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The effect of culture on trade over time: New evidence from the GLOBE data set

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Jonas Frank
University of Hohenheim

Institute of Economics

18-2018

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The Effect of Culture on Trade over Time - New Evidence from the GLOBE Data Set¹

Jonas Frank²

July 4, 2018

Abstract

In this essay I use the GLOBE research study by House et al. (2013) as a proxy for measuring cultural distance. Unlike other studies, GLOBE introduces nine cultural dimensions and focuses exclusively on managers, allowing for a distinct glimpse into the values of people actually making trade decisions. I make use of a state-of-the-art PPML approach using data on international trade flows together with intra-national trade flows (Yotov, 2012) and a comprehensive set of fixed effects to consistently estimate a gravity equation using a panel from 1995 to 2004. I distinguish between different industries by following the goods classification introduced by Rauch (1999). The results show that cultural differences indeed affect trade values differently over time, but their size and impact depends on the chosen measure of cultural distance and on the industry classification.

JEL classification: F14, M14

Keywords: Cultural Distance, International Trade, Panel Gravity Model, PPML

¹I thank my supervisor Benjamin Jung and the participants of the ETSG 2017 in Florence for valuable comments and discussions. All errors are mine.

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Contents

1	Introduction	2
2	Related literature	3
3	Cultural distance dimensions	5
4	Data	8
5	Estimation strategy	9
6	Results	11
7	Concluding remarks	22
	References	23
A	Appendix	26

1 Introduction

Cultural differences can have an impact on bilateral trade flows. The intuition is that people with the same cultural background tend to trust each other more, speak a similar language, or simply have similar institutions, which can facilitate trade.

Within the framework of a panel estimation, I can ask how the importance of cultural dimensions on trade flows has changed over time. The value of world exports has experienced a meteoric rise from an export value of 3,375 billion \$ in 1990 to over 17,513 billion \$ in 2017.³ Overall transportation costs have fallen, trade agreements reach an all time high, and information can be sent without delay anywhere across the globe. What does this process mean for the influence of cultural differences on trade? On the one hand it may be possible that due to increased globalization the world has grown closer together and cultural differences have lost their importance for international trade. On the other hand, it could be possible that the fear of losing cultural identity has grown, leading to a stronger impact *because* of the globalization process.

To answer this question, I estimate several specifications of the gravity equation by means of a pseudo-poisson maximum likelihood (PPML) estimation which includes zeros and intra-national trade flows (Yotov, 2012) together with a comprehensive set of fixed effects. I treat cultural distance similarly to geographical distance, therefore the measure enters the trade costs function. As a proxy for cultural distance I use the Global Leadership and Organizational Behavioral Effectiveness (GLOBE) research study of cross-cultural interactions (House et al., 2013), which identifies nine cultural dimensions. To analyze if these dimensions affect certain groups of industries differently, I make use of the product classification by Rauch (1999).

The results show that the effect of cultural distance on trade is not persistent but varies over time for many of the nine GLOBE dimensions. However, the effects do not follow a clear trend and depend on the cultural dimensions analyzed. Bilateral trade flows have become more responsive to some cultural dimensions and less responsive to others, relative to the effect in the base year. In addition, several significant effects are only driven by trade with goods that are not traded on organized exchanges, whereas the influence of other dimensions matters only for goods that are classified to be homogeneous. To my knowledge, this finding has not been widely discussed in the literature.

The remainder of this essay is structured as follows: The next section gives a short overview of the related literature regarding cultural distance and the estimation of time-invariant trade costs. Section 3 describes the GLOBE research study and its dimensions. Then, I explain the indices for measuring cultural distance and proximity as well as the composition of the data set. Section 5 provides an overview of the estimation specifica-

³Source: IMF data on FOB Exports

tions. In section 6 I present my results and discuss them and offer a short conclusion and an outlook in section 7.

2 Related literature

Grossman (1998) performs a simple calculation showing that the estimated negative effects of bilateral distance on trade are too large to be explained by shipping costs alone. He speculates that the reasons why distance matters so much are cultural differences or a lack of familiarity between trade partners. Correspondingly, Anderson (2011) argues that the inclusion of proxies for trade friction like political borders and common language improves the fit of gravity estimations. The challenge is to find such proxies for "culture" which is notoriously hard to measure. In the following I present some examples from the recent literature of different approaches and their findings.

Boisso and Ferrantino (1997) use linguistic dissimilarity as a proxy for cultural distance. They find a negative effect on international trade between 1960 and 1985 that increases from 1960 until the mid-1970s and becomes smaller afterwards. Melitz (2008) discovers that linguistic diversity and literacy within a country positively influences foreign relative to domestic trade.

Several authors make use of the dimensions of culture introduced by Hofstede (2001) and Hofstede et al. (2010). In these studies, cultural dimensions include *individualism versus collectivism*, *uncertainty avoidance*, *power distance*, *masculinity versus femininity*, and *long term orientation*. Linders et al. (2005) find a positive effect of cultural distance on bilateral trade. They explain this finding by arguing that firms prefer trade to host-country production in culturally distant countries. Using the same cultural dimensions, Lankhuizen and de Groot (2016) find a non-linear relationship between cultural distance and international trade: Cultural distance decreases trade only after a certain threshold is reached, while it has a positive impact on trade below this threshold. Gorodnichenko et al. (2017) provide evidence that the higher the cultural distance between cooperating partners, the smaller is the chance of a firm to be integrated by a foreign company. Using the 2009 Greek debt crisis as a case study, Guiso et al. (2016) argue that cultural differences between countries can lead to a political impasse, making it difficult to reach an optimal outcome.

The World Values Survey (WVS), an international survey undertaken in almost 100 countries over the last 30 years, provides another way to derive proxies for cultural distance. Cyrus (2015) finds that the cultural distance measure derived from the WVS has no effect on the value of bilateral trade but she finds evidence that increasing trade reduces cultural distance. I believe that reverse causality is not an issue for my analyses of trade effects of cultural distance, since my measures for cultural distance do not vary over

time.⁴ Coyne and Williamson (2012) discover that increasing openness to trade has a positive effect on culture supporting economic interaction and entrepreneurship, namely trust, perceived level of self-determination, respect for others, and obedience. Spolaore and Wacziarg (2016) show that genetic distance is positively correlated with cultural distance based on results from the WVS. They additionally provide a compelling data base for several measures of distance. It includes measures of genetic distance between countries as well as linguistic, religious, and cultural differences.

Guiso et al. (2009) use a trust-index based on views of European managers. They link higher trust-ratings to higher trade between country pairs, higher foreign direct investment (FDI), and higher portfolio investments as well. Lien and Lo (2017) find significant positive effects on both, trade and FDI, from the establishment of cultural institutions abroad like the German Goethe-Institute which promote language and culture of a country. Using the Eurovision Song Contest to construct a measure for cultural proximity, Felbermayr and Toubal (2010) find that trade in differentiated goods is affected positively by cultural proximity.

With my proxy I assume that cultural differences are persistent or take a long time to change. Therefore, I treat them as part of time-invariant trade costs. It is a challenge to consistently estimate the effect of such time-invariant trade costs on trade values within a gravity framework. An example is the literature regarding the so called "distance-elasticity puzzle". For many years, empirical findings did not support the anecdotal evidence that distance effects of bilateral trade flows have declined over time (Disdier & Head, 2008). Below I discuss some recent examples of empirical work concerning this issue. The common feature is that they all use yearly interactions with the distance measure in order to quantify the change of the effect and the estimation method PPML.

Yotov (2012) finds a solution to the distance puzzle in international goods trade. He states that previous researchers using structural gravity only identified relative international trade costs relative to other relative international trade costs. That is the reason, why the negative effect of distance remains roughly constant over time. He stresses the importance to include intra-national trade flows and intra-national distances in order to identify the impact of international trade costs on international trade relative to intra-national trade costs. Together with distance-time interactions, he finds that the relative effects of distance effects on commodity trade flows have dropped significantly between 1965 and 2005. A similar strategy is applied by Anderson and Yotov (2017) with data from 1988 to 2006. In contrast to Yotov (2012), they do not find evidence for a declining but for a persistent effect of bilateral distance on the value of trade. By using data on global bank linkages between countries instead of trade flows, Brei and von Peter (2018) uncover that

⁴Moreover, I apply a battery of fixed effects, as suggested by Baier and Bergstrand (2007).

the effect of distance on assets and liabilities of banks from 1977 to 2012 is similar to the distance effect on trade, even though transport costs are immaterial. The distance effect is substantially negative but decreases over time. Instead of intra-national trade they use domestic banking activity for their regression. However, all three approaches potentially suffer from omitted variable bias, as they do not control for unobserved heterogeneity across country pairs by including pair fixed effects (Baier & Bergstrand, 2007). Bosquet and Boulhol (2015) include pair fixed effects in their analysis but do not account for intra-national trade flows and no intra-national distances. By analyzing bilateral trade flows between 1952 and 2006, they find no evidence for a declining effect of bilateral distance elasticities. Following Yotov (2012) in his arguments, their interpretation of the results is flawed. Bergstrand et al. (2015) address these issues in their paper and make use of intra-national distance, intra-national trade flows, and include pair fixed effects together with importer- and exporter-year fixed effects in order to consistently estimate the effects of distance on trade. They conclude that the negative effect of bilateral distance on international trade flows has decreased by 1.2 percent per year for the interval from 1990 to 2002.

Since I am interested in how the influence of cultural differences changes over time, I follow the methodology of Bergstrand et al. (2015) in my analysis.

3 Cultural distance dimensions

While the WVS relies on interviews with 1,000 randomly chosen people per country, the GLOBE research program by House et al. (2013) collects data specifically from middle managers from 951 organizations from the sectors financial services, food processing, and telecommunications across 60 different cultures between 1994 and 1997. The same three sectors are present in all countries across the survey and their setup is quite similar across countries but each one is fundamentally different compared to the other two. Even though the sample size of the GLOBE survey is smaller than, e.g., the WVS it may still be a relevant alternative to measure cultural distance. The argument is that cultural beliefs of business leaders are actually more important for international trade than the beliefs of the remaining population, as these managers actually have the power to influence the decision whether or not to trade with partners across borders. I add to the literature as this group of people may share cultural views that fundamentally differ from the rest of the population.

The GLOBE research program builds on the cultural dimensions introduced by Hofstede (2001) and Hofstede et al. (2010) but implements additional dimensions. The survey identifies nine cultural dimensions that are potentially important when analyzing an international business partner. In the following I will introduce each of these dimensions in detail.

Performance orientation reflects the extent to which a society encourages and rewards

innovation and improvement of its members. The overall goal is to achieve and maintain high standards. Countries with a high score regarding performance orientation set a focus on education and learning, emphasize on getting results, set high performance targets, value taking initiative, and prefer explicit and direct communication. This holds especially true for countries like Switzerland, Singapore, or Albania. Low performance oriented countries like Russia, Venezuela, or Greece tend to disapprove of overly ambitious behavior, have a low sense of urgency, and pay special attention to age instead of performance when it comes to promotions.

Assertiveness reflects the degree to which members belonging to a society are firm, tough, dominant, and aggressive in social relationships. Countries like Albania, Nigeria, and Hungary score high on assertiveness and, therefore, tend to value and reward competition, success, and direct communication. Low assertiveness-score countries like Japan, New Zealand, and Sweden place higher value in cooperation and equality.

Uncertainty avoidance mirrors the extend to which members of a society seek order, consistency, structure, formalized procedures, and laws to cover situations in their daily lives. Countries with high uncertainty avoidance-score, like Switzerland, Sweden, and Singapore, set very high stakes in formal interactions including legal contracts and meticulous record-keeping, apply much more calculating when taking risk, and are more resistant to change. The bottom end of the list features countries like Guatemala, Hungary, and Russia.

Power distance reflects the degree to which members of a society accept and approve that power should be shared unevenly. Firms in countries with high a power-distance-score therefore exhibit a distinct hierarchy or chain of command. Countries with the highest power distance are Morocco, Nigeria, and El Salvador, while the Netherlands, Denmark, or the Czech Republic seem to believe in flat hierarchies.

In-group collectivism can be interpreted whether children take pride in the individual accomplishments of their parents and vice versa, whether parents tend to live at home with their children when they get older, and whether children live at home with their parents until they get married. Examples for countries which score high regarding in-group collectivism are the Philippines, Iran, or India. In countries like Sweden, Denmark, and the Czech Republic this does not seem to be the case.

Institutional collectivism measures the degree to which firms and societal institutional practices encourage and reward collective action and collective distribution of resources. Employers in countries with a high institutional-collectivism-score tend to develop long-term relationships with their employees. Employees identify with their firm and make personal sacrifices to fulfill organizational obligations. Countries with the highest score

of institutional collectivism are South Korea, Sweden, and Japan, whereas the scores of Hungary, Greece, and the Czech Republic indicate a more individualistic attitude.

Future orientation mirrors the extent to which members of a society believe that their current actions will influence their future. They focus on investments regarding their future, believe in planning for developing their future, and look far into the future for assessing the effects of their current actions. Countries with high future orientation-score like Singapore, Switzerland, or the Netherlands are inclined to save for the future, have more intrinsically motivated individuals and achieve greater economics success. Countries that set a low value in future orientation tend to place higher priorities on immediate gratification and rewards and take a shorter strategic view. Poland, Argentina, and Russia are examples for countries characterized by the latter.

Humane orientation reflects the degree to which a society encourages and rewards its members for being fair, altruistic, friendly, generous, caring, and kind to others. Countries like Malaysia, Philippines, and Ireland emit a high humane-orientation-score. On the other side of the scale are Greece, Spain, or France.

Gender egalitarianism is a measure for the ways in which societies divide roles between women and men. The more gender egalitarian a society is, the less it relies on biology to determine the social roles of women and men. Countries that score higher on gender egalitarianism tend to have similar levels of education for men and women and more women in positions in authority. This seems to be the case in countries like Russia, Hungary, or Poland, while countries like Egypt, Morocco, or South Korea are on the other side of the scale. In those countries women exhibit a lower status in the society, the literacy rate for women is lower than for men, and fewer women are part of the labor force.⁵

Table 1 provides summary statistics for the nine GLOBE indicators. The questionnaire allows answers to take discrete values between 1 and 7. The mean ranges from 3.371 to 5.16 and the standard deviations from 0.345 to 0.697.⁶ The means of the different indices do not differ much, the standard deviations, however, do. This means that the nine dimensions should be indeed viewed individually since they carry different information. It is interesting to note that the measures for *in-group collectivism* and *institutional collectivism* are quite different with regard to their mean and standard deviation, pointing towards the fact that the distinction made by House et al. (2013) offers new insights. Thee fact that countries like Sweden assign a high value to institutional collectivism but prefer individualism to in-group collectivism supports this.

⁵Table A.1 in the appendix presents details of the individual rank of each country within the GLOBE survey for all nine cultural dimensions.

⁶For a detailed illustration on how the survey is executed and where the numbers result from, see House et al. (2013), Part III and IV.

Table 1: Summary statistics of GLOBE dimensions

	Mean	Std. dev.
1. Performance orientation	4.076	0.388
2. Assertiveness	4.136	0.345
3. Uncertainty avoidance	4.131	0.578
4. Power distance	5.158	0.379
5. In-group collectivism	5.160	0.694
6. Institutional collectivism	4.259	0.406
7. Future orientation	3.825	0.448
8. Humane orientation	4.092	0.452
9. Gender egalitarianism	3.371	0.354

4 Data

The GLOBE indicators listed above stem from House et al. (2013). To generate a measure of *cultural distance* from the unilateral GLOBE dimensions I compute the absolute value of the difference between any two countries i and j for each of the nine culture dimensions:

$$cult_dist_{ij} = \frac{|(cult_dimension_i - cult_dimension_j)|}{\max(cult_dimension) - \min(cult_dimension)}$$

In order to scale the data to be between zero and unity, the cultural distance per country pair is divided by the maximum distance of each dimension. Since the questionnaire allows answers to vary between 1 and 7, the scaling parameter is 6. The drawback of this measure is that after log-linearizing the gravity equation, country pairs with zero distance are omitted. Furthermore, this makes it impossible to include intra-national trade. To allow for this, I create another measure called *cultural proximity* for each of the nine dimensions. Here, maximal proximity takes the value of 1 and the more the countries' views differ, the closer the measure moves to zero. To make sure that the term between zero and unity, I apply the same scaling procedure as for the distance measure.

$$cult_prox_{ij} = 1 - \frac{|(cult_dimension_i - cult_dimension_j)|}{\max(cult_dimension) - \min(cult_dimension)}$$

Additionally, I generate measures for the average effect of cultural distance and proximity.

The source of bilateral export data on the 6-digit industry level, which originally stems from COMTRADE, is provided by CEPII's BACI for years after 1994 (Gaulier & Zignago, 2010). Information about intra-national trade at the 3-digit level is taken from the TradeProd data base by CEPII (de Sousa et al., 2012). This allows to consistently estimate time invariant trade costs (Yotov, 2012) and to capture the effects of global-

ization on international trade (Bergstrand et al., 2015). Additional controls like active RTAs, bilateral distance, contiguity, colonial background, and common currency come from CEPII's Gravity (Head et al. (2010) and Head and Mayer (2014)).

I allow for the possibility that cultural distance potentially influences some goods differently and follow the commodity groups classification provided by Rauch (1999). He I distinguishes between three categories: products that are traded on an organized exchange, products whose prices are listed in trade publications, and all other products. I combine the former two categories into one called *homogeneous goods*, while referring to the latter as *differentiated goods*.

Since trade flows do not adjust on a yearly basis I restrict my sample to three-year intervals as suggested by Olivero and Yotov (2012). The final data set contains about 12,000 country pair observations with four three-year intervals ranging from 1995 to 2004. Covered within the sample are seven African countries, 12 countries from America, 15 from Asia, 18 from Europe, and four from the Middle East. The minimum and maximum values, the mean, and the standard deviation of the distance and proximity dimensions can be found in the Table 2. The same holds true regarding the number of country pairs which share a colonial background and a common border. Differences arise in the number of countries with a common currency. Their number has increased from 96 to 151⁷ and the number of active RTAs has increased from 316 to 592.

5 Estimation strategy

The PPML approach proposed by Santos Silva and Tenreyro (2006) that I use in this essay has several advantages over the traditional OLS. First, PPML makes use of the multiplicative instead of the logarithmic form of the gravity model. Therefore, it is possible to include observations with zero trade flows. Second, in the presence of heteroscedasticity the estimation of the gravity equation in log-linear form is potentially biased and inconsistent, the PPML performs well under these circumstances.

Specification (1) is designed to yield the average effect of cultural distance on trade:

$$X_{ij,t} = \exp \left[\beta_1 \ln(cult_dist_{ij}) + \mathbf{GRAVITY}'_{ij} * \boldsymbol{\beta} + \sum_{k=0}^9 RTA_{ij,t-k} + \lambda_{i,t} + \gamma_{j,t} \right] * \mu_{ij,t} \quad (1)$$

The left-hand side of this baseline regression denotes the value of exports from country i to country j in period t . The variable of interest, $\ln(cult_dist_{ij})$, denotes the log of bilateral cultural distance between exporter i and importer j based on the nine GLOBE dimensions and their average effect. The vector $\mathbf{GRAVITY}_{ij}$ includes the log of bi-

⁷This increase is mainly due to the introduction of the Euro in the year 2002.

lateral distance and the other time-invariant bilateral control variables common border, common currency, and colonial background. $RTA_{ij,t}$ is a dummy variable that takes the value of unity if an RTA is active between i and j in period t together with 3-, 6-, and 9-year lags. This allows for phasing-in effects of RTAs. $\lambda_{i,t}$ and $\gamma_{j,t}$ capture exporter-time and importer-time fixed effects, respectively. The error term is given by $\mu_{ij,t}$.

This approach most likely suffers from endogeneity because of omitted variable bias. Therefore, pair fixed effects are included in specification (2) to properly account for multilateral resistance between country pairs (Baier & Bergstrand, 2007). Because of perfect collinearity with the fixed effects, the standard time-invariant gravity controls can no longer be estimated. Furthermore, it is not possible to estimate the effects of cultural distance for all years in the sample. Therefore, *cult_dist_2004* is dropped from specifications (2) to (4). The remaining coefficients for distance and proximity are interpreted relative to the corresponding estimate for 2004.

$$X_{ij,t} = \exp \left[\sum_{T=1995}^{2001} \beta_T \ln(cult_dist_T_{ij}) + \sum_{k=0}^9 RTA_{ij,t-k} + \lambda_{i,t} + \gamma_{j,t} + \epsilon_{ij} \right] * \mu_{ij,t} \quad (2)$$

In specification (3), I estimate the effect of the cultural dimensions on trade values in levels instead of logs. This means it is possible to include country pairs with identical cultural beliefs and it allows to include intra-national trade (Yotov, 2012). As suggested by Bergstrand et al. (2015) I include a measure for globalization, *INTL_BRDR*. This dummy takes the value of unity if trade across borders occurs and is zero otherwise. Due to perfect collinearity with the pair fixed effects it is not possible to estimate the coefficients for all years within the sample, therefore the dummy for *INTL_BRDR_2004* is dropped from the estimation:

$$X_{ij,t} = \exp \left[\sum_{T=1995}^{2001} \beta_T (cult_dist_T_{ij}) + \sum_{k=0}^9 RTA_{ij,t-k} \right. \\ \left. + \sum_{Y=1995}^{2001} \beta_Y INTL_BRDR_Y_{ij} + \lambda_{i,t} + \gamma_{j,t} + \epsilon_{ij} \right] * \mu_{ij,t} \quad (3)$$

The final specification (4) makes use of the log of the proximity measure *cult_prox_{ij}* instead of distance, since it is unclear from theory how cultural distance should be estimated. Since there is no cultural proximity of zero, the sample size is the same as in estimation approach (3), as are the controls and fixed effects. This is the preferred spec-

ification, as it uses all data available and properly accounts for multilateral resistance:

$$X_{ij,t} = \exp \left[\sum_{T=1995}^{2001} \beta_T \ln(cult_prox_T_{ij}) + \sum_{k=0}^9 RTA_{ij,t-k} + \sum_{Y=1995}^{2001} \beta_Y INTL_BRDR_ (Y)_{ij} + \lambda_{i,t} + \gamma_{j,t} + \epsilon_{ij} \right] * \mu_{ij,t} \quad (4)$$

6 Results

The following four tables present the results of the estimation specifications. Columns (1) to (9) present each cultural dimension individually, column (10) provides the effect of the average of all nine dimensions. In Tables 2, 3, and 4, I use the bilateral distance measure for the cultural dimensions. In Table 5 I make use of the proximity measure. In panel A of each table, I analyze the impact of culture on the overall export value. In the next two panels, I apply the classification by commodity groups (Rauch, 1999): panel B reports the coefficients for homogeneous goods and panel C for differentiated goods. All specifications include importer-year and exporter-year fixed effects. Reported standard errors are clustered at the country pair level as it is common in the literature. However, in a panel gravity context, there are several other dimensions in which the errors may be correlated: at the exporter, importer, year, exporter-year, importer-year, and country pair level, respectively (Cameron et al., 2011). Therefore, I report standard errors that are clustered at these six dimensions (multi-way) for the variables of interest as well, following Egger and Tarlea (2015). This clustering influences the size of the standard errors, and therefore, the level of significance of the reported coefficients.⁸ The reported R^2 is calculated by computing the square of the correlation between trade and fitted values following the method described by Tenreyro.⁹ To ensure readability, I display only the coefficients for the variables of interest in this section and show the complete regression outputs in Appendix.

Table 2 presents the results of the baseline regression, following specification (1). In panel A, the coefficients of *uncertainty avoidance*, *power distance*, *future orientation*, *humane orientation*, *gender egalitarianism*, and the measure for *average distance* have the expected negative algebraic sign, the coefficients of the others are positive. However, just five out of nine (plus average) dimensions appear to affect the value of aggregate exports statistically significant. If bilateral distance with respect to *power distance* increases by 1 percent, this corresponds to an average decrease of -0.072 percent in the value of trade. Growing distance with respect to *in-group collectivism* seems to boost trade by 0.075 percent. Both coefficients share a critical value of 0.1 percent when the standard errors are clustered at country pair level and of 5 percent when they are clustered multi-way.

⁸If not specified otherwise, levels of significance are based on multi-way clustered errors.

⁹See <http://personal.lse.ac.uk/tenreyro/r2.do> for details

Table 2: Average trade effects of logged cultural distance: Panel PPMI estimation

Panel A: Aggregate trade		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
Distance variable of interest:	Perf. orient.	0.012 (0.023) [0.037]	-0.029 (0.015) [0.021]	Uncert. avoidance (0.019)*** [0.032]*	-0.072 (0.016)*** [0.029]*	Power dist. (0.025) [0.041]	In-group coll. (0.018)* [0.031]	Institutional coll. (0.015)* [0.022]	Future orient. -0.035 (0.018)* [0.031]	-0.038 (0.015)* [0.022]	-0.045 (0.018)* [0.027]	-0.035 (0.016) [0.012]
N	11824	11824	11808	11816	11808	11840	11816	11840	11824	11824	11880	
R ²	0.0475	0.0482	0.0491	0.0515	0.0477	0.0483	0.0486	0.0492	0.0492	0.0492	0.0486	
<hr/>												
Panel B: Homogeneous goods												
ln(Cultural distance)	0.004 (0.019) [0.029]	-0.007 (0.030) [0.043]	-0.055 (0.019)** [0.027]*	-0.031 (0.024) [0.047]	0.066 (0.020)*** [0.028]*	0.051 (0.032) [0.053]	-0.036 (0.023) [0.029]	-0.067 (0.020)*** [0.034]*	-0.066 (0.024)*** [0.034]	-0.066 (0.024)*** [0.034]	-0.056 (0.078) [0.116]	
N	11824	11824	11808	11816	11808	11840	11816	11840	11824	11824	11880	
R ²	0.0529	0.0533	0.0540	0.0539	0.0661	0.0523	0.0529	0.0535	0.0541	0.0541	0.0543	
<hr/>												
Panel C: Differentiated goods												
ln(Cultural distance)	0.025 (0.018) [0.033]	0.014 (0.023) [0.039]	-0.008 (0.017) [0.025]	-0.096 (0.019)*** [0.028]***	0.089 (0.018)*** [0.037]*	0.017 (0.026) [0.038]	0.031 (0.019) [0.021]	-0.022 (0.016) [0.021]	-0.045 (0.020)* [0.027]	-0.045 (0.020)* [0.027]	-0.030 (0.016) [0.127]	
N	11824	11824	11808	11816	11808	11840	11816	11840	11824	11824	11880	
R ²	0.0397	0.0409	0.0415	0.0428	0.0396	0.0405	0.0410	0.0411	0.0419	0.0419	0.0412	

LHS for estimation methods: export value. Distance definition: $\frac{\max(\text{cultural dimension}_i - \text{cultural dimension}_j)}{\min(\text{cultural dimension}_i - \text{cultural dimension}_j)}$. Columns (1) to (9) show, which of the nine different cultural distance measures is used in each given specification, see table 3.2. Estimation (10) uses the average of all 9 dimensions. All estimations include controls for distance, common currency, colonial background, contiguity, RTAs, 3-, 6-, and 9-year lags of RTAs and importer-year and exporter-year fixed effects. Standard errors in parentheses are clustered at country pair level and multi-way clustered, respectively. *** p<0.001, ** p<0.01, * p<0.05

The coefficients for *future orientation*, *humane orientation*, and *gender egalitarianism* are given by -0.035, -0.038 and -0.045, respectively. All three are significant at 5 percent when using country pair clustered errors and insignificant otherwise.

Panel B provides the effects of cultural differences for exports of homogeneous goods. A 1 percent increase in distance regarding *uncertainty avoidance* decreases trade by -0.055 percent at 1 percent level of significance. Contrarily, *in-group collectivism* has a highly significant positive effect on trade with a coefficient of 0.066. The influence of *humane orientation* given by 0.067 is once again highly significant at the 0.1 percent level when clustering at the country pair level. All three dimensions remain statistically significant at critical values of 5 percent when clustering multi-way. Bilateral differences in the perception of *gender egalitarianism* decreases trade value by -0.066 percent at a critical value of 1 percent for country pair clustered standard errors, the significance is lost after clustering multi-way.

Three cultural distance measures return statistically significant when focusing the estimation on differentiated goods only. *Power distance* and *in-group collectivism* both influence trade at the 0.1 percent level of significance using country pair clustered errors, the former negatively with a coefficient of -0.096, the latter positively with a coefficient of 0.089. The effect remains highly significant when clustering multi-way for *power distance* and drops to a level of 5 percent for *in-group collectivism*. The effect of a 1 percent increase in bilateral distance regarding *gender egalitarianism* decreases average trade by -0.045 percent and is significant for a critical value of 0.05 for country pair clustered errors and insignificant for multi-way clustered errors. The other coefficients regarding cultural distance are not significantly different from zero and therefore do not have an effect on the value of exports across the different definitions of the dependent variable.

In order to put the cultural distance effects into perspective, I offer a back-of-the-envelope calculation. Germany and Italy are closely related regarding their views of *power distance* with a bilateral distance of 0.005. In 2016, Germany exported commodities with a trade value of around 67 billion US\$ to Italy. Following the results from Table 2, if bilateral distance regarding this cultural dimension would double, for example to the distance between Germany and Zimbabwe, export value would decrease by -7.2 percent, or 4.8 billion US\$. If the distance would be ten times higher, like between Germany and the Philippines, the negative effect would lead to a decrease of trade value by -72 percent or by 48.24 billion US\$.¹⁰

However, the size of the point estimators should be treated with caution. Because pair-fixed effects are not included, the regressions most likely suffer from omitted variable bias. Table 2 should give an idea in which direction the dimensions influence trade. Since only *in-group collectivism* and *gender egalitarianism* influence trade positively and persistently across the three specifications, the results of this table additionally show that the distinction between different goods categories offers additional insights that is

¹⁰Own calculations based on COMTRADE data from 2016.

otherwise lost through aggregation.

In Table 3, I estimate the effect of cultural distance on trade over time using specification (2) with pair fixed effects together with the country-year fixed effects to properly account for multilateral resistance (Baier & Bergstrand, 2007). The coefficients are interpreted as deviations from the cultural distance effect in the base year 2004 and compared with the findings in Table 2. If the estimated coefficients in Table 2 are insignificant, the average effect of these distance measures on trade is assumed to be zero. For the aggregate goods case in panel A, five distance dimensions influence trade differently over time. An increase in bilateral distance by 1 percent regarding *performance orientation* is not significantly different in the year 1995 compared to 2004 but its influence is larger by 0.022 percent in 1998 and by 0.008 percent in 2001 relative to 2004. *Assertiveness* has a greater impact on the value of trade in 1995 and 1998 in comparison to 2004 by 0.021 percent and 0.01 percent, respectively. Both are significant at 5 percent. The effect remains constant for 2001. With respect to the dimension of *institutional collectivism*, bilateral distance has a greater effect of 0.022 percent in 1995 than in 2004 with a critical value of 0.05 and remains constant for the other periods. The effect of growing distance in *humane orientation* on trade exports varies over time as well. For the year 1995 it is 0.02 percent larger relative to 2004 and 0.018 percent larger for 2001, the former being significant at 5 percent, the latter at 1 percent. In 1998, there is no significant change. This means that the significant negative effect of this dimension from the baseline regression used to be smaller in 1995 and in 2001 compared to 2004. The influence of the *average distance* measure changes significantly over time. At the 5 percent level of significance, the effect is larger by 0.068 percent in contrast to 2004, while it increases by 0.086 percent for 1998 and by 0.029 percent for 2001. Both share critical values of 0.01. The effect of the other five dimensions seems to remain persistent relative to 2004.

The analysis in panel B once again focuses on exports of homogeneous goods only. Differences in *assertiveness* influence trade more in 2001 than in 2004 by 0.018 percent at a critical value of 0.05. The effect of *institutional collectivism* is larger by 0.049 percent in 1995 and by 0.047 percent in 1998 when compared to 2004. The former coefficient is significant at 1 percent, the latter at 5 percent. The estimated coefficients for *humane orientation* suggest that the effect of this dimension on trade is 0.035 percent larger in 1995 and 0.04 percent larger in 2001 than the corresponding effect in 2004. These effects are significant at 5 percent and 0.1 percent, respectively. Similarly to panel A this points towards the fact that the overall negative effect of *humane orientation* used to be smaller in 1995 and 2001. *Average distance* had a higher magnitude of 0.109 percent in 1998 relative to 2004. The influence of the remaining distance dimensions did not change over time.

In panel C, the sample exclusively covers exports of differentiated goods. The impact of six cultural dimensions varies significantly over time. The greater influence of *assertiveness* on trade in 1995 relative to 2004 is 0.035 percent. The coefficient is highly

Table 3: Time-varying trade effects of logged cultural distance: Panel PPMI estimation (basic sample)

	Panel A: Aggregate trade									
Distance variable of interest:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
In(Cultural distance) 1995	0.020 (0.010) [0.012]	0.021 (0.012) [0.009]*	-0.011 (0.010) [0.009]	-0.009 (0.012) [0.010]	0.021 (0.013) [0.010]	0.022 (0.012) [0.010]*	-0.020 (0.011) [0.010]*	0.020 (0.011) [0.010]	0.007 (0.012) [0.011]	0.068 (0.034)* [0.043]
In(Cultural distance) 1998	0.022 (0.007)** [0.007]**	0.019 (0.010) [0.008]*	0.008 (0.009) [0.008]	-0.005 (0.010) [0.008]	0.017 (0.011) [0.009]	-0.017 (0.011) [0.010]	-0.006 (0.009) [0.012]	0.006 (0.009) [0.007]	-0.001 (0.010) [0.008]	0.086 (0.027)** [0.028]**
In(Cultural distance) 2001	0.008 (0.005) [0.001]**	0.011 (0.008) [0.002]	0.001 (0.006) [0.005]	-0.005 (0.007) [0.005]	0.003 (0.006) [0.004]	-0.003 (0.008) [0.008]	-0.009 (0.007) [0.006]	0.018 (0.007)** [0.006]**	-0.001 (0.007) [0.005]	0.029 (0.019) [0.011]**
N	11728	11724	11708	11716	11708	11748	11720	11724	11780	0.0312
R ²	0.0379	0.0311	0.0335	0.0330	0.0350	0.0316	0.0336	0.0345	0.0335	0.0345

	Panel B: Homogeneous goods									
Distance variable of interest:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
In(Cultural distance) 1995	0.011 (0.013) [0.012]	0.004 (0.018) [0.014]	-0.006 (0.014) [0.013]	-0.020 (0.015) [0.011]	-0.007 (0.016) [0.017]	0.049 (0.019)** [0.016]**	-0.006 (0.016) [0.017]	0.035 (0.017)* [0.017]*	0.010 (0.019) [0.018]	0.069 (0.045) [0.048]
In(Cultural distance) 1998	0.012 (0.011) [0.012]	0.015 (0.016) [0.010]	0.015 (0.013) [0.012]	-0.003 (0.014) [0.013]	0.006 (0.015) [0.013]	0.047 (0.019)* [0.019]*	0.009 (0.016) [0.014]	0.015 (0.016) [0.013]	0.004 (0.018) [0.019]	0.109 (0.040)** [0.035]**
In(Cultural distance) 2001	-0.003 (0.008) [0.004]	0.018 (0.011) [0.007]**	0.006 (0.009) [0.006]	-0.009 (0.012) [0.010]	-0.003 (0.009) [0.004]	0.007 (0.010) [0.008]	-0.008 (0.011) [0.007]	0.040 (0.010)*** [0.008]***	-0.019 (0.014) [0.012]	0.023 (0.030) [0.013]
N	11520	11516	11500	11504	11508	11500	11540	11512	11520	11572
R ²	0.0257	0.0163	0.0194	0.0089	0.0383	0.0045	0.0212	0.0106	0.0133	0.0099

	Panel C: Differentiated goods									
Distance variable of interest:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
In(Cultural distance) 1995	0.029 (0.012)* [0.014]*	0.035 (0.012)** [0.008]***	-0.010 (0.011) [0.009]	-0.011 (0.013) [0.011]	0.041 (0.014)** [0.013]**	0.011 (0.014) [0.013]	-0.025 (0.012)* [0.015]	0.009 (0.010) [0.007]	0.016 (0.013) [0.010]	0.105 (0.039)** [0.056]
In(Cultural distance) 1998	0.031 (0.008)*** [0.008]***	0.020 (0.009)* [0.010]*	0.002 (0.009) [0.008]	-0.011 (0.011) [0.009]**	0.027 (0.010) [0.010]	0.001 (0.010) [0.012]	-0.012 (0.010) [0.009]	-0.001 (0.011) [0.005]	0.005 (0.011) [0.006]	0.089 (0.029)** [0.041]*
In(Cultural distance) 2001	0.017 (0.006)** [0.003]***	0.005 (0.008) [0.008]	-0.004 (0.007) [0.005]	-0.005 (0.010) [0.007]	0.010 (0.010) [0.008]	-0.008 (0.008) [0.007]	-0.009 (0.007) [0.006]	0.003 (0.007) [0.006]	0.014 (0.008) [0.005]	0.042 (0.022) [0.014]
N	11676	11668	11652	11660	11652	11652	11692	11664	11668	11724
R ²	0.0354	0.0282	0.0313	0.0303	0.0249	0.0317	0.0305	0.0319	0.0319	0.0292

LHS for estimation methods: export value. Distance definition: $\frac{[cultural_dimensions_i - cultural_dimensions_j]}{max(cultural_dimensions_i - cultural_dimensions_j)}$. Columns (1) to (9) show, which of the nine different cultural distance measures is used in each given specification, see table 3.2. Estimation (10) uses the average of all 9 dimensions. All estimations include controls for RTAs, 3-, 6-, and 9-year lags of RTAs, importer-year, exporter-year, and country-pair fixed effects. Standard errors in parentheses are clustered at country pair level and multi-way clustered, respectively. *** p<0.001, ** p<0.01, * p<0.05

significant, too. When comparing 1998 to 2004, this cultural distance dimension affects trade by 0.02 percent more in 1998 compared to 2004 and is statistically significant at 5 percent. The distance measure of *performance orientation* has a greater influence on trade of 0.029 percent in 1995, of 0.031 percent in 1998, and of 0.017 percent in 2001 when compared to 2004. The first coefficient is significant at 5 percent, while the other two are highly significant at 0.1 percent. Relative to 2004, the effect of *in-group collectivism* on trade is 0.041 percent larger in 1995, 0.027 percent larger in 1998, and 0.01 percent larger 2001 with critical values of 0.01 for the first two, and 0.001 for the last coefficient. This means that the positive influence of *in-group collectivism* from the baseline regression has decreased over time. The influence of *future orientation* has increased by 0.025 percent for 2004 relative to 1995 at the 5 percent level of significance. The effect of cultural distance on exports regarding *gender egalitarianism* decreases the negative impact on trade by 0.014 percent in 2001 compared to 2004. This effect is significant at a critical value of 0.05. The influence of the measure for *average distance* varies over time as well. It is larger by 0.089 percent in 1998 and by 0.042 percent in 2001 relative to 2004. The coefficients are significant at levels of 5 percent and 1 percent, respectively.

The effect of cultural distance on trade varies over time but greatly depends on the dimension and goods specification. The effects of *performance orientation*, *institutional collectivism*, and *humane orientation* on the aggregate are driven by either homogeneous goods or differentiated goods. Effects of *in-group collectivism*, *future orientation*, and *gender egalitarianism* are only significant for differentiated goods and are masked in the aggregate. Except for one dimension, the significant effects relative to the base year are larger in previous years and become smaller over time. It is interesting to note that most of the coefficients that influenced trade significantly and negatively in the case of *uncertainty avoidance*, *power distance*, *future orientation*, and *gender egalitarianism* and positively in the case of *in-group collectivism* in the baseline regression return insignificant in Table 3. This means that their effect has remained persistent over time. It is unexpected that all significant coefficients have a positive algebraic sign. This would lead to the interpretation that cultural distance used to have a more positive impact on the value of trade in the years 1995, 1998, and 2001 relative to the base year 2004. However, this specification may be flawed as it omits country pairs with the smallest cultural distance by definition.¹¹

In order to allow for country pairs to share identical cultural beliefs, I include the bilateral distance measures into the regression in levels instead of logs, following specification (3). Moreover, this means that country pairs with the same importer and exporter are now part of the sample, allowing to include and control for intra-national trade. The sample size increases by around 200 observations and Table 4 provides the results.

¹¹When clustering at the country pair level, the number of significant estimators changes somewhat but the overall interpretation remains the same.

Table 4: Time-varying trade effects of cultural distance: Panel PPMI estimation (basic sample+intra-nat. trade)

Panel A: Aggregate trade		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Distance variable of interest:	Perf. orient.	Assertiveness	Uncert. avoidance	Power dist.	In-group coll.	Institutional coll.	Future orient.	Humane orient.	Gender egal.	Av. dist.	
(Cultural distance) 1995	0.395 (0.761) [0.754]	0.657 (0.528) [0.217]**	-1.234 (0.423)** [0.371]***	1.197 (0.553)* [0.617]	-0.156 (0.377) [0.396]	0.865 (0.479) [0.307]**	-1.303 (0.615)* [0.811]	0.854 (0.468) [0.448]	-0.350 (0.674) [0.813]	-0.551 (1.495) [1.619]	
(Cultural distance) 1998	-0.592 (0.857) [1.243]	0.800 (0.480) [0.237]***	-0.487 (0.356) [0.387]	1.132 (0.449)* [0.449]*	0.195 (0.329) [0.257]	0.873 (0.434)* [0.347]*	-1.015 (0.527) [0.632]	0.590 (0.421) [0.291]*	0.448 (0.528) [0.498]	0.468 (1.152) [0.829]	
(Cultural distance) 2001	1.200 (0.592)* [0.220]***	-0.310 (0.476) [0.249]	-1.126 (0.493)* [0.144]***	-1.029 (0.343)* [0.647]	0.385 (0.312) [0.161]*	-0.017 (0.451) [0.283]	-0.546 (0.366) [0.100]***	-1.314 (0.401)* [0.571]*	-0.533 (0.460) [0.342]	-1.699 (1.032) [0.769]*	
N	11997	11997	11997	11997	11997	11997	11997	11997	11997	11997	
R ²	0.0046	0.0053	0.0041	0.0044	0.0054	0.0051	0.0047	0.0048	0.0055	0.0052	

Panel B: Homogeneous goods		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Distance variable of interest:	Perf. orient.	Assertiveness	Uncert. avoidance	Power dist.	In-group coll.	Institutional coll.	Future orient.	Humane orient.	Gender egal.	Av. dist.	
(Cultural distance) 1995	-0.810 (0.836) [0.718]	0.004 (0.730) [0.454]	-1.558 (0.517)** [0.499]**	-0.509 (0.757) [0.389]	-0.307 (0.393) [0.471]	1.205 (0.569)* [0.315]***	-1.811 (0.708)* [0.739]*	-0.006 (0.535) [0.389]	0.138 (0.783) [0.655]	-2.504 (1.539) [1.308]	
(Cultural distance) 1998	0.065 (0.661) [0.460]	-0.249 (0.660) [0.543]	-0.456 (0.360) [0.301]	0.974 (0.752) [0.521]	0.375 (0.317) [0.301]	0.576 (0.516) [0.364]	-0.369 (0.454) [0.414]	-0.165 (0.473) [0.355]	2.233 (0.593)*** [0.442]***	0.912 (1.063) [0.906]	
(Cultural distance) 2001	1.125 (0.505)* [0.278]***	0.463 (0.496) [0.138]***	-0.656 (0.340) [0.286]*	-2.661 (0.804)*** [1.215]*	0.133 (0.285) [0.183]	-0.130 (0.463) [0.499]	-0.401 (0.379) [0.277]	-1.359 (0.568)* [0.911]	-1.003 (0.542) [0.812]	-2.088 (1.006)* [1.324]	
N	11785	11785	11785	11785	11785	11785	11785	11785	11785	11785	
R ²	0.0018	0.0018	0.0015	0.0015	0.02	0.0018	0.0018	0.0016	0.0013	0.0016	

Panel C: Differentiated goods		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Distance variable of interest:	Perf. orient.	Assertiveness	Uncert. avoidance	Power dist.	In-group coll.	Institutional coll.	Future orient.	Humane orient.	Gender egal.	Av. dist.	
(Cultural distance) 1995	1.016 (0.870) [0.654]	0.893 (0.459) [0.144]***	-0.670 (0.326)* [0.297]*	1.079 (0.523)* [0.501]*	0.200 (0.381) [0.345]	0.721 (0.470) [0.347]*	-0.587 (0.518) [0.485]	0.575 (0.439) [0.352]	-0.305 (0.484) [0.249]	0.874 (1.395) [1.248]	
(Cultural distance) 1998	-0.260 (0.964) [1.385]	1.041 (0.523)* [0.300]***	-0.299 (0.398) [0.420]	0.636 (0.513) [0.389]	0.278 (0.376) [0.287]	0.735 (0.464) [0.385]	-1.007 (0.619) [0.678]	0.470 (0.451) [0.256]	-0.584 (0.580) [0.480]	0.464 (1.352) [0.902]	
(Cultural distance) 2001	1.271 (0.730) [0.352]***	-0.512 (0.542) [0.161]**	-1.299 (0.314)*** [0.191]***	-0.189 (0.454) [0.246]	0.574 (0.361) [0.212]*	0.241 (0.469) [0.222]	-0.614 (0.429) [0.090]***	-1.321 (0.395)*** [0.500]**	0.001 (0.509) [0.334]	-1.118 (1.236) [0.954]	
N	11941	11941	11941	11941	11941	11941	11941	11941	11941	11941	
R ²	0.0037	0.0047	0.0039	0.0045	0.0049	0.0048	0.0043	0.0045	0.0050	0.0049	

LHS for estimation methods: export value. Distance definition: $(cultural_dimension_i - cultural_dimension_j)$. Columns (1) to (9) show, which of the nine different cultural distance measures is used in each

given specification, see table 3, 2. Estimation (10) uses the average of all 9 dimensions. All estimations include controls for international trade, RTAs, 3-, 6- and 9-year lags of RTAs, importer-year, exporter-year, and country-pair fixed effects. Standard errors in parentheses are clustered at country pair level and multi-way clustered, respectively. *** p<0.001, ** p<0.01, * p<0.05

For nine out of the ten cultural distance dimensions including the average effect, there is a significant change regarding their impact on export value over time with respect to the base year 2004 for the aggregate goods specification in panel A. The impact of a 1 percent increase in distance on trade regarding the measure for *performance orientation* is 232 percent ($= 100 * [e^{1.2} - 1]$) larger and positive in 2001 than in 2004 at a critical value of 0.001. If differences regarding *assertiveness* increase by 1 percent, the effect on trade is positive and larger by 93 percent in 1995 and increases to 123 percent in 1998 in comparison to 2004 with a 1 percent level of significance. For 2001, the effect remains constant. Relative to 2004, the effect of cultural distance measured by *uncertainty avoidance* influences trade negatively and stronger in the years 1995 and 2001 by -71 percent and by -32 percent, respectively. The first coefficient is statistically significant at the 1 percent level, the latter at the 0.1 percent level, while there is no significant change in 1998 compared to 2004. The baseline regression suggests that on average an increase of bilateral distance regarding *power distance* has a negative effect on trade. However, in 1998 this negative effect is smaller by 210 percent relative to the corresponding effect in 2004 and is significant at a critical value of 5 percent. The positive impact of cultural distance regarding *in-group collectivism* on trade is constant for 1995 and 1998 and significantly stronger at the 5 percent threshold by 47 percent in 2001 relative to 2004. In comparison to 2004, distance regarding *institutional collectivism* used to have a positive and stronger impact on trade of 138 percent in 1995 and of 139 percent in 1998. The first coefficient is statistically significant at the 1 percent level, the second at the 5 percent level. The negative effect of *future orientation* on trade is highly significant for 2001 and used to be stronger by -42 percent with respect to 2004. Compared to 2004, the negative effect from the baseline regression of *humane orientation* on trade is not significantly different in 1995 but it decreases in 1998 by a positive impact that is 80 percent stronger. In 2001, the negative impact is then again amplified by -73 percent in 2001. Both coefficients are significant at critical values of 0.05. The measure of *average distance* shares the same level of significance with the previous dimension and used to decrease trade by -82 percent more in 2001 than in 2004. The negative effect of *gender egalitarianism* from the baseline regression seems to be persistent over time.

Panel B yields the estimation results focusing on homogeneous goods only. The effect of *performance orientation* across time is comparable to the aggregate goods case and implies no significant changes for 1995 and 1998 but a positive impact on trade that is 208 percent larger in 2001 compared to 2004 at a critical value of 0.001. Bilateral differences regarding *assertiveness* influence trade for homogeneous differently compared to the aggregate goods case. Here, the positive effect is still highly significant and stronger by 59 percent compared to 2004. The driver for this relative increase is the year 2001, while the impact remains constant for the other years. The negative average influence on trade from the baseline regression of a 1 percent increase of bilateral distance regarding *uncertainty avoidance* is made stronger by -80 percent in 1995 and by -48 percent in 2001. The coefficient for 1995 is statistically significant at 1 percent, the one for 2001

at 5 percent. It remains unchanged for 1998. The distance measure seems to lose its strength over time. The effect of a 1 percent increase regarding different perception of *power distance* is negative and dramatically larger by -93 percent in 2001 than in 2004 at a critical value of 0.05. The impact of bilateral distance regarding *institutional collectivism* on the other hand highly significantly boosts trade in 1995 and is 234 percent larger than in 2004. The effect remains constant in the other years. The coefficient of *future orientation* is negative and significant at 5 percent for the year 1995, and imply an increase of the potential negative impact of this dimension on trade by -84 percent relative to 2004. Differences regarding *gender egalitarianism* positively influence trade by 833 percent for 1998 relative to 2004 and the coefficient is significant at the critical value of 0.001. The negative effects of bilateral cultural distance on the export value of homogeneous goods from the baseline regression for *in-group collectivism* and *humane orientation* are constant over time.

Seven distance measures significantly change their influence on trade with differentiated goods in panel C over time with respect to the base year. The effect of *performance orientation* is persistent and highly significant across good specifications. Similar to panels A and B, the effect of an increase in bilateral distance on trade is positive and used to be stronger for 2001 in contrast to 2004, in this specification by 256 percent. *Assertiveness* affects trade differently over time. For 1995 and 1998 the effect on trade is positive and grows in strength in comparison to 2004 by 144 percent and by 183 percent, respectively. In 2001, the trade impact is negative and decreases by 67 percent relative to 2004. The coefficients for 1995 and 1998 are significant at critical values of 0.001, the one for 2001 at 1 percent. An increase of bilateral distance regarding *uncertainty avoidance* increases its negative effect on trade by 49 percent for 1995 and by 73 percent for 2001. The first coefficient is significant at 5 percent, the other at 0.1 percent. In contrast to the other specifications, the negative impact of this distance measure grows over time for differentiated goods. The significant positive influence on the otherwise negative average effect of *power distance* on trade for 1995 in the aggregate case is driven by exports of differentiated goods. The coefficient is significant at 5 percent and shows that the positive impact in this year is larger by 194 percent than in 2004. The same holds true for *in-group collectivism*. The average effect is negative as suggested by the baseline regression but in 2001 this negative influence was smaller by 78 percent relative to 2004. The level of significance is 1 percent. Differences with respect to the dimension *institutional collectivism* increased trade by 106 percent more in 1995 than in the following years, where there is no deviation from the effect in 2004. The coefficient is significant at a critical value of 5 percent. The effect of *future orientation* is persistent for 1995 and 1998 but highly significantly decreased by -46 percent in contrast to the base year. Differences in *humane orientation* are statistically significant at 1 percent and show a decrease on the trade value of exports for 2001 that is stronger by -73 percent when compared to 2004 and unchanged otherwise. The negative trade effects of *gender egalitarianism* remain unchanged over time.

Overall, the inclusion of countries with the same cultural values and intra-national trade changes the results in Table 4 significantly in contrast to Table 3. The trade effects of bilateral cultural distance on trade are no longer consistently positive and larger relative to 2004 but several effects used to be more negative. This is a more plausible result but still somewhat surprising when compared to the perceived general trend of bilateral distance, in which distance persistently decreases over time. The effect of the cultural distance dimensions on trade seems to significantly change over the observed time span but it does not seem to follow a clear trend. Some effects grow in size, while others decrease over time. Some show a positive and some show a negative impact on trade. Furthermore, the choice of goods specification matters for significance and magnitude. These results show that the impact on cultural distance on trade is not as clear as it may appear and needs to be approached with caution. As a robustness check, the effect of cultural distance on the value of trade is re-estimated without the scaling process. Two coefficients which were barely significant in Table 4 lose their significance, the results of the other 58 regressions are identical to Table 4 if the coefficients are multiplied by the scaling-factor 6. Tables A.11 to A.13 provide the results in the appendix.

Finally, Table 5 presents the effects of the measures of cultural proximity on trade instead of cultural distance and follows specification (4). As distance is commonly estimated in elasticities, the nine proximity dimensions and the average proximity measure are log-linearized. Due to the design of the measure, it still allows to include countries with the same cultural background as well as intra-national trade. With the exception of two coefficients, which appear significant only in the proximity specification, the coefficients' level of significance is identical to Table 4. By definition, the effect of cultural proximity on trade works in the opposite direction as distance, therefore, the algebraic signs are reversed. Moreover, the size of the coefficients is similar as well. However, as the proximity dimensions are interpreted as elasticities, the size of the coefficients translates directly to a percentage change on trade values if proximity increases by 1 percent. Thus, the effects provided in Table 5 are much smaller compared to Table 4. For example, the effect of a 1 percent increase of proximity regarding *performance orientation* in 1998 in panel A leads to less trade compared to 2004 by -1.049 percent. When the effect is estimated in levels, the corresponding effect is a decrease of -232 percent. Since there is no theory foundation (yet) on how cultural distance should be measured, both measures are potentially correct. Nonetheless, I argue that the results provided in Table 5 are more plausible compared to Table 4 as they indicate that the effect of cultural proximity on trade does not change much across the observed time span or remains persistent.

Table 5: Time-varying trade effects of logged cultural proximity: Panel PPMI estimation (basic sample+intra-nat. trade)

Panel A: Aggregate trade		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Proximity variable of interest:	Perf. orient.	Assertiveness	Uncert. avoidance	Power dist.	In-group coll.	Institutional coll.	Future orient.	Humane orient.	Gender egal.	Av. prox.	
ln(Proximity) 1995	-0.314 (0.691) [0.695]	-0.621 (0.481) [0.204]**	1.077 (0.363)** [0.315]***	-1.158 (0.498)* [0.565]*	0.194 (0.310) [0.334]	-0.774 (0.420) [0.268]**	1.167 (0.548)* [0.736]	-0.804 (0.415) [0.414]	0.288 (0.614) [0.757]	0.537 (1.348) [1.480]	
ln(Proximity) 1998	0.586 (0.781) [1.146]	-0.733 (0.437) [0.215]***	0.413 (0.300) [0.334]	-1.071 (0.389)** [0.408]**	-0.126 (0.269) [0.215]	-0.766 (0.383)* [0.305]*	0.895 (0.470) [0.567]	-0.562 (0.372) [0.273]*	-0.457 (0.477) [0.466]	-0.408 (1.030) [0.770]	
ln(Proximity) 2001	-1.049 (0.535) [0.202]**	0.282 (0.438) [0.232]	0.964 (0.245)*** [0.129]***	0.910 (0.432)* [0.582]	-0.290 (0.257) [0.135]*	0.012 (0.399) [0.247]	0.486 (0.321) [0.093]***	1.137 (0.359)** [0.514]*	0.470 (0.411) [0.307]	1.559 (0.915) [0.633]*	
N	11997	11997	11997	11997	11997	11997	11997	11997	11997	11997	
R ²	0.0046	0.0053	0.0040	0.0042	0.0054	0.0051	0.0047	0.0047	0.0054	0.0052	

Panel B: Homogeneous goods		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Proximity variable of interest:	Perf. orient.	Assertiveness	Uncert. avoidance	Power dist.	In-group coll.	Institutional coll.	Future orient.	Humane orient.	Gender egal.	Av. prox.	
ln(Proximity) 1995	0.774 (0.764) [0.646]	-0.013 (0.675) [0.425]	1.345 (0.444)** [0.421]**	0.378 (0.693) [0.362]	0.315 (0.333) [0.405]	-1.082 (0.506)* [0.283]***	1.638** (0.628)** [0.661]*	-0.025 (0.475) [0.359]	-0.176 (0.710) [0.602]	2.317 (1.397) [1.180]*	
ln(Proximity) 1998	-0.030 (0.595) [0.418]	0.215 (0.613) [0.506]	0.369 (0.306) [0.257]	-0.905 (0.676) [0.466]	-0.293 (0.266) [0.256]	-0.528 (0.461) [0.325]	0.337 (0.399) [0.366]	0.106 (0.422) [0.319]	-2.085 (0.532)*** [0.387]***	-0.831 (0.956) [0.822]	
ln(Proximity) 2001	-1.002 (0.452)* [0.253]***	-0.449 (0.459), [0.122]**	0.551 (0.284) [0.241]*	2.381 (0.729)** [1.089]*	-0.079 (0.241) [0.161]	0.092 (0.415) [0.442]	0.371 (0.335) [0.244]	1.192 (0.514)* [0.809]	0.876 (0.488) [0.736]	1.900 (0.910)* [1.209]	
N	11785	11785	11785	11785	11785	11785	11785	11785	11785	11785	
R ²	0.0038	0.0047	0.0039	0.0044	0.0049	0.0048	0.0046	0.0045	0.0050	0.0049	

Panel C: Differentiated goods		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Proximity variable of interest:	Perf. orient.	Assertiveness	Uncert. avoidance	Power dist.	In-group coll.	Institutional coll.	Future orient.	Humane orient.	Gender egal.	Av. prox.	
ln(Proximity) 1995	-0.894 (0.790) [0.599]	-0.830 (0.418)* [0.136]***	0.590 (0.278)* [0.249]*	-1.013 (0.459)* [0.456]*	-0.110 (0.308) [0.282]	-0.630 (0.412) [0.301]*	0.515 (0.461) [0.431]	-0.554 (0.388) [0.330]	0.253 (0.440) [0.244]	-0.749 (1.244) [1.121]	
ln(Proximity) 1998	0.292 (0.881) [1.279]	-0.944 (0.474)* [0.270]***	0.253 (0.338) [0.363]	-0.621 (0.443) [0.351]	-0.194 (0.305) [0.239]	-0.633 (0.409) [0.339]	0.897 (0.555) [0.606]	-0.453 (0.398) [0.233]	0.516 (0.525) [0.443]	-0.385 (1.209) [0.822]	
ln(Proximity) 2001	-1.104 (0.664) [0.332]***	0.476 (0.497) [0.157]**	1.116 (0.265)*** [0.166]***	0.169 (0.392) [0.211]	-0.452 (0.297) [0.176]*	-0.204 (0.414) [0.191]	0.545 (0.380) [0.089]***	1.147 (0.349)** [0.451]*	0.002 (0.456) [0.297]	1.045 (1.098) [0.847]	
N	11941	11941	11941	11941	11941	11941	11941	11941	11941	11941	
R ²	0.0038	0.0047	0.0039	0.0044	0.0048	0.0046	0.0045	0.0050	0.0049	0.0049	

LHS for estimation methods: export value. Proximity definition: $1 - \frac{[\text{cultural dimension}_i - \text{cultural dimension}_j]}{\max(\text{cultural dimension}) - \min(\text{cultural dimension})}$. Columns (1) to (9) show which of the nine different cultural distance measures is used in each given specification, see table 3.2. Estimation (10) uses the average of all 9 dimensions. All estimations include controls for international trade, RTAs, 3-, 6-, and 9-year lags of RTAs, import/year, exporter/year, and country-pair fixed effects. Standard errors in parentheses are clustered at country pair level and multi-way clustered, respectively. *** p<0.001, ** p<0.01, * p<0.05

7 Concluding remarks

In this essay, the changing effect of bilateral cultural differences on the value of exports was analyzed over time using the nine cultural dimensions introduced by GLOBE (House et al., 2013) together with state-of-the-art empirical methods. The answer is not as clear as it might be on first sight: Neither diminishes the impact of cultural distance on trade values persistently in the face of increased globalization, nor has it consistently been strengthened. From the results above, there is no clear trend apparent for the importance of cultural distance for bilateral trade in the face of globalization. Depending on the cultural dimensions, the effects differ over the observed time span. Its effect has remained persistent for some dimensions, while it has increased or decreased for others over time. This shows that the choice of definition for the term *culture* is very important. Moreover, the aggregation of commodity groups introduced by Rauch (1999) affects the results and offers new insights. Several significant effects on the aggregate goods case are either driven by differentiated or homogeneous goods. This information would otherwise have been lost. It has been shown that it makes a big difference, whether or not intra-national trade is included into the regression, highlighting the importance to do so (Yotov (2012), Bergstrand et al. (2015)). Finally, it does not change the level of significance of the estimation results, whether culture is measured by bilateral distance in levels or proximity in logs. However, the interpretation of the coefficients depends on the specification and leads to different inferences.

For further research the scope of the analysis should be increased to capture the steady increase of the globalization process in the 2000s. So far, this can be done on the aggregate level but not on the product level for all countries within the sample. The previous analysis showed how important it is to make use of a data set like TradeProd that allows to distinguish different commodity groups and that includes intra-national trade as well.

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A Appendix

Table A.1 yields the individual rank of each of the 60 countries within the GLOBE survey for each of the nine cultural dimensions. The rank of 1 corresponds to the lowest score in the sample and 60 to the highest.

The following appendix shows the complete estimation tables, except for the fixed effects dummies. All specifications include importer-year and exporter-year fixed effects. Tables A.2 to A.4 show the results for the baseline regression without pair fixed effects but with additional time-invariant control variables for geographical bilateral distance, common currency, common border, and colonial background. In all the following regressions, country pair fixed effects are included. Tables A.5 and A.6 show results for the PPML approach without intra-national trade. Tables A.8 to A.16 include intra-national trade as well as the dummy variable for international border crossings of trade. Tables A.8 to A.10 show the complete results of the regressions estimating cultural distance effects on trade in levels, Tables A.14 to A.16 use the proximity measure instead of distance. Tables A.11 to A.13 yield the results for the robustness regressions without the scaling process of cultural distance.

Table A.1: Country rank per GLOBE dimension

Country	Perf. orient.	Assertiveness	Uncert. avoidance	Power dist.	Int-group coll.	Institutional coll.	Future orient.	Humane orient.	Gender egal.
Albania	58	60	46	50	45	36	45	45	51
Argentina	10	38	14	56	34	4	2	4	34
Australia	44	40	43	10	10	32	43	32	31
Austria	47	55	18	19	34	55	34	34	16
Bolivia	9	12	4	5	32	22	21	22	37
Brazil	26	36	10	39	23	10	32	10	27
Canada	51	25	47	11	12	35	53	35	49
China	48	11	53	21	52	54	28	54	14
Colombia	22	37	9	50	49	9	9	9	48
Costa Rica	33	10	21	9	27	16	20	16	39
Czech Republic	30	8	45	1	1	3	23	3	52
Denmark	36	13	56	2	2	55	54	55	56
Ecuador	35	30	18	53	53	14	27	14	15
Egypt	41	18	28	17	44	42	34	42	3
El Salvador	13	56	11	58	29	7	7	7	18
England	27	33	49	26	9	31	50	31	47
Finland	16	14	54	15	8	51	48	51	29
France	31	32	44	34	13	17	15	17	42
Georgia	18	35	7	31	59	19	12	19	38
Germany	39	51	57	33	7	8	49	8	17
Greece	1	53	5	41	26	1	11	1	33
Guatemala	15	17	3	52	43	6	5	6	12
Hong Kong	57	57	41	19	28	26	41	26	32
Hungary	4	59	2	49	24	2	4	2	60
India	40	9	32	46	57	36	47	36	7
Indonesia	46	15	35	29	46	46	35	46	25
Iran	54	24	17	43	58	13	24	13	9
Ireland	45	21	40	25	22	52	40	52	22
Israel	28	39	27	8	17	39	33	39	21
Italy	7	29	20	42	20	5	6	5	24
Japan	37	3	29	23	16	58	51	58	20
Kazakhstan	6	47	16	36	25	33	18	33	54
Korea (South)	52	44	8	54	38	59	59	59	1
Kuwait	23	4	38	24	51	40	8	40	2
Malaysia	43	16	52	28	35	48	56	48	36
Mexico	29	46	36	32	48	24	37	24	43
Morocco	24	49	15	59	55	12	7	12	4
Namibia	12	19	37	35	15	27	16	27	55
Netherlands	42	41	50	3	5	38	57	38	35
New Zealand	56	2	51	14	4	56	14	56	23
Nigeria	20	58	39	60	39	29	42	29	11
Philippines	49	23	22	45	60	53	45	53	44
Poland	19	27	12	22	36	44	3	44	58
Portugal	8	6	23	44	33	15	25	15	46
Qatar	5	31	26	7	18	41	30	41	41
Russia	3	7	1	47	42	43	1	43	59
Singapore	59	34	58	20	45	57	60	57	50
Slovenia	11	22	19	38	30	28	19	28	57
South Africa (B.)	55	43	48	4	21	37	58	37	45
South Africa (W.)	32	54	30	27	14	50	44	50	26
Spain	25	45	25	48	31	11	17	11	10
Sweden	14	1	59	12	3	60	52	60	53
Switzerland	60	48	60	16	6	23	59	23	8
Taiwan	53	20	42	30	41	47	38	47	19
Thailand	21	5	24	55	47	21	13	21	30
Turkey	17	50	13	51	56	20	26	20	6
USA	50	52	33	13	11	30	46	30	28
Venezuela	2	42	6	40	37	18	10	18	40
Zambia	34	28	31	37	54	49	22	49	5
Zimbabwe	38	26	34	57	40	25	29	25	13

Table A.2: Average trade effects of logged cultural distance (aggregate trade): Panel PPMI estimation

Distance variable of interest:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
RTA	0.535*** (0.077)	0.530*** (0.078)	0.536*** (0.076)	0.515*** (0.075)	0.456*** (0.077)	0.524*** (0.076)	0.541*** (0.077)	0.522*** (0.074)	0.526*** (0.077)	0.537*** (0.076)
RTA_LAG3	0.157*** (0.034)	0.159*** (0.034)	0.151*** (0.034)	0.137*** (0.029)	0.144*** (0.040)	0.158*** (0.033)	0.159*** (0.034)	0.151*** (0.032)	0.149*** (0.033)	0.156*** (0.034)
RTA_LAG6	0.100** (0.036)	0.102** (0.036)	0.098** (0.035)	0.100** (0.035)	0.118** (0.041)	0.101** (0.036)	0.103** (0.036)	0.099** (0.036)	0.101** (0.036)	0.102** (0.036)
RTA_LAG9	0.001 (0.025)	0.005 (0.025)	0.005 (0.025)	-0.001 (0.024)	0.004 (0.030)	0.001 (0.025)	0.004 (0.025)	-0.001 (0.025)	0.001 (0.025)	0.002 (0.025)
ln_DIST	-0.624*** (0.037)	-0.625*** (0.037)	-0.620*** (0.037)	-0.633*** (0.038)	-0.646*** (0.037)	-0.636*** (0.036)	-0.624*** (0.037)	-0.624*** (0.036)	-0.621*** (0.037)	-0.620*** (0.037)
CNTG	0.500*** (0.070)	0.491*** (0.070)	0.490*** (0.071)	0.487*** (0.067)	0.487*** (0.073)	0.483*** (0.070)	0.484*** (0.070)	0.499*** (0.071)	0.504*** (0.070)	0.489*** (0.071)
comcur	-0.063 (0.082)	-0.061 (0.083)	-0.034 (0.084)	-0.094 (0.080)	-0.064 (0.080)	-0.077 (0.084)	-0.059 (0.083)	-0.075 (0.083)	-0.039 (0.083)	-0.056 (0.083)
CLNY	0.030 (0.095)	0.036 (0.095)	0.044 (0.094)	0.059 (0.096)	0.017 (0.098)	0.040 (0.096)	0.047 (0.096)	0.059 (0.092)	0.038 (0.094)	0.038 (0.094)
ln(Cultural distance)	0.015 (0.016)	0.012 (0.023)	-0.029 (0.015)	-0.072 (0.019)***	0.075 (0.016)***	0.013 (0.025)	-0.035 (0.018)*	-0.038 (0.015)*	-0.045 (0.018)*	-0.035 (0.016)
N	11824	11824	11808	11808	11816	11808	11840	11816	11824	11880
R ²	0.0475	0.0482	0.0491	0.0499	0.0515	0.0477	0.0483	0.0486	0.0492	0.0486

LHS for estimation methods: export value. Distance definition: $\frac{[(cultural_dimension_1 - cultural_dimension_9) * (cultural_dimension_2 - cultural_dimension_9)]}{\max(cultural_dimension_1, \dots, cultural_dimension_9) - \min(cultural_dimension_1, \dots, cultural_dimension_9)}$. Columns (1) to (9) show, which of the nine different cultural distance measures is used in each given specification, see table 3.2. Estimation (10) uses the average of all 9 dimensions. All estimations include importer-year and exporter-year fixed effects. Standard errors in parentheses are clustered at country pair level and multi-way clustered, respectively. *** p<0.001, ** p<0.01, * p<0.05

Table A.3: Average trade effects of logged cultural distance (homogeneous goods): Panel PPMI estimation

Distance variable of interest:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
RTA	0.349*** (0.088)	0.350*** (0.087)	0.339*** (0.087)	0.354*** (0.088)	0.317*** (0.090)	0.331*** (0.088)	0.356*** (0.089)	0.331*** (0.086)	0.341*** (0.088)	0.349*** (0.087)
RTA_LAG3	0.072 (0.041)	0.076 (0.040)	0.064 (0.040)	0.061 (0.037)	0.063 (0.049)	0.077 (0.040)	0.075 (0.041)	0.073 (0.039)	0.073 (0.039)	0.072 (0.040)
RTA_LAG6	0.040 (0.059)	0.041 (0.058)	0.041 (0.058)	0.042 (0.058)	0.025 (0.069)	0.038 (0.059)	0.047 (0.058)	0.031 (0.057)	0.039 (0.059)	0.042 (0.058)
RTA_LAG9	0.060 (0.035)	0.067 (0.035)	0.060 (0.035)	0.052 (0.034)	0.072 (0.040)	0.059 (0.035)	0.059 (0.035)	0.059 (0.034)	0.067 (0.035)	0.060 (0.035)
ln_DIST	-0.810*** (0.047)	-0.806*** (0.047)	-0.805*** (0.048)	-0.811*** (0.048)	-0.823*** (0.048)	-0.823*** (0.048)	-0.809*** (0.045)	-0.812*** (0.048)	-0.802*** (0.045)	-0.805*** (0.048)
CNTG	0.408*** (0.070)	0.413*** (0.071)	0.405*** (0.071)	0.400*** (0.070)	0.407*** (0.072)	0.379*** (0.071)	0.395*** (0.071)	0.407*** (0.071)	0.427*** (0.071)	0.398*** (0.071)
concur	0.055 (0.113)	0.064 (0.112)	0.077 (0.117)	0.057 (0.112)	0.056 (0.111)	0.040 (0.115)	0.050 (0.114)	0.040 (0.113)	0.075 (0.112)	0.062 (0.113)
CLNY	0.022 (0.122)	0.026 (0.121)	0.038 (0.120)	0.037 (0.123)	0.008 (0.125)	0.094 (0.115)	0.038 (0.119)	0.076 (0.117)	0.036 (0.120)	0.030 (0.121)
ln(Cultural distance)	0.004 (0.019)	-0.007 (0.030)	-0.055 (0.019)**	-0.031 (0.024)	0.066 (0.020)***	0.051 (0.032)	-0.036 (0.023)	-0.067 (0.029)	-0.066 (0.024)***	-0.056 (0.078)
N	11824	11824	11808	11808	11816	11808	11840	11816	11824	11880
R ²	0.0529	0.0533	0.0540	0.0539	0.0661	0.0523	0.0529	0.0535	0.0541	0.0543

LHS for estimation methods: export value. Distance definition: $\frac{[cultural_dimension_1 - cultural_dimension_9]}{\max(cultural_dimension_1 - cultural_dimension_9)}$. Columns (1) to (9) show, which of the nine different cultural distance measures is used in each given specification, see table 3.2. Estimation (10) uses the average of all 9 dimensions. All estimations include importer-year and exporter-year fixed effects. Standard errors in parentheses are clustered at country pair level and multi-way clustered, respectively. *** p<0.001, ** p<0.01, * p<0.05

Table A.4: Average trade effects of logged cultural distance (differentiated goods): Panel PPMI estimation

Distance variable of interest:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
RTA	0.651*** (0.081)	0.641*** (0.083)	0.648*** (0.081)	0.597*** (0.081)	0.533*** (0.079)	0.638*** (0.081)	0.654*** (0.081)	0.639*** (0.079)	0.639*** (0.082)	0.651*** (0.081)
RTA_LAG3	0.174*** (0.034)	0.171*** (0.033)	0.169*** (0.033)	0.155*** (0.030)	0.145*** (0.039)	0.168*** (0.033)	0.172*** (0.033)	0.163*** (0.033)	0.156*** (0.032)	0.170*** (0.033)
RTA_LAG6	0.129*** (0.039)	0.132*** (0.039)	0.129*** (0.039)	0.129*** (0.038)	0.163*** (0.044)	0.134*** (0.040)	0.132*** (0.039)	0.134*** (0.039)	0.133*** (0.039)	0.132*** (0.039)
RTA_LAG9	-0.035 (0.029)	-0.034 (0.028)	-0.030 (0.029)	-0.033 (0.027)	-0.046 (0.034)	-0.035 (0.028)	-0.031 (0.028)	-0.038 (0.028)	-0.0411 (0.028)	-0.035 (0.028)
ln_DIST	-0.553*** (0.039)	-0.559*** (0.040)	-0.555*** (0.040)	-0.572*** (0.040)	-0.589*** (0.039)	-0.559*** (0.039)	-0.554*** (0.039)	-0.555*** (0.039)	-0.553*** (0.040)	-0.551*** (0.040)
CNTG	0.532*** (0.079)	0.512*** (0.080)	0.516*** (0.081)	0.515*** (0.075)	0.504*** (0.084)	0.529*** (0.081)	0.513*** (0.080)	0.524*** (0.081)	0.530*** (0.080)	0.516*** (0.081)
comcur	-0.141 (0.085)	-0.141 (0.087)	-0.114 (0.086)	-0.200* (0.083)	-0.139 (0.083)	-0.158 (0.086)	-0.132 (0.086)	-0.148 (0.086)	-0.111 (0.084)	-0.133 (0.086)
CLNY	0.047 (0.099)	0.055 (0.098)	0.056 (0.098)	0.084 (0.098)	0.030 (0.102)	0.011 (0.104)	0.063 (0.096)	0.065 (0.097)	0.055 (0.097)	0.056 (0.098)
ln(Cultural distance)	0.025 [0.018] [0.033]	0.014 [0.023] [0.039]	-0.008 [0.017] [0.025]	-0.096 [0.019]*** [0.028]***	0.089 [0.018]*** [0.037]*	-0.017 [0.026] [0.038]	-0.031 [0.019] [0.038]	-0.022 [0.016] [0.038]	-0.045 [0.020] [0.027]	-0.030 [0.016] [0.027]
N	11824	11824	11808	11808	11816	11808	11840	11816	11824	11880
R ²	0.0397	0.0409	0.0415	0.0428	0.0396	0.0405	0.0410	0.0411	0.0419	0.0412

LHS for estimation methods: export value. Distance definition: $\frac{[cultural_dimension_1 - cultural_dimension_9]}{\max(cultural_dimension) - \min(cultural_dimension)}$. Columns (1) to (9) show, which of the nine different cultural distance measures is used in each given specification, see table 3.2. Estimation (10) uses the average of all 9 dimensions. All estimations include importer-year and exporter-year fixed effects. Standard errors in parentheses are clustered at country pair level and multi-way clustered, respectively. *** p<0.001, ** p<0.01, * p<0.05

Table A.5: Time varying trade effects of logged cultural distance (aggregate trade): Panel PPM estimation (basic sample)

Distance variable of interest:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
RTA	-0.240*** (0.059)	-0.233*** (0.059)	-0.240*** (0.059)	-0.216*** (0.057)	-0.244*** (0.060)	-0.240*** (0.059)	-0.239*** (0.059)	-0.230*** (0.059)	-0.237*** (0.060)	-0.239*** (0.060)
RTA_LAG3	0.053*** (0.019)	0.056*** (0.019)	0.064*** (0.018)	0.055*** (0.018)	0.029 (0.022)	0.057** (0.019)	0.054** (0.019)	0.052** (0.019)	0.055** (0.019)	0.057** (0.020)
RTA_LAG6	-0.043* (0.019)	-0.039* (0.018)	-0.040* (0.019)	-0.039* (0.018)	-0.055* (0.022)	-0.038* (0.018)	-0.041* (0.019)	-0.038* (0.019)	-0.041* (0.019)	-0.052** (0.019)
RTA_LAG9	-0.008 (0.020)	-0.004 (0.020)	-0.004 (0.020)	-0.001 (0.021)	-0.022 (0.023)	-0.006 (0.020)	-0.005 (0.020)	-0.017 (0.021)	-0.005 (0.021)	-0.013 (0.021)
ln(cult_dist) 1995	0.020 (0.010) [0.012]	0.021 (0.012) [0.009]*	-0.011 (0.010) [0.009]	-0.009 (0.012) [0.010]	0.021 (0.013) [0.013]	0.022 (0.012) [0.013]	-0.020 (0.011) [0.014]	0.020 (0.011) [0.010]*	0.007 (0.012) [0.011]	0.068 (0.034)* [0.043]
ln(cult_dist) 1998	0.022 (0.007)** [0.007]**	0.019 (0.010) [0.008]*	0.008 (0.009) [0.008]	-0.005 (0.010) [0.008]	0.017 (0.011) [0.009]	0.017 (0.011) [0.010]	-0.006 (0.009) [0.012]	0.006 (0.010) [0.007]	-0.001 (0.010) [0.008]	0.086 (0.027)** [0.028]**
N	11728	11724	11708	11716	11708	11748	11720	11724	11780	11724
R ²	0.0379	0.0311	0.0335	0.0330	0.0316	0.0336	0.0335	0.0345	0.0312	0.0345

LHS for estimation methods: export value. Distance definition: $\frac{\sum_{j=1}^9 \text{cult_dimension}_i - \text{cult_dimension}_j}{\max(\text{cult_dimension}) - \min(\text{cult_dimension})}$. Columns (1) to (9) show, which of the nine different cultural distance measures is used in each given specification, see table 3.2. Estimation (10) uses the average of all 9 dimensions. All estimations include importer-year, exporter-year, and country pair fixed effects. Standard errors in parentheses are clustered at country pair level and multi-way clustered, respectively. *** p<0.001, ** p<0.01, * p<0.05

Table A.6: Time-varying trade effect of logged cultural distance (homogeneous goods): Panel PPMI estimation (basic sample)

Distance variable of interest:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
RTA	-0.132*	-0.127 (0.067)	-0.131 (0.067)	-0.095 (0.067)	-0.148* (0.067)	-0.131* (0.066)	-0.129 (0.068)	-0.116 (0.066)	-0.124 (0.067)	-0.130 (0.067)
RTA_LAG3	0.039 (0.025)	0.040 (0.024)	0.047 (0.024)	0.043 (0.025)	0.011 (0.029)	0.044 (0.024)	0.041 (0.025)	0.041 (0.024)	0.046 (0.025)	0.046 (0.025)
RTA_LAG6	0.007 (0.030)	0.013 (0.030)	0.012 (0.030)	0.017 (0.030)	-0.025 (0.032)	0.015 (0.029)	0.014 (0.030)	0.016 (0.028)	0.016 (0.030)	-0.005 (0.030)
RTA_LAG9	0.031 (0.030)	0.034 (0.030)	0.031 (0.031)	0.033 (0.031)	0.023 (0.031)	0.035 (0.032)	0.031 (0.030)	0.015 (0.030)	0.039 (0.031)	0.027 (0.032)
ln_cult_dist_1995	0.011 (0.013) [0.012]	0.004 (0.018) [0.014]	-0.006 (0.014) [0.013]	-0.020 (0.015) [0.011]	-0.007 (0.016) [0.017]	0.049 (0.019)** [0.016]**	-0.006 (0.016) [0.017]	0.035 (0.017)* [0.017]*	0.010 (0.019) [0.018]	0.069 (0.045) [0.048]
ln_cult_dist_1998	0.012 (0.011) [0.012]	0.015 (0.016) [0.010]	0.015 (0.013) [0.012]	-0.003 (0.014) [0.013]	0.006 (0.015) [0.015]	0.047 (0.019)* [0.019]*	0.009 (0.016) [0.014]	0.015 (0.016) [0.013]	0.004 (0.018) [0.019]	0.109 (0.040)** [0.035]**
ln_cult_dist_2001	-0.003 (0.008) [0.004]	0.018 (0.011) [0.007]**	0.006 (0.009) [0.006]	-0.009 (0.012) [0.010]	-0.003 (0.009) [0.004]	0.007 (0.010) [0.008]	-0.008 (0.011) [0.007]	0.040 (0.010)*** [0.008]***	-0.019 (0.014) [0.012]	0.023 (0.030) [0.013]
N	11520	11516	11500	11504	11508	11500	11540	11512	11520	11572
R ²	0.0257	0.0163	0.0194	0.0089	0.0393	0.0045	0.0212	0.0106	0.0133	0.0099

LHS for estimation methods: export value. Distance definition: $\frac{[cultural_dimension_i - cultural_dimension_j]}{\max(cult_dimension) - \min(cult_dimension)}$. Columns (1) to (9) show, which of the nine different cultural distance measures is used in each given specification, see table 3.2. Estimation (10) uses the average of all 9 dimensions. All estimations include importer-year, exporter-year, and country pair fixed effects. Standard errors in parentheses are clustered at country pair level and multi-way clustered, respectively. *** p<0.001, ** p<0.01, * p<0.05

Table A.7: Time-varying trade effects of logged cultural distance (differentiated goods): Panel PPML estimation (basic sample)

Distance variable of interest:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
RTA	-0.263*** (0.059)	-0.254*** (0.060)	-0.263*** (0.059)	-0.261*** (0.061)	-0.264*** (0.064)	-0.264*** (0.060)	-0.261*** (0.058)	-0.260*** (0.061)	-0.260*** (0.060)	-0.261*** (0.061)
RTA_LAG3	0.045* (0.021)	0.048* (0.021)	0.055** (0.020)	0.049* (0.020)	0.022 (0.023)	0.050* (0.021)	0.046* (0.021)	0.042* (0.021)	0.043* (0.021)	0.042* (0.022)
RTA_LAG6	-0.075*** (0.019)	-0.071*** (0.019)	-0.074*** (0.020)	-0.071*** (0.019)	-0.077*** (0.025)	-0.072*** (0.019)	-0.074*** (0.019)	-0.071*** (0.021)	-0.072*** (0.020)	-0.083*** (0.020)
RTA_LAG9	-0.026 (0.022)	-0.023 (0.022)	-0.018 (0.022)	-0.016 (0.022)	-0.045 (0.023)	-0.024 (0.023)	-0.022 (0.023)	-0.026 (0.023)	-0.026 (0.023)	-0.034 (0.024)
ln(cult_dist) 1995	0.029 (0.012)* [0.014]*	0.035 (0.012)** [0.008]***	-0.010 (0.011) [0.009]	-0.011 (0.013) [0.011]	0.041 (0.014)** [0.013]**	0.011 (0.014) [0.013]	-0.025 (0.012)* [0.015]	0.009 (0.010) [0.007]	0.016 (0.013) [0.010]	0.105 (0.039)** [0.056]
ln(cult_dist) 1998	0.031 (0.008)*** [0.008]***	0.020 (0.009)* [0.010]*	0.002 (0.009) [0.008]	-0.011 (0.011) [0.008]	0.027 (0.009)** [0.009]**	0.001 (0.010) [0.010]	-0.012 (0.010) [0.012]	-0.001 (0.009) [0.005]	0.005 (0.011) [0.006]	0.089 (0.029)** [0.041]*
ln(cult_dist) 20011	0.017 (0.006)** [0.003]***	0.005 (0.008) [0.008]	-0.004 (0.007) [0.003]	-0.005 (0.007) [0.005]	0.010 (0.007) [0.001]***	-0.008 (0.008) [0.010]	-0.009 (0.007) [0.007]	0.003 (0.006) [0.005]	0.014 (0.008) [0.005]**	0.042 (0.022) [0.014]**
N	11676	11668	11652	11660	11652	11692	11664	11668	11724	
R ²	0.0354	0.0282	0.0313	0.0303	0.0249	0.0317	0.0305	0.0319	0.0292	

LHS for estimation methods: export value. Distance definition: $\frac{\lceil \text{cultural_dimension}_i - \text{cultural_dimension}_j \rceil}{\max(\text{cult_dimension}) - \min(\text{cult_dimension})}$. Columns (1) to (9) show, which of the nine different cultural distance measures is used in each given specification, see table 3.2. Estimation (10) uses the average of all 9 dimensions. All estimations include importer-year, exporter-year, and country pair fixed effects. Standard errors in parentheses are clustered at country pair level and multi-way clustered, respectively. *** p<0.001, ** p<0.01, * p<0.05

Table A.8: Time-varying trade effects of cultural distance (aggregate trade): Panel PPMI estimation (basic sample+intra-nat. trade)

Distance variable of interest:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
RTA	-0.163*** (0.063)	-0.156* (0.063)	-0.179** (0.064)	-0.129* (0.062)	-0.162** (0.062)	-0.168** (0.062)	-0.153* (0.063)	-0.131* (0.061)	-0.151* (0.062)	-0.152* (0.062)
RTA_LAG3	0.053 (0.037)	0.043 (0.038)	0.050 (0.038)	0.041 (0.039)	0.056 (0.043)	0.039 (0.039)	0.035 (0.036)	0.037 (0.037)	0.045 (0.039)	0.051 (0.044)
RTA_LAG6	-0.048 (0.047)	-0.050 (0.047)	-0.048 (0.045)	-0.059 (0.046)	-0.024* (0.048)	-0.058 (0.048)	-0.036 (0.047)	-0.052 (0.045)	-0.039 (0.048)	-0.059 (0.048)
RTA_LAG9	0.154* (0.064)	0.150* (0.065)	0.161** (0.061)	0.160* (0.065)	0.130* (0.065)	0.147* (0.064)	0.141* (0.066)	0.159* (0.065)	0.151* (0.066)	0.168** (0.064)
(Cult_dist) 1995	0.395 (0.761) [0.217]** [0.754]	0.657 (0.528) [0.371]***	-1.234 (0.423)** [0.371]***	1.197 (0.553)* [0.617]	-0.156 (0.377) [0.396]	0.865 (0.479) [0.307]**	-1.303 (0.615)* [0.811]	0.854 (0.468) [0.448]	-0.350 (0.674) [0.813]	-0.551 (1.495) [1.619]
(Cult_dist) 1998	-0.592 (0.857) [1.243]	0.800 (0.480) [0.237]***	-0.487 (0.356) [0.387]	1.132 (0.449)* [0.449]*	0.195 (0.329) [0.257]	0.873 (0.434)* [0.347]*	-1.015 (0.527) [0.632]	0.590 (0.421) [0.291]*	0.448 (0.528) [0.498]	0.468 (1.152) [0.829]
(Cult_dist) 2001	1.200 (0.592)* [0.220]***	-0.310 (0.476) [0.249]	-1.126 (0.292)*** [0.144]***	-1.029 (0.493)* [0.647]	0.385 (0.312) [0.161]*	-0.017 (0.451) [0.283]	-0.546 (0.366) [0.100]***	-1.314 (0.421)* [0.571]*	-0.533 (0.460) [0.342]	-1.699 (1.032) [0.769]*
INTL_BRDR_1995	-0.300*** (0.062)	-0.328*** (0.050)	-0.148* (0.065)	-0.355*** (0.061)	-0.259* (0.079)	-0.359*** (0.061)	-0.186** (0.064)	-0.343*** (0.065)	-0.258*** (0.064)	-0.235 (0.138)
INTL_BRDR_1998	-0.244*** (0.061)	-0.332*** (0.054)	-0.223*** (0.061)	-0.345*** (0.057)	-0.303*** (0.074)	-0.351*** (0.062)	-0.200*** (0.056)	-0.317*** (0.056)	-0.300*** (0.061)	-0.311*** (0.112)
INTL_BRDR_2001	-0.293*** (0.053)	-0.210*** (0.048)	-0.107* (0.050)	-0.161** (0.052)	-0.288*** (0.070)	-0.230*** (0.056)	-0.191*** (0.052)	-0.129** (0.044)	-0.199*** (0.054)	-0.091 (0.104)
N	11997	11997	11997	11997	11997	11997	11997	11997	11997	11997
R ²	0.0046	0.0053	0.0041	0.0044	0.0044	0.0051	0.0047	0.0048	0.0055	0.0052

LHS for estimation methods: export value. Distance definition: $\frac{[cultural_dimension_i - cultural_dimension_j]}{\max(cult_dimension) - \min(cult_dimension)}$. Columns (1) to (9) show, which of the nine different cultural distance measures is used in each given specification, see table 3.2. Estimation (10) uses the average of all 9 dimensions. All estimations include importer-year, exporter-year, and country pair fixed effects. Standard errors in parentheses are clustered at country pair level and multi-way clustered, respectively. *** p<0.001, ** p<0.01, * p<0.05

Table A.9: Time-varying trade effects of cultural distance (homogeneous goods): Panel PPM estimation (basic sample+intra-nat. trade)

Distance variable of interest:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
RTA	-0.054 (0.072)	-0.047 (0.072)	-0.066 (0.073)	-0.017 (0.071)	-0.061 (0.072)	-0.059 (0.070)	-0.041 (0.072)	-0.044 (0.072)	-0.053 (0.070)	-0.060 (0.072)
RTA_LAG3	0.113* (0.049)	0.114* (0.051)	0.127* (0.053)	0.118* (0.049)	0.146** (0.056)	0.101* (0.050)	0.104* (0.047)	0.109* (0.051)	0.128* (0.050)	0.149** (0.058)
RTA_LAG6	0.029 (0.047)	0.042 (0.047)	0.030 (0.046)	0.012 (0.043)	0.025 (0.047)	0.019 (0.047)	0.035 (0.047)	0.033 (0.046)	0.014 (0.044)	0.004 (0.049)
RTA_LAG9	0.196** (0.071)	0.186** (0.071)	0.202** (0.068)	0.213** (0.071)	0.185* (0.071)	0.192** (0.072)	0.188** (0.072)	0.196** (0.072)	0.197** (0.071)	0.217** (0.074)
ln_cult_dist_1995	-0.810 (0.836)	0.004 (0.730)	-1.558 (0.517)**	-0.509 (0.757)	-0.307 (0.393)	1.205 (0.569)*	-1.811 (0.708)*	-0.006 (0.535)	0.138 (0.783)	-2.504 (1.539)
35			[0.499]** [0.454]	[0.389] [0.454]	[0.471] [0.389]	[0.315]*** [0.471]	[0.739]* [0.389]	[0.355] [0.389]	[0.655] [0.389]	[1.398]
ln_cult_dist_1998	0.065 (0.661)	-0.249 (0.660)	-0.456 (0.360)	0.974 (0.752)	0.375 (0.317)	0.576 (0.516)	-0.369 (0.454)	-0.165 (0.473)	2.233 (0.593)***	0.912 (1.063)
	[0.460] [0.543]	[0.460] [0.543]	[0.301] [0.301]	[0.521] [0.301]	[0.301] [0.301]	[0.301] [0.301]	[0.414] [0.301]	[0.355] [0.301]	[0.442]*** [0.906]	
ln_cult_dist_2001	1.125 (0.505)*	0.463 (0.496)	-0.656 (0.340)***	-2.661 (0.804)***	0.133 (0.285)	-0.130 (0.463)	-0.401 (0.379)	-1.359 (0.568)*	-1.003 (0.542)	-2.088 (1.063)
	[0.278]*** [0.138]***	[0.286]* [0.138]***	[0.286]* [0.138]***	[1.215]* [0.138]***	[0.183] [0.183]	[0.183] [0.183]	[0.277] [0.499]	[0.911] [0.277]	[0.812] [0.911]	[1.324]
INTL_BRDR_1995	-0.171 [0.093]	-0.211* [0.102]	-0.045 [0.110]	-0.180 [0.100]	-0.168 [0.086]	-0.316** [0.107]	-0.082 [0.091]	-0.213 [0.138]	-0.220 [0.131]	-0.010 [0.085]
INTL_BRDR_1998	-0.126 [0.081]	-0.105 [0.095]	-0.073 [0.102]	-0.177* [0.078]	-0.175* [0.078]	-0.172* [0.087]	-0.096 [0.088]	-0.111 [0.077]	-0.255** [0.092]	-0.192 [0.101]
INTL_BRDR_2001	-0.373*** [0.089]	-0.350*** [0.081]	-0.248* [0.104]	-0.145 [0.079]	-0.338*** [0.080]	-0.309*** [0.069]	-0.291*** [0.068]	-0.224*** [0.065]	-0.257*** [0.077]	-0.151 [0.102]
N	11785	11785	11785	11785	11785	11785	11785	11785	11785	11785
R ²	0.0018	0.0018	0.0015	0.02	0.0018	0.0018	0.0016	0.0017	0.0013	0.0016

LHS for estimation methods: export value. Distance definition: $\left[\frac{\text{cultural_dimension}_1 - \text{cultural_dimension}_2}{\max(\text{dimension}) - \min(\text{dimension})} \right]$. Columns (1) to (9) show, which of the nine different cultural distance measures is used in each given specification, see table 3.2. Estimation (10) uses the average of all 9 dimensions. All estimations include importer-year, exporter-year, and country pair fixed effects. Standard errors in parentheses are clustered at country pair level and multi-way clustered, respectively. *** p<0.001, ** p<0.01, * p<0.05

Table A.10: Time-varying trade effects of cultural distance (differentiated goods): Panel PPML estimation (basic sample+intra-nat. trade)

Distance variable of interest:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
RTA	-0.129 (0.071)	-0.128 (0.071)	-0.142* (0.072)	-0.122 (0.071)	-0.127 (0.070)	-0.136 (0.071)	-0.124 (0.071)	-0.115 (0.070)	-0.128 (0.070)	-0.115 (0.070)
RTA_LAG3	0.042 (0.035)	0.025 (0.035)	0.031 (0.035)	0.023 (0.036)	0.028 (0.036)	0.022 (0.035)	0.026 (0.036)	0.021 (0.034)	0.025 (0.035)	0.020 (0.035)
RTA_LAG6	-0.081 (0.052)	-0.088 (0.054)	-0.083 (0.049)	-0.078 (0.052)	-0.052 (0.054)	-0.079 (0.054)	-0.068 (0.052)	-0.092 (0.049)	-0.065 (0.053)	-0.083 (0.055)
RTA_LAG9	0.140* (0.071)	0.132 (0.071)	0.140* (0.066)	0.129 (0.070)	0.105 (0.069)	0.120 (0.069)	0.118 (0.073)	0.147* (0.070)	0.125 (0.072)	0.138* (0.068)
(Cult_dist) 1995	1.016 (0.870)	0.893 (0.459)	-0.670 (0.326)*	1.079 (0.523)*	0.200 (0.381)	0.721 (0.470)	-0.587 (0.518)	0.575 (0.439)	-0.305 (0.484)	0.874 (1.395)
(Cult_dist) 1998	-0.260 (0.964)	1.041 (0.523)*	-0.299 (0.398)	0.636 (0.513)	0.278 (0.376)	0.735 (0.464)	-1.007 (0.619)	0.470 (0.451)	-0.584 (0.580)	0.464 (1.352)
(Cult_dist) 2001	1.271 (0.730)	-0.512 (0.542)	-1.299 (0.314)***	-0.189 (0.454)	0.574 (0.361)	0.241 (0.469)	-0.614 (0.429)	-1.321 (0.395)***	0.001 (0.509)	-1.118 (1.236)
INTL_BRDR_1995	-0.310*** (0.063)	-0.329*** (0.051)	-0.191** (0.060)	-0.328*** (0.061)	-0.292*** (0.080)	-0.328*** (0.065)	-0.222*** (0.060)	-0.307*** (0.060)	-0.245*** (0.056)	-0.332* (0.134)
INTL_BRDR_1998	-0.275*** (0.062)	-0.363*** (0.058)	-0.257*** (0.063)	-0.328*** (0.060)	-0.329*** (0.078)	-0.352*** (0.065)	-0.216*** (0.058)	-0.323*** (0.056)	-0.256*** (0.062)	-0.325*** (0.125)
INTL_BRDR_2001	-0.247*** (0.059)	-0.151** (0.056)	-0.043 (0.051)	-0.175** (0.053)	-0.271*** (0.079)	-0.208** (0.063)	-0.143* (0.058)	-0.080 (0.045)	-0.186** (0.060)	-0.096 (0.121)
N	11941	11941	11941	11941	11941	11941	11941	11941	11941	11941
R ²	0.0037	0.0047	0.0039	0.0045	0.0049	0.0048	0.0043	0.0045	0.0050	0.0049

LHS for estimation methods: export value. Distance definition: $\frac{[cultural_dimension_i - cultural_dimension_j]}{\max(cult_dimension) - \min(cult_dimension)}$. Columns (1) to (9) show, which of the nine different cultural distance measures is used in each given specification, see table 3.2. Estimation (10) uses the average of all 9 dimensions. All estimations include importer-year, exporter-year, and country pair fixed effects. Standard errors in parentheses are clustered at country pair level and multi-way clustered, respectively. *** p<0.001, ** p<0.01, * p<0.05

Table A.11: Time-varying trade effects of unscaled cultural distance (aggregate trade): Panel PPM estimation (basic sample+intra-nat. trade)

Distance variable of interest:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
RTA	-0.163** (0.063)	-0.156* (0.063)	-0.179** (0.064)	-0.129* (0.062)	-0.162** (0.062)	-0.168** (0.062)	-0.153* (0.063)	-0.131* (0.061)	-0.151* (0.062)	-0.152* (0.062)
RTA_LAG3	0.053 (0.037)	0.043 (0.038)	0.050 (0.038)	0.041 (0.039)	0.056 (0.043)	0.039 (0.039)	0.035 (0.036)	0.037 (0.037)	0.045 (0.039)	0.051 (0.044)
RTA_LAG6	-0.048 (0.047)	-0.050 (0.047)	-0.048 (0.045)	-0.059 (0.046)	-0.024 (0.048)	-0.058 (0.048)	-0.036 (0.047)	-0.052 (0.045)	-0.039 (0.048)	-0.059 (0.048)
RTA_LAG9	0.154* (0.064)	0.150* (0.065)	0.161** (0.061)	0.160* (0.065)	0.130* (0.065)	0.147* (0.064)	0.141* (0.066)	0.159* (0.065)	0.151* (0.066)	0.168** (0.064)
(Cult_dist) 1995	0.066 (0.127)	0.109 (0.088)	-0.206 (0.070)**	0.199 (0.092)*	-0.026 (0.063)	0.144 (0.080)	-0.217 (0.103)*	0.142 (0.078)	-0.058 (0.112)	-0.092 (0.249)
(Cult_dist) 1998	-0.099 (0.143)	0.133 (0.080)	-0.081 (0.059)	0.189 (0.075)*	0.032 (0.055)	0.145 (0.072)*	-0.169 (0.088)	0.098 (0.070)	0.075 (0.088)	0.078 (0.192)
(Cult_dist) 2001	0.200 (0.099)*	-0.052 (0.079)	-0.188 (0.049)***	-0.172 (0.082)*	0.064 (0.052)	-0.003 (0.075)	-0.091 (0.061)	-0.219 (0.051)	-0.089 (0.077)	0.078 (0.147)
INTL_BRDR_1995	-0.300*** (0.062)	-0.328*** (0.050)	-0.148* (0.065)	-0.355*** (0.061)	-0.259** (0.079)	-0.359*** (0.061)	-0.186** (0.064)	-0.343*** (0.065)	-0.258*** (0.064)	-0.235 (0.138)
INTL_BRDR_1998	-0.244*** (0.061)	-0.332*** (0.054)	-0.223*** (0.061)	-0.345*** (0.057)	-0.303*** (0.074)	-0.351*** (0.062)	-0.200*** (0.056)	-0.317*** (0.056)	-0.300*** (0.061)	-0.311** (0.112)
INTL_BRDR_2001	-0.293*** (0.053)	-0.210*** (0.048)	-0.107* (0.050)	-0.164** (0.052)	-0.288*** (0.070)	-0.230*** (0.056)	-0.191*** (0.052)	-0.129*** (0.044)	-0.199*** (0.054)	-0.091 (0.104)
N	11997	11997	11997	11997	11997	11997	11997	11997	11997	11997
R ²	0.0046	0.0053	0.0041	0.0044	0.0054	0.0051	0.0047	0.0048	0.0055	0.0052

LHS for estimation methods: export value. Distance definition: $[(cultural_dimension_i - cultural_dimension_j)]$. Columns (1) to (9) show, which of the nine different cultural distance measures is used in each given specification, see table 3.2. Estimation (10) uses the average of all 9 dimensions. All estimations include importer-year, exporter-year, and country pair fixed effects. Standard errors in parentheses are clustered at country pair level and multi-way clustered, respectively. *** p<0.001, ** p<0.01, * p<0.05

Table A.12: Time-varying trade effects of unscaled cultural distance (homogeneous goods): Panel PPMI estimation (basic sample+intra-nat.
trade)

Distance variable of interest:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
RTA	-0.054 (0.072)	-0.047 (0.072)	-0.066 (0.073)	-0.017 (0.071)	-0.061 (0.072)	-0.059 (0.070)	-0.041 (0.072)	-0.044 (0.072)	-0.053 (0.070)	-0.060 (0.072)
RTA_LAG3	0.113* (0.049)	0.114* (0.051)	0.127* (0.053)	0.118* (0.049)	0.146** (0.056)	0.101* (0.050)	0.104* (0.047)	0.109* (0.051)	0.128* (0.050)	0.149** (0.058)
RTA_LAG6	0.029 (0.047)	0.042 (0.047)	0.030 (0.046)	0.012 (0.043)	0.025 (0.047)	0.019 (0.047)	0.035 (0.047)	0.033 (0.046)	0.014 (0.044)	0.004 (0.049)
RTA_LAG9	0.196** (0.071)	0.186** (0.071)	0.202** (0.068)	0.213** (0.071)	0.185* (0.079)	0.192** (0.072)	0.188** (0.072)	0.196** (0.072)	0.197** (0.071)	0.217** (0.074)
(Cult_dist) 1995	-0.135 (0.139)	0.001 (0.122)	-0.290 (0.086)**	-0.085 (0.126)	-0.051 (0.065)	0.201 (0.095)*	-0.302 (0.118)*	-0.001 (0.089)	0.023 (0.130)	-0.417 (0.256)
(Cult_dist) 1998	0.011 (0.110)	-0.041 (0.110)	-0.076 (0.060)	0.162 (0.125)	0.063 (0.053)	0.096 (0.086)	-0.061 (0.076)	-0.028 (0.079)	0.372 (0.099)***	0.152 (0.177)
(Cult_dist) 2001	0.187 (0.084)* [0.052]**	0.077 (0.083) [0.032]*	-0.109 (0.057) [0.054]*	-0.444 (0.134)*** [0.203]*	0.022 (0.048) [0.036]	-0.022 (0.077)	-0.067 (0.063)	-0.226 (0.095)* [0.051]	-0.167 (0.090)	-0.348 (0.168)* [0.222]
INTL_BRDR_1995	-0.171* (0.074)	-0.211** (0.072)	-0.045 (0.084)	-0.180* (0.081)	-0.168* (0.084)	-0.316*** (0.072)	-0.082 (0.079)	-0.213* (0.084)	-0.220* (0.090)	-0.010 (0.137)
INTL_BRDR_1998	-0.126 (0.073)	-0.105 (0.075)	-0.073 (0.078)	-0.177* (0.076)	-0.175* (0.077)	-0.172* (0.074)	-0.096 (0.072)	-0.111 (0.070)	-0.255** (0.078)	-0.192 (0.110)
INTL_BRDR_2001	-0.373*** (0.054)	-0.350*** (0.057)	-0.248*** (0.065)	-0.145* (0.068)	-0.338*** (0.058)	-0.309*** (0.058)	-0.291*** (0.055)	-0.224*** (0.057)	-0.257*** (0.062)	-0.151 (0.090)
N	11785	11785	11785	11785	11785	11785	11785	11785	11785	11785
R ²	0.0018	0.0018	0.0015	0.0012	0.0018	0.0018	0.0016	0.0017	0.0013	0.0016

LHS for estimation methods: export value. Distance definition: $(cultural_dimension_i - cultural_dimension_j)$. Columns (1) to (9) show, which of the nine different cultural distance measures is used in each given specification, see table 3.2. Estimation (10) uses the average of all 9 dimensions. All estimations include importer-year, exporter-year, and country pair fixed effects. Standard errors in parentheses are clustered at country pair level and multi-way clustered, respectively. *** p<0.001, ** p<0.01, * p<0.05

Table A.13: Time-varying trade effects of unscaled cultural distance (differentiated goods): Panel PPMI estimation (basic sample+intra-nat. trade)

Distance variable of interest:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
RTA	-0.129 (0.071)	-0.128 (0.071)	-0.142* (0.072)	-0.122 (0.071)	-0.127 (0.070)	-0.136 (0.071)	-0.124 (0.071)	-0.115 (0.070)	-0.128 (0.070)	-0.115 (0.070)
RTA_LAG3	0.042 (0.035)	0.025 (0.035)	0.031 (0.035)	0.023 (0.036)	0.028 (0.036)	0.022 (0.035)	0.026 (0.036)	0.021 (0.034)	0.025 (0.035)	0.020 (0.035)
RTA_LAG6	-0.081 (0.052)	-0.088 (0.054)	-0.083 (0.049)	-0.078 (0.052)	-0.052* (0.054)	-0.079 (0.054)	-0.068 (0.052)	-0.092 (0.049)	-0.065 (0.053)	-0.083 (0.055)
RTA_LAG9	0.140* (0.071)	0.132 (0.071)	0.140* (0.066)	0.129 (0.070)	0.105 (0.069)	0.120 (0.069)	0.118 (0.073)	0.147** (0.073)	0.125 (0.070)	0.138* (0.068)
(Cult_dist) 1995	0.169 (0.145)	0.149 (0.077)	-0.112 (0.054)*	0.180 (0.087)*	0.033 (0.063)	0.120 (0.078)	-0.098 (0.086)	0.096 (0.073)	-0.051 (0.081)	0.146 (0.232)
(Cult_dist) 1998	-0.043 (0.161)	0.173 (0.087)*	-0.050 (0.066)	0.106 (0.086)	0.046 (0.063)	0.122 (0.077)	-0.168 (0.103)	0.078 (0.075)	-0.097 (0.097)	0.077 (0.225)
(Cult_dist) 2001	0.212 (0.122)	-0.085 (0.090)	-0.216 (0.052)***	-0.031 (0.076)	0.096 (0.060)	0.040 (0.078)	-0.102 (0.072)	-0.220 (0.066)***	0.000 (0.085)	-0.186 (0.206)
INTL_BRDR_1995	-0.310*** (0.063)	-0.329*** (0.051)	-0.191** (0.060)	-0.328*** (0.061)	-0.292*** (0.080)	-0.328*** (0.065)	-0.222*** (0.060)	-0.307*** (0.060)	-0.245*** (0.056)	-0.332** (0.134)
INTL_BRDR_1998	-0.275*** (0.062)	-0.363*** (0.058)	-0.257*** (0.063)	-0.328*** (0.060)	-0.329*** (0.078)	-0.352*** (0.065)	-0.216*** (0.058)	-0.323*** (0.056)	-0.256*** (0.062)	-0.325** (0.125)
INTL_BRDR_2001	-0.247*** (0.059)	-0.151** (0.056)	-0.043 (0.051)	-0.175** (0.053)	-0.271*** (0.079)	-0.208** (0.063)	-0.143* (0.058)	-0.080 (0.045)	-0.186** (0.060)	-0.096 (0.121)
N	11941	11941	11941	11941	11941	11941	11941	11941	11941	11941
R ²	0.0037	0.0047	0.0039	0.0045	0.0049	0.0048	0.0046	0.0045	0.0053	0.0049

LHS for estimation methods: export value. Distance definition: $[(\text{cultural_dimension}_i - \text{cultural_dimension}_j)]$. Columns (1) to (9) show which of the nine different cultural distance measures is used in each given specification, see table 3.2. Estimation (10) uses the average of all 9 dimensions. All estimations include importer-year, exporter-year, and country pair fixed effects. Standard errors in parentheses are clustered at country pair level and multi-way clustered, respectively. *** p<0.001, ** p<0.01, * p<0.05

Table A.14: Time-varying trade effects of logged cultural proximity (aggregate trade): Panel PPM estimation (basic sample+intra-nat. trade)

Proximity variable of interest:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
RTA	-0.164*** (0.063)	-0.156* (0.063)	-0.178** (0.064)	-0.125* (0.062)	-0.164** (0.062)	-0.168** (0.062)	-0.153* (0.063)	-0.128* (0.061)	-0.151* (0.062)	-0.152* (0.062)
RTA_LAG3	0.053 (0.037)	0.043 (0.038)	0.050 (0.038)	0.041 (0.039)	0.057 (0.042)	0.039 (0.039)	0.034 (0.036)	0.037 (0.037)	0.045 (0.039)	0.050 (0.044)
RTA_LAG6	-0.048 (0.047)	-0.050 (0.047)	-0.048 (0.045)	-0.058 (0.045)	-0.024 (0.047)	-0.058 (0.048)	-0.058 (0.047)	-0.036 (0.047)	-0.051 (0.045)	-0.059 (0.048)
RTA_LAG9	0.154* (0.065)	0.150* (0.065)	0.161** (0.061)	0.159* (0.066)	0.132* (0.066)	0.147* (0.064)	0.141* (0.066)	0.158* (0.065)	0.151* (0.066)	0.168** (0.064)
ln(Cult_prox) 1995	-0.344 (0.691)	-0.621 (0.481)	1.077 [0.363]** [0.315]**	-1.158 [0.498]* [0.565]*	0.194 [0.310] [0.334]	-0.774 [0.420] [0.268]**	1.167 [0.548]* [0.361]	-0.804 [0.415] [0.414]	0.288 [0.614] [0.57]	0.537 [1.348] [1.480]
ln(Cult_prox) 1998	0.586 (0.781)	-0.733 (0.437)	0.413 [0.334]	-1.071 [0.389]** [0.408]**	-0.126 [0.289] [0.215]**	-0.766 [0.383]* [0.305]*	-0.766 [0.470] [0.567]	0.895 [0.372] [0.273]*	-0.562 [0.477] [0.466]	-0.457 [1.030] [0.770]
ln(Cult_prox) 2001	-1.049 [0.535]	0.282 [0.438]	0.904 [0.232]	0.910 [0.432]* [0.582]	-0.290 [0.257] [0.135]*	0.012 [0.399] [0.247]	0.486 [0.321] [0.093]***	1.137 [0.359]** [0.514]*	0.470 [0.411] [0.307]	1.559 [0.915] [0.583]*
INTL_BRDR_1995	-0.299*** (0.061)	-0.328*** (0.049)	-0.153* (0.063)	-0.356*** (0.060)	-0.250*** (0.076)	-0.356*** (0.059)	-0.190*** (0.062)	-0.342*** (0.063)	-0.262*** (0.063)	-0.234 (0.132)
INTL_BRDR_1998	-0.243*** (0.060)	-0.330*** (0.054)	-0.227*** (0.059)	-0.344*** (0.056)	-0.293*** (0.070)	-0.347*** (0.061)	-0.205*** (0.054)	-0.318*** (0.055)	-0.302*** (0.060)	-0.307*** (0.107)
INTL_BRDR_2001	-0.288*** (0.052)	-0.210*** (0.047)	-0.114* (0.048)	-0.168*** (0.050)	-0.279*** (0.067)	-0.231*** (0.055)	-0.193*** (0.051)	-0.137*** (0.043)	-0.201*** (0.053)	-0.096 (0.098)
N	11997	11997	11997	11997	11997	11997	11997	11997	11997	11997
R ²	0.0046	0.0053	0.0040	0.0042	0.0054	0.0051	0.0047	0.0054	0.0054	0.0052

LHS for estimation methods: export value. Proximity definition: $1 - \frac{[\text{cultural_dimension}_i - \text{cultural_dimension}_j]}{\max(\text{cultural_dimension}_i, \min(\text{cultural_dimension}_i, \text{cultural_dimension}_j))}$. Columns (1) to (9) show which of the nine different cultural distance measures is used in each given specification, see table 3.2. Estimation (10) uses the average of all 9 dimensions. All estimations include importer-year, exporter-year, and country-pair fixed effects. Standard errors in parentheses are clustered at country pair level and multi-way clustered, respectively. *** p<0.001, ** p<0.01, * p<0.05

Table A.15: Time-varying trade effects of logged cultural proximity (homogeneous goods): Panel PPML estimation (basic sample+intra-nat. trade)

Proximity variable of interest:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
RTA	-0.055 (0.072)	-0.046 (0.072)	-0.065 (0.073)	-0.016 (0.071)	-0.062 (0.072)	-0.060 (0.070)	-0.040 (0.072)	-0.042 (0.072)	-0.054 (0.070)	-0.060 (0.072)
RTA_LAG3	0.113* (0.049)	0.114* (0.051)	0.127* (0.052)	0.116* (0.049)	0.148** (0.056)	0.101* (0.050)	0.104* (0.047)	0.109* (0.051)	0.128* (0.050)	0.149** (0.057)
RTA_LAG6	0.029 (0.047)	0.042 (0.047)	0.030 (0.046)	0.016 (0.042)	0.024 (0.047)	0.019 (0.047)	0.035 (0.047)	0.034 (0.045)	0.013 (0.044)	0.004 (0.049)
RTA_LAG9	0.196*** (0.071)	0.185*** (0.071)	0.202** (0.068)	0.210** (0.071)	0.187* (0.079)	0.192** (0.072)	0.188** (0.072)	0.195** (0.072)	0.197** (0.072)	0.217** (0.074)
ln(cult_prox)_1995	0.774 (0.764)	-0.013 (0.675)	1.345** [0.444]*** [0.421]***	0.378 [0.693] [0.362]	0.315 [0.333] [0.405]	-1.082* [0.506]* [0.283]***	1.638** [0.628]** [0.661]*	-0.025 [0.475] [0.359]	-0.176 [0.710] [0.602]	2.317 [1.397] [1.180]*
ln(cult_prox)_1998	-0.030 (0.535)	0.215 (0.613)	0.369 [0.257]	-0.905 [0.676] [0.466]	-0.293 [0.266] [0.256]	-0.528 [0.461] [0.325]	0.337 [0.399] [0.366]	0.106 [0.422] [0.319]	-2.085*** [0.532]*** [0.387]***	-0.831 [0.956] [0.822]
ln(cult_prox)_2001	-1.002* [0.452]* [0.253]***	-0.449 [0.459] [0.122]***	0.551 [0.284] [0.241]*	2.381** [0.729]** [1.089]*	-0.079 [0.241] [0.161]	0.092 [0.415] [0.442]	0.371 [0.335] [0.244]	1.192* [0.514]* [0.809]	0.876 [0.488] [0.736]	1.900* [0.910]* [1.209]
INTL_BRDR_1995	-0.171* (0.073)	-0.211** (0.071)	-0.054 (0.081)	-0.187* (0.080)	-0.162* (0.082)	-0.313*** (0.071)	-0.088 (0.077)	-0.215** (0.082)	-0.223* (0.089)	-0.016 (0.131)
INTL_BRDR_1998	-0.124 (0.072)	-0.107 (0.074)	-0.079 (0.076)	-0.175* [0.074)	-0.168* [0.075)	-0.171* [0.073)	-0.097 [0.070)	-0.114 [0.069)	-0.233*** [0.076)	-0.188 [0.105)
INTL_BRDR_2001	-0.369*** [0.053)	-0.351*** [0.057)	-0.253*** [0.062)	-0.154* [0.066)	-0.332*** [0.056)	-0.312*** [0.057)	-0.291*** [0.054)	-0.231*** [0.056)	-0.262*** [0.060)	-0.159 [0.086)
N	11785	11785	11785	11785	11785	11785	11785	11785	11785	11785
R ²	0.0038	0.0047	0.0039	0.0044	0.0049	0.0048	0.0046	0.0045	0.0050	0.0049

LHS for estimation methods: export value. Proximity definition: $1 - \frac{[\text{cultural_dimension}_i - \text{cultural_dimension}_j]}{\max(\text{cultural_dimension}_i, \min(\text{cultural_dimension}_i))}$. Columns (1) to (9) show which of the nine different cultural distance measures is used in each given specification, see table 3.2. Estimation (10) uses the average of all 9 dimensions. All estimations include importer-year, exporter-year, and country-pair fixed effects. Standard errors in parentheses are clustered at country pair level and multi-way clustered, respectively. *** p<0.001, ** p<0.01, * p<0.05

Table A.16: Time-varying trade effects of logged cultural proximity (differentiated goods): Panel PPMI estimation (basic sample+intra-nat. trade)

Proximity variable of interest:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
RTA	-0.130 (0.071)	-0.128 (0.071)	-0.141 (0.072)	-0.121 (0.071)	-0.129 (0.070)	-0.136 (0.071)	-0.124 (0.071)	-0.113 (0.070)	-0.127 (0.070)	-0.115 (0.070)
RTA_LAG3	0.042 (0.035)	0.025 (0.035)	0.031 (0.035)	0.024 (0.036)	0.029 (0.036)	0.022 (0.035)	0.026 (0.036)	0.021 (0.034)	0.025 (0.035)	0.021 (0.035)
RTA_LAG6	-0.082 (0.052)	-0.089 (0.054)	-0.082 (0.049)	-0.078 (0.052)	-0.052 (0.054)	-0.079 (0.054)	-0.068 (0.052)	-0.091 (0.049)	-0.065 (0.053)	-0.082 (0.055)
RTA_LAG9	0.139 (0.072)	0.132 (0.071)	0.139* (0.066)	0.129 (0.070)	0.106 (0.069)	0.120 (0.069)	0.118 (0.073)	0.146* (0.073)	0.125 (0.072)	0.138* (0.068)
ln(cult_prox)_1995	-0.894 (0.790)	-0.830 (0.418)*	0.590 (0.278)*	-1.013 (0.459)*	-0.110 (0.308)	-0.630 (0.412)	0.515 (0.461)	-0.554 (0.388)	0.253 (0.440)	-0.749 (1.244)
ln(cult_prox)_1998	0.292 (0.881)	-0.944 (0.474)*	0.253 (0.338)	-0.621 (0.443)	-0.194 (0.305)	-0.633 (0.409)	0.897 (0.555)	-0.453 (0.398)	0.516 (0.525)	-0.385 (1.209)
ln(cult_prox)_2001	-1.104 (0.664)	0.476 (0.497)	1.116 (0.265)***	0.169 (0.392)	-0.452 (0.297)	-0.204 (0.414)	0.545 (0.380)	1.147 (0.349)**	0.002 (0.456)	1.045 (1.098)
INTL_BRDR_1995	-0.306*** (0.061)	-0.328*** (0.050)	-0.194*** (0.059)	-0.327*** (0.059)	-0.281*** (0.076)	-0.325*** (0.063)	-0.225*** (0.058)	-0.308*** (0.059)	-0.247*** (0.056)	-0.325* (0.127)
INTL_BRDR_1998	-0.273*** (0.061)	-0.360*** (0.057)	-0.260*** (0.061)	-0.329*** (0.058)	-0.320*** (0.074)	-0.348*** (0.063)	-0.220*** (0.056)	-0.324*** (0.055)	-0.253*** (0.061)	-0.320** (0.118)
INTL_BRDR_2001	-0.242*** (0.058)	-0.151** (0.056)	-0.052 (0.059)	-0.175*** (0.052)	-0.261*** (0.076)	-0.206*** (0.062)	-0.145** (0.056)	-0.145** (0.044)	-0.088* (0.044)	-0.186** (0.039)
N	11941	11941	11941	11941	11941	11941	11941	11941	11941	11941
R ²	0.0038	0.0047	0.0039	0.0044	0.0049	0.0048	0.0046	0.0045	0.0050	0.0049

LHS for estimation methods: export value. Proximity definition: $1 - \frac{[cultural_dimension_i - cultural_dimension_j]}{max(cultural_dimension_i, min(cultural_dimension_j))}$. Columns (1) to (9) show which of the nine different cultural distance measures is used in each given specification, see table 3.2. Estimation (10) uses the average of all 9 dimensions. All estimations include importer-year, exporter-year, and country-pair fixed effects. Standard errors in parentheses are clustered at country pair level and multi-way clustered, respectively. *** p<0.001, ** p<0.01, * p<0.05

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