Interdisciplinary Public Policy Mainz

IPP

Gutenberg School of Management and Economics

& Research Unit "Interdisciplinary Public Policy"

Discussion Paper Series

Cultural Distance and International Trade in Services: A Disaggregate View

Philipp Harms and Daria Shuvalova

January 2016

Discussion paper number 1606

Johannes Gutenberg University Mainz
Gutenberg School of Management and Economics
Jakob-Welder-Weg 9
55128 Mainz
Germany
wiwi.uni-mainz.de

Contact details

Philipp Harms
Johannes Gutenberg University Mainz
Department Law and Economics
Chair of International Economics
Jakob-Welder-Weg 4
55128 Mainz

Email: philipp.harms@uni-mainz.de

Daria Shuvalova
Johannes Gutenberg University Mainz
Department Law and Economics
Chair of International Economics
Jakob-Welder-Weg 4
55128 Mainz, Germany

Email: daria.shuvalova@uni-mainz.de.

Cultural Distance and International Trade in Services: A Disaggregate View*

January 2016

Philipp Harms[#]
Johannes Gutenberg University Mainz
and Study Center Gerzensee

Daria Shuvalova[*]
Johannes Gutenberg University Mainz

Abstract

In this paper, we estimate the effect of "cultural distance" on bilateral trade in services. Our measure of cultural distance is based on the scores developed by the social psychologist Geert Hofstede, which reflect country averages of individuals' attitude towards power, uncertainty, individualism etc. Controlling for other standard ingredients of gravity equations, we show that an aggregate measure of cultural distance has a significantly negative effect on total bilateral services trade. However, once we take a more disaggregate view, we find that the strength and sign of this effect differs across various aspects of culture and across various types of services.

Keywords: Trade in services, cultural distance, Hofstede scores, gravity equation

* We are indebted to participants at the Econ brown bag seminar in Mainz for helpful comments. Financial support by the Research Unit "Interdisciplinary Public Policy" at JGU Mainz is gratefully acknowledged.
# Philipp Harms, Johannes Gutenberg University Mainz, Jakob-Welder-Weg 4, 55128 Mainz, Germany. Email: philipp.harms@uni-mainz.de.
* Daria Shuvalova, Johannes Gutenberg University Mainz, Jakob-Welder-Weg 4, 55128 Mainz, Germany. Email: daria.shuvalova@uni-mainz.de.

1. Introduction

Due to advances in transport and communication technologies and the dismantling of administrative barriers, international trade in services has increased substantially in recent decades.[1] However, as with goods trade, the volume of services exchanged between countries differs substantially across country pairs: while Germany exported an impressive 29,183 mln. USD of services to the United Kingdom in 2011, its services exports to Portugal in that year amounted to a mere 1,445 mln USD. In this paper, we contribute to explaining these differences by estimating a set of gravity equations which include explicit measures of "cultural distance".

We argue that accounting for distance is particularly important when it comes to explaining international trade in services. This is due to a crucial difference between goods and services trade: According to Hill (1999:428), "…services cannot be produced without the agreement, co-operation and possibly active participation of the consuming unit(s)." Moreover, "…the outputs produced are not separate entities that exist independently of the producers or consumers." As argued by Francois and Hoekman (2010), the need for a close interaction between producers and consumers, which Hill (1999) identifies as the defining feature of services transactions, results in a "proximity burden" that may substantially reduce the volume of trade. Sure, the rise of the internet has rendered the geographical component of this burden – i.e. the requirement for trading parties to be physically close to each other – less important, and the general trend towards standardization – e.g. the widespread knowledge of the English language – is substantially facilitating communication across borders. Nevertheless, there are many other aspects of "cultural distance" that are not reflected by geographical parameters or the sharing of a common language. We argue that differences in implicit norms, priorities, and perceptions may hamper the mutual understanding and trust which represent the basis for successful services trade.

In order to capture these aspects of cultural distance, we use the scores developed by the Dutch social scientist Geert Hofstede (2015). These scores are country-specific

[1] Reinsdorf and Slaughter (2009), Francois and Hoekman (2010) and Jensen (2011) provide recent surveys on international services trade.

measures for individuals' attitudes towards power, risk, the role of the individual in society etc. Based on these scores, we first compute an *aggregate* measure of cultural distance and test whether this measure significantly influences the total volume of services trade between countries. In a second step, we estimate the effect of cultural distance on various services types, ranging from communication and construction to finance and travel. Finally, we replace our aggregate measure of cultural distance by the individual Hofstede scores and explore whether cross-country differences in categories such as "distance to power", "individualism", "masculinity" etc. affect total services trade and the bilateral export of individual services types.

Using a panel data set that covers 28 European countries and, on average, 54 trading partners for the time period from 2004 through 2011, we find that the aggregate measure of cultural distance has a significantly negative effect on bilateral *services* exports, while it does not influence the volume of bilateral *goods* exports. This finding is based on a specification that includes a large number of standard gravity equation regressors, and it is robust across several sample variations. Once we explore whether and how different aspects of cultural distance affect different services categories, the picture becomes more nuanced: while differences in "masculinity" – the degree to which values such as assertiveness, desire of recognition and competitiveness, prevail in a society – consistently reduce international services trade, differences in "individualism" – the degree to which a society values individual initiative over obedience to a community – has a significantly *positive* effect for most services categories. The strength and sign of the other aspects of cultural distance differ across service categories. All in all, however, our results support the claim that international trade in services is driven by distances in national traits that go beyond language and geography.

The rest of the paper is structured as follows: In Section 2, we provide a brief survey of the literature to highlight our own contribution. Section 3 describes the Hofstede scores and our aggregate measure of cultural distance. Section 4 provides information on the trade data we use as well as on the control variables. Section 5 introduces our empirical strategy and Section 6 presents our results. In Section 7 we perform some important robustness checks, experimenting with alternative samples and estimators. Finally, Section 8 summarizes and concludes.

2. Relevant Literature

While the literature that uses gravity equations to identify the determinants of bilateral *goods* trade is voluminous (see Head and Mayer 2013 for a recent survey) the number of analyses that deal with the determinants of bilateral *services* trade is much lower. Early contributions to this literature are Walsh (2006) and Kimura and Lee (2006). Walsh focuses on four services types (transport, travel, government and other commercial services) and shows that geographical distance has no significant influence on travel, government and commercial services. Kimura and Lee (2006) demonstrate that, controlling for geographical distance, the effect of adjacency is much stronger for goods trade than for services trade, while having a common language enhances services trade, but does not affect goods trade. In a study on the determinants of bilateral trade in intermediate goods and services, Miroudot et al. (2009) show that having a common border and belonging to a regional trade agreement (EU, NAFTA) matters for goods trade, but does not have a significant effect on services trade. More recently, Hellmanzik and Schmitz (2015) show that "virtual proximity", as reflected by bilateral hyperlinks and website visits significantly enhances audiovisual services trade. By contrast, an aggregate measure of cultural distance that is similar to the one used in our paper does not seem to matter for that type of services trade.

While "cultural distance" as we define it has rarely been related to international services trade, there is a number of studies that explore its effect on goods trade and capital flows. Tadesse and White (2008) use the World Values Surveys and the European Values Surveys data to consider cultural distance as a proxy for the extent of trust between trading parties. They find a significantly negative effect on trade. In the subsequent paper published in 2010, they show that the United States trade less with "culturally distant" countries. Guiso et al. (2009) find a negative relationship between cultural distance – proxied by the history of conflicts, religion, genetic as well as somatic differences – and goods trade. Disdier et al. (2010) represent cultural proximity by the volume of bilateral cultural goods trade and find a significant positive effect of this measure on overall bilateral trade. Using bilateral voting scores at the Eurovision Song Contest, Felbermayr and Toubal (2010) show that cultural proximity positively affects goods exports and imports. Kogut and Singh (1988) construct an aggregate cultural distance

measure based on Hofstede's scores to study firms' choice of entry mode (export vs. establishing a foreign affiliate). Davies et al. (2008) include the parent and host Hofstede scores to investigate the effect of culture on FDI and confirm the significance of cultural dimensions. Lucey and Zhang (2010) test whether the Kogut and Singh measure affects the co-movement of stock market returns. They draw the conclusion that greater cultural proximity enhances stock market co-movement. Finally, Aggarwal et al. (2011) explore how aggregate and disaggregate indicators of cultural distance based on Hofstede's scores affect countries' foreign portfolio investment (FPI). They find that both measures are significant determinants of FPI patterns – both directly and interacted with geographical distance. Moreover, they show that some aspects of culture, like the distance in individualism, can have a positive effect on FPI.

The contribution of our study is twofold: first, we introduce a novel "aggregate" measure of cultural distance based on Hofstede's scores and demonstrate that, controlling for many other potential trade impediments, this measure has a significantly negative effect on total services trade. Second, we take a more disaggregate view than the previous literature and explore whether and how different aspects of cultural distance affect different types of services trade.

3. A Measure of Cultural Distance

Our key regressor of interest is a measure of "cultural distance" that is based on the quantitative cultural scores obtained by the Dutch social psychologist Geert Hofstede. According to Hofstede (1991:5) culture is "…the collective programming of the mind which distinguishes the members of one group or category of people from another". In the early 1970s, Hofstede started quantifying various cultural attributes by conducting a survey at different national offices of the IBM corporation. Even though the questionnaire was distributed in two waves and there have been a few additional surveys on other populations since then, there is only one observation per country[2]. The Hofstede scores

[2] Hofstede (2009) argues that, despite the fact that the scores assigned to different nations are based on interviews with a specific sample of people – employees of IBM – and the fact that most of them were retrieved more than 30 years ago, they have maintained their relevance.

are available in an open database for over 100 countries and the following dimensions of culture (Hofstede 2015):

- **Power Distance (PDI)** – “Power distance is the extent to which the less powerful members of organizations and institutions (like the family) accept and expect that power is distributed unequally. This represents inequality (more versus less), but defined from below, not from above. It suggests that a society's level of inequality is endorsed by the followers as much as by the leaders.”
- **Individualism (IDV)** – “Individualism on the one side versus its opposite, collectivism, is the degree to which individuals are integrated into groups. On the individualist side we find societies in which the ties between individuals are loose: everyone is expected to look after her/himself and her/his immediate family. On the collectivist side, we find societies in which people from birth onwards are integrated into strong, cohesive in-groups, often extended families (with uncles, aunts and grandparents) which continue protecting them in exchange for unquestioning loyalty.”
- **Masculinity (MAS)** – “Masculinity versus its opposite, femininity, refers to the distribution of emotional roles between the genders which is another fundamental issue for any society to which a range of solutions are found. The IBM studies revealed that (a) women's values differ less among societies than men's values; (b) men's values from one country to another contain a dimension from very assertive and competitive and maximally different from women's values on the one side, to modest and caring and similar to women's values on the other. The assertive pole has been called masculine and the modest, caring pole feminine.”
- **Uncertainty Avoidance (UAI)** – “Uncertainty avoidance deals with a society's tolerance for uncertainty and ambiguity. It indicates to what extent a culture programs its members to feel either uncomfortable or comfortable in unstructured situations. Unstructured situations are novel, unknown, surprising, different from usual. Uncertainty avoiding cultures try to minimize the possibility of such situations by strict laws and rules, safety and security measures, and on the philosophical

and religious level by a belief in absolute Truth: 'there can only be one Truth and we have it'. […]"

- **Long-term Orientation (LTO)** – "Long- term oriented societies foster pragmatic virtues oriented towards future rewards, in particular saving, persistence, and adapting to changing circumstances. Short-term oriented societies foster virtues related to the past and present such as national pride, respect for tradition, preservation of "face", and fulfilling social obligations."
- **Indulgence versus Restraint (IVR)** – "Indulgence stands for a society that allows relatively free gratification of basic and natural human drives related to enjoying life and having fun. Restraint stands for a society that suppresses gratification of needs and regulates it by means of strict social norms."

In our data set, each of these scores can take values between 0 and 112, with a higher value indicating that power distance, individualism, masculinity etc. are more firmly entrenched in a nation's culture.

A wide-spread way of using the individual Hofstede scores in order to arrive at an aggregate measure of cultural distance is to compute a weighted sum of squared differences, with the weights reflecting the cross-country variance of the individual scores (see, e.g., Kogut and Singh, 1988). However, as emphasized by Kandogan (2011), this approach neglects the potential correlation between scores. Depending on the strength and direction of these correlations, this results in an over- or underrating of cultural distance. As an alternative, Kandogan (2011) suggests the following measure:

$$CD_{ij}^{aggr} = \frac{1}{D}\left(\mathbf{I_i} - \mathbf{I_j}\right)' \mathbf{S}^{-1}\left(\mathbf{I_i} - \mathbf{I_j}\right), \quad (1)$$

where $\left(\mathbf{I_i} - \mathbf{I_j}\right)$ is a D x 1 vector of differences between country i and country j. In our case, D = 6, since $\left(\mathbf{I_i} - \mathbf{I_j}\right)$ refers to the six aspects of "culture" enumerated above. The 6 x 6 matrix $\mathbf{S}^{-1}$ is the inverse of the covariance matrix for the 6 dimensions. The intuition behind this expression is straightforward: dimensions that are highly correlated show similar aspects of national culture and should therefore get a lower weight in the sum on

which CD_{ij}^{aggr} is based. We found that the off-diagonal elements of the covariance matrix **S** are, indeed, different from zero. Hence, we consider the aggregate cultural distance measure based on (1) to be superior to the measure used by Kogut and Singh (1988).

In the regressions described below, we will use CD_{ij}^{aggr} as a composite measure of cultural distance. However, we are also interested in the effect of *individual* aspects of national culture on services trade. To achieve this goal, we will later use the *absolute differences* between country i's and country j's score for each category *d* (with *d* = PDI, IDV, MAS, UAI, LTO, IVR), i.e. $CD_{ij}^{d} = \left| I_i^d - I_j^d \right|$, as regressors.

We believe that Hofstede's scores capture aspects of "cultural distance" which are not reflected by geographical parameters or by the sharing of a common language or religion, and that – despite the lack of time variation – these scores are ideally suited to represent differences in fundamental national traits. Moreover, we believe that these aspects of cultural distance are especially relevant for services trade. As outlined in the introduction, the necessary interaction between producers and customers makes services transactions vulnerable to all kinds of behavioral mismatches: if the "collective programming of the mind" mentioned by Hofstede differs too much between nations, this may result in different codes of conduct, a different set of implicit norms and taboos, a different interpretation of rules etc. We conjecture that these differences seriously reduce the level of trust and communication that is crucial for many services transactions. However, we are aware that the strength of this effect may vary across services categories, and that not all dimensions of cultural distance necessarily impede services trade to the same extent. This is why, after exploring the influence of "aggregate" cultural distance on total services trade, we will later also consider the relationship between different Hofstede scores and services categories.

4. Regression Equation and Data Description

Our data set, which is based on information given by the Eurostat balance of payments (BoP) statistics, covers services exports from 28 EU member countries, the United States

and Japan to, on average, 54 destination countries for the years 2004 to 2011.[3] Eurostat provides data on total services exports and on eleven services types as defined in the Manual on Statistics of International Trade in Services (MSITS) 2002.[4] In what follows, we will estimate variants of the following regression equations:

$$\ln X_{ijt} = \gamma_0 + \beta\, CD_{ij}^{aggr} + \gamma_1 \ln Y_{it} + \gamma_2 \ln Y_{jt} + \sum_k \delta_k x_{k,ijt} + \xi_t + \varepsilon_{ijt} \quad (2a)$$

$$\ln X_{ijt} = \gamma_0 + \sum_d \beta_d\, CD_{ij}^{d} + \gamma_1 \ln Y_{it} + \gamma_2 \ln Y_{jt} + \sum_k \delta_k x_{k,ijt} + \xi_t + \varepsilon_{ijt} \quad (2b)$$

In (2), $\ln X_{ijt}$ is the log of services exports from country *i* to country *j* in year *t*, measured in US dollars. While we will start by considering the *total* value of services exports as dependent variable, we will later consider individual services types. CD_{ij}^{aggr} is our "aggregate" measure of cultural distance between country *i* and country *j*, while CD_{ij}^{d} refers to an individual Hofstede score indexed by *d*. Again, we will start by analyzing the aggregate measure of cultural distance described in the previous section and then consider the influence of distance with respect to individual Hofstede scores. The variables $\ln Y_{it}$ and $\ln Y_{jt}$ represent the log of country i's and country j's GDP in the year t, measured in constant US dollars[5]. The variables $x_{k,ijt}$ control for other factors that may enhance or hamper services trade between the two countries. We will describe these variables in detail below. Some of them (like geographical distance) refer to country pairs, while others (like economic freedom) refer to one of the two countries. The time dummy ξ_t captures factors that affect the evolution of services trade between *all* country pairs – such as the general trend towards standardization and deregulation mentioned above –

[3] The list of destination countries is given in the Appendix in the "Sample size description" section. For Cyprus, we use the Hofstede scores of Greece, based on conjecture that, in terms of shared culture, the two countries are sufficiently close.

[4] Note that balance of payments data cover services supplied through mode 1 (cross-border supply), mode 2 (consumption abroad) and mode 4 (presence of natural persons), but not through mode 3 (commercial presence).

[5] GDP data are retrieved from the World Bank's World Development Indicators.

and ε_{ijt} is the error term. When estimating the covariance matrix of disturbances, we will later allow them to be correlated over time, i.e. we will use robust standard errors that are clustered at the country pair level. Note that our key regressors, the cultural distance measures, do not exhibit any time variation. This prevents us from including country-pair fixed effects. Following Kimura and Lee (2006), we also abstained from using country fixed effects: Most of the regressors we use exhibit little time variation, and including country fixed effects would substantially deprive them of explanatory power.[6]

In addition to our measure(s) of "cultural distance", we include various other proxies for the explicit or implicit barriers that may hamper services trade: the geographical distance between the respective countries' capitals, a common language dummy (Dunlevy, 2006; Kimura and Lee, 2006), a dummy for common colonial ties (Santos Silva and Tenreyro, 2006), and an adjacency dummy (Kimura and Lee, 2006). All these data have been retrieved from the CEPII database (Mayer 2011). We also include a dummy for a common religion (Linders and Groot, 2006), which is built on information provided by the CIA World Factbook (2014). This variable equals 1 if the majorities of two countries share the same religion (Hinduism, Islam, Christianity, Buddhism or Judaism).

To capture the potential effect of trade policy on services trade, we include a dummy variable reflecting membership in regional trade agreements (RTA). This dummy is constructed using the WTO's list of trade agreements available on the WTO webpage.[7]

Large differences in institutional quality such as corruption, the rule of law or political participation may also result in barriers that hamper services trade between two countries. We therefore include a measure of institutional distance (ID), which is based on the six dimensions of institutional quality developed by the World Bank's Worldwide Governance Indicators (WGI) project, and constructed in the same manner as the aggregate measure of cultural distance proposed by Kandogan (2011).

[6] The conjecture that including country-fixed effects generates a multicollinearity problem was confirmed by the analysis of variance inflation factors.

[7] We accounted for the following regional trade agreements: European Union (EU), Association of Southeast Asian Nations (ASEAN), European Free Trade Association (EFTA), Asia–Pacific Trade Agreement (APTA), North American Free Trade Agreement (NAFTA), Asia-Pacific Economic Cooperation (APEC). Thus, we included both trade in goods and trade in services agreements as we agree with the proposition that goods trade agreements can possibly facilitate services trade as well (Kimura and Lee, 2006).

To account for the fact that cultural distance between two countries may shrink if a large share of the population in country i originates from country j, we include two additional regressors: the migrant population from country i (j) relative to the total population of country j (i). This data is taken from the global data base of the Development Research Centre on Migration, Globalisation and Poverty (Migration DRC) and mainly refers to the 2000s rounds of population censuses.

Finally, we follow the suggestion of Deardoff (1998) and Harrigan (2002) by including variables that reflect the *remoteness* of countries i and j. The regressor Remoteness_{it} captures country i's relative distance from the rest of the world, with the distance of other countries being weighted by their share in world GDP, i.e.

$$\text{Remoteness}_{it} = \sum_{j} \frac{\text{Distance}_{ij}}{Y_{jt} / Y_{World,t}}$$

Note that, due to the changing weights, these "multilateral resistance" terms exhibit some time variation (Baldwin and Taglioni, 2006).

We include two more variables that capture countries' potential to export or import: countries' general trade openness (OPEN) is computed by dividing the sum of exports and imports by its GDP.[8]

Moreover, following Kimura and Lee (2006), we add for each country the index of Economic freedom of the world (EFW) constructed by the Fraser Institute.[9] We conjecture that economic freedom is particularly important for services trade, with countries that exhibit higher values of EFW being able to generate more services exports and willing to absorb more services imports.

[8] The respective data are retrieved from the World Bank's WDI.

[9] The index of economic freedom shows the extent to which people are allowed to buy, use, exchange and sell their property. It also indicates the level of a property rights protection. It is based on five sub-indices which refer to the following areas: size of government; legal system and property rights; access to sound money access; freedom to trade internationally; regulation of credit, labor and business (Gwartney, Lawson et al., 2013).

5. Choice of estimator

There are various options on how to estimate equations (2a) and (2b), the most straightforward being OLS. However, since the dependent variable is expressed in logarithms, those observations for which bilateral exports amount to zero are automatically removed from the sample. Whether the resulting loss of information is tolerable, depends on the number of "zeros" in the sample. Upon closer scrutiny, it turned out that roughly one percent of all (potential) total services trade relationships are characterized by zero trade. However, for individual services categories, the percentages are much higher, running from eight percent (Other Business Services) to 37 percent (Construction). Based on these findings, we decided to estimate equations (2a) and (2b) using a Heckman model that combines the equation of interest with a selection equation.[10] Following Martin and Pham (2008), we employ a maximum likelihood estimator rather than a two-stage sample selection specification (see also Cameron and Triverdi, 2005). We will later confront the insights emerging from this empirical approach with the results generated by alternative estimators.

Due to the fact that the sample selection model is expected to predict better when the selection equation contains at least one variable excluded from the behavioral equation (Heckman, 1976), we follow Helpman et al. (2008) and choose the religion dummy as excluded regressor since it is expected to influence mainly the decision about trade (fixed costs) but not the decision about the actual volume of trade.

6. Results

We start by estimating equation (2a), using the "aggregate" measure of cultural distance (CD_{ij}^{aggr}) as a key regressor. To set the stage, we check whether this variable has an effect on bilateral *goods* exports. We then proceed by estimating its influence on total bilateral *services* exports and individual services categories. The results are displayed in Table 1. A look at columns (1) and (2) indicates that most of the control variables have the expected

[10] This approach has been suggested by Linders and Groot (2006), Martin and Pham (2008) as well as Martinez-Zarzoso et al (2009).

influence, with the differences between the two trade categories – e.g. the stronger impact of geographical distance and regional trade agreements for goods trade than for services trade – confirming the findings in Kimura and Lee (2006). More importantly, aggregate cultural distance has a *significantly negative* effect on *services* trade, while it does not seem to matter for *goods* trade. This confirms our conjecture that cultural distance, as measured in this paper, generates frictions that are especially harmful for services trade transactions, but that do not necessarily interfere with goods trade. However, as we move to the right (columns (3) to (12)), we see that this does not apply to all services categories: while construction services, financial services, insurance services, transportation services and travel services are negatively affected by aggregate cultural distance, this distance does not seem to matter for communications and IT, other business services, cultural services and the royalties and license fees service category.[11] This suggests that there are some types of services that are more sensitive to the frictions associated with cultural distance than others and confirms our conjecture that services should be considered at the disaggregated level (Kimura and Lee, 2006). In the case of communications as well as computer services/IT this is plausible, since the exporting country essentially provides a technical infrastructure to the customer, while inter-personal contacts are likely to play a less important role. The irrelevance of cultural distance is more puzzling for other business services, which comprise, e.g., consulting and architectural services, and for cultural services. A possible interpretation of this finding is that trade for these service categories are negatively affected by *some* aspects of cultural distance, while other aspects do not matter. This suggests a more disaggregate view, which moves from our composite measure of cultural distance to the individual Hofstede scores.

Table 2 presents the results of estimating equation (2b), i.e. of using individual measures of cultural distance that are based on the six Hofstede scores. Interestingly, there are large differences across these scores in terms of the sign, size and significance of the effect. What sticks out is the significantly *positive* effect of IDV (individualism) and the significantly *negative* effect of MAS (masculinity) for almost all services categories. The latter finding confirms our initial hypothesis: if two countries differ substantially with

[11] Note, however, that, in many cases, the coefficients are negative and barely miss the 90 percent significance mark.

respect to the emphasis they place on competition vs. cooperation, this is likely to undermine mutual respect and trust among trading partners and thus make it more difficult to interact. By contrast, differences in individualism seem to enhance international trade in services – and this result holds for almost all services categories. We offer the following explanation: while "cultural distance" may act as a trade cost by impeding communication, the particular aspect reflected by IDV – the differences in how societies value individual initiative over subordination – may actually raise the potential for mutually beneficial transactions, with one country exhibiting the creativity and entrepreneurial spirit that is missing in the other country. A similar argument may explain why differences in "uncertainty avoidance" (UAI) enhance trade in insurance services: Again, instead of hampering trade, differences in country-specific attitudes towards uncertainty may generate a potential for the international transfer of risk. By contrast, differences in "indulgence vs. restraint" (IVR) have a negative effect on insurance services exports – as they have on financial and cultural services trade. This seems plausible, since these types of services seem to be especially sensitive to how societies value "enjoying live and having fun".The interpretation of other coefficients is less obvious, and we suggest as a conclusion that, for many services categories, it is not one particular aspect of cultural distance that hampers trade, but the combination of the various aspects as reflected by our aggregate measure CD_{ij}^{aggr} .

7. Robustness Checks

Are the findings presented in Table 2 driven by multicollinearity among individual cultural distance scores? To check this, we estimated equation (2b) by including one distance measure CD_{ij}^{d} at a time. The results are presented in Table 3. Of course, the coefficients and significance levels of the other regressors vary across specifications, but these differences are minor, and, for simplicity, we omit them in Table 3. The displayed coefficients of the cultural distance measures essentially replicate our previous findings: cross-country differences in the degree of "individualism" (IDV) enhance services trade, differences in "masculinity" (MAS) are detrimental, while the effect is more heterogeneous for the other aspects of cultural distance.

Our data set covers the years before and after the start of the 2008 financial crisis, which resulted in a massive decline of global trade (Bems et al., 2012). To test whether this is driving our results, we split the total sample into two intervals, 2004 – 2007 and 2008 – 2011. Tables A1 – A4 in the Appendix document that our key results – the negative impact of the aggregate cultural distance measure, the positive effect of IDV and the negative effect of MAS – can be observed in both subsamples. In fact, the coefficient of aggregate cultural distance increases in absolute value when we move from the first to the second interval. This may be read as evidence that, during the "great trade collapse", the importance of trust and mutual understanding was growing rather than decreasing.

The next question we address is whether our results are due to using a panel data set to estimate the effect of a time-invariant regressor. Tables 4 and 5 show the results of using average values from 2004 to 2011 for all time variant variables. Of course, this reduces the size of the sample by roughly 90 percent. Nevertheless, our main results are barely affected: while aggregate cultural distance has a negative effect on total services trade, the effect differs across services categories. When it comes to individual aspects of cultural distance, differences in IDV have a positive influence on services trade, while differences in MAS have a negative effect.

So far, we have controlled for the facility of cross-border communication by including a "common-language dummy". But, of course, the lack of a common language may be easily compensated by the existence of a *lingua franca* – say, English – which is spoken by large parts of the population. To check the possibility that our cultural distance measures essentially capture this type of "linguistic proximity", we added another control variable which multiplies the percentage of the population in countries *i* and *j* who speak English. Hence, $COMMUNICATION_{ij}$ measures the likelihood that two randomly selected inhabitants of the two countries can communicate in this language.[12] Tables A5 and A6 display the results. Not surprisingly, this additional variable has a significantly positive

[12] Data on English language skills are provided by the Wikipedia entry "List of countries by English-speaking population" and the references mentioned therein (Wikipedia 2015). Note that such data are only available for a subset of countries in our sample. Since this implies a large drop in the number of observations, we did not include this communication measure in our benchmark specification.

effect on total services trade and on most individual services categories. However, including it does not affect our key results.

Finally, we test our model using alternative econometric approaches: OLS; Heckman's maximum likelihood model with the same set of variables for selection and behavioral equations, and the Poisson pseudo-maximum-likelihood (PPML) estimator, which has been suggested by Silva and Tenreyro (2006) as well as Head and Mayer (2013). We also include Heckman's maximum likelihood models with one exclusion restriction (i.e. our benchmark model) for comparison purposes. The results presented in the first columns of Table 6 are very close to each other. This shows the robustness of our findings and supports the conclusion of Linders and Groot (2006) who argue that, while Heckman's model is the best method to estimate a gravity equation, using OLS and just omitting the zero trade flows also provides acceptable results. If we use the PPML estimator, by contrast, the effect of aggregate cultural distance on total services trade is much smaller and, with a t-statistic of 1.425, no longer significant at standard levels. However, even for PPML estimation, CD has a significantly negative effect on construction, financial services, insurance services, cultural services.[13] This highlights, once more, the importance of distinguishing between individual services categories.

8. Summary and conclusions

In this paper, we have presented the results of estimating a set of gravity equations to determine the importance of "cultural distance" for services trade. This project was based on the conjecture that, due to the necessary interaction between customer and producer, services trade is more sensitive to all types of communication failures than goods trade. Observing that the subtle aspects of culture that support or hamper mutual understanding and respect are not captured by a common language or religion, or by geographical parameters, we have used measures of cultural distance based on Geert Hofstede's scores.

By and large, our findings confirm our conjecture: unlike goods trade, total services trade is negatively affected by an aggregate measure that encompasses all aspects of

[13] These results are not shown in the table, but are available upon request.

cultural distance considered by Hofstede. If inhabitants from two countries substantially differ with respect to their obedience to hierarchies, their valuation of individual initiative, their willingness to cooperate, their long-term orientation, risk aversion as well as their attitude towards pleasure, it is unlikely that they find a basis for services transactions. However, a closer look reveals a more nuanced picture: even aggregate cultural distance does not hamper all categories of services trade to the same extent, with some types of services apparently being more sensitive than others. Moreover, there are considerable differences among the various aspects of cultural distance with respect to their impact on total services trade and individual services categories. In fact, it turns out that some distance measures like “individualism” enhance, rather than hamper services trade.

We see our contribution as a step ahead in gaining a better understanding of “culture” as a determinant of services trade. While our results demonstrate that the Hofstede scores capture important aspects of “cultural distance” that are relevant for services trade, it is beyond doubt that alternative measures which are comprehensive, easy to interpret and – ideally: time-variant – are desirable. We believe that this provides ample scope for future research.

9. References

Aggarwal R., Kearney C., Lucey B. (2011): “Gravity and culture in foreign direct portfolio investment”, *Journal of Banking and Finance*, 1- 47.

Baldwin R. and Taglioni D. (2006): “Gravity for dummies and dummies for gravity equations”, *National bureau of economic research*, working paper №12516.

Bems, R., R.C. Johnson and K.-M. Yi (2012): “The Great Trade Collapse”, *NBER Working Paper No 18632*.

Cameron A.C. and Trivedi P.K. (2005): “Microeconometrics. Methods and Applications”, *Cambridge University Press*.

Central Intelligence Agency (2014): The World Factbook, accessed May 19, 2014.

Davies, R., Ionascu, D., Kristjansdottir, H. (2008): “Estimating the Impact of Time-Invariant Variables on FDI with Fixed Effects”, *Review of World Economics 144(3)*, 381-407.

Disdier, A., Tai, S., Fontagne, L., Mayer, T. (2010): “Bilateral Trade of Cultural Goods”, *Review of World Economics 145(4)*, 575-595.

Deardorff A.V. (1998): “Determinants of bilateral trade: does gravity work in a neoclassical world? The regionalization of the world economy”, *University of Chicago Press*, 7-32.

Dunlevy J.A. (2006): “The influence of corruption and language on the protrade effect of immigrants: evidence from the American states”, *The Review of Economics and Statistics 88(1)*, 182–186.

Eurostat (2014): ”Balance of payments and International transactions database”, *European Commission*, retrieved May 19, 2014.

Felbermayr, G. and Toubal, F. (2010): “Cultural Proximity and Trade”, *European Economic Review 54(2)*, 279-293.

Francois, J. and B. Hoekman (2010): “Services Trade and Policy”, *Journal of Economic Literature 48*, 642-692.

Guiso L., Sapienza P., Zingales L. (2009): “Cultural biases in economic exchange?”, *The Quarterly Journal of Economics 124*, 1095-1131.

Gwartney J., Lawson R., Hall J. (2013): “Economic Freedom of the World. Annual Report”, *Fraser Institute*.

Head K. and Mayer T. (2013): “Gravity equations: Workhorse, Toolkit, and Cookbook”, CEPII Working Paper *№27.*

Harrigan J. (2002): “Specialization and the Volume of Trade: Do the Data Obey the Laws”, in K. Choi and J. Harrigan (eds.)*, The Handbook of International Trade*, London: Basil Blackwell.

Heckman J.J. (1976): “The common structure of statistical models of truncation, sample selection and limited dependent variables and a simple estimator for such models”. *NBER, Annals of economic and social measurement 5№4*, 475-492.

Hellmanzik, C. and M. Schmitz (2015): „Virtual proximity and audiovisual services trade”, *European Economic Review*, forthcoming.

Helpman E., Melitz M., Rubinstein Y. (2008): “Estimating trade flows: trading partners and trading volumes”, *Quarterly Journal of Economics 123*, 441-487.

Hill, P. (1999): „Intangibles and Services: A New Taxonomy for the Classification of Output“, *Canadian Journal of Economics 32*, 426-446.

Hofstede G. (1991): “Cultures and organizations: software of the mind”, *McGraw-Hill*.

Hofstede G. (2009): “Culture's consequences: comparing values, behaviors, institutions, and organizations across nations”, *Sage*.

Hofstede, G. (2015): *Dimensions of national cultures*, http://geerthofstede.nl/dimensions-of-national-cultures

Development Research Centre on Migration, Globalisation and Poverty (Migration DRC) (2007): “Global Migrant Origin Database”, retrieved January 05, 2015.

Jensen, J.B. (2011): “Global Trade in Services: Fear, Facts, and Offshoring”, Washington DC.

Kandogan Y. (2011): “An improvement of Kogut and Singh measure of cultural distance considering the relationship among different dimensions of culture”, *Research in International Business and Finance 26*, 196-203.

Kaufman D., Kraay A., Mastruzzi M. (2013): “The Worldwide Governance Indicators (WGI) project”, *World Bank*, retrieved May 19, 2014.

Kimura, F. and H.-H. Lee (2006): “The Gravity Equation in International Trade in Services”, *Review of World Economics 142*, 92-121.

Kogut B. and Singh H. (1988): “The effect of national culture on the choice of entry mode”, *Journal of International Business Studies 19*, 411-432.

Linders G-J. M. and de Groot H. L. F. (2006): “Estimation of the gravity equation in the presence of zero flows”, *Tinbergen Institute Discussion Paper № 2006-072/3*.

Lucey B. and Zhang Q. (2010): “Does Cultural Distance Matter in International Stock Market Comovement? Evidence from Emerging Economies around the World”, *Emerging Markets Review 35(5)*, 1228-1238.

Martin W. and Pham C. S. (2008): “Estimating the gravity model when zero trade flows are frequent”, *World Bank manuscript*, available at: http://www.deakin.edu.au/buslaw/aef/workingpapers/papers/2008_03eco.pdf

Martines- Zarzoso I., Felicitas N-L. D., Horsewood N. (2009): “Are regional trade agreements beneficial? Static and dynamic panel gravity models”, *North American Journal of Economics and Finance 20*, 46-65.

Mayer T. (2011): *GeoDist database. CEPII*, [CD-ROM], accessed May 19, 2015.

Miroudot S., Lanz R., Ragoussis A. (2009): “Trade in intermediate goods and services”, *OECD Trade Policy Working Paper No. 93*, OECD.

Reinsdorf, M. and M.J. Slaughter (2009): “Introduction to ‘International Trade in Services and Intangibles in the Era of Globalization”, in Reinsdorf, M. and M.J. Slaughter (eds.): *International Trade in Services and Intangibles in the Era of Globalization*, University of Chicago Press

Santos Silva J. M. C. and Tenreyro S. (2006): “The Log of Gravity”, *Review of Economics and Statistics 88(4)*, 641-658.

Tadesse B. and White R. (2008): “Does cultural distance hinder trade in goods? A comparative study of nine OECD member nations”, *Open Economies Review*, Volume 21 issue 2, 237-261.

Tadesse B. and White R. (2010): “Cultural distance as a determinant of bilateral trade flows: do immigrants counter the effect of cultural differences?”, *Applied Economic Letters 17*, 147-152.

United Nations (2002): “Manual on Statistics of International Trade in Services 2002”, *Statistical Papers*, Series M, № 86. Sales № E.02.XVII.11.

Walsh K. (2006): “Trade in services: does gravity hold? A gravity model approach to estimating barriers to services trade”, Draft paper, Department of Economics & Institute for International Integration Studies, *Trinity College*, Dublin, 1-37.

Wikipedia (2015): Entry “List of countries by English-speaking population”, https://en.wikipedia.org/wiki/List_of_countries_by_English-speaking_population, retrieved on August 12, 2015.

World Bank (2014): “World Development Indicators”, retrieved May 10, 2014.

WTO (2014): “RTA Database”, accessed May 05, 2014.

Tables

Table 1: The effect of "aggregate" cultural distance on goods trade, services trade, and individual services categories

	(1.1) Goods	(1.2) Services (Total)	(1.3) Communicational	(1.4) Computer	(1.5) Construction	(1.6) Financial	(1.7) Insurance	(1.8) OBS	(1.9) Cultural	(1.10) Royalties	(1.11) Transportation	(1.12) Travel
CD	0.036	-0.121***	-0.065	-0.035	-0.090*	-0.226***	-0.107**	-0.027	-0.057	0.035	-0.089**	-0.115***
	(0.027)	(0.030)	(0.046)	(0.042)	(0.049)	(0.055)	(0.049)	(0.035)	(0.043)	(0.041)	(0.037)	(0.031)
logGDPi	1.199***	1.022***	0.961***	1.035***	0.859***	1.143***	1.032***	1.095***	0.833***	1.391***	0.859***	0.795***
	(0.024)	(0.026)	(0.038)	(0.039)	(0.053)	(0.054)	(0.051)	(0.031)	(0.045)	(0.047)	(0.031)	(0.028)
logGDPj	0.822***	0.792***	0.740***	0.748***	0.554***	0.733***	0.711***	0.793***	0.729***	0.794***	0.776***	0.708***
	(0.020)	(0.025)	(0.039)	(0.038)	(0.048)	(0.047)	(0.043)	(0.030)	(0.048)	(0.039)	(0.031)	(0.027)
logDistance	-1.254***	-0.818***	-1.115***	-1.158***	-1.024***	-0.769***	-0.608***	-0.862***	-1.025***	-0.855***	-0.954***	-0.831***
	(0.076)	(0.076)	(0.115)	(0.119)	(0.138)	(0.150)	(0.115)	(0.086)	(0.126)	(0.101)	(0.082)	(0.087)
Adjacency	0.532**	0.266	0.311	-0.036	0.729***	0.283	0.396*	0.088	0.060	-0.106	0.328*	0.829***
	(0.211)	(0.180)	(0.218)	(0.200)	(0.240)	(0.249)	(0.226)	(0.208)	(0.208)	(0.190)	(0.178)	(0.178)
Language	0.131	0.186	0.410	0.203	0.317	0.723**	1.402***	0.326	0.539*	0.155	-0.025	0.577***
	(0.191)	(0.161)	(0.259)	(0.269)	(0.327)	(0.295)	(0.314)	(0.231)	(0.313)	(0.256)	(0.172)	(0.184)
Colony	0.228	0.660***	0.630**	0.345	0.355	0.758	0.191	0.320	0.408	0.206	0.510**	0.821***
	(0.207)	(0.218)	(0.298)	(0.323)	(0.341)	(0.463)	(0.367)	(0.303)	(0.298)	(0.264)	(0.198)	(0.221)
RTA	0.322***	0.097	-0.026	0.059	-0.189	0.103	0.162	0.006	-0.062	-0.369***	0.087	0.437***
	(0.068)	(0.083)	(0.107)	(0.131)	(0.150)	(0.173)	(0.141)	(0.101)	(0.129)	(0.137)	(0.090)	(0.103)
EFWi	0.066	0.719***	-0.301***	0.681***	0.585***	0.671***	0.775***	1.116***	-0.052	1.987***	0.739***	-0.306***
	(0.079)	(0.087)	(0.115)	(0.136)	(0.170)	(0.176)	(0.140)	(0.095)	(0.138)	(0.138)	(0.111)	(0.109)
EFWj	0.275***	0.542***	0.582***	0.485***	0.146	0.472***	0.199**	0.510***	0.582***	0.233**	0.495***	0.510***
	(0.047)	(0.062)	(0.078)	(0.090)	(0.106)	(0.104)	(0.099)	(0.068)	(0.095)	(0.092)	(0.074)	(0.075)
ID	0.038	-0.102***	-0.075	-0.038	0.009	-0.162***	-0.076	-0.060*	-0.041	-0.146***	-0.081**	-0.015
	(0.024)	(0.031)	(0.047)	(0.048)	(0.055)	(0.063)	(0.054)	(0.036)	(0.053)	(0.052)	(0.036)	(0.038)
OPENi	0.478***	0.616***	0.417***	1.114***	0.068	2.340***	-0.048	0.415***	0.353**	0.688***	-0.164*	-0.635***
	(0.070)	(0.068)	(0.142)	(0.146)	(0.192)	(0.129)	(0.199)	(0.069)	(0.165)	(0.189)	(0.093)	(0.064)
OPENj	0.193***	0.209***	0.163**	0.134*	0.026	0.496***	0.311***	0.249***	-0.071	0.181**	0.243***	-0.280***
	(0.049)	(0.053)	(0.071)	(0.080)	(0.095)	(0.102)	(0.088)	(0.060)	(0.084)	(0.081)	(0.072)	(0.067)
MIGRANTij	-0.050**	0.032	-0.009	0.005	-0.025	0.084**	0.038	0.052**	0.079**	0.076***	-0.025	0.031
	(0.020)	(0.022)	(0.023)	(0.036)	(0.052)	(0.039)	(0.032)	(0.025)	(0.038)	(0.022)	(0.021)	(0.035)
MIGRANTji	0.068	0.135***	0.124**	0.036	0.143*	0.189**	0.123	0.116***	-0.008	0.159***	0.156***	0.109**
	(0.044)	(0.038)	(0.054)	(0.054)	(0.074)	(0.094)	(0.169)	(0.045)	(0.090)	(0.056)	(0.038)	(0.050)
logREMOTENESSi	-0.234*	0.522***	5.648***	8.219***	3.702***	9.086***	-0.141	0.590***	3.342***	0.862***	0.267*	0.045
	(0.125)	(0.172)	(0.709)	(0.780)	(0.840)	(0.790)	(0.197)	(0.192)	(0.823)	(0.235)	(0.156)	(0.198)
logREMOTENESSj	0.378***	-0.186**	-0.045	0.290*	0.279	-0.124	-0.081	-0.276***	0.062	0.326***	0.134	-0.134
	(0.072)	(0.085)	(0.152)	(0.152)	(0.179)	(0.180)	(0.117)	(0.100)	(0.147)	(0.110)	(0.095)	(0.098)
Constant	-43.390***	-52.908***	-141.811***	-204.510***	-107.438***	-220.624***	-44.447***	-58.535***	-100.503***	-89.598***	-48.836***	-28.779***
	(2.597)	(3.265)	(13.077)	(14.272)	(15.148)	(14.615)	(4.083)	(3.708)	(14.535)	(4.162)	(3.045)	(3.557)
Observations	12,528	12,482	10,174	10,172	10,158	10,595	10,752	10,852	9,741	11,02	11,84	12,288

Heckman ML estimations (religion dummy is used as an exclusion restriction). Time fixed effects
Dependent variable: natural logarithm of bilateral services exports.
t-statistics are based on robust standard errors clustered at the country pair level.
Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Table 2: The effect of different aspects of cultural distance on services trade

	(2.1) Services (Total)	(2.2) Communicational	(2.3) Computer	(2.4) Construction	(2.5) Financial	(2.6) Insurance	(2.7) OBS	(2.8) Cultural	(2.9) Royalties	(2.10) Transportation	(2.11) Travel
PDI	-0.002	-0.007***	0.005	0.002	0.002	0.002	-0.001	-0.001	-0.003	-0.007**	-0.001
	(0.002)	(0.003)	(0.003)	(0.004)	(0.004)	(0.003)	(0.002)	(0.003)	(0.003)	(0.003)	(0.002)
IDV	0.013***	0.017***	0.003	0.015***	0.004	0.005	0.017***	0.015***	0.012***	0.009***	0.017***
	(0.002)	(0.003)	(0.003)	(0.004)	(0.004)	(0.004)	(0.002)	(0.003)	(0.003)	(0.002)	(0.002)
MAS	-0.009***	-0.011***	-0.005**	-0.013***	-0.024***	-0.015***	-0.007***	-0.006***	0.004	-0.009***	-0.009***
	(0.002)	(0.002)	(0.003)	(0.002)	(0.003)	(0.003)	(0.002)	(0.002)	(0.003)	(0.002)	(0.002)
UAI	0.005***	-0.005**	0.000	-0.007**	0.004	0.005**	-0.000	-0.000	0.001	0.007***	-0.005***
	(0.002)	(0.002)	(0.003)	(0.003)	(0.003)	(0.003)	(0.002)	(0.003)	(0.002)	(0.002)	(0.002)
LTO	-0.006***	-0.007**	-0.006*	0.007*	-0.005	0.000	-0.004	-0.010***	-0.004	-0.001	-0.002
	(0.002)	(0.003)	(0.003)	(0.004)	(0.004)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.002)
IVR	-0.002	0.012***	0.005	0.000	-0.008**	-0.010***	0.002	-0.006*	0.004	0.001	0.000
	(0.002)	(0.003)	(0.003)	(0.003)	(0.004)	(0.004)	(0.002)	(0.003)	(0.003)	(0.003)	(0.002)
logGDPi	0.994***	0.971***	1.036***	0.849***	1.098***	1.020***	1.085***	0.826***	1.407***	0.847***	0.754***
	(0.026)	(0.037)	(0.040)	(0.053)	(0.053)	(0.049)	(0.031)	(0.043)	(0.049)	(0.032)	(0.028)
logGDPj	0.776***	0.749***	0.740***	0.557***	0.694***	0.684***	0.782***	0.699***	0.793***	0.763***	0.707***
	(0.025)	(0.038)	(0.039)	(0.047)	(0.045)	(0.042)	(0.030)	(0.046)	(0.040)	(0.031)	(0.027)
logDistance	-0.917***	-1.235***	-1.179***	-1.082***	-0.853***	-0.662***	-0.992***	-1.093***	-0.932***	-1.049***	-0.915***
	(0.075)	(0.111)	(0.129)	(0.132)	(0.140)	(0.107)	(0.085)	(0.124)	(0.105)	(0.080)	(0.084)
1.Adjacency	0.268	0.297	-0.031	0.674***	0.171	0.365	0.066	0.006	-0.087	0.365**	0.786***
	(0.179)	(0.208)	(0.201)	(0.234)	(0.254)	(0.230)	(0.203)	(0.202)	(0.196)	(0.176)	(0.175)
1.Language	0.215	0.418	0.214	0.343	0.546*	1.292***	0.319	0.534*	0.230	-0.004	0.594***
	(0.164)	(0.266)	(0.278)	(0.317)	(0.298)	(0.313)	(0.228)	(0.309)	(0.262)	(0.168)	(0.183)
1.Colony	0.641***	0.536*	0.254	0.286	0.575	0.122	0.235	0.359	0.211	0.490**	0.756***
	(0.207)	(0.281)	(0.316)	(0.328)	(0.437)	(0.363)	(0.292)	(0.270)	(0.264)	(0.198)	(0.205)
1.RTA	0.101	0.016	0.077	-0.121	0.107	0.106	0.051	-0.030	-0.389***	0.040	0.469***
	(0.080)	(0.104)	(0.132)	(0.151)	(0.165)	(0.136)	(0.102)	(0.127)	(0.139)	(0.090)	(0.101)
EFWi	0.686***	-0.044	0.633***	0.677***	0.767***	0.784***	1.225***	0.149	2.073***	0.754***	-0.284***
	(0.084)	(0.119)	(0.141)	(0.167)	(0.176)	(0.139)	(0.095)	(0.134)	(0.143)	(0.109)	(0.103)
EFWj	0.580***	0.622***	0.482***	0.238**	0.510***	0.241**	0.566***	0.616***	0.274***	0.515***	0.586***
	(0.061)	(0.075)	(0.090)	(0.102)	(0.101)	(0.097)	(0.064)	(0.094)	(0.091)	(0.072)	(0.071)
ID	-0.120***	-0.119***	-0.082*	-0.027	-0.208***	-0.094*	-0.069**	-0.042	-0.155***	-0.098***	-0.042
	(0.030)	(0.044)	(0.048)	(0.053)	(0.063)	(0.054)	(0.034)	(0.050)	(0.053)	(0.036)	(0.038)
OPENi	0.644***	0.439***	1.169***	0.081	2.300***	0.028	0.404***	0.407**	0.672***	-0.126	-0.654***
	(0.068)	(0.134)	(0.149)	(0.186)	(0.125)	(0.193)	(0.069)	(0.166)	(0.187)	(0.093)	(0.063)
OPENj	0.097*	0.123*	0.098	-0.008	0.356***	0.237***	0.180***	-0.156*	0.138*	0.162**	-0.347***
	(0.051)	(0.067)	(0.081)	(0.091)	(0.101)	(0.087)	(0.058)	(0.080)	(0.078)	(0.069)	(0.061)
MIGRANTij	0.034	-0.023	0.001	-0.030	0.084**	0.033	0.050**	0.085**	0.072***	-0.031	0.029
	(0.022)	(0.024)	(0.037)	(0.053)	(0.040)	(0.032)	(0.024)	(0.039)	(0.023)	(0.021)	(0.032)
MIGRANTji	0.102***	0.136**	0.029	0.140**	0.143	0.072	0.096**	-0.044	0.156***	0.132***	0.086*
	(0.034)	(0.053)	(0.057)	(0.071)	(0.096)	(0.166)	(0.041)	(0.087)	(0.054)	(0.038)	(0.045)
logREMOTENESSi	0.627***	4.579***	8.437***	3.542***	8.377***	-0.026	0.716***	3.160***	0.790***	0.305**	0.146
	(0.163)	(0.693)	(0.851)	(0.786)	(0.779)	(0.189)	(0.187)	(0.845)	(0.242)	(0.152)	(0.182)
logREMOTENESSj	-0.166**	0.009	0.334**	0.188	-0.091	-0.122	-0.218**	0.110	0.351***	0.133	-0.152
	(0.084)	(0.147)	(0.162)	(0.171)	(0.167)	(0.108)	(0.101)	(0.141)	(0.113)	(0.095)	(0.094)
Constant	-53.465***	-124.721***	-208.663***	-103.747***	-205.636***	-44.546***	-61.695***	-98.105***	-89.675***	-48.470***	-29.378***
	(3.157)	(12.881)	(15.620)	(14.167)	(14.318)	(3.723)	(3.737)	(14.881)	(4.340)	(3.025)	(3.319)
Observations	12,482	10,174	10,172	10,158	10,595	10,752	10,852	9,741	11,020	11,840	12,288

Heckman ML estimations (religion dummy is used as an exclusion restriction). Time fixed effects
Dependent variable: natural logarithm of bilateral services exports.
t-statistics are based on robust standard errors clustered at the country pair level.
Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Table 3: The effect of different aspects of cultural distance (one cultural distance measure at a time)

	(3.1) Services (Total)	(3.2) Communicational	(3.3) Computer	(3.4) Construction	(3.5) Financial	(3.6) Insurance	(3.7) OBS	(3.8) Cultural	(3.9) Royalties	(3.10) Transportation	(3.11) Travel
PDI	0.000	-0.006**	0.005*	-0.001	-0.003	-0.001	0.001	-0.000	0.001	-0.005**	-0.001
	(0.002)	(0.003)	(0.003)	(0.003)	(0.004)	(0.003)	(0.002)	(0.003)	(0.003)	(0.002)	(0.002)
IDV	0.014***	0.016***	0.005*	0.014***	0.004	0.007*	0.017***	0.016***	0.011***	0.009***	0.016***
	(0.002)	(0.003)	(0.003)	(0.004)	(0.004)	(0.004)	(0.002)	(0.003)	(0.003)	(0.002)	(0.002)
MAS	-0.009***	-0.012***	-0.004	-0.013***	-0.024***	-0.015***	-0.007***	-0.007***	0.003	-0.010***	-0.010***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.003)	(0.003)	(0.002)	(0.002)	(0.003)	(0.002)	(0.002)
UAI	0.007***	-0.005**	0.002	-0.006**	0.005	0.005*	0.001	-0.000	0.002	0.007***	-0.003
	(0.002)	(0.002)	(0.003)	(0.003)	(0.003)	(0.003)	(0.002)	(0.003)	(0.002)	(0.002)	(0.002)
LTO	-0.007***	-0.005	-0.005	0.008**	-0.005	0.000	-0.003	-0.012***	-0.004	-0.001	-0.003
	(0.002)	(0.003)	(0.003)	(0.004)	(0.004)	(0.004)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
IVR	-0.003	0.009***	0.005*	-0.000	-0.011***	-0.009***	0.002	-0.007**	0.004	-0.000	0.000
	(0.002)	(0.003)	(0.003)	(0.004)	(0.004)	(0.004)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)

Annotations: The table shows the results of estimating equation (2b) including one measure of cultural distance at a time. All control variables displayed in Tables 1 and 2 are included. t-statistics in parentheses are based on robust standard errors, clustered at the country-pair level.

Table 4: The effect of "aggregate" cultural distance on service trade: average values for 2004 - 2011

	(4.1) Services (Total)	(4.2) Communicational	(4.3) Computer	(4.4) Construction	(4.5) Financial	(4.6) Insurance	(4.7) OBS	(4.8) Cultural	(4.9) Royalties	(4.10) Transportation	(4.11) Travel
CD	-0.109***	-0.055	0.015	-0.044	-0.233***	-0.156***	-0.053	-0.003	0.076	-0.065	-0.058*
	(0.031)	(0.047)	(0.047)	(0.057)	(0.059)	(0.055)	(0.040)	(0.049)	(0.048)	(0.041)	(0.034)
logGDPi	1.026***	0.992***	1.060***	1.049***	1.205***	1.015***	1.137***	0.914***	1.549***	0.957***	0.864***
	(0.026)	(0.039)	(0.046)	(0.057)	(0.054)	(0.049)	(0.035)	(0.046)	(0.056)	(0.037)	(0.031)
logGDPj	0.804***	0.785***	0.848***	0.681***	0.760***	0.752***	0.811***	0.807***	0.812***	0.807***	0.738***
	(0.027)	(0.038)	(0.042)	(0.047)	(0.046)	(0.043)	(0.033)	(0.043)	(0.042)	(0.035)	(0.030)
logDistance	-0.819***	-1.062***	-1.230***	-1.246***	-0.824***	-0.836***	-0.868***	-1.111***	-0.984***	-0.938***	-1.016***
	(0.077)	(0.117)	(0.129)	(0.159)	(0.164)	(0.117)	(0.094)	(0.123)	(0.108)	(0.091)	(0.095)
1.Adjacency	0.198	0.238	-0.145	0.665**	0.106	0.379	0.097	-0.020	-0.256	0.311	0.667***
	(0.183)	(0.233)	(0.207)	(0.282)	(0.262)	(0.238)	(0.220)	(0.236)	(0.252)	(0.204)	(0.199)
1.Language	0.157	0.378	0.282	-0.096	0.837***	1.569***	0.109	0.396	0.189	-0.185	0.585***
	(0.167)	(0.274)	(0.286)	(0.391)	(0.315)	(0.316)	(0.246)	(0.347)	(0.330)	(0.220)	(0.226)
1.Colony	0.734***	0.690**	0.419	0.753*	0.763	0.163	0.427	0.612*	0.331	0.600**	0.739***
	(0.225)	(0.327)	(0.352)	(0.413)	(0.484)	(0.374)	(0.330)	(0.321)	(0.337)	(0.239)	(0.264)
EFWi	0.765***	-0.422***	0.680***	-0.062	0.298	0.651***	1.271***	-0.767***	1.600***	0.533***	-0.305**
	(0.109)	(0.159)	(0.188)	(0.215)	(0.247)	(0.203)	(0.138)	(0.217)	(0.189)	(0.148)	(0.147)
EFWj	0.513***	0.550***	0.452***	0.333**	0.468***	0.199*	0.567***	0.676***	0.173	0.576***	0.694***
	(0.080)	(0.096)	(0.110)	(0.139)	(0.129)	(0.121)	(0.090)	(0.105)	(0.120)	(0.090)	(0.091)
ID	-0.200***	-0.185***	-0.161**	-0.002	-0.285***	-0.088	-0.122**	-0.102	-0.163**	-0.123**	-0.069
	(0.047)	(0.064)	(0.077)	(0.082)	(0.084)	(0.076)	(0.059)	(0.077)	(0.083)	(0.052)	(0.059)
OPENi	0.678***	0.336**	1.015***	0.218	2.458***	-0.268	0.525***	0.646***	0.852***	0.056	-0.450***
	(0.072)	(0.168)	(0.180)	(0.241)	(0.142)	(0.216)	(0.080)	(0.195)	(0.223)	(0.106)	(0.076)
OPENj	0.270***	0.239***	0.327***	-0.028	0.565***	0.323***	0.307***	-0.049	0.235**	0.253***	-0.397***
	(0.059)	(0.082)	(0.094)	(0.111)	(0.110)	(0.111)	(0.072)	(0.098)	(0.099)	(0.078)	(0.077)
MIGRANTij	0.034	-0.002	0.010	0.014	0.072*	0.030	0.041	0.102**	0.093***	-0.025	0.021
	(0.022)	(0.025)	(0.032)	(0.044)	(0.039)	(0.037)	(0.027)	(0.043)	(0.027)	(0.024)	(0.042)
MIGRANTji	0.129***	0.157**	0.064	0.190**	0.213***	0.099	0.024	0.055	0.130***	0.162***	0.114**
	(0.037)	(0.064)	(0.053)	(0.091)	(0.079)	(0.154)	(0.086)	(0.088)	(0.035)	(0.042)	(0.047)
logREMOTENESSi	0.393*	3.411***	6.482***	4.685***	7.950***	0.299	0.655**	3.310***	0.860***	0.174	0.337
	(0.233)	(0.802)	(0.852)	(1.047)	(0.912)	(0.248)	(0.272)	(0.899)	(0.258)	(0.179)	(0.225)
logREMOTENESSj	-0.197**	-0.160	0.156	0.264	-0.197	-0.058	-0.338***	-0.002	0.440***	0.025	-0.238**
	(0.088)	(0.149)	(0.165)	(0.198)	(0.202)	(0.139)	(0.115)	(0.152)	(0.133)	(0.109)	(0.107)
Constant	-50.385***	-98.875***	-171.666***	-128.805***	-196.711***	-50.359***	-61.222***	-98.101***	-92.024***	-47.510***	-34.647***
	(4.228)	(14.862)	(15.611)	(19.108)	(16.672)	(4.730)	(5.057)	(15.995)	(4.786)	(3.447)	(4.060)
Observations	1,563	1,271	1,270	1,269	1,323	1,345	1,352	1,216	1,377	1,481	1,535

Heckman ML estimations (religion dummy is used as an exclusion restriction). Cross time average data

Dependent variable: natural logarithm of bilateral services exports.

t-statistics are based on robust standard errors clustered at the country pair level.

Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Table 5: The effect of different aspects of cultural distance on service trade: average values for 2004 - 2011

	(5.1) Services (Total)	(5.2) Communicational	(5.3) Computer	(5.4) Construction	(5.5) Financial	(5.6) Insurance	(5.7) OBS	(5.8) Cultural	(5.9) Royalties	(5.10) Transportation	(5.11) Travel
PDI	-0.001	-0.008***	0.005	0.001	-0.000	0.000	-0.001	0.001	0.001	-0.007**	0.002
	(0.002)	(0.003)	(0.003)	(0.004)	(0.004)	(0.004)	(0.003)	(0.003)	(0.004)	(0.003)	(0.002)
IDV	0.013***	0.022***	0.004	0.022***	0.004	0.004	0.019***	0.013***	0.018***	0.014***	0.018***
	(0.002)	(0.003)	(0.004)	(0.004)	(0.004)	(0.004)	(0.003)	(0.004)	(0.004)	(0.003)	(0.002)
MAS	-0.009***	-0.010***	-0.005*	-0.010***	-0.024***	-0.017***	-0.007***	-0.005*	0.008***	-0.008***	-0.008***
	(0.002)	(0.002)	(0.003)	(0.003)	(0.003)	(0.003)	(0.002)	(0.003)	(0.003)	(0.002)	(0.002)
UAI	0.004**	-0.003	0.004	-0.009***	0.007**	0.006*	0.000	0.003	0.000	0.006***	-0.006***
	(0.002)	(0.002)	(0.003)	(0.003)	(0.003)	(0.003)	(0.002)	(0.003)	(0.003)	(0.002)	(0.002)
LTO	-0.005**	-0.007**	-0.009**	0.007	-0.009**	-0.001	-0.006**	-0.011***	-0.008**	-0.001	0.000
	(0.002)	(0.003)	(0.004)	(0.004)	(0.004)	(0.004)	(0.003)	(0.004)	(0.004)	(0.003)	(0.003)
IVR	-0.001	0.012***	0.012***	0.001	-0.011**	-0.007*	-0.001	-0.003	-0.000	0.003	0.003
	(0.002)	(0.003)	(0.003)	(0.004)	(0.004)	(0.004)	(0.003)	(0.004)	(0.004)	(0.003)	(0.003)
logGDPi	0.998***	0.979***	1.075***	0.996***	1.154***	0.999***	1.117***	0.901***	1.558***	0.940***	0.823***
	(0.027)	(0.038)	(0.047)	(0.055)	(0.053)	(0.050)	(0.035)	(0.044)	(0.055)	(0.037)	(0.031)
logGDPj	0.788***	0.780***	0.845***	0.679***	0.726***	0.721***	0.790***	0.778***	0.821***	0.791***	0.736***
	(0.026)	(0.037)	(0.043)	(0.048)	(0.045)	(0.043)	(0.032)	(0.043)	(0.042)	(0.034)	(0.030)
logDistance	-0.914***	-1.212***	-1.281***	-1.350***	-0.951***	-0.872***	-1.029***	-1.202***	-1.110***	-1.049***	-1.098***
	(0.075)	(0.117)	(0.135)	(0.150)	(0.155)	(0.112)	(0.096)	(0.122)	(0.113)	(0.089)	(0.093)
1.Adjacency	0.198	0.232	-0.121	0.599**	-0.011	0.375	0.058	-0.064	-0.288	0.359*	0.639***
	(0.182)	(0.223)	(0.215)	(0.276)	(0.267)	(0.241)	(0.214)	(0.238)	(0.255)	(0.201)	(0.193)
1.Language	0.184	0.445	0.333	0.036	0.641**	1.458***	0.110	0.421	0.318	-0.129	0.635***
	(0.170)	(0.275)	(0.305)	(0.377)	(0.317)	(0.318)	(0.245)	(0.349)	(0.323)	(0.220)	(0.223)
1.Colony	0.722***	0.573*	0.288	0.668*	0.564	0.089	0.329	0.536*	0.326	0.576**	0.658***
	(0.218)	(0.300)	(0.354)	(0.393)	(0.459)	(0.362)	(0.319)	(0.297)	(0.332)	(0.240)	(0.247)
EFWi	0.717***	-0.004	0.647***	0.201	0.537**	0.630***	1.377***	-0.579***	1.667***	0.535***	-0.296**
	(0.106)	(0.169)	(0.201)	(0.225)	(0.256)	(0.209)	(0.137)	(0.217)	(0.197)	(0.145)	(0.141)
EFWj	0.550***	0.615***	0.409***	0.462***	0.475***	0.226*	0.638***	0.695***	0.240**	0.603***	0.771***
	(0.079)	(0.095)	(0.109)	(0.133)	(0.129)	(0.120)	(0.085)	(0.106)	(0.118)	(0.088)	(0.089)
ID	-0.221***	-0.213***	-0.219***	-0.024	-0.321***	-0.115	-0.123**	-0.103	-0.156*	-0.142***	-0.095
	(0.046)	(0.060)	(0.076)	(0.080)	(0.083)	(0.077)	(0.058)	(0.078)	(0.085)	(0.052)	(0.060)
OPENi	0.698***	0.302*	1.135***	0.062	2.429***	-0.172	0.512***	0.734***	0.767***	0.092	-0.489***
	(0.072)	(0.158)	(0.187)	(0.243)	(0.136)	(0.207)	(0.082)	(0.202)	(0.217)	(0.104)	(0.075)
OPENj	0.166***	0.176**	0.294***	-0.045	0.407***	0.225**	0.204***	-0.143	0.172*	0.166**	-0.432***
	(0.056)	(0.079)	(0.093)	(0.109)	(0.112)	(0.108)	(0.068)	(0.097)	(0.095)	(0.075)	(0.073)
MIGRANTij	0.035	-0.019	0.001	0.005	0.080**	0.024	0.042*	0.107**	0.097***	-0.029	0.013
	(0.021)	(0.026)	(0.033)	(0.044)	(0.040)	(0.037)	(0.026)	(0.044)	(0.027)	(0.024)	(0.037)
MIGRANTji	0.097***	0.162***	0.060	0.185**	0.158*	0.045	-0.000	0.022	0.120***	0.137***	0.093**
	(0.034)	(0.061)	(0.057)	(0.089)	(0.081)	(0.149)	(0.082)	(0.087)	(0.034)	(0.044)	(0.044)
logREMOTENESS	0.487**	1.953**	6.431***	4.171***	6.831***	0.461*	0.731***	3.184***	0.753***	0.213	0.441**
	(0.192)	(0.797)	(0.952)	(1.034)	(0.927)	(0.248)	(0.274)	(0.985)	(0.271)	(0.178)	(0.212)
logREMOTENESS	-0.183**	-0.109	0.230	0.219	-0.104	-0.093	-0.263**	0.078	0.506***	0.040	-0.261**
	(0.086)	(0.147)	(0.172)	(0.187)	(0.190)	(0.132)	(0.117)	(0.147)	(0.137)	(0.108)	(0.104)
Constant	-50.542***	-74.777***	-171.633***	-119.228***	-175.645***	-51.098***	-63.052***	-96.808***	-91.996***	-47.262***	-35.203***
	(3.603)	(14.684)	(17.545)	(18.753)	(16.877)	(4.531)	(5.194)	(17.462)	(5.125)	(3.409)	(3.899)
Observations	1,563	1,271	1,270	1,269	1,323	1,345	1,352	1,216	1,377	1,481	1,535

Heckman ML estimations (religion dummy is used as an exclusion restriction). Cross time average data
Dependent variable: natural logarithm of bilateral services exports.
t-statistics are based on robust standard errors clustered at the country pair level.
Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Table 6: The effect of "aggregate" cultural distance on total services trade – alternative estimators

	(6.1) OLS	(6.2) OLS	(6.3) Heckman ML	(6.4) Heckman ML	(6.5) Heckman ML	(6.6) Poisson (PPML)
CD	-0.125***	-0.113***	-0.114***	-0.126***	-0.121***	-0.057
	(0.031)	(0.031)	(0.031)	(0.030)	(0.030)	(0.040)
logGDPi	1.036***	1.026***	1.024***	1.031***	1.022***	0.711***
	(0.025)	(0.025)	(0.025)	(0.025)	(0.026)	(0.030)
logGDPj	0.823***	0.819***	0.811***	0.807***	0.792***	0.878***
	(0.026)	(0.026)	(0.026)	(0.025)	(0.025)	(0.028)
logDistance	-0.926***	-0.799***	-0.790***	-0.939***	-0.818***	-0.511***
	(0.045)	(0.077)	(0.077)	(0.046)	(0.076)	(0.071)
1.Adjacency	0.263	0.276	0.285	0.124	0.266	0.038
	(0.182)	(0.180)	(0.180)	(0.187)	(0.180)	(0.121)
1.Language	0.193	0.171	0.176	0.169	0.186	0.340**
	(0.162)	(0.161)	(0.161)	(0.163)	(0.161)	(0.142)
1.Colony	0.728***	0.659***	0.653***	0.638***	0.660***	0.236
	(0.221)	(0.220)	(0.219)	(0.221)	(0.218)	(0.147)
1.Religion	0.392***	0.459***	0.463***			0.017
	(0.109)	(0.109)	(0.109)			(0.159)
1.RTA	0.093	-0.002	-0.013	0.188**	0.097	0.271**
	(0.083)	(0.082)	(0.082)	(0.083)	(0.083)	(0.130)
EFWi	0.837***	0.706***	0.712***	0.794***	0.719***	0.378***
	(0.084)	(0.086)	(0.086)	(0.086)	(0.087)	(0.082)
EFWj	0.482***	0.495***	0.495***	0.528***	0.542***	0.283***
	(0.063)	(0.063)	(0.063)	(0.062)	(0.062)	(0.087)
ID	-0.094***	-0.079***	-0.076**	-0.114***	-0.102***	-0.038
	(0.031)	(0.031)	(0.031)	(0.031)	(0.031)	(0.034)
OPENi	0.583***	0.637***	0.624***	0.587***	0.616***	0.380***
	(0.069)	(0.068)	(0.068)	(0.070)	(0.068)	(0.097)
OPENj	0.267***	0.265***	0.260***	0.227***	0.209***	0.395***
	(0.056)	(0.056)	(0.056)	(0.054)	(0.053)	(0.072)
MIGRANTij		0.030	0.028	0.039*	0.032	0.048***
		(0.022)	(0.022)	(0.023)	(0.022)	(0.010)
MIGRANTji		0.133***	0.132***	0.146***	0.135***	0.122***
		(0.040)	(0.040)	(0.038)	(0.038)	(0.043)
logREMOTENESSi		0.606***	0.667***		0.522***	0.025
		(0.163)	(0.174)		(0.172)	(0.123)
logREMOTENESSj		-0.210**	-0.214**		-0.186**	0.019
		(0.085)	(0.085)		(0.085)	(0.075)
Observations	11,098	11,098	12,482	12,482	12,482	12,288
R-squared	0.786	0.790				

Dependent variable is the natural logarithm of bilateral services exports
All models include time fixed effects
Column 6.3 shows the Heckman model without exclusion restriction
Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Appendix

Data Description and Sources:

$logExport_{ijt}$ is the natural logarithm of bilateral trade flows (exports) from country i to country j at time t, measured in US dollars. Source: Eurostat, BOP statistics (2014) for services; OECD.Stat, STAN database (2015) for goods trade.

$logGDP_{it}$ is the natural logarithm of GDP of county i in time t measured in constant US dollars. Source: World Bank (2014).

$logGDP_{jt}$ is the natural logarithm of GDP of county j in time t measured in constant US dollars. Source: World Bank (2014).

$logDistance_{ij}$ is the natural logarithm of the geographical distance between capitals of countries i and j. Source: CEPII database (Mayer 2011).

CD_{ij} is the aggregate cultural distance between countries i and j. Source: own calculation based on the data from Geert Hofstede's web page (2015).

PDI_{ij} is the absolute value of the difference between scores given for the power distance cultural dimension of country i and country j. Source: own calculation based on the data from the Geert Hofstede's web page (2015).

IDV_{ij} is the absolute value of the difference between scores given for the individualism cultural dimension of country i and country j. Source: own calculation based on the data from the Geert Hofstede's web page (2015).

MAS_{ij} is the absolute value of the difference between scores given for the masculinity cultural dimension of country i and country j. Source: own calculation based on the data from the Geert Hofstede's web page (2015).

UAI_{ij} is the absolute value of the difference between scores given for the uncertainty avoidance cultural dimension of country i and country j. Source: own calculation based on the data from the Geert Hofstede's web page (2015).

LTO_{ij} is the absolute value of the difference between scores given for the long-term orientation cultural dimension of country i and country j. Source: own calculation based on the data from the Geert Hofstede's web page (2015).

$IVR_{ij}$is the absolute value of the difference between scores given for the indulgence versus restraint cultural dimension of country i and country j. Source: own calculation based on the data from the Geert Hofstede's web page (2015).

$Adjacency_{ij}$ is a dummy variable that equals 1 if countries share a land border. Source: CEPII database (Mayer 2011).

$Language_{ij}$ is a dummy variable that equals 1 if countries have a common official language. Source: CEPII database (Mayer 2011).

$Colony_{ij}$ is a dummy variable that equals 1 if countries have a common colonial history. Source: CEPII database (Mayer 2011).

$Religion_{ij}$ is a dummy variable that equals 1 if countries have the same main religion. Source: own computations based on the data provided in the World Factbook (2014).

RTA_{ijt} is a dummy variable that equals 1 if two countries are members of the same RTA in time t. Source: own computations based on the data provided by the WTO's list of trade agreements available on the WTO webpage.

EFW_{it} is the Economic Freedom of the World index for country i in time t. Source: Fraser Institute (2014).

$EFW_{jt}$is the Economic Freedom of the World index for country j in time t. Source: Fraser Institute (2014).

ID_{ijt} is the institutional distance between countries i and j in time t. Source: own computations based on the data provided by the World Bank's Worldwide Governance Indicators (WGI) (2014).

$COMMUNICATION_{ij}$ is the probability that two randomly selected persons from country i and j speak English. Source: own calculations based on the data provided by the Wikipedia (2015).

$MIGRANT_{ij}$ is the migrant population from country i relative to the total population of country j. Source: Migration DRC (2007).

$MIGRANT_{ji}$ is the migrant population from country j relative to the total population of country i. Source: Migration DRC (2007).

$OPEN_{it}$ is the index of openness to trade ([exports + imports]/GDP) for country i in time t.

$OPEN_{jt}$ is the Index of openness to trade ([exports + imports]/GDP) for country j in time t.

$logRemoteness_{it}$ is the natural logarithm of the relative distance of country i in time t.

$logRemoteness_{jt}$ is the natural logarithm of the relative distance of country j in time t.

Sample size description

"home" countries (29)	Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Japan (only for insurance, other business, license, transportation, travel and total services), Latvia, Lithuania, Luxembourg (only for financial, other business, transportation, travel and total services), Malta (missing for cultural services), Netherlands, Poland, Portugal (missing for transportation services), Slovakia, Slovenia, Spain (only for transportation, travel and total services), Sweden, United Kingdom (only for transportation, travel and total services), United States (only for insurance, license, transportation, travel and total services)
"partner" countries (55)	Argentina, Australia, Austria, Belgium, Brazil, Bulgaria, Canada, Chile, China, Colombia (only for total services exports), Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hong Kong, Hungary, India, Indonesia, Iran, Ireland, Italy, Japan, Latvia, Lithuania, Luxembourg, Malaysia, Malta, Mexico, Morocco, Netherlands, New Zealand, Norway, Philippines, Poland, Portugal, Romania, Russia, Singapore, Slovakia, Slovenia, South Korea, Spain, Sweden, Switzerland, Thailand, Turkey, United Kingdom, United States, Uruguay, Venezuela

Appendix Tables

Table A1: The effect of "aggregate" cultural distance on service trade: 2004 -2007

	(a1.1) Services (Total)	(a1.2) Communicational	(a1.3) Computer	(a1.4) Construction	(a1.5) Financial	(a1.6) Insurance	(a1.7) OBS	(a1.8) Cultural	(a1.9) Royalties	(a1.10) Transportation	(a1.11) Travel
CD	-0.108***	-0.089*	-0.019	-0.082	-0.153***	-0.034	-0.014	-0.012	0.086*	-0.065*	-0.105***
	(0.032)	(0.046)	(0.046)	(0.055)	(0.052)	(0.051)	(0.036)	(0.047)	(0.046)	(0.039)	(0.034)
logGDPi	1.021***	0.942***	1.020***	0.928***	1.197***	0.989***	1.053***	0.874***	1.385***	0.860***	0.814***
	(0.027)	(0.041)	(0.043)	(0.054)	(0.056)	(0.054)	(0.033)	(0.045)	(0.059)	(0.035)	(0.029)
logGDPj	0.796***	0.725***	0.717***	0.547***	0.686***	0.741***	0.789***	0.706***	0.730***	0.764***	0.700***
	(0.027)	(0.043)	(0.042)	(0.049)	(0.049)	(0.048)	(0.032)	(0.055)	(0.046)	(0.034)	(0.030)
logDistance	-0.850***	-1.098***	-1.084***	-0.845***	-0.846***	-0.714***	-0.848***	-0.840***	-0.961***	-0.961***	-0.832***
	(0.078)	(0.115)	(0.123)	(0.148)	(0.141)	(0.121)	(0.090)	(0.121)	(0.111)	(0.086)	(0.089)
1.Adjacency	0.349*	0.352*	0.077	0.869***	0.317	0.266	0.177	0.029	-0.024	0.440**	0.855***
	(0.186)	(0.214)	(0.205)	(0.247)	(0.238)	(0.241)	(0.206)	(0.212)	(0.216)	(0.184)	(0.176)
1.Language	0.098	0.467*	0.181	0.319	0.698**	1.180***	0.294	0.666*	-0.019	-0.167	0.545***
	(0.165)	(0.255)	(0.277)	(0.322)	(0.290)	(0.312)	(0.211)	(0.353)	(0.274)	(0.185)	(0.184)
1.Colony	0.675***	0.592**	0.498	0.248	0.756*	0.271	0.435	0.397	0.273	0.426**	0.794***
	(0.226)	(0.301)	(0.330)	(0.412)	(0.428)	(0.372)	(0.297)	(0.348)	(0.290)	(0.215)	(0.225)
1.RTA	-0.026	-0.164	-0.059	-0.317*	-0.054	-0.121	-0.053	-0.074	-0.600***	-0.007	0.296***
	(0.087)	(0.111)	(0.134)	(0.163)	(0.173)	(0.152)	(0.104)	(0.145)	(0.141)	(0.095)	(0.103)
EFWi	0.783***	-0.031	0.823***	0.468***	0.324*	1.631***	1.126***	-0.294*	1.904***	0.770***	-0.222**
	(0.090)	(0.127)	(0.150)	(0.181)	(0.195)	(0.177)	(0.100)	(0.158)	(0.171)	(0.114)	(0.107)
EFWj	0.630***	0.701***	0.554***	0.244**	0.626***	0.308***	0.589***	0.626***	0.418***	0.557***	0.548***
	(0.062)	(0.075)	(0.096)	(0.111)	(0.105)	(0.101)	(0.067)	(0.111)	(0.100)	(0.073)	(0.070)
ID	-0.046	0.031	-0.011	0.087	-0.063	-0.086	-0.032	-0.018	-0.048	-0.011	0.030
	(0.036)	(0.048)	(0.050)	(0.059)	(0.066)	(0.060)	(0.039)	(0.061)	(0.060)	(0.040)	(0.043)
OPENi	0.607***	0.461***	1.211***	0.001	2.630***	-0.393*	0.250***	0.390**	0.882***	-0.140	-0.612***
	(0.077)	(0.160)	(0.174)	(0.221)	(0.134)	(0.215)	(0.081)	(0.197)	(0.230)	(0.100)	(0.074)
OPENj	0.182***	0.128	0.081	-0.000	0.379***	0.283***	0.250***	-0.081	0.105	0.200***	-0.303***
	(0.057)	(0.078)	(0.088)	(0.117)	(0.112)	(0.097)	(0.065)	(0.101)	(0.094)	(0.077)	(0.072)
MIGRANTij	0.025	-0.033	-0.002	-0.003	0.056	0.043	0.040	0.077*	0.061***	-0.028	0.024
	(0.025)	(0.025)	(0.039)	(0.034)	(0.039)	(0.035)	(0.028)	(0.041)	(0.021)	(0.022)	(0.034)
MIGRANTji	0.140***	0.103**	0.016	0.178**	0.170	0.115	0.102**	0.011	0.126**	0.155***	0.116**
	(0.040)	(0.050)	(0.065)	(0.078)	(0.105)	(0.169)	(0.049)	(0.091)	(0.050)	(0.039)	(0.054)
logREMOTENESS	0.400**	5.648***	7.704***	2.923***	9.219***	-0.572***	0.381**	2.208**	1.040***	0.256	0.064
	(0.171)	(0.719)	(0.817)	(0.832)	(0.871)	(0.219)	(0.182)	(0.892)	(0.254)	(0.157)	(0.203)
logREMOTENESS	-0.224***	-0.147	0.256	-0.050	-0.126	-0.126	-0.323***	-0.165	0.345***	0.124	-0.159
	(0.086)	(0.151)	(0.156)	(0.197)	(0.177)	(0.125)	(0.104)	(0.153)	(0.121)	(0.099)	(0.099)
Constant	-50.914***	-141.985***	-195.292***	-89.928***	-221.514***	-41.378***	-53.225***	-76.035***	-91.528***	-48.840***	-29.878***
	(3.240)	(13.387)	(14.967)	(15.238)	(16.016)	(4.283)	(3.615)	(15.983)	(4.704)	(3.106)	(3.611)
Observations	6,246	5,087	5,086	5,073	5,297	5,372	5,455	4,871	5,511	5,918	6,144

Heckman ML estimations (religion dummy is used as an exclusion restriction). Time fixed effects
Dependent variable: natural logarithm of bilateral services exports.
t-statistics are based on robust standard errors clustered at the country pair level.
Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Table A2: The effect of different aspects of cultural distance on services trade: 2004 -2007

VARIABLES	(a2.1) Services (Total) logEXPORTij_USD	(a2.2) Communicational logEXPORTij_USD	(a2.3) Computer logEXPORTij_USD	(a2.4) Construction logEXPORTij_USD	(a2.5) Financial logEXPORTij_USD	(a2.6) Insurance logEXPORTij_USD	(a2.7) OBS logEXPORTij_USD	(a2.8) Cultural logEXPORTij_USD	(a2.9) Royalties logEXPORTij_USD	(a2.10) Transportation logEXPORTij_USD	(a2.11) Travel logEXPORTij_USD
PDI	-0.003	-0.008***	0.004	0.001	0.000	0.001	-0.003	0.000	-0.002	-0.006**	-0.002
	(0.002)	(0.003)	(0.003)	(0.004)	(0.004)	(0.004)	(0.003)	(0.003)	(0.003)	(0.003)	(0.002)
IDV	0.015***	0.015***	0.006*	0.018***	0.005	0.008**	0.020***	0.017***	0.012***	0.009***	0.019***
	(0.002)	(0.003)	(0.004)	(0.004)	(0.004)	(0.004)	(0.003)	(0.003)	(0.004)	(0.003)	(0.002)
MAS	-0.007***	-0.010***	-0.001	-0.013***	-0.017***	-0.010***	-0.005**	-0.004	0.008**	-0.006***	-0.009***
	(0.002)	(0.002)	(0.003)	(0.003)	(0.003)	(0.003)	(0.002)	(0.003)	(0.003)	(0.002)	(0.002)
UAI	0.005***	-0.003	-0.002	-0.006*	0.004	0.006**	-0.000	-0.003	0.001	0.006**	-0.004**
	(0.002)	(0.002)	(0.003)	(0.003)	(0.003)	(0.003)	(0.002)	(0.003)	(0.003)	(0.002)	(0.002)
LTO	-0.006***	-0.005*	-0.004	0.007*	-0.006	0.002	-0.005**	-0.005	-0.003	-0.000	-0.002
	(0.002)	(0.003)	(0.004)	(0.004)	(0.004)	(0.004)	(0.003)	(0.004)	(0.004)	(0.003)	(0.002)
IVR	-0.003	0.011***	0.002	0.001	-0.010**	-0.009**	0.001	-0.008**	0.004	-0.000	0.000
	(0.002)	(0.003)	(0.003)	(0.004)	(0.004)	(0.004)	(0.003)	(0.004)	(0.004)	(0.003)	(0.002)
logGDPi	0.994***	0.948***	1.014***	0.920***	1.157***	1.000***	1.040***	0.864***	1.397***	0.849***	0.772***
	(0.027)	(0.041)	(0.044)	(0.053)	(0.055)	(0.054)	(0.033)	(0.045)	(0.062)	(0.036)	(0.029)
logGDPj	0.778***	0.736***	0.707***	0.543***	0.644***	0.721***	0.774***	0.676***	0.727***	0.753***	0.697***
	(0.027)	(0.042)	(0.043)	(0.050)	(0.048)	(0.047)	(0.032)	(0.054)	(0.047)	(0.034)	(0.029)
logDistance	-0.955***	-1.225***	-1.122***	-0.944***	-0.938***	-0.795***	-0.994***	-0.911***	-1.028***	-1.045***	-0.928***
	(0.076)	(0.113)	(0.131)	(0.134)	(0.134)	(0.115)	(0.087)	(0.121)	(0.116)	(0.085)	(0.085)
1.Adjacency	0.356*	0.341	0.057	0.815***	0.206	0.232	0.164	-0.043	-0.008	0.468**	0.825***
	(0.185)	(0.210)	(0.206)	(0.238)	(0.242)	(0.248)	(0.200)	(0.209)	(0.222)	(0.182)	(0.172)
1.Language	0.145	0.476*	0.207	0.344	0.555*	1.124***	0.305	0.645*	0.081	-0.135	0.573***
	(0.166)	(0.266)	(0.279)	(0.306)	(0.292)	(0.310)	(0.207)	(0.333)	(0.281)	(0.183)	(0.182)
1.Colony	0.658***	0.530*	0.447	0.194	0.605	0.238	0.351	0.384	0.285	0.413*	0.731***
	(0.214)	(0.291)	(0.321)	(0.393)	(0.406)	(0.377)	(0.283)	(0.313)	(0.290)	(0.215)	(0.205)
1.RTA	-0.007	-0.112	-0.012	-0.242	-0.037	-0.169	0.014	-0.035	-0.604***	-0.031	0.348***
	(0.085)	(0.107)	(0.136)	(0.165)	(0.168)	(0.148)	(0.105)	(0.141)	(0.142)	(0.096)	(0.100)
EFWi	0.757***	0.201	0.802***	0.594***	0.446**	1.623***	1.262***	-0.067	1.987***	0.779***	-0.198*
	(0.087)	(0.131)	(0.160)	(0.182)	(0.195)	(0.175)	(0.100)	(0.154)	(0.176)	(0.113)	(0.101)
EFWj	0.673***	0.722***	0.577***	0.337***	0.675***	0.342***	0.655***	0.667***	0.459***	0.577***	0.624***
	(0.061)	(0.077)	(0.098)	(0.106)	(0.104)	(0.100)	(0.065)	(0.110)	(0.099)	(0.073)	(0.067)
ID	-0.059*	-0.010	-0.031	0.059	-0.067	-0.094	-0.022	0.003	-0.056	-0.022	0.006
	(0.034)	(0.047)	(0.051)	(0.057)	(0.067)	(0.060)	(0.037)	(0.060)	(0.061)	(0.040)	(0.041)
OPENi	0.642***	0.476***	1.190***	0.022	2.573***	-0.263	0.234***	0.393*	0.835***	-0.106	-0.624***
	(0.077)	(0.153)	(0.177)	(0.210)	(0.131)	(0.215)	(0.081)	(0.204)	(0.231)	(0.101)	(0.073)
OPENj	0.062	0.096	0.046	-0.050	0.235**	0.222**	0.163***	-0.136	0.071	0.132*	-0.379***
	(0.056)	(0.076)	(0.087)	(0.113)	(0.112)	(0.097)	(0.063)	(0.097)	(0.092)	(0.075)	(0.066)
MIGRANTij	0.030	-0.044*	0.001	-0.007	0.059	0.040	0.040	0.085**	0.060***	-0.031	0.024
	(0.024)	(0.026)	(0.041)	(0.035)	(0.040)	(0.033)	(0.028)	(0.041)	(0.022)	(0.022)	(0.031)
MIGRANTji	0.109***	0.117**	0.011	0.174**	0.132	0.073	0.083*	-0.024	0.129***	0.136***	0.093*
	(0.036)	(0.050)	(0.065)	(0.075)	(0.107)	(0.163)	(0.045)	(0.086)	(0.047)	(0.039)	(0.049)
logREMOTENESS	0.497***	4.472***	8.084***	2.720***	8.612***	-0.482**	0.486***	2.170**	0.946***	0.281*	0.153
	(0.164)	(0.734)	(0.895)	(0.813)	(0.891)	(0.216)	(0.177)	(0.894)	(0.261)	(0.155)	(0.188)
logREMOTENESS	-0.199**	-0.090	0.314*	-0.124	-0.063	-0.146	-0.250**	-0.123	0.372***	0.124	-0.169*
	(0.085)	(0.149)	(0.163)	(0.185)	(0.170)	(0.119)	(0.104)	(0.149)	(0.124)	(0.100)	(0.095)
Constant	-51.462***	-122.680***	-202.739***	-85.660***	-209.232***	-42.019***	-56.294***	-76.347***	-91.179***	-48.443***	-30.311***
	(3.161)	(13.677)	(16.365)	(14.994)	(16.371)	(4.080)	(3.674)	(16.027)	(4.895)	(3.138)	(3.387)
Observations	6,246	5,087	5,086	5,073	5,297	5,372	5,455	4,871	5,511	5,918	6,144

Heckman ML estimations (religion dummy is used as an exclusion restriction). Time fixed effects
Dependent variable: natural logarithm of bilateral services exports.
t-statistics are based on robust standard errors clustered at the country pair level.
Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Table A3: The effect of "aggregate" cultural distance on service trade: 2008 -2011

	(a3.1) Services (Total)	(a3.2) Communicational	(a3.3) Computer	(a3.4) Construction	(a3.5) Financial	(a3.6) Insurance	(a3.7) OBS	(a3.8) Cultural	(a3.9) Royalties	(a3.10) Transportation	(a3.11) Travel
CD	-0.136***	-0.052	-0.053	-0.092*	-0.302***	-0.160***	-0.043	-0.111**	-0.026	-0.113***	-0.123***
	(0.031)	(0.051)	(0.045)	(0.052)	(0.065)	(0.053)	(0.037)	(0.047)	(0.043)	(0.040)	(0.032)
logGDPi	1.021***	0.969***	1.039***	0.744***	1.134***	1.030***	1.122***	0.739***	1.393***	0.854***	0.778***
	(0.026)	(0.040)	(0.042)	(0.094)	(0.059)	(0.056)	(0.033)	(0.058)	(0.048)	(0.031)	(0.030)
logGDPj	0.787***	0.740***	0.763***	0.521***	0.774***	0.685***	0.788***	0.703***	0.852***	0.784***	0.716***
	(0.025)	(0.040)	(0.041)	(0.087)	(0.050)	(0.045)	(0.031)	(0.052)	(0.040)	(0.031)	(0.027)
logDistance	-0.786***	-1.115***	-1.211***	-1.113***	-0.677***	-0.546***	-0.871***	-1.128***	-0.737***	-0.939***	-0.833***
	(0.078)	(0.127)	(0.130)	(0.208)	(0.171)	(0.121)	(0.092)	(0.149)	(0.107)	(0.083)	(0.090)
1.Adjacency	0.197	0.286	-0.127	0.648**	0.241	0.547**	0.002	0.142	-0.172	0.237	0.807***
	(0.178)	(0.232)	(0.208)	(0.263)	(0.275)	(0.232)	(0.217)	(0.233)	(0.189)	(0.181)	(0.184)
1.Language	0.252	0.294	0.205	0.416	0.764**	1.547***	0.346	0.494*	0.285	0.099	0.604***
	(0.164)	(0.271)	(0.276)	(0.388)	(0.316)	(0.331)	(0.260)	(0.295)	(0.260)	(0.178)	(0.191)
1.Colony	0.646***	0.657**	0.191	0.386	0.764	0.144	0.196	0.376	0.145	0.588***	0.861***
	(0.217)	(0.305)	(0.332)	(0.318)	(0.518)	(0.384)	(0.314)	(0.269)	(0.263)	(0.194)	(0.223)
1.RTA	0.225**	0.103	0.175	0.022	0.269	0.373**	0.066	-0.008	-0.113	0.182*	0.581***
	(0.090)	(0.137)	(0.157)	(0.185)	(0.209)	(0.152)	(0.117)	(0.141)	(0.159)	(0.099)	(0.114)
EFWi	0.674***	-0.484***	0.587***	0.645***	1.063***	-0.068	1.192***	0.314*	2.231***	0.738***	-0.450***
	(0.102)	(0.149)	(0.168)	(0.242)	(0.212)	(0.156)	(0.118)	(0.178)	(0.156)	(0.133)	(0.135)
EFWj	0.454***	0.447***	0.418***	0.064	0.315**	0.100	0.415***	0.526***	0.073	0.441***	0.479***
	(0.073)	(0.100)	(0.101)	(0.136)	(0.131)	(0.116)	(0.083)	(0.102)	(0.106)	(0.087)	(0.092)
ID	-0.158***	-0.168***	-0.059	-0.046	-0.259***	-0.078	-0.089**	-0.042	-0.224***	-0.143***	-0.060
	(0.034)	(0.059)	(0.059)	(0.071)	(0.077)	(0.065)	(0.043)	(0.060)	(0.063)	(0.040)	(0.044)
OPENi	0.619***	0.369**	1.038***	0.113	2.126***	0.203	0.523***	0.229	0.439**	-0.193**	-0.648***
	(0.065)	(0.152)	(0.152)	(0.219)	(0.137)	(0.209)	(0.070)	(0.170)	(0.194)	(0.095)	(0.063)
OPENj	0.236***	0.211***	0.169*	0.021	0.608***	0.325***	0.249***	-0.075	0.247***	0.273***	-0.265***
	(0.055)	(0.080)	(0.087)	(0.101)	(0.110)	(0.099)	(0.066)	(0.091)	(0.088)	(0.076)	(0.072)
MIGRANTij	0.037*	0.016	0.013	-0.050	0.110***	0.030	0.066***	0.078**	0.092***	-0.023	0.035
	(0.021)	(0.023)	(0.036)	(0.080)	(0.040)	(0.034)	(0.025)	(0.037)	(0.028)	(0.021)	(0.036)
MIGRANTji	0.131***	0.138**	0.053	0.110	0.210**	0.122	0.132***	-0.016	0.218***	0.156***	0.102**
	(0.036)	(0.065)	(0.046)	(0.075)	(0.083)	(0.170)	(0.042)	(0.098)	(0.075)	(0.040)	(0.047)
logREMOTENESSi	0.604***	5.434***	8.542***	5.248***	8.853***	0.221	0.833***	5.212***	0.572**	0.262	0.030
	(0.187)	(0.747)	(0.832)	(1.500)	(0.847)	(0.216)	(0.240)	(0.946)	(0.243)	(0.169)	(0.204)
logREMOTENESSj	-0.142	0.061	0.338**	0.600***	-0.142	-0.022	-0.218**	0.291*	0.299***	0.144	-0.103
	(0.089)	(0.171)	(0.170)	(0.197)	(0.205)	(0.124)	(0.110)	(0.167)	(0.113)	(0.098)	(0.103)
Constant	-53.716***	-136.822***	-209.014***	-136.474***	-218.343***	-44.849***	-63.841***	-136.759***	-85.864***	-47.967***	-27.177***
	(3.531)	(13.610)	(15.120)	(24.080)	(15.592)	(4.478)	(4.574)	(16.580)	(4.277)	(3.208)	(3.700)
Observations	6,236	5,087	5,086	5,085	5,298	5,380	5,397	4,870	5,509	5,922	6,144

Heckman ML estimations (religion dummy is used as an exclusion restriction). Time fixed effects

Dependent variable: natural logarithm of bilateral services exports.

t-statistics are based on robust standard errors clustered at the country pair level.

Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Table A4: The effect of different aspects of cultural distance on services trade: 2008 -2011

	(a4.1) Services (Total)	(a4.2) Communicational	(a4.3) Computer	(a4.4) Construction	(a4.5) Financial	(a4.6) Insurance	(a4.7) OBS	(a4.8) Cultural	(a4.9) Royalties	(a4.10) Transportation	(a4.11) Travel
PDI	-0.000	-0.006**	0.006*	0.005	0.003	0.003	0.000	-0.001	-0.005	-0.007***	0.001
	(0.002)	(0.003)	(0.003)	(0.004)	(0.004)	(0.004)	(0.003)	(0.003)	(0.003)	(0.003)	(0.002)
IDV	0.011***	0.020***	0.000	0.010*	0.004	0.002	0.015***	0.012***	0.012***	0.009***	0.014***
	(0.002)	(0.003)	(0.004)	(0.005)	(0.004)	(0.004)	(0.003)	(0.004)	(0.003)	(0.002)	(0.002)
MAS	-0.011***	-0.012***	-0.009***	-0.014***	-0.031***	-0.019***	-0.010***	-0.009***	0.000	-0.012***	-0.010***
	(0.002)	(0.002)	(0.003)	(0.003)	(0.003)	(0.003)	(0.002)	(0.003)	(0.003)	(0.002)	(0.002)
UAI	0.005***	-0.007***	0.002	-0.009***	0.005	0.005	-0.001	0.001	0.001	0.008***	-0.006***
	(0.002)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.002)	(0.003)	(0.003)	(0.002)	(0.002)
LTO	-0.007***	-0.009***	-0.007*	0.007*	-0.004	-0.001	-0.002	-0.013***	-0.005	-0.003	-0.003
	(0.002)	(0.003)	(0.004)	(0.004)	(0.004)	(0.004)	(0.003)	(0.004)	(0.004)	(0.003)	(0.003)
IVR	-0.002	0.013***	0.008**	-0.002	-0.008	-0.010**	0.003	-0.005	0.004	0.002	0.000
	(0.002)	(0.003)	(0.003)	(0.004)	(0.005)	(0.004)	(0.003)	(0.004)	(0.004)	(0.003)	(0.003)
logGDPi	0.992***	0.982***	1.049***	0.740***	1.085***	0.995***	1.113***	0.739***	1.415***	0.840***	0.737***
	(0.026)	(0.038)	(0.043)	(0.090)	(0.057)	(0.054)	(0.033)	(0.055)	(0.049)	(0.031)	(0.029)
logGDPj	0.772***	0.748***	0.756***	0.540***	0.736***	0.655***	0.782***	0.680***	0.854***	0.768***	0.717***
	(0.025)	(0.039)	(0.041)	(0.080)	(0.047)	(0.044)	(0.031)	(0.049)	(0.040)	(0.031)	(0.027)
logDistance	-0.875***	-1.215***	-1.216***	-1.137***	-0.752***	-0.564***	-0.984***	-1.189***	-0.835***	-1.045***	-0.902***
	(0.078)	(0.122)	(0.140)	(0.212)	(0.159)	(0.114)	(0.093)	(0.148)	(0.111)	(0.082)	(0.088)
1.Adjacency	0.192	0.276	-0.094	0.573**	0.135	0.528**	-0.024	0.095	-0.151	0.280	0.753***
	(0.179)	(0.218)	(0.211)	(0.258)	(0.282)	(0.236)	(0.213)	(0.222)	(0.193)	(0.180)	(0.184)
1.Language	0.259	0.309	0.196	0.398	0.538*	1.379***	0.312	0.488	0.341	0.107	0.606***
	(0.169)	(0.274)	(0.294)	(0.373)	(0.320)	(0.328)	(0.258)	(0.298)	(0.266)	(0.174)	(0.191)
1.Colony	0.625***	0.531*	0.063	0.316	0.541	0.050	0.100	0.298	0.141	0.561***	0.791***
	(0.209)	(0.282)	(0.331)	(0.305)	(0.491)	(0.368)	(0.308)	(0.254)	(0.261)	(0.195)	(0.211)
1.RTA	0.209**	0.119	0.142	0.092	0.257	0.317**	0.086	0.015	-0.151	0.107	0.593***
	(0.087)	(0.131)	(0.156)	(0.183)	(0.200)	(0.147)	(0.118)	(0.140)	(0.162)	(0.099)	(0.112)
EFWi	0.624***	-0.229	0.495***	0.679***	1.157***	-0.040	1.277***	0.462***	2.317***	0.753***	-0.439***
	(0.099)	(0.152)	(0.172)	(0.253)	(0.213)	(0.161)	(0.119)	(0.172)	(0.164)	(0.130)	(0.129)
EFWj	0.482***	0.504***	0.383***	0.155	0.341***	0.141	0.460***	0.558***	0.123	0.456***	0.547***
	(0.071)	(0.094)	(0.103)	(0.133)	(0.125)	(0.113)	(0.079)	(0.102)	(0.105)	(0.084)	(0.090)
ID	-0.187***	-0.219***	-0.132**	-0.094	-0.350***	-0.110*	-0.120***	-0.062	-0.232***	-0.170***	-0.094**
	(0.034)	(0.055)	(0.059)	(0.069)	(0.077)	(0.065)	(0.043)	(0.057)	(0.066)	(0.041)	(0.045)
OPENi	0.641***	0.409***	1.165***	0.150	2.104***	0.229	0.515***	0.311*	0.427**	-0.152	-0.672***
	(0.064)	(0.142)	(0.157)	(0.218)	(0.133)	(0.198)	(0.069)	(0.169)	(0.189)	(0.093)	(0.062)
OPENj	0.134***	0.165**	0.141	0.007	0.468***	0.251***	0.196***	-0.179**	0.183**	0.184***	-0.321***
	(0.052)	(0.076)	(0.087)	(0.098)	(0.107)	(0.095)	(0.064)	(0.087)	(0.085)	(0.070)	(0.067)
MIGRANTij	0.038*	-0.003	0.001	-0.052	0.109***	0.025	0.062***	0.082**	0.085***	-0.033	0.033
	(0.021)	(0.024)	(0.036)	(0.081)	(0.041)	(0.034)	(0.023)	(0.040)	(0.030)	(0.021)	(0.034)
MIGRANTji	0.095***	0.147**	0.045	0.107	0.155*	0.064	0.109***	-0.051	0.202***	0.127***	0.078*
	(0.032)	(0.062)	(0.051)	(0.071)	(0.085)	(0.171)	(0.041)	(0.095)	(0.075)	(0.039)	(0.043)
logREMOTENESS	0.731***	4.545***	8.564***	5.197***	7.973***	0.356*	0.971***	4.792***	0.482*	0.311*	0.150
	(0.177)	(0.741)	(0.907)	(1.448)	(0.827)	(0.210)	(0.236)	(0.979)	(0.254)	(0.164)	(0.190)
logREMOTENESS	-0.128	0.093	0.353*	0.496**	-0.140	-0.081	-0.180	0.336**	0.325***	0.143	-0.126
	(0.089)	(0.165)	(0.181)	(0.196)	(0.188)	(0.114)	(0.113)	(0.160)	(0.115)	(0.099)	(0.100)
Constant	-54.391***	-122.942***	-208.845***	-134.854***	-199.511***	-44.554***	-66.779***	-129.806***	-85.719***	-47.505***	-27.972***
	(3.422)	(13.602)	(16.567)	(23.197)	(15.080)	(4.081)	(4.620)	(17.046)	(4.490)	(3.146)	(3.479)
Observations	6,236	5,087	5,086	5,085	5,298	5,380	5,397	4,870	5,509	5,922	6,144

Heckman ML estimations (religion dummy is used as an exclusion restriction). Time fixed effects
Dependent variable: natural logarithm of bilateral services exports.
t-statistics are based on robust standard errors clustered at the country pair level.
Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Table A5: The effect of "aggregate" cultural distance on service trade: additional communication measure

	(a5.1) Goods	(a5.2) Services (Total)	(a5.3) Communicational	(a5.4) Computer	(a5.5) Construction	(a5.6) Financial	(a5.7) Insurance	(a5.8) OBS	(a5.9) Cultural	(a5.10) Royalties	(a5.11) Transportation	(a5.12) Travel
CD	0.017	-0.126***	-0.067	-0.040	-0.086*	-0.214***	-0.112**	-0.047	-0.049	0.003	-0.099**	-0.092***
	(0.029)	(0.030)	(0.045)	(0.041)	(0.051)	(0.059)	(0.051)	(0.035)	(0.043)	(0.041)	(0.039)	(0.032)
logGDPi	1.167***	0.962***	0.931***	1.008***	0.830***	1.097***	1.034***	1.097***	0.815***	1.377***	0.805***	0.753***
	(0.025)	(0.025)	(0.038)	(0.039)	(0.052)	(0.054)	(0.050)	(0.032)	(0.043)	(0.047)	(0.032)	(0.028)
logGDPj	0.808***	0.815***	0.779***	0.776***	0.578***	0.784***	0.722***	0.828***	0.749***	0.781***	0.805***	0.734***
	(0.022)	(0.026)	(0.039)	(0.038)	(0.050)	(0.049)	(0.043)	(0.032)	(0.045)	(0.039)	(0.032)	(0.026)
logDistance	-1.208***	-0.732***	-1.033***	-1.050***	-1.003***	-0.653***	-0.512***	-0.813***	-0.994***	-0.768***	-0.871***	-0.724***
	(0.088)	(0.081)	(0.113)	(0.106)	(0.141)	(0.147)	(0.123)	(0.090)	(0.122)	(0.103)	(0.092)	(0.097)
1.Adjacency	0.584***	0.501***	0.487**	0.175	0.770***	0.422*	0.607***	0.277	0.069	0.094	0.468***	1.051***
	(0.209)	(0.177)	(0.222)	(0.196)	(0.244)	(0.245)	(0.225)	(0.213)	(0.209)	(0.185)	(0.179)	(0.179)
1.Language	0.201	-0.122	0.178	-0.051	0.329	0.563*	1.085***	0.078	0.579*	-0.134	-0.134	0.376**
	(0.208)	(0.158)	(0.270)	(0.264)	(0.325)	(0.291)	(0.300)	(0.226)	(0.316)	(0.235)	(0.182)	(0.185)
COMMUNICATIONij	-0.209	1.414***	1.668***	2.218***	0.320	2.012***	1.820***	1.469***	-0.076	1.865***	0.639***	0.498**
	(0.180)	(0.198)	(0.252)	(0.277)	(0.329)	(0.384)	(0.367)	(0.226)	(0.299)	(0.267)	(0.245)	(0.234)
1.Colony	0.193	0.520**	0.510*	0.227	0.345	0.773*	0.233	0.258	0.382	0.147	0.433**	0.775***
	(0.215)	(0.214)	(0.288)	(0.305)	(0.343)	(0.421)	(0.357)	(0.303)	(0.305)	(0.253)	(0.194)	(0.236)
1.RTA	0.288***	0.005	-0.075	0.026	-0.231	0.031	0.093	-0.038	-0.126	-0.390***	0.037	0.314***
	(0.073)	(0.082)	(0.104)	(0.127)	(0.152)	(0.173)	(0.141)	(0.101)	(0.129)	(0.134)	(0.096)	(0.101)
EFWi	0.182**	0.363***	-0.502***	0.408***	0.529***	0.350*	0.324**	0.696***	-0.066	1.665***	0.547***	-0.590***
	(0.088)	(0.094)	(0.119)	(0.134)	(0.184)	(0.187)	(0.159)	(0.106)	(0.142)	(0.144)	(0.119)	(0.117)
EFWj	0.274***	0.460***	0.371***	0.236**	0.180	0.281**	0.064	0.421***	0.648***	0.052	0.507***	0.506***
	(0.056)	(0.071)	(0.091)	(0.106)	(0.124)	(0.131)	(0.125)	(0.084)	(0.117)	(0.110)	(0.094)	(0.086)
ID	0.059**	-0.061**	-0.071	0.036	0.008	-0.148**	-0.001	0.020	-0.067	-0.020	-0.081**	-0.039
	(0.027)	(0.031)	(0.050)	(0.049)	(0.066)	(0.070)	(0.060)	(0.039)	(0.058)	(0.057)	(0.040)	(0.039)
OPENi	0.430***	0.565***	0.438***	1.125***	0.029	2.241***	-0.003	0.419***	0.302*	0.785***	-0.163	-0.588***
	(0.073)	(0.069)	(0.146)	(0.148)	(0.202)	(0.133)	(0.201)	(0.073)	(0.164)	(0.187)	(0.100)	(0.066)
OPENj	0.149***	0.217***	0.216***	0.193**	0.015	0.584***	0.331***	0.269***	-0.064	0.201**	0.236***	-0.290***
	(0.053)	(0.054)	(0.073)	(0.081)	(0.099)	(0.106)	(0.095)	(0.060)	(0.086)	(0.082)	(0.076)	(0.070)
MIGRANTij	-0.049**	0.040*	0.007	0.029	-0.030	0.097**	0.054	0.060**	0.067*	0.098***	-0.021	0.030
	(0.021)	(0.023)	(0.024)	(0.032)	(0.053)	(0.040)	(0.035)	(0.026)	(0.036)	(0.021)	(0.025)	(0.033)
MIGRANTji	0.062	0.140***	0.122**	0.043	0.145*	0.221**	0.128	0.116**	-0.006	0.149***	0.154***	0.096*
	(0.042)	(0.040)	(0.053)	(0.047)	(0.077)	(0.102)	(0.158)	(0.045)	(0.091)	(0.055)	(0.038)	(0.051)
logREMOTENESSi	-0.761***	0.863***	4.562***	6.720***	3.529***	7.621***	-0.086	1.732***	3.361***	0.968***	0.178	0.928***
	(0.200)	(0.276)	(0.713)	(0.695)	(0.876)	(0.795)	(0.319)	(0.390)	(0.747)	(0.309)	(0.248)	(0.257)
logREMOTENESSj	0.360***	-0.312***	-0.113	0.164	0.254	-0.300	-0.243*	-0.407***	-0.012	0.174	0.030	-0.291**
	(0.094)	(0.099)	(0.155)	(0.147)	(0.190)	(0.183)	(0.147)	(0.119)	(0.151)	(0.125)	(0.118)	(0.115)
Constant	-33.119***	-53.735***	-118.752***	-172.143***	-103.663***	-188.039***	-39.849***	-75.379***	-100.120***	-85.760***	-44.101***	-40.778***
	(4.141)	(5.234)	(13.300)	(12.895)	(15.936)	(14.872)	(6.546)	(7.432)	(13.377)	(5.456)	(4.790)	(5.029)
Observations	10,528	10,505	8,832	8,831	8,818	9,199	8,972	9,091	8,460	9,200	9,927	10,302

Heckman ML estimations (religion dummy is used as an exclusion restriction). Time fixed effects
Dependent variable: natural logarithm of bilateral services exports.
t-statistics are based on robust standard errors clustered at the country pair level.
Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Table A6: The effect of different aspects of cultural distance on services trade: additional communication measure

	(a6.1) Services (Total)	(a6.2) Communicational	(a6.3) Computer	(a6.4) Construction	(a6.5) Financial	(a6.6) Insurance	(a6.7) OBS	(a6.8) Cultural	(a6.9) Royalties	(a6.10) Transportation	(a6.11) Travel
PDI	0.001	-0.006**	0.006**	0.001	0.004	0.002	0.000	-0.001	0.000	-0.006**	0.001
	(0.002)	(0.003)	(0.003)	(0.004)	(0.004)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.002)
IDV	0.012***	0.016***	0.001	0.014***	0.004	0.005	0.014***	0.014***	0.008**	0.008***	0.016***
	(0.002)	(0.003)	(0.003)	(0.004)	(0.004)	(0.004)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
MAS	-0.010***	-0.011***	-0.007***	-0.013***	-0.024***	-0.016***	-0.007***	-0.006**	0.002	-0.009***	-0.008***
	(0.002)	(0.002)	(0.003)	(0.003)	(0.003)	(0.003)	(0.002)	(0.002)	(0.003)	(0.002)	(0.002)
UAI	0.001	-0.008***	-0.005*	-0.008**	0.001	0.002	-0.005**	0.001	-0.004	0.005**	-0.007***
	(0.002)	(0.002)	(0.002)	(0.003)	(0.003)	(0.003)	(0.002)	(0.003)	(0.003)	(0.002)	(0.002)
LTO	-0.008***	-0.007**	-0.004	0.008**	-0.007*	0.001	-0.007**	-0.012***	-0.007**	-0.004	-0.002
	(0.002)	(0.003)	(0.003)	(0.004)	(0.004)	(0.004)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
IVR	-0.001	0.014***	0.008**	-0.000	-0.006	-0.009**	0.003	-0.007**	0.005	0.000	-0.001
	(0.002)	(0.003)	(0.003)	(0.004)	(0.004)	(0.004)	(0.003)	(0.003)	(0.003)	(0.003)	(0.002)
logGDPi	0.938***	0.945***	1.009***	0.819***	1.063***	1.016***	1.086***	0.828***	1.396***	0.795***	0.721***
	(0.025)	(0.037)	(0.040)	(0.053)	(0.053)	(0.050)	(0.032)	(0.042)	(0.049)	(0.032)	(0.028)
logGDPj	0.802***	0.788***	0.778***	0.577***	0.750***	0.691***	0.826***	0.720***	0.792***	0.789***	0.734***
	(0.026)	(0.039)	(0.040)	(0.050)	(0.047)	(0.042)	(0.033)	(0.044)	(0.041)	(0.032)	(0.027)
logDistance	-0.813***	-1.096***	-0.998***	-1.027***	-0.717***	-0.560***	-0.890***	-1.061***	-0.784***	-0.963***	-0.769***
	(0.082)	(0.106)	(0.115)	(0.132)	(0.135)	(0.118)	(0.090)	(0.120)	(0.106)	(0.092)	(0.094)
1.Adjacency	0.461***	0.492**	0.203	0.723***	0.300	0.547**	0.229	0.005	0.088	0.463***	1.005***
	(0.178)	(0.216)	(0.199)	(0.235)	(0.244)	(0.224)	(0.210)	(0.203)	(0.193)	(0.177)	(0.178)
1.Language	-0.133	0.143	-0.078	0.337	0.383	0.985***	0.030	0.550*	-0.121	-0.131	0.372**
	(0.161)	(0.273)	(0.264)	(0.309)	(0.294)	(0.298)	(0.223)	(0.316)	(0.245)	(0.177)	(0.181)
COMMUNICATIONij	1.399***	1.964***	2.445***	0.534*	1.902***	1.778***	1.596***	-0.266	1.973***	0.536**	0.676***
	(0.207)	(0.258)	(0.294)	(0.322)	(0.399)	(0.398)	(0.239)	(0.299)	(0.284)	(0.254)	(0.251)
1.Colony	0.477**	0.454*	0.154	0.294	0.599	0.150	0.207	0.381	0.176	0.394**	0.699***
	(0.202)	(0.275)	(0.300)	(0.324)	(0.391)	(0.352)	(0.297)	(0.277)	(0.266)	(0.192)	(0.214)
1.RTA	0.034	-0.006	0.071	-0.156	0.051	0.069	0.039	-0.110	-0.382***	0.001	0.369***
	(0.081)	(0.100)	(0.126)	(0.152)	(0.165)	(0.137)	(0.104)	(0.127)	(0.137)	(0.096)	(0.101)
EFWi	0.375***	-0.322***	0.288**	0.588***	0.450**	0.386**	0.784***	0.147	1.715***	0.631***	-0.552***
	(0.092)	(0.122)	(0.138)	(0.180)	(0.190)	(0.159)	(0.110)	(0.138)	(0.152)	(0.117)	(0.113)
EFWj	0.498***	0.316***	0.191*	0.206*	0.347***	0.132	0.428***	0.736***	0.066	0.540***	0.538***
	(0.071)	(0.089)	(0.108)	(0.123)	(0.131)	(0.125)	(0.084)	(0.116)	(0.111)	(0.091)	(0.085)
ID	-0.099***	-0.120**	-0.019	-0.013	-0.217***	-0.012	-0.012	-0.082	-0.059	-0.104***	-0.068*
	(0.031)	(0.047)	(0.049)	(0.062)	(0.070)	(0.060)	(0.037)	(0.057)	(0.058)	(0.040)	(0.039)
OPENi	0.581***	0.482***	1.174***	0.060	2.212***	0.050	0.408***	0.418**	0.755***	-0.136	-0.619***
	(0.068)	(0.136)	(0.150)	(0.196)	(0.127)	(0.198)	(0.073)	(0.167)	(0.185)	(0.100)	(0.065)
OPENj	0.131**	0.228***	0.214***	0.010	0.466***	0.261***	0.242***	-0.163*	0.182**	0.153**	-0.325***
	(0.052)	(0.070)	(0.082)	(0.095)	(0.105)	(0.094)	(0.059)	(0.084)	(0.079)	(0.073)	(0.064)
MIGRANTij	0.045**	0.000	0.026	-0.030	0.093**	0.049	0.064**	0.071*	0.099***	-0.025	0.031
	(0.023)	(0.026)	(0.032)	(0.054)	(0.041)	(0.034)	(0.027)	(0.037)	(0.023)	(0.025)	(0.031)
MIGRANTji	0.114***	0.136**	0.043	0.145**	0.177*	0.084	0.104**	-0.044	0.153***	0.133***	0.081*
	(0.037)	(0.054)	(0.049)	(0.073)	(0.104)	(0.154)	(0.043)	(0.089)	(0.055)	(0.037)	(0.048)
logREMOTENESSi	0.878***	3.693***	6.987***	3.361***	7.203***	-0.113	1.675***	3.309***	0.772**	0.095	0.767***
	(0.258)	(0.695)	(0.743)	(0.817)	(0.766)	(0.306)	(0.401)	(0.776)	(0.338)	(0.236)	(0.231)
logREMOTENESSj	-0.286***	-0.082	0.135	0.144	-0.283*	-0.284**	-0.353***	0.032	0.177	0.055	-0.320***
	(0.099)	(0.148)	(0.155)	(0.180)	(0.170)	(0.138)	(0.120)	(0.144)	(0.126)	(0.118)	(0.110)
Constant	-53.266***	-104.314***	-175.900***	-98.907***	-178.886***	-37.688***	-75.102***	-101.008***	-83.366***	-42.393***	-36.708***
	(5.037)	(13.049)	(13.820)	(14.822)	(14.265)	(6.210)	(7.642)	(13.789)	(5.928)	(4.666)	(4.619)
Observations	10,505	8,832	8,831	8,818	9,199	8,972	9,091	8,460	9,200	9,927	10,302

Heckman ML estimations (religion dummy is used as an exclusion restriction). Time fixed effects
Dependent variable: natural logarithm of bilateral services exports.
t-statistics are based on robust standard errors clustered at the country pair level.
Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1