moreover, Umana Dajud (2013) demonstrates that political differences, measured in various ways, have an impact on economic exchange and that politically proximate countries trade more. Given the aforementioned findings in the literature on political proximity and trade, in this section we would like to test whether the effect our measures of cultural dissimilarity capture is due to political proximity or political distance.

Political proximity, measured as correlations of votes at the United Nations General Assembly, has shown to positively impact bilateral trade (Umana Dajud, 2013). On the other hand, it is well established that democratic countries trade more, as promoted by the liberal peace argument (see, for instance, Bliss and Russett, 1998; Yu, 2010). Umana Dajud (2013) also shows that more distant countries on the democracy/autocracy axis trade less. Furthermore, Long (2003) and Morrow et al. (1998) provide evidence that countries in mutual

[32] Another example is the repudiation of GSP (generalized system of preferences) grants to Laos, Myanmar and Sudan by the US due to political accounts (Sekkel, 2009).

security alliances and defense pacts have increased levels of trade. On these grounds, we bring United Nations voting correlations, regime distance and security alliances into the analysis.

Erik Gartzke created The Affinity of Nations Index based on the United Nations General Assembly roll-call data.[33] This index takes values between -1 and 1 for the correlation of votes between countries at the United Nations General Assembly over the period 1948-2006.[34] In addition, we create a variable of political distance based on the democracy scores from the Polity IV project. We measure the extent of democracy using the 21-point institutionalized democracy scale in a modified version of the Polity IV data, where -10 means a hereditary monarchy and +10 a consolidated democracy. As in Umana Dajud (2013), we generate a variable labelled "Regime Difference," which equals the absolute value of the difference between two countries' Polity IV democracy/autocracy scores. Lastly, we control for the security alliances of countries, as allied states often have political and economic interests in common (Russet et al., 2000). To control for the influence of alliances on trade, we include a dummy variable for whether a pair of countries are in an alliance.[35]

In Table 10, we present results when UN vote correlations, regime differences and security alliances are taken into account as a measure of political proximity or political distance. Previous findings on the effect of cultural dissimilarity on trade carry over. The negative effect of cultural dissimilarity on trade is much stronger in the post-Cold War period, and the negative impact of cultural dissimilarity on trade during the Cold War seems to disappear when political variables are controlled for. Moreover, political proximity promotes trade, and politically more distant regimes trade less; this finding confirms Umana Dajud (2013).

6.4 Zero Flows

6.4.1 Heckman Procedure

The question of how to deal with zero trade flows has generated an on-going debate in the literature. The most common strategy for bypassing the zero-flow problem is to drop all zero-

[33] Available at http://dss.ucsd.edu/~egartzke/htmlpages/data.html
and at http://www9.georgetown.edu/faculty/ev42/UNVoting.htm.
[34] -1 corresponds to least similar interests and 1 corresponds to most similar interests.
[35] Alliances data are Version 3.03 from Correlates of War Project (Gibler, 2009).

flow observations. For instance, Linders and de Groot (2006) show that such a simple solution often leads to acceptable results. Alternatively, many researchers opt to add some arbitrary number to trade flows so that the logarithm of zero-flows is included in the sample. However, this approach might lead to biased results, as the choice of constant-to-be-added is neither theoretically nor empirically justified (Linders and de Groot, 2006). In fact, King (1988) shows that you can produce any estimate you prefer by playing around with the constant-to-be-added. Recently, some researchers moved away from OLS to non-linear estimators. The most commonly suggested ones in this family are the Poisson Pseudo-Maximum-Likelihood (PPML) estimator and modified PPML estimators (Santos Silva and Tenreyro, 2006). However, Martin and Pham (2008) show that PPML might result in biased estimates in the presence of frequent zero flows, and they propose that the threshold Tobit estimator á la Eaton and Tamura (1994) and the Heckman selection model perform better. So far in this debate, the Heckman selection model seems to be the most preferred method of dealing with zero trade flows, especially after the contribution by Helpman et al. (2008).

Therefore, as in Helpman et al. (2008), we apply the Heckman two-step selection method. The Heckman model introduces in the specification the inverse of the so-called Mills ratio in order to account for possible biases due to the omission of zero trade flows (Heckman, 1979). In a first step selection equation, a Probit model is estimated to identify trading and non-trading countries. In the second step, the inverse of the Mills ratio from the first stage is included into the estimation so as to correct for selection bias.

We present the results from the Heckman model both with and without exclusion restrictions in Table 11. In Panel A of Table 11, the Heckman procedure with no exclusion restrictions is provided (as in Linders and de Groot, 2006). In Panel B of Table 11, on the other hand, we use the number of islands in the pair as an exclusion restriction (as in Martínez-Zarzoso, 2013). Results show that, both with and without exclusion restrictions, our previous findings hold. The trade-dampening impact of cultural dissimilarity is much more pronounced in the post-Cold War era than during the Cold War, although, now the magnitudes are smaller than the baseline case.

6.4.2 Inverse Hyperbolic Sine Transformation

Adding an ad hoc constant to imports in the log function is a common practice that renders each observation positive. Instead, in this subsection we opt for an alternative transformation function, namely inverse hyperbolic sine transformation. Although this method is widely used in household literature, its benefits remained rather underutilized in the empirical gravity literature.[36] Inverse hyperbolic sine transformation is an easy-to-apply method that is defined for any real number and formally defined as: $\sinh^{-1}(x) = \log(x + (x^2 + 1)^{1/2})$ (see Burbidge et al., 1988). Burbidge et al. (1988) shows that inverse hyperbolic sine transformation is a viable alternative to log transformation when the dependent variable can take on zero values. We apply this transformation to import flows so that the log function is defined for the zero values of the dependent variable as well.[37] Moreover, this way we refrain from adding the same ad hoc constant to each observation of import flows. Instead, each value to be added to the dependent variable changes and is determined by the dependent variable itself. The beauty of the inverse hyperbolic sine transformation is that it behaves exactly like log-transformation, while it is also defined at zero values.

Results with the new transformed dependent variable that includes zero import flows are presented in Table 12. The previous findings are qualitatively confirmed. Although in most cases the magnitudes are reduced now with respect to the baseline results in Table 4, the direction of the results do not change and they remain economically significant. The negative impact of cultural dissimilarity on bilateral trade flows is much more punctuated in the post-Cold War period than during the Cold War.

6.4.3 Extensive Margin

Now we look into whether cultural variables affect the extensive margin of trade rather than the intensive margin of trade. We use a positive trade indicator as a dependent variable, which takes one whenever imports from i to j are positive and zero if there is no trade. This way we take into account all zero-trade flow observations. Table 13 presents the results from a probit

[36] For instance, see Pence (2006).

[37] For an example of inverse hyperbolic sine transformation in gravity models, see Kristjánsdóttir (2012).

model for three time periods: the entire sample period of 1950-2006, the Cold War period and the post-Cold War period. We observe that, for any measure, cultural differences reduce the probability of trade. Therefore, cultural differences do not only impact the intensive margin of trade but also the extensive margin of trade. Moreover, the reduction in the likelihood of trade due to cultural dissimilarity is much larger in the post-Cold War era than in the Cold War era. As such, our results on the more negative effect of culture on trade in the post-Cold War period are also confirmed on the extensive margin of trade.

We incorporated the two-step Heckman procedure, inverse hyperbolic sine transformation and a probit model of positive trade into the analysis in order to account for zero trade flows. Consequently, we can conclude that our results are robust and are not driven by the omission of zero trade flows from the estimation analysis.

6.5 Dynamic Gravity Equation

In this subsection we include lagged imports as an independent variable in the regressions. Countries with historically strong trade relations can be expected to continue trading in the following periods for reasons that are not captured by the explanatory variables, and these unobserved dyadic linkages would end up in the error term.[38] Therefore, we incorporate lagged imports into the estimation analysis so that slowly-evolving unobserved elements that impact trade relations are controlled for. The results are in Table 14. We see that lagged values of log imports have a big and significant impact on current imports with a coefficient of about 0.8 and the size of this coefficient is consistent with Head et al. (2010) and Umana Dajud (2013).[39] The interpretation of the coefficients on the cultural difference variables is analogous to previous findings. The impact of cultural differences on trade is adverse, and this influence is much greater in the post-Cold War period than in the Cold War period. Notice that the coefficients are much smaller now, although the interpretations remain the same.

[38] For instance, sunk costs of entering a particular market and consumers' habits and tastes for products from past trade partners could be examples of such unobserved terms (Martínez-Zarzoso et al. 2009).

[39] By including a lagged endogenous variable on the right-hand side one also brings about endogeneity problems, as the lagged endogenous variable is going to be correlated with the error terms. We run an alternative exercise to cure such problems, as in Martínez-Zarzoso et al. (2009), and carry dynamic panel system GMM estimations using second to fourth lags of the dependent variable as instruments (see Blundell and Bond, 1998). Previous results carry over and are consistent with those in Martínez-Zarzoso et al. (2009).

6.6 Principal Component Analysis

Finally, we construct a synthetic measure of cultural difference from the principal components of the underlying determinants of a latent variable of cultural difference.[40] One might think that when all of the measures of cultural difference are included together the estimates are not very precise, since all four measures are correlated. On the other hand, if they are included in the regression separately, then other elements of culture are ignored. In such a scenario the estimates might be capturing these other elements, which would render them imprecise. Thus we create a variable labelled "Cultural Difference" from the largest principal component as a linear combination of our four measures of cultural difference. The first principal component is taken as it explains the largest ratio of the variance in the underlying data. Then, the new variable of cultural difference is created as a weighted average of four variables of cultural difference with the loadings of the first principal component as weights:

$$\begin{aligned} \textit{Cultural Difference} &= 0.5416 \cdot N(\textit{Different Civilizations}) \\ &\quad +0.4351 \cdot N(\textit{Different Religion}) \\ &\quad +0.4642 \cdot N(\textit{Different Ethnicity}) \\ &\quad +0.5495 \cdot N(\textit{Different Language}) \end{aligned}$$

where $N(\cdot)$ is a function of standard normalization. Cultural difference variable will be lowest when the two countries belong to the same civilization, same religion, same ethnicity and same language.[41] Cultural difference variables will be highest when the two countries have different civilizations, religions, ethnicities and languages.[42] The correlation coefficients of the cultural difference variable are as follows: with different civilizations 0.76, with different religions 0.61, with different ethnicities 0.65 and with different languages 0.78.

The results with the new variable of cultural difference are in Table 15. In the first column, we show the negative impact of cultural difference on trade over the entire sample period. In

[40] For an example of principal component analysis in the context of gravity models of trade, see Blomberg and Hess (2006).

[41] For example, United States-United Kingdom pair, Guatemala-Bolivia pair or Sierra Leone-Tanzania pair.

[42] For example, Kenya-Japan pair, Bulgaria-Libya pair or Israel-Sri Lanka pair.

the second column, we show how this effect is much stronger in the post-Cold War period. In column (3), we additionally control for language indicator, though correlated, to show that even when the communication channel is controlled for, the effect of cultural difference is still persistent. In the last column, we again contrast the evolution of cultural difference with that of different blocs, and previous results and interpretations carry over.

7 Conclusion

This paper first establishes the negative link between cultural dissimilarity and bilateral imports of countries. However, the main novelty of this study is to test Huntington's *Clash of Civilizations* hypothesis from an economic perspective. We study the dynamics of the effect of cultural dissimilarity on trade and show that the negative effect of cultural difference on trade is stronger in the post-Cold War period than in the Cold War period.

More specifically, by estimating a theory-based gravity model of international trade and by using measures capturing different aspects of culture, we show that cultural differences between countries is a larger barrier to trade in the post-Cold War period than it is in the Cold War period. For instance, two countries with distinct religious majorities have 35% lower bilateral import flows during the post-Cold War period compared to those countries sharing the same majority religion, whereas this negative effect is less than half, 16%, during the Cold War. Alternatively, when the two trading partners do not share the same dominant ethnicity, their imports are reduced by 27% during the Cold War, whereas in the post-Cold War epoch they trade 51% less than a pair of countries that share these values.

Furthermore, we provide an explanation for the differential impact of cultural dissimilarity over time. By mapping out the transition of the effects of cultural and ideological dissimilarities, we find that cold-war ideological blocs could be the reason for the suppression of cultural differences. And that is why cultural differences come to the forefront as a trade barrier only in the post-Cold War period, after the demise of ideological rivalries.

Unstable trade relations might be a source of concern for policy makers. This paper highlights a threat to the world trade system as found in cultural differences. Clashes are

generated by psychological notions of in-group/out-group and notions of identity, especially group identity. If this is an emergent phenomenon, then we might observe a shift in the behavior of the mass of individual economic actors via considerations of cultural and ideological identity. Such a destabilizing phenomenon at a global scale needs better understanding. A natural line of further investigation would be to look in more detail at the causes underneath the evolution of the impact of cultural dissimilarity. More disaggregated trade flows data, for example, could shed some more light on this question by showing which components of trade and what types of goods drive the findings. Also, the role minorities play could be worth investigating.

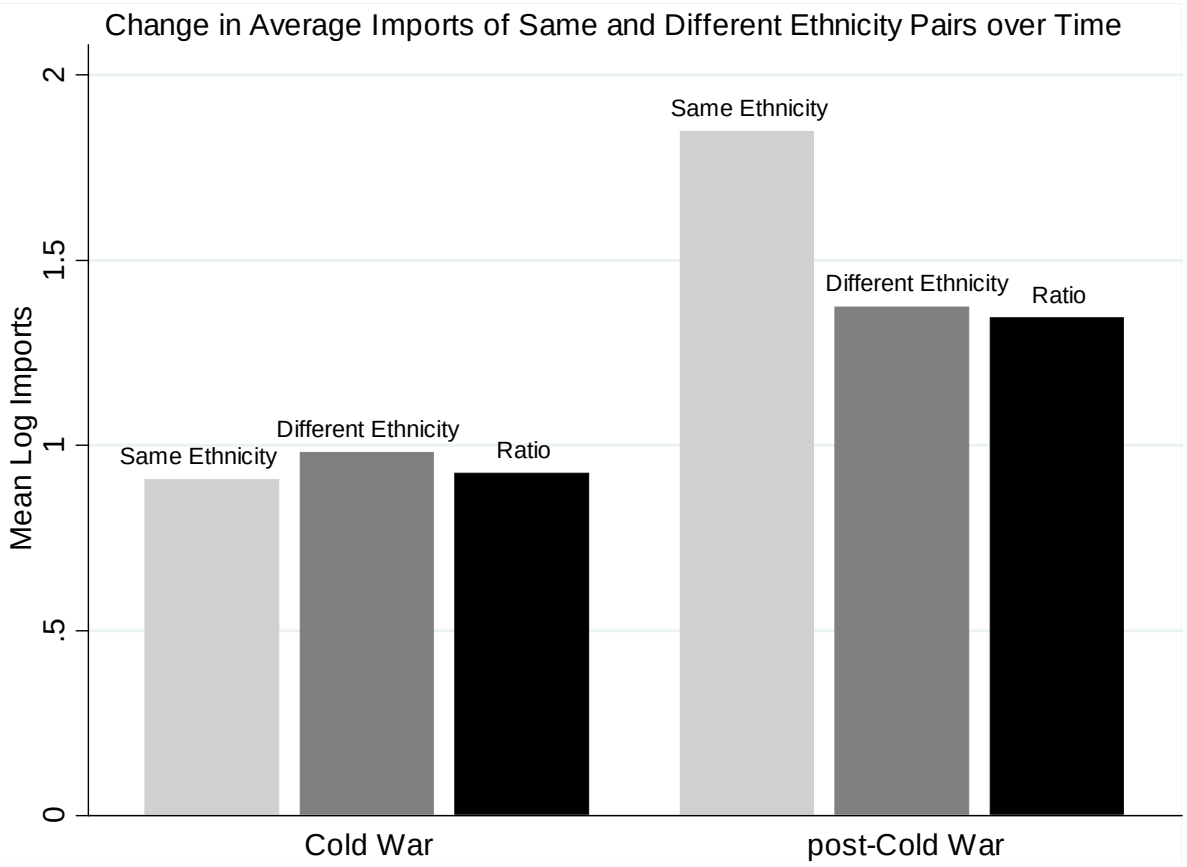

Figure 1: Evolution of Mean Log Imports over the Cold War and the post-Cold War Periods for Different and Same Ethnicity Country Pairs. Ratio is the ratio of mean log imports of same ethnicity pairs to that of different ethnicity pairs. Mean of log imports for same ethnicity pairs over the Cold War=0.907. Mean of log imports for different ethnicity pairs over the Cold War=0.981. Mean of log imports for same ethnicity pairs over the post-Cold War=1.848. Mean of log imports for different ethnicity pairs over the post-Cold War=1.373.

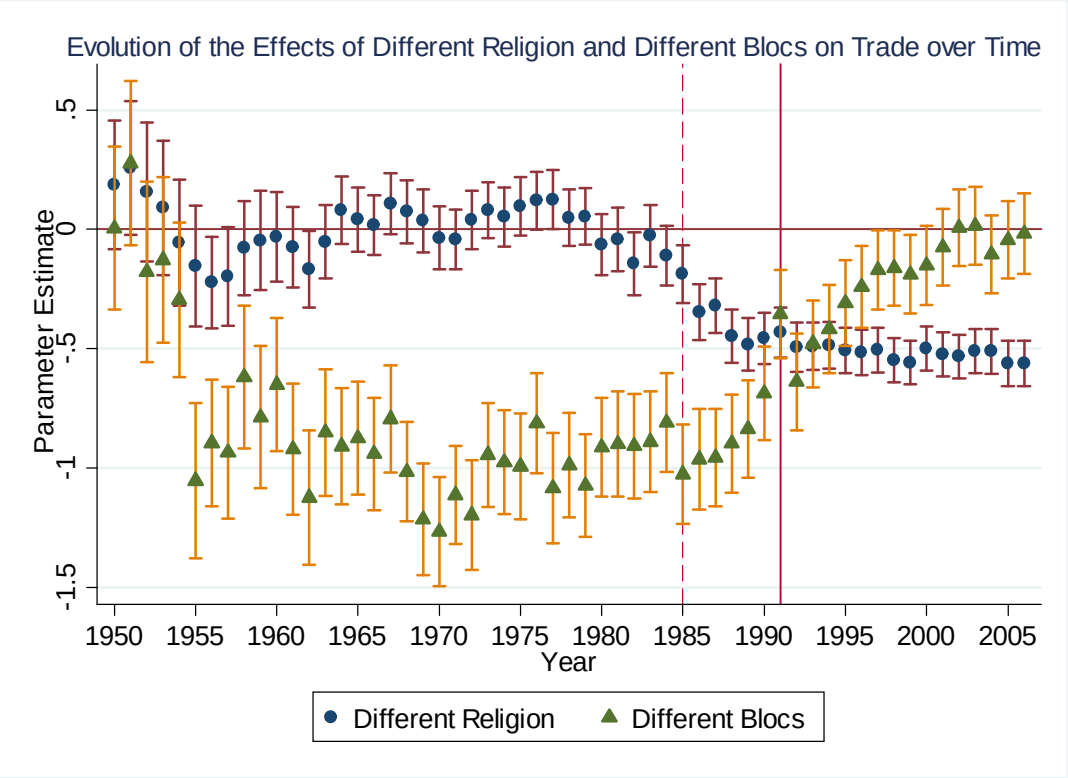

Figure 2: Parameter Estimates and 95% Confidence Bands of Different Religion and Different Blocs Variables Throughout Years. The values are from the following regression specification. Regressand: log Imports. Other Regressors: ln Distance, Contiguity, Colonial Link, Same Country, Common Colonizer, Same Legal Origin, FTA, Both in WTO, Common Currency, GSP and time-varying importing country and exporting country fixed effects.

Table 1: Correlation Coefficients

	Log Imports	Different Civilizations	Different Religion	Different Ethnicity
Different Civilizations	-0.106*			
Different Religion	-0.052*	0.393*		
Different Ethnicity	-0.008*	0.237*	0.124*	
Different Language	-0.041*	0.400*	0.207*	0.404*

* Significant at the 5% level or better.

Table 2: Impact of Culture on Bilateral Trade, Alternative Measures of Culture

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Different Civilizations	-0.227***				-0.111***			-0.004
	(0.035)				(0.037)			(0.040)
Different Religion		-0.293***				-0.233***		-0.231***
		(0.031)				(0.032)		(0.035)
Different Ethnicity			-0.491***				-0.256***	-0.252***
			(0.080)				(0.080)	(0.080)
Different Language				-0.626***	-0.561***	-0.550***	-0.541***	-0.465***
				(0.064)	(0.068)	(0.066)	(0.066)	(0.070)
ln Distance	-0.980***	-1.000***	-0.999***	-0.978***	-0.961***	-0.965***	-0.971***	-0.958***
	(0.024)	(0.022)	(0.023)	(0.023)	(0.024)	(0.023)	(0.023)	(0.024)
Contiguity	0.399***	0.390***	0.396***	0.397***	0.392***	0.381***	0.390***	0.374***
	(0.071)	(0.072)	(0.070)	(0.069)	(0.069)	(0.070)	(0.069)	(0.069)
Colonial Link	1.166***	1.149***	1.171***	1.066***	1.077***	1.065***	1.082***	1.081***
	(0.077)	(0.076)	(0.076)	(0.077)	(0.077)	(0.077)	(0.077)	(0.077)
Same Country	0.794***	0.807***	0.807***	0.752***	0.757***	0.768***	0.765***	0.781***
	(0.119)	(0.120)	(0.121)	(0.119)	(0.119)	(0.120)	(0.121)	(0.121)
Common Colonizer	0.540***	0.515***	0.531***	0.537***	0.532***	0.508***	0.527***	0.499***
	(0.063)	(0.063)	(0.063)	(0.062)	(0.062)	(0.062)	(0.062)	(0.062)
Same Legal Origin	0.335***	0.348***	0.341***	0.304***	0.303***	0.311***	0.308***	0.315***
	(0.028)	(0.028)	(0.028)	(0.028)	(0.028)	(0.028)	(0.028)	(0.027)
FTA	0.362***	0.392***	0.415***	0.410***	0.386***	0.395***	0.412***	0.397***
	(0.062)	(0.063)	(0.062)	(0.061)	(0.062)	(0.062)	(0.061)	(0.062)
Both in WTO	0.264***	0.261***	0.259***	0.226***	0.206***	0.186***	0.204***	0.165***
	(0.056)	(0.057)	(0.055)	(0.055)	(0.055)	(0.055)	(0.054)	(0.054)
Common Currency	0.643***	0.638***	0.665***	0.697***	0.689***	0.682***	0.699***	0.683***
	(0.086)	(0.086)	(0.086)	(0.087)	(0.087)	(0.087)	(0.087)	(0.087)
GSP	0.600***	0.546***	0.536***	0.568***	0.597***	0.574***	0.564***	0.572***
	(0.042)	(0.042)	(0.042)	(0.042)	(0.042)	(0.041)	(0.042)	(0.042)
Importer-Year Effects	YES	YES	YES	YES	YES	YES	YES	YES
Exporter-Year Effects	YES	YES	YES	YES	YES	YES	YES	YES
N	385379	385379	385379	385379	385379	385379	385379	385379
R^2	0.717	0.718	0.718	0.718	0.719	0.719	0.719	0.719

Regressand: log Imports. Robust standard errors (clustered at the country-pair level) are in parentheses.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 3: Impact of Culture on Trade: Cold War vs. post-Cold War Comparisons

	(1) Cold War	(2) post-Cold War	(3) Chow P-value
Different Civilizations	-0.038	-0.514***	0.000
	(0.040)	(0.040)	
Different Religion	-0.177***	-0.435***	0.000
	(0.037)	(0.037)	
Different Ethnicity	-0.324***	-0.715***	0.000
	(0.090)	(0.086)	
Different Language	-0.336***	-1.062***	0.000
	(0.072)	(0.070)	
Additional Controls	YES	YES	
Importer-Year Effects	YES	YES	
Exporter-Year Effects	YES	YES	

Each cell of a row reports the coefficient of a cultural variable of interest from a separate regression in the two respective time periods. Regressand: log Imports. Regressors included but with unrecorded coefficients: ln Distance, Contiguity, Colonial Link, Same Country, Common Colonizer, Same Legal Origin, FTA, Both in WTO, Common Currency, GSP and time-varying importing and exporting country fixed effects. Robust standard errors (clustered at the country-pair level) are in parentheses. Number of observations: Cold War=226292; post-Cold War=159087.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 4: Impact of Culture in the post-Cold War

	(1)	(2)	(3)	(4)
Different Civilizations	0.064			
	(0.038)			
Different Civilizations×Post-Cold War	-0.690***			
	(0.033)			
Different Religion		-0.104***		
		(0.036)		
Different Religion×Post-Cold War		-0.421***		
		(0.040)		
Different Ethnicity			-0.187**	
			(0.089)	
Different Ethnicity×Post-Cold War			-0.746***	
			(0.076)	
Different Language				-0.207***
				(0.071)
Different Language×Post-Cold War				-1.040***
				(0.060)
Additional Controls	YES	YES	YES	YES
Importer-Year Effects	YES	YES	YES	YES
Exporter-Year Effects	YES	YES	YES	YES
N	385379	385379	385379	385379
R^2	0.719	0.718	0.718	0.719

Regressand: log Imports. Regressors included but with unrecorded coefficients: ln Distance, Contiguity, Colonial Link, Same Country, Common Colonizer, Same Legal Origin, FTA, Both in WTO, Common Currency, GSP and time-varying importing and exporting country fixed effects. Robust standard errors (clustered at the country-pair level) are in parentheses.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 5: Tariff Equivalent Costs of Cultural Barriers to Trade

	Cold War			post-Cold War		
	(1)	(2)	(3)	(4)	(5)	(6)
	σ=5	σ=8	σ=10	σ=5	σ=8	σ=10
Different Civilizations	0.95	0.54	0.42	13.71	7.61	5.87
Different Religion	4.52	2.56	1.98	11.48	6.41	4.95
Different Ethnicity	8.43	4.73	3.66	19.57	10.75	8.26
Different Language	8.76	4.91	3.80	30.40	16.38	12.52

See Table 3. The results in this table are based on the estimates from Table 3.

Table 6: Culture vs. Ideology

	(1)	(2)	(3)	(4)
Different Civilizations	0.047			
	(0.038)			
Different Civilizations×Post-Cold War	-0.671***			
	(0.033)			
Different Religion		-0.103***		
		(0.036)		
Different Religion×Post-Cold War		-0.418***		
		(0.039)		
Different Ethnicity			-0.225**	
			(0.089)	
Different Ethnicity×Post-Cold War			-0.709***	
			(0.077)	
Different Language				-0.242***
				(0.071)
Different Language×Post-Cold War				-1.011***
				(0.059)
Different Blocs	-0.868***	-0.883***	-0.892***	-0.894***
	(0.067)	(0.068)	(0.067)	(0.067)
Different Blocs×Post-Cold War	0.653***	0.699**	0.669***	0.649***
	(0.076)	(0.078)	(0.078)	(0.078)
Additional Controls	YES	YES	YES	YES
Importer-Year Effects	YES	YES	YES	YES
Exporter-Year Effects	YES	YES	YES	YES
N	385379	385379	385379	385379
R^2	0.720	0.719	0.719	0.721
$F-Stat$ Culture=Blocs in CW	140.68	101.73	34.95	43.93
$F-Stat$ Culture=Blocs in post-CW	258.11	163.81	161.48	287.80

Regressand: log Imports. Regressors included but with unrecorded coefficients: ln Distance, Contiguity, Colonial Link, Same Country, Common Colonizer, Same Legal Origin, FTA, Both in WTO, Common Currency, GSP and time-varying importing and exporting country fixed effects. Robust standard errors (clustered at the country-pair level) are in parentheses.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 7: Effect of Religion on Trade, Triple Interaction with Same Bloc and post-Cold War

	A: Triple Interaction
Different Religion	-0.122***
	(0.037)
Same Bloc	-0.014
	(0.073)
Different Religion×Same Bloc	0.351***
	(0.106)
Different Religion×Post-Cold War	-0.409***
	(0.040)
Same Bloc×Post-Cold War	0.046
	(0.065)
Different Religion×Same Bloc×Post-Cold War	-0.119
	(0.103)
Additional Controls	YES
Importer-Year Effects	YES
Exporter-Year Effects	YES
N	385379
R^2	0.718

B: Composite Effect of Different Religion

	Cold War	post-Cold War
Same Bloc	0.229**	-0.299***
	(0.106)	(0.103)
Different Blocs	-0.122***	-0.531***
	(0.037)	(0.037)

Panel A: Reports regression of log Imports on triple interaction of Different Religion, Same Bloc and Post-Cold War variables. Regressand: log Imports. Regressors included but with unrecorded coefficients: ln Distance, Contiguity, Colonial Link, Same Country, Common Colonizer, Same Legal Origin, FTA, Both in WTO, Common Currency, GSP and time-varying importing and exporting country fixed effects. Robust standard errors (clustered at the country-pair level) are in parentheses.

Panel B: Reports composite effect of Different Religion on trade for same-bloc and different-bloc pairs over the Cold War and the post-Cold War periods. Computations based on Panel A regression.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 8: Culture vs. Geography

	(1)	(2)	(3)	(4)
Different Civilizations	0.165			
	(0.046)			
Different Civilizations×Post-Cold War	-0.673***			
	(0.035)			
Different Religion		-0.040		
		(0.045)		
Different Religion×Post-Cold War		-0.429***		
		(0.042)		
Different Ethnicity			-0.055	
			(0.087)	
Different Ethnicity×Post-Cold War			-0.732***	
			(0.081)	
Different Language				-0.091
				(0.079)
Different Language×Post-Cold War				-1.003***
				(0.065)
Continental Pair Dummies	YES	YES	YES	YES
Log Abs. Diff. in Elevation	YES	YES	YES	YES
Log Abs. Diff. in Latitudes	YES	YES	YES	YES
Log Abs. Diff. in Longitudes	YES	YES	YES	YES
# Landlocked Countries	YES	YES	YES	YES
# Island Countries	YES	YES	YES	YES
Log Abs. Diff. in Distance to Coast	YES	YES	YES	YES
Abs. Dif. in Tropical Land Percentage	YES	YES	YES	YES
Abs. Dif. in Subtropical Land Percentage	YES	YES	YES	YES
Abs. Dif. in Polar Land Percentage	YES	YES	YES	YES
Abs. Dif. in Boreal Land Percentage	YES	YES	YES	YES
Abs. Dif. in Temperate Desert Percentage	YES	YES	YES	YES
Abs. Dif. in Tropical Desert Percentage	YES	YES	YES	YES
Abs. Dif. in Dry Land Percentage	YES	YES	YES	YES
Abs. Dif. in Wet Land Percentage	YES	YES	YES	YES
Abs. Dif. in Log Hydrocarbons Per Capita	YES	YES	YES	YES
Additional Controls	YES	YES	YES	YES
Importer-Year Effects	YES	YES	YES	YES
Exporter-Year Effects	YES	YES	YES	YES
N	330136	330136	330136	330136
R^2	0.740	0.739	0.739	0.740

Regressand: log Imports. Additional Controls: ln Distance, Contiguity, Colonial Link, Same Country, Common Colonizer, Same Legal Origin, FTA, Both in WTO, Common Currency, GSP and time-varying importing and exporting country fixed effects. Robust standard errors (clustered at the country-pair level) are in parentheses.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 9: Do Our Measures of Culture Survive Genetic Distance?

	(1)	(2)	(3)	(4)	(5)
Different Civilizations		0.083**			
		(0.039)			
Different Civilizations×Post-Cold War		-0.661***			
		(0.035)			
Different Religion			-0.121***		
			(0.037)		
Different Religion×Post-Cold War			-0.414***		
			(0.041)		
Different Ethnicity				-0.173*	
				(0.090)	
Different Ethnicity×Post-Cold War				-0.607***	
				(0.080)	
Different Language					-0.228***
					(0.071)
Different Language×Post-Cold War					-0.952***
					(0.061)
Genetic Distance	-0.00009***	-0.00012***	-0.00010***	-0.00008***	-0.00010***
	(0.00002)	(0.00002)	(0.00002)	(0.00002)	(0.00002)
Genetic Distance×Post-Cold War	-0.00018***	-0.00005**	-0.00017***	-0.00014***	-0.00013***
	(0.00002)	(0.00002)	(0.00002)	(0.00002)	(0.00002)
Additional Controls	YES	YES	YES	YES	YES
Importer-Year Effects	YES	YES	YES	YES	YES
Exporter-Year Effects	YES	YES	YES	YES	YES
N	382002	382002	382002	382002	382002
R^2	0.718	0.720	0.720	0.719	0.721

Regressand: log Imports. Regressors included but with unrecorded coefficients: ln Distance, Contiguity, Colonial Link, Same Country, Common Colonizer, Same Legal Origin, FTA, Both in WTO, Common Currency, GSP and time-varying importing and exporting country fixed effects. Robust standard errors (clustered at the country-pair level) are in parentheses.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 10: Culture vs. Political Proximity

	(1)	(2)	(3)	(4)
Different Civilizations	0.190***			
	(0.041)			
Different Civilizations×Post-Cold War	-0.739***			
	(0.035)			
Different Religion		-0.042		
		(0.038)		
Different Religion×Post-Cold War		-0.367***		
		(0.039)		
Different Ethnicity			-0.018	
			(0.091)	
Different Ethnicity×Post-Cold War			-0.756***	
			(0.083)	
Different Language				0.029
				(0.078)
Different Language×Post-Cold War				-0.973***
				(0.064)
UN Correlation	0.152***	0.178***	0.218***	0.230***
	(0.053)	(0.053)	(0.053)	(0.053)
Regime Difference	-0.005***	-0.002*	-0.004***	-0.003**
	(0.001)	(0.001)	(0.001)	(0.001)
Alliance	0.425***	0.391***	0.412***	0.337***
	(0.049)	(0.049)	(0.049)	(0.052)
Additional Controls	YES	YES	YES	YES
Importer-Year Effects	YES	YES	YES	YES
Exporter-Year Effects	YES	YES	YES	YES
N	355227	355227	355227	355227
R^2	0.726	0.725	0.724	0.725

Regressand: log Imports. Regressors included but with unrecorded coefficients: ln Distance, Contiguity, Colonial Link, Same Country, Common Colonizer, Same Legal Origin, FTA, Both in WTO, Common Currency, GSP and time-varying importing and exporting country fixed effects. Robust standard errors (clustered at the country-pair level) are in parentheses.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 11: Zero Trade Flows, Heckman Two-Step Selection Model, Cold War vs. post-Cold War Comparisons

	A: Heckman without exclusion restrictions	
	(1)	(2)
	Cold War	post-Cold War
Different Civilizations	0.083	-0.285***
	(0.050)	(0.053)
Different Religion	-0.075*	-0.310***
	(0.044)	(0.046)
Different Ethnicity	-0.298***	-0.680***
	(0.090)	(0.086)
Different Language	-0.238***	-0.892***
	(0.082)	(0.079)
	B: Heckman with exclusion restrictions	
	(1)	(2)
	Cold War	post-Cold War
Different Civilizations	0.081	-0.288***
	(0.050)	(0.052)
Different Religion	-0.076*	-0.313***
	(0.044)	(0.046)
Different Ethnicity	-0.299***	-0.682***
	(0.090)	(0.086)
Different Language	-0.238***	-0.897***
	(0.082)	(0.080)
Additional Controls	YES	YES
Importer-Year Effects	YES	YES
Exporter-Year Effects	YES	YES

Regressand: Log Imports. Regressors included but with unrecorded coefficients: ln Distance, Contiguity, Colonial Link, Same Country, Common Colonizer, Same Legal Origin, FTA, Both in WTO, Common Currency, GSP and time-varying importing and exporting country fixed effects. Exclusion restriction is the number of islands in the pair. Robust standard errors (clustered at the country-pair level) are in parentheses. Number of observations: Cold War=226292; post-Cold War=159087.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 12: Zero Trade Flows, Inverse Hyperbolic Sine Transformation

	(1)	(2)	(3)	(4)
Different Civilizations	-0.018			
	(0.028)			
Different Civilizations×Post-Cold War	-0.517***			
	(0.024)			
Different Religion		-0.042		
		(0.027)		
Different Religion×Post-Cold War		-0.319***		
		(0.029)		
Different Ethnicity			-0.144**	
			(0.068)	
Different Ethnicity×Post-Cold War			-0.583***	
			(0.061)	
Different Language				-0.105**
				(0.053)
Different Language×Post-Cold War				-0.832***
				(0.047)
Additional Controls	YES	YES	YES	YES
Importer-Year Effects	YES	YES	YES	YES
Exporter-Year Effects	YES	YES	YES	YES
N	425240	425240	425240	425240
R^2	0.749	0.748	0.748	0.749

Regressand: Inverse Hyperbolic Sine Transformation of Imports. Regressors included but with unrecorded coefficients: ln Distance, Contiguity, Colonial Link, Same Country, Common Colonizer, Same Legal Origin, FTA, Both in WTO, Common Currency, GSP and time-varying importing and exporting country fixed effects. Robust standard errors (clustered at the country-pair level) are in parentheses.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 13: Zero Trade Flows: Extensive Margin of Trade and Culture, Probit

	(1) Entire Sample	(2) Cold War	(3) post-Cold War
Different Civilizations	-0.0085***	-0.0063***	-0.0105***
	(0.0008)	(0.0009)	(0.001)
Different Religion	-0.0027***	-0.0002	-0.0060***
	(0.0009)	(0.002)	(0.001)
Different Ethnicity	-0.0060***	-0.0038**	-0.0069***
	(0.001)	(0.0015)	(0.001)
Different Language	-0.0096***	-0.0052***	-0.0123***
	(0.001)	(0.001)	(0.001)

Each cell of a row reports the coefficient of a cultural variable of interest from a separate regression in the respective time period. Regressand: Imports Dummy. Regressors included but with unrecorded coefficients: ln Distance, Contiguity, Colonial Link, Same Country, Common Colonizer, Same Legal Origin, FTA, Both in WTO, Common Currency, GSP, importer fixed effects, exporter fixed effects and time fixed effects. Marginal effects are reported. Robust standard errors (clustered at the country-pair level) are in parentheses. Number of observations: Entire Sample=425240; Cold War=233856; post-Cold War=170439.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 14: Dynamic Panel Estimation

	(1)	(2)	(3)	(4)
Different Civilizations	0.012			
	(0.008)			
Different Civilizations×Post-Cold War	-0.140***			
	(0.008)			
Different Religion		-0.010		
		(0.008)		
Different Religion×Post-Cold War		-0.093***		
		(0.010)		
Different Ethnicity			-0.038**	
			(0.018)	
Different Ethnicity×Post-Cold War			-0.147***	
			(0.017)	
Different Language				-0.055***
				(0.015)
Different Language×Post-Cold War				-0.189***
				(0.014)
Log Imports $(t-1)$	0.801***	0.802***	0.802***	0.801***
	(0.002)	(0.002)	(0.002)	(0.002)
Additional Controls	YES	YES	YES	YES
Importer-Year Effects	YES	YES	YES	YES
Exporter-Year Effects	YES	YES	YES	YES
N	352755	352755	352755	352755
R^2	0.900	0.900	0.900	0.900

Regressand: log Imports. Regressors included but with unrecorded coefficients: ln Distance, Contiguity, Colonial Link, Same Country, Common Colonizer, Same Legal Origin, FTA, Both in WTO, Common Currency, GSP and time-varying importing and exporting country fixed effects. Robust standard errors (clustered at the country-pair level) are in parentheses.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 15: Principal Component Analysis of Cultural Difference

	(1)	(2)	(3)	(4)
Cultural Difference	-0.131***	-0.037***	-0.004	-0.044***
	(0.011)	(0.013)	(0.017)	(0.013)
Cultural Difference×Post-Cold War		-0.220***	-0.222***	-0.214***
		(0.010)	(0.010)	(0.010)
Different Blocs				-0.886***
				(0.067)
Different Blocs×Post-Cold War				0.643***
				(0.077)
Different Language			-0.239***	
			(0.089)	
Additional Controls	YES	YES	YES	YES
Importer-Year Effects	YES	YES	YES	YES
Exporter-Year Effects	YES	YES	YES	YES
N	385379	385379	385379	385379
R^2	0.719	0.720	0.721	0.722

Regressand: log Imports. Regressors included but with unrecorded coefficients: ln Distance, Contiguity, Colonial Link, Same Country, Common Colonizer, Same Legal Origin, FTA, Both in WTO, Common Currency, GSP and time-varying importing and exporting country fixed effects. In column (3), different language indicator is additionally controlled for. Robust standard errors (clustered at the country-pair level) are in parentheses.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Appendix A

TABLE 1A. Civilization Membership

Civilization	Country
Western	Andorra, Australia, Austria, Barbados, Belgium, Canada, Croatia, Czech Rep., Denmark, Dominica, Estonia, Finland, France, French Guiana, Germany, Greenland, Grenada, Hungary, Iceland, Ireland, Israel, Italy, Jamaica, Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, Monaco, Netherlands, New Zealand, Norway, Papua New Guinea, Philippines, Poland, Portugal, San Marino, Slovakia, Slovenia, Solomon Islands, Spain, Sweden, Switzerland, Trinidad and Tobago, United Kingdom, United States, Vanuatu.
Sinic	China, Hong Kong, North Korea, South Korea, Taiwan, Vietnam.
Islamic	Afghanistan, Albania, Algeria, Azerbaijan, Bahrain, Bangladesh, Bosnia and Herzegovina, Brunei, Burkina Faso, Chad, Djibouti, Egypt, Eritrea, Gambia, Guinea, Guinea-Bissau, Indonesia, Iran, Iraq, Jordan, Kyrgyzstan, Kuwait, Lebanon, Libya, Malaysia, Mali, Mauritania, Morocco, Niger, Oman, Pakistan, Qatar, Saudi Arabia, Senegal, Somalia, Sudan, Syria, Tajikistan, Tunisia, Turkey, Turkmenistan, United Arab Emirates, Uzbekistan, Yemen.
Hindu	Guyana, India, Nepal.
Orthodox	Armenia, Belarus, Bulgaria, Cyprus, Georgia, Greece, Kazakhstan, Macedonia, Moldova, Romania, Russia, Serbia, Ukraine.
Latin American	Antigua and Barbuda, Argentina, Bahamas, Belize, Bolivia, Brazil, Chile, Colombia, Costa Rica, Cuba, Dominican Rep., Ecuador, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Puerto Rico, Saint Lucia, St.Vincent & Grenadines, Uruguay, Venezuela.
African	Angola, Benin, Botswana, Burundi, Cameroon, Cape Verde, Central African Republic, Comoros, Congo, Congo Dem. Rep. (Zaire), Equatorial Guinea, Gabon, Ghana, Ivory Coast, Kenya, Lesotho, Liberia, Madagascar, Malawi, Mauritius, Mozambique, Namibia, Nigeria, Rwanda, Sao Tome and Principe, Sierra Leone, South Africa, Suriname, Swaziland, Tanzania, Togo, Uganda, Zambia, Zimbabwe.
Buddhist	Bhutan, Cambodia, Lao People's Dem. Rep., Mongolia, Myanmar, Singapore, Sri Lanka, Thailand.
"Lone" States	Ethiopia, Haiti, Japan.

Source: Author's own construction based on Huntington (1998).

TABLE 2A: Summary Statistics

	Mean	Std.	Min	Max	Observations
Log Imports	1.49	3.00	-4.67	12.66	385379
Different Civilizations	0.78	0.41	0	1	385379
Different Religion	0.54	0.49	0	1	385379
Different Ethnicity	0.96	0.19	0	1	385379
Different Language	0.93	0.24	0	1	385379
Log Distance	8.59	0.84	4.65	9.89	385379
Contiguity	0.06	0.24	0	1	385379
Colonial Link	0.03	0.17	0	1	385379
Same Country	0.01	0.12	0	1	385379
Common Colonizer	0.07	0.25	0	1	385379
Same Legal Origin	0.36	0.48	0	1	385379
FTA	0.03	0.17	0	1	385379
Both in WTO	0.56	0.49	0	1	385379
Common Currency	0.01	0.13	0	1	385379
GSP	0.15	0.35	0	1	385379
Different Blocs	0.04	0.21	0	1	385379
Genetic Distance	962.93	785.74	0	3375	382002
UN Correlation	0.57	0.31	-1	1	385379
Regime Difference	8.52	6.80	0	20	355227
Alliance	0.12	0.32	0	1	385379
Inverse Hyperbolic Sine	2.43	2.38	0	13.35	425240
Cultural Difference	2.30e-09	1.42	-5.90	0.91	385379

TABLE 3A. Blocs of Countries

Bloc	Country
1st World	Andorra, Australia, Belgium, Canada, Denmark, France, Germany, Greece, Iceland, Israel, Italy, Japan, Luxembourg, Malta, Monaco, Netherlands, New Zealand, Norway, Philippines, Portugal, San Marino, South Korea, Spain, Taiwan, Thailand, Turkey, United Kingdom, United States.
2nd World	Albania, Armenia, Azerbaijan, Belarus, Bulgaria, China, Cuba, Czech Rep., Estonia, Georgia, Hungary, Kazakhstan, Kyrgyzstan, Lao People's Dem. Rep., Latvia, Lithuania, Moldova, Mongolia, North Korea, Poland, Romania, Russia, Slovakia, Turkmenistan, Ukraine, Uzbekistan, Vietnam.
3rd World	Afghanistan, Algeria, Angola, Antigua and Barbuda, Argentina, Austria, Bahamas, Bahrain, Bangladesh, Barbados, Belize, Benin, Bhutan, Bolivia, Bosnia and Herzegovina, Botswana, Brazil, Brunei, Burkina Faso, Burundi, Cambodia, Cameroon, Cape Verde, Central African Republic, Chad, Chile, Colombia, Comoros, Congo, Costa Rica, Croatia, Cyprus, Congo Dem. Rep. (Zaire), Djibouti, Dominica, Dominican Rep., Ecuador, Egypt, El Salvador, Equatorial Guinea, Eritrea, Ethiopia, Fiji, Finland, Gabon, Gambia, Ghana, Grenada, Guatemala, Guinea, Guinea-Bissau, Guyana, Haiti, Honduras, India, Indonesia, Iran, Iraq, Ireland, Ivory Coast, Jamaica, Jordan, Kenya, Kuwait, Lebanon, Lesotho, Liberia, Libya, Liechtenstein, Macedonia, Madagascar, Malawi, Malaysia, Mali, Mauritania, Mauritius, Mexico, Morocco, Mozambique, Myanmar, Namibia, Nepal, Nicaragua, Niger, Nigeria, Oman, Pakistan, Panama, Papua New Guinea, Paraguay, Peru, Puerto Rico, Qatar, Rwanda, Saint Lucia, St.Vincent and Grenadines, Sao Tome and Principe, Saudi Arabia, Senegal, Serbia, Sierra Leone, Singapore, Slovenia, Solomon Islands, Somalia, South Africa, Sri Lanka, Sudan, Suriname, Swaziland, Sweden, Switzerland, Syria, Tajikistan, Tanzania, Togo, Trinidad and Tobago, Tunisia, Uganda, United Arab Emirates, Uruguay, Vanuatu, Venezuela, Yemen, Zambia, Zimbabwe.

Source: Author's own construction based on Huntington (1998).

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