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EKREM CUNEDIOGLU AND ERAY YUCEL [**]

Abstract

In this paper, we examine a series of questions about bilateral trade flows in the light of a rich and up-to-date panel data set. The analyses performed reveal that **(1)** globalization process has been functioning in a number of ways, **(2)** functioning of economic regions display alternative results based on model specification, **(3)** distance is an important factor in the functioning of economic regions, **(4)** trade relationships do strengthen when countries move toward stronger degrees of their regimes, regardless of democratic or autocratic, **(5)** the same polity direction implies a higher degree of trade between countries, **(6)** given the joint regime strength (common direction of regimes) of trade partners, common direction of regimes (higher joint regime strength) implies lower trade, **(7)** partners belonging to the same religion trade less, **(8)** partners with the same language trade more among themselves, **(9)** given that partners are of the same religion (language), same language (religion) implies lower trade.

***JEL Classification**:* F17, C23, C51, R11, Z10.

***Keywords**:* International trade, Gravity, Globalization, Economic regions, Institutions, Cultures.

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1.Introduction

Two versions of an introductory section could have been written for this paper: a version which is honest, and a version which is compatible with scientific/technical writing. Here we will start with the honest version. Then we will re-cast the elements of the honest version to form a technical version: the motivation for this paper was set when we were writing Cunedioglu and Yucel (2010) in search of an answer for the question of whether the Mediterranean defines an economic region. In Cunedioglu and Yucel (2010) we sufficed with a descriptive approach while defending our thesis that "Mediterranean does not really constitute an economic region". Despite our best efforts and technical integrity, we believed that some further elaboration of the issues within an empirical framework is necessary to get a better-qualified answer. Consequently, in order to obtain an econometric representation of the issues in Cunedioglu and Yucel (2010) we compiled a large data set with pairwise combinations of 130 countries times 48 years.

The reader will probably agree that the cost of forming a panel data set of such dimensions exceeds the expected empirical benefits if we have restricted ourselves with the Mediterranean-specific questions. Unless we extend the coverage of analysis, ask more questions and exploit the compiled data set in other possible directions, existence of such a database could not have been justified. This is the first reason behind gathering a series of questions in the same project.

A second reason is related to the dynamics of empirical research: During our preliminary analysis of the data, we encountered a number of technical issues. Among these, the treatment of globalization takes the first place. Did globalization contribute to higher volumes of bilateral trade? If yes, through what specific channel? In order to get correct answers for our main question of the Mediterranean in relation to other regions, the obvious direction was to include the effects of globalization in our models. So we obtained an empirical picture of what globalization did. The second issue was the treatment of fixed effects within a panel framework. After some couple of preliminary rounds of estimation, we obtained some long lists of fixed effects in our simple gravity specification which indeed were hard to present to the reader. Once we thought about the ways to present our findings, the fixed effect summary representation of the upcoming sections appeared as a viable solution. Digging further this representation of findings, we realized that this was a quite meaningful device to pinpoint economic regions; not the pre-defined economic regions, but the *de facto* ones. Finally, in order to better understand what is actually happening in our data set, we enriched the analysis by adding a number of institutional and cultural variables. At the end, the analysis itself grew beyond our initial purposes and it provided us with some by-products.

All in all, we have been left with a bundle of findings that can be marketed in two ways. First, we could report each finding under a different title and end up with three separate yet interrelated papers. Second, we could report all findings under a single title as separate sections. The latter was preferred in order to avoid duplication.

As promised at the beginning, there is also a technical version of the introduction:

In this paper, we aim to investigate certain questions of international trade. These questions are about (1) role of globalization to generate further trade between countries, (2) functioning of economic regions, (3) potentials of selected economic regions, like the Mediterranean, (4) effects of institutional aspects of countries on trade flows and (5) effects of cultural linkages between countries on their trade relationships. These questions are

investigated by means of gravity equations. Owing to its simplicity and good performance, gravity framework established the natural laboratory to study our questions. Despite the approach lost its appeal for some time, it resurrected in some recent studies.

The main advantage of this paper comes from the dimensions of data employed. Bilateral relationships among 130 countries spread over a long time period (from 1962 to 2009) allow us to test several hypotheses with regard to the five questions mentioned above. The analyses performed reveal that (1) globalization process has been functioning in a number of ways, (2) functioning of economic regions display alternative results based on model specification, (3) distance is an important factor in the functioning of economic regions, (4) trade relationships do strengthen when countries move toward stronger degrees of their regimes, regardless of democratic or autocratic, (5) the same polity direction implies a higher degree of trade between countries, (6) given the joint regime strength (common direction of regimes) of trade partners, common direction of regimes (higher joint regime strength) implies lower trade, (7) partners belonging to the same religion trade less, (8) partners with the same language trade more among themselves, (10) given that partners are of the same religion (language), same language (religion) implies lower trade.

The next section introduces our empirical framework. In Section 3, we present our findings. Section 4 concludes the paper.

2. Gravity Approach at a Glance

The gravity approach has been popular for statistical analysis of bilateral flows between geographical entities. The historical roots of the approach are in Newton's formal proposition of the Law of Universal Gravitation (Newton, 1687): two physical objects attract each other with a force proportional to the mass of each object and disproportional with the squared distance separating them. Tinbergen (1962) proposed that the same form could be used in assessing international trade flows. In the original expression of the Law of Universal Gravitation, G stands for the gravitational constant, M_i and M_j are masses of the two interacting objects, and D_{ij} is the distance separating the objects. Finally, the attractive force between the objects is quantified as $F_{ij} = GM_iM_j / D_{ij}^2$. The economic version of this expression can be written as: $F_{ij} = GM_i^{\alpha} M_j^{\beta} / D_{ij}^{\theta}$. In this expression, F_{ij} is the flow from origin i to destination j, or total volume of interactions between i and j. M_i and M_j are the relevant economic sizes and D_{ij} stands for the center-to-center distance between i and j.

The gravity equation can be re-stated in natural logarithms to obtain a linear relationship. The inclusion of an error term yields an equation that can be estimated through known techniques. This framework is one of the most successful empirical models in economics: a good portion of the variation in trade flows is explained with an equation where the coefficients are economically sensible, and statistically well determined (Frankel, 1997). Leamer and Levinsohn (1995) report that the identification of distance effects on bilateral trade is one of the clearest and most robust empirical findings in economics.

The baseline (standard) gravity equation can be expressed as follows:

$$\ln[X_{ij} + X_{ji}] = \beta_0 + \beta_1 \ln[Y_i Y_j] + \beta_2 \ln[Y_i^{pc} Y_j^{pc}] + \beta_3 \ln D + \varepsilon \qquad (1)$$

where, X_{ij} is the exports from country i to country j; Y_i is the GDP of country i; Y_i^{pc} is the GDP per capita in country i; D is the geographical distance; and ε stands for the error term.

The dependent variable is the logarithmic sum of bilateral exports. The logarithmic product of gross domestic products is the major scale variable; e.g. the volume of trade is assumed to be proportional with the combined economic size of the trade partners. GDP per capita is a measure of product differentiation as well as specialization. Trade costs are captured by the geographical distance. It is also an indicator of the costs of cultural differences that tend to increase with geographic distance. This version was employed by, for instance, Frankel and Rose (2002).

The standard gravity equation is subject to some criticisms though (Baldwin, 2006; Baldwin and Taglioni, 2006). First of all, omitted variables such as relative trade costs and effects of relative prices do bias the standard gravity equation estimates. Note that these omitted effects are not time-invariant. Secondly, the dependent variable is the logarithm of the average trade between country pairs. However, this representation yields a distorted quantification when the trade between two countries is unbalanced. Finally, the trade flows on the left hand side are deflated by an appropriate price index, such as the US consumer prices or the available international export price indices. Since these indices have secular trends over long time horizons, economic variables which are deflated by these indices induce a spurious correlation. In light of these, an improved version of gravity equation can be stated as:

$$\ln[X_{ij} + X_{ji}] = \beta_0 + \beta_1 \ln[Y_i Y_j] + \beta_2 \ln[Y_i^{pc} Y_j^{pc}] + \beta_3 \ln D + \delta Z + \varepsilon \qquad (2)$$

where the additional vector of variables (Z) address the above-mentioned criticisms. This representation of gravity equation is maintained in the following section.

3. Empirical Analysis

Analysis in this section is fairly simple and straightforward: as the first step, we estimate our baseline specification of Equation 1. This is nothing but a restricted version of Equation 2 with δ is set to zero. The baseline specification is especially important in the case of gravity estimation of bilateral trade flows, since all the subsequent analyses become worthless in the absence of a solid verification of the baseline gravity model. Estimates of the baseline specification (δ=0) are given in Table 2. Regardless of the estimation technique, the baseline specification is well-behaving: the mass equivalent (YREAL) has positive and significant coefficients, YPCREAL is significant and distance (L) has its desired negative sign with statistical significance.

Upon this baseline specification, we develop a series of exercises. In each case, Z is changed so as to include a different set of variables. As described in the subsequent sections each re-estimated model is designated to address a different question. Note that we omitted testing of random versus fixed effects; yet provided a rich set of alternative specifications to allow the reader to capture various aspects of the data.

Role of Globalization

Globalization, by definition and tautologically, is expected to have a considerable impact on bilateral trade flows. This nature of globalization, nevertheless, does not dismiss its

analytical value. Hence we consider an array of specifications to understand what is happening in the globalization front. The results of these exercises are provided in Table 3, Table 4 and Table 5.

The first exercise regarding globalization is fairly raw, as we simply include a group of globalization dummies in our regressions to measure the effects of globalization (Table 3). The variables GLOB4 and GLOBFC are included in all cases in order to account for the latest and mostly financial episode of globalization (GLOB4: from 2000 to 2005 including endpoints) and the global financial crisis (GLOBFC: from 2007 to 2009 including endpoints). On top of these and the baseline gravity variables we also add, in turn, GLOB3 and GLOB31 which respectively cover periods after 1980 and 1990. Table 3 yields the following:

> **Observation** 1**:** There is no one-way conclusion toward the sign of GLOB4; that is, evidence regarding the latest and most financial episode of globalization is mixed.
>
> **Observation** 2**:** GLOBFC possesses a negative and significant coefficient in all specifications, which is indeed quite expected as bilateral trade flows were dampened at all during the last global crisis. This finding, still, has no value beyond effectively controlling our regression relationships.
>
> **Observation** 3**:** Regardless of how we have defined the start of the period in which globalization gained a tremendous momentum (i.e. after 1980 or 1990), globalization has a negative impact on average bilateral trade flows.

Pausing for a while, observation 1 and observation 2 do not yield a problem; yet observation 3 does: how can GLOB3 and GLOB31 assume significantly negative coefficient estimates while the fundamental motto of globalization is enhanced trade relationships worldwide? In order to proceed safely, one should have a good response to this question. As a matter of fact, the failure of Table 3 estimates in addressing the functioning of globalization is a result of letting globalization dummies to only affect the intercept term. A better estimation setup should consider not only the intercept effects but also the slope (or gradient) effects. Table 4 and Table 5 serve this purpose.

> **Observation** 4**:** Both GLOB3 and GLOB31 have negative and significant coefficient estimates in Table 4 and Table 5 but their interactions with YREAL have significant positive coefficient estimates.
>
> **Observation** 5**:** Interactions of GLOB3 and GLOB31 with YPCREAL (Table 5) have significant negative coefficient estimates.

Observation 4 clarifies our previous question of reverse-functioning globalization: globalization seems to have worked in a way to decrease the importance of linkages unrelated to income while underlining the importance of national incomes of trade partners. A higher joint income of trade partners yields higher bilateral volumes of trade. The same is not valid for per capita incomes. In the age of globalization, higher per capita incomes imply lower volumes of bilateral volumes of trade. If we interpret the coefficient of the product per capita income as a sign of quality-inclination, the negative coefficient of globalization-per capita income interaction indicate that the total trade-avoidance impact is higher for richer country pairs as compared to poorer ones.

Revealed Functioning of Economic Regions

As mentioned at the very beginning, whether groups of countries with well-established historical or geographical ties do actually form economic regions is one of the key questions of this study. In order to develop an answer to this question, we simply have resorted to estimates of fixed effects in a panel setup. The exercise is quite straightforward: we estimate

the baseline gravity specification without explicit reference to regions or country groups. Then we get the fixed effect estimates for each cross-section, namely for each pair of countries. A positive fixed effect estimate is interpreted as an indication of "above-average" of "augmented/strong" trade relationship between the respective pair of countries. So the rest of the exercise is based on a counting exercise, as demonstrated in Table 6.

Table 6-A (Panel A of Table 6) summarizes the number of positive fixed effects for each pair of country groups, where the grand sum is normalized to 10,000 for simplicity. We avoid deriving conclusions on the basis of Table 6-A since each pair of country groups has a different number of potential bilateral linkages; i.e. a higher number of positive fixed effects is possible when two large groups of countries are considered. In Table 6-B the figures of Table 6-A are repeated in terms of "multiples of the minimum" without avoiding the counting bias of Table 6-A. The figures in Table 6-C reflect a clearer picture: In Table 6-C, figures of Table 6-A are standardized by using the total number of bilateral linkages between the country groups considered where the results are expressed in percentage terms.

Note that the lack of an explicit reference to pre-defined regions or country groups in estimation allows us to use the term "revealed". By means of the panel fixed effect estimates, we try to confirm how well-defined the pre-defined regions are. Based on the counting exercise described, we have the following:

> **Observation** 6**:** In terms of fostering strong internal trade relationships (e.g. having positive fixed effects) the ordering of the regions is: (1) EU15-Mediterranean countries [90%], (2) Mediterranean-OIC countries [89%], (3) East Asian countries [83%], (4) EU15 countries [78%], (5) Latin-Caribbean countries [64%], (6) Ex-Communist countries [50%], (7) other countries [48%], (8) Mediterranean countries [40%], (9) OIC countries [38%] and (10) OIC-Ex-Communist countries [30%].
>
> **Observation** 7**:** If we maintain one-half as our (natural) benchmark, the regions that actually reveal themselves through trade relationships are EU15-Mediterranean countries, Mediterranean-OIC countries, East Asian countries, EU15 countries, Latin-Caribbean countries and the ex-Communist countries.
>
> **Observation** 8**:** The Mediterranean countries (non-EU and non-OIC), OIC countries (non-Mediterranean and non-ex-Communist) and OIC-ex-Communist countries fail to develop good internal trade relationships.

Trade Performance and Potential of Selected Economic Regions

These observations of the previous sub-section establish the ground for further examination of regions in shaping bilateral trade flows. These analyses are not only in terms of geographical definitions of regions, but also do they consider institutional and cultural proximity. This subsection is devoted to a straightforward analysis of regions whereas the other extensions are covered by the last two sub-sections.

Table 7 and Table 8 display our panel estimates with special emphasis placed on Asian countries (ASIA), EU countries (EU), ex-Communist countries (EXCOM), Latin-Caribbean countries (LAT), Mediterranean countries (MED) and Organization of the Islamic Conference member countries (OIC). For each, the intra-region linkages as well as the linkages with the extra-region countries are considered in regressions. In the tables the intra-region is denoted with REG-REG and linkages with extra-region are denoted with REG-NON-REG.

> **Observation** 9**:** Based on Table 7, ASIA is successful in terms of developing both intra-region and extra-region trade relationships. EU has a deficiency in terms of developing intra-region relationships yet it has good extra-region linkages. EXCOM and LAT has

just the reverse picture of EU. MED and OIC, finally, has low performance in terms of generating both intra-region and extra-region trade relationships.

In Table 8, we regenerate the estimates of Table 7 by including the REG-REG and REG-NON-REG also in interaction with distance (L) in an attempt to control the effects of geographical distance. This changes the previous observation as follows:

Observation 10**:** Based on Table 8, OIC is successful in terms of developing both intra-region and extra-region trade relationships. EXCOM and LAT have good intra-region trade linkages where they fail to do so in terms of extra-region linkages. ASIA, EU and MED fail to yield both strong intra-region and extra-region trade relationships.

Observation 11**:** The role of distance (in interaction form) in Table 8 is interesting: in the cases of ASIA, EU and MED increasing distance help developing better trade relationships. For EXCOM and OIC the picture is the opposite. For LAT, the intra-region linkages get weaker as distance increases yet distance has no effect on extra-region relationships.

Institutional Congruence and Bilateral Trade

In order to assess the role of institutions and institutional congruence between trade partners on trade flows, we device some variables based on the POLITYIV database. DURABLE is a measure of common regime durability in trade partners, POLITY is a common degree of trade partners' regimes and DIRECPOLITY is an indicator variable measuring whether the regimes of trade partners have the same direction, e.g. whether they are both democratic or autocratic (see Appendix B for detailed definitions of variables).

We present our estimates with institutional/regime-specific variables in Table 9. In this exercise the estimates do not display a high similarity. Rather they depend more on specification of the panel effects. Intuitively we highlight the ones with fixed cross-section effects with the expectation that coefficients of the institutional variables would be more reliable once the cross-section effects are controlled for.

Observation 12**:** Second and fourth columns of Table 9 suggest that DURABLE (product regime durability) is not significant. POLITY (product absolute polity scores) has a significant positive coefficient indicating that trade relationships do strengthen when countries move toward stronger degrees of their regimes, regardless of democratic or autocratic.

Observation 13**:** The same polity direction (both democratic or both autocratic) implies a higher degree of trade between countries (see Yu(2010) and Aidt and Gassebner(2010) for opposite finding).

Observation 14**:** The interaction of POLITY and DIRECPOLITY has a significant negative coefficient estimate indicating that (1) when POLITY is given, the same direction of regimes implies lower trade, (2) when DIRECPOLITY is given, increasing power of regimes imply lower trade.

The other columns in Table 9 provide mixed evidence on bilateral trade linkages in relation to institutional/regime-specific characteristics and they are displayed for the interested reader.

Cultural Congruence and Bilateral Trade

In order to have quantitative indicators of culture we resort to language and religion at the cost of over-simplification. DSAMERLG and DSAMELNG indicate common religion and

common language of trade partners. These variables are included in our models individually as well as with their interaction. The findings of Table 10 are quite regular.

Observation 15**:** Partners belonging to the same religion trade less among themselves.

Observation 16**:** Partners with the same language trade more among themselves.

Observation 17**:** Given that partners are of the same religion (language), same language (religion) implies lower trade.

At the end, Table 11 and Table 12 are intended to measure the combined effects of region information and our proxies of culture specifically for EU and MED. However, the evidence provided in these tables lacks regularity to a large extent, so we avoided elaborating these tables while keeping them in the text for the interested reader.

4. Discussion

In this study, we re-examined world trade flows from a gravity perspective. Owing to its strong background philosophy and well-behaving econometric properties gravity approach was indeed a good choice. Indeed, it is nothing but the very intuition of the framework was what allowed us to develop an array of findings that looked clear-cut. At the cost of straightforward repetition, our analyses revealed that (1) globalization process has been functioning in a number of ways, (2) functioning of economic regions display alternative results based on model specification, (3) distance is an important factor in the functioning of economic regions, (4) trade relationships do strengthen when countries move toward stronger degrees of their regimes, regardless of democratic or autocratic, (5) the same polity direction implies a higher degree of trade between countries, (6) given the joint regime strength (common direction of regimes) of trade partners, common direction of regimes (higher joint regime strength) implies lower trade, (7) partners belonging to the same religion trade less, (8) partners with the same language trade more among themselves, (10) given that partners are of the same religion (language), same language (religion) implies lower trade.

However, some deficiencies of the econometric analyses presented in the study should also be mentioned. First of all, despite the statistical framework have its roots in classical physics its economic meaning is established indirectly; simply there is no underlying behavioral and/or optimization problem. Second, once the analysis resorts to an immense data set which has the potential to yield unexpectedly significant estimates. At the same time, dimensionality of the same data set packs the econometric control issues in a black box. This is especially valid when we try to investigate the impacts of several categorical variables in the same specification. Finally, the very nature of globalization makes international trade to run in an increasingly intra-industry manner mostly under the control of multinational corporations or conglomerates. Hence it is a difficult task to assure the reader of what she is reading is actually a tangible set of findings. In what follows, we elaborate the controversial aspects of our findings.

The first problem is about the nature of globalization and it has two dimensions: the first is about the trade-facilitating mechanism of globalization. Globalization is expected to foster further trade, yet we are unable to observe this unless we interact globalization dummy variables with the product national income and product per capita income. The second dimension is about the effects of the most recent episode of globalization, i.e. from 2000 to 2005, about which we do not obtain a one-way conclusion. In terms of sub-periods, only the last global financial crisis yielded intuitive coefficient estimates.

The second problem surrounding the current analysis is about the treatment of institutional and cultural variables. For both classes of variables, the findings are salutary yet they are far from being widely accurate. Based on our treatment of institutional variables, joint regime durability in trade partners has no effect on their trade linkages. Instead we observe that joint strength of their regimes support deeper trade relationships. Upon this, when they have the same regime direction they enjoy higher trade. The interaction of regime strengths and directions, however, complicates the picture: for a given level of joint regime strength, similar regimes tend to yield lower bilateral trade. Equivalently, when we know that two countries are of the same regime type their trade decreases as joint strength of regimes increases. In other words, the non-linear part of our specification is not congruent with the linear part. A similar structure is valid for the cultural proxies, namely language and religion.

The analysis of the “revealed economic regions” seems to have established the core value of our analysis. Based on the fixed effects estimates of the standard gravity specification, we could identify the pre-defined regions that actually establish good trade relationships among themselves. Mediterranean members of the EU15, Mediterranean countries which are also OIC members, East Asian countries, EU15 countries, Latin-Caribbean countries and ex-Communist countries do have good trade intra-relationships. The Mediterranean countries (non-EU and non-OIC), OIC countries (non-Mediterranean and non-ex-Communist) and OIC-ex-Communist countries fail to develop good internal trade relationships. These findings were also augmented by further estimates. A thorough study of the regions and their trade relationships then looks like an interesting venue of further research.

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Appendix A: List of Countries

The following 130 countries are included in the study with varying time spans: [**1**]Algeria, [**2**]Angola, [**3**]Argentina, [**4**]Australia, [**5**]Austria, [**6**]Azerbaijan, [**7**]Bahamas, The, [**8**]Bahrain, [**9**]Bangladesh, [**10**]Belarus, [**11**]Belgium, [**12**]Bolivia, [**13**]Bosnia and Herzegovina, [**14**]Botswana, [**15**]Brazil, [**16**]Brunei Darussalam, [**17**]Bulgaria, [**18**]Cambodia, [**19**]Cameroon, [**20**]Canada, [**21**]Chile, [**22**]China, [**23**]Colombia, [**24**]Congo, Dem. Rep., [**25**]Costa Rica, [**26**]Cote d'Ivoire, [**27**]Croatia, [**28**]Cyprus, [**29**]Czech Republic, [**30**]Denmark, [**31**]Dominican Republic, [**32**]Ecuador, [**33**]Egypt, Arab Rep., [**34**]El Salvador, [**35**]Estonia, [**36**]Ethiopia, [**37**]Finland, [**38**]France, [**39**]French Polynesia, [**40**]Gabon, [**41**]Georgia, [**42**]Germany, [**43**]Ghana, [**44**]Greece, [**45**]Guatemala, [**46**]Guinea, [**47**]Haiti, [**48**]Honduras, [**49**]Hong Kong SAR, China, [**50**]Hungary, [**51**]Iceland, [**52**]India, [**53**]Indonesia, [**54**]Iran, Islamic Rep., [**55**]Iraq, [**56**]Ireland, [**57**]Israel, [**58**]Italy, [**59**]Jamaica, [**60**]Japan, [**61**]Jordan, [**62**]Kazakhstan, [**63**]Kenya, [**64**]Korea, Rep., [**65**]Kuwait, [**66**]Latvia, [**67**]Lebanon, [**68**]Libya, [**69**]Lithuania, [**70**]Luxembourg, [**71**]Macao SAR, China, [**72**]Macedonia, FYR, [**73**]Madagascar, [**74**]Malaysia, [**75**]Malta, [**76**]Mauritius, [**77**]Mexico, [**78**]Morocco, [**79**]Mozambique, [**80**]Namibia, [**81**]Nepal, [**82**]Netherlands, [**83**]New Caledonia, [**84**]New Zealand, [**85**]Nicaragua, [**86**]Nigeria, [**87**]Norway, [**88**]Oman, [**89**]Pakistan, [**90**]Panama, [**91**]Papua New Guinea, [**92**]Paraguay, [**93**]Peru, [**94**]Philippines, [**95**]Poland, [**96**]Portugal, [**97**]Qatar, [**98**]Romania, [**99**]Russian Federation, [**100**]Saudi Arabia, [**101**]Senegal, [**102**]Serbia, [**103**]Singapore, [**104**]Slovak Republic, [**105**]Slovenia, [**106**]South Africa, [**107**]Spain, [**108**]Sri Lanka, [**109**]Sudan, [**110**]Sweden, [**111**]Switzerland, [**112**]Syrian Arab Republic, [**113**]Tanzania, [**114**]Thailand, [**115**]Trinidad and Tobago, [**116**]Tunisia, [**117**]Turkey, [**118**]Uganda, [**119**]Ukraine, [**120**]United Arab Emirates, [**121**]United Kingdom, [**122**]United States, [**123**]Uruguay, [**124**]Uzbekistan, [**125**]Venezuela, RB, [**126**]Vietnam, [**127**]West Bank and Gaza, [**128**]Yemen, Rep., [**129**]Zambia, [**130**]Zimbabwe.

Appendix B: Data Sources and Transformations

Trade flows

TRDREAL: Export (f.o.b.) data are taken from UN COMTRADE, United Nations Commodity Trade Statistics Database. Each export flow was transformed into real terms by mean of appropriate deflators. For each country pair, the trade volume (gravitational force) was calculated as the sum of reciprocal real exports.

National income and population

YREAL and **YPCREAL**: Real GDP and the real per capita GDP data are taken from WDI, World Development Indicators, International Bank of Reconstruction and Development (World Bank). For each country pair, a common measure of income (physical mass in product form) was calculated as the product of each country's income. The same applies to the per capita income.

Distances

L: Geographical distance data are taken from CEPII, natural logarithms.

Globalization

GLOB4: Period from 2000 to 2005 including endpoints.

GLOBFC: Period from 2007 to 2009 including endpoints – indicates the global financial crisis.

GLOB3: Period after 1980.

GLOB31: Period after 1990.

Regions

Dummy variables for regions and economic communities were derived based on common knowledge.

Governance/Polity

Polity variables are taken from POLITY IV Database, http://www.systemicpeace.org/polity/polity4.htm

DURABLE: Natural logarithm of one plus the product of individual regime durability scores.

POLITY: Natural logarithm of one plus the product of absolute values of individual POLITY scores.

DIRECPOLITY: Dummy variable taking the value of one if the regimes are similar (both democratic or both autocratic).

Culture

Language data are taken from Macalester College Department of Economics, Western Hemispheric Research Resources, http://www.macalester.edu/research/economics/PAGE/HAVEMAN/Trade.Resources/Data/Gravity/language.txt

Religion data are taken from World Religion Database, http://www.worldreligiondatabase.org/

DSAMELNG: Dummy variable taking the value of one if the partner countries have the same language.

DSAMERLG: Dummy variable taking the value of one if the partner countries have the same religion.

Table 1
Descriptive Statistics and Panel Attributes

Descriptive Statistics

	TRDREAL	YREAL	YPCREAL	L
Mean	16.1327	48.8436	16.2590	8.6672
Median	16.4611	48.6777	16.2777	8.8983
Maximum	26.7539	59.3519	21.5872	9.8945
Minimum	-0.9942	40.0725	9.8659	4.1743
Std.Dev.	3.5168	2.4812	2.0403	0.8254
Skewness	-0.3758	0.3300	-0.1134	-1.1107
Kurtosis	2.9646	3.0499	2.5690	4.2271
Jarque-Bera	4417.1	3417.7	1850.0	50238.8
Prob(Jarque-Bera)	0.000	0.000	0.000	0.000
Number of observations	187207	187207	187207	187207

	GLOB4	GLOBFC	GLOB3	GLOB31	DURABLE
Mean	0.2106	0.0952	0.7831	0.6089	4.8409
Median	0.0000	0.0000	1.0000	1.0000	5.3423
Maximum	1.0000	1.0000	1.0000	1.0000	10.3685
Minimum	0.0000	0.0000	0.0000	0.0000	0.0000
Std.Dev.	0.4077	0.2936	0.4120	0.4879	2.4666
Skewness	1.4194	2.7569	-1.3743	-0.4466	-0.6990
Kurtosis	3.0147	8.6006	2.8888	1.1995	2.6628
Jarque-Bera	65587.0	502706.6	61589.2	32877.1	14983.4
Prob(Jarque-Bera)	0.000	0.000	0.000	0.000	0.000
Number of observations	195319	195319	195319	195319	173853

	POLITY	DIRECPOLITY	DSAMELNG	DSAMERLG
Mean	3.7799	0.5685	0.1082	0.5123
Median	4.1108	1.0000	0.0000	1.0000
Maximum	4.6151	1.0000	1.0000	1.0000
Minimum	0.0000	0.0000	0.0000	0.0000
Std.Dev.	0.9079	0.4952	0.3106	0.4998
Skewness	-2.0846	-0.2766	2.5225	-0.0495
Kurtosis	8.1755	1.0765	7.3632	1.0024
Jarque-Bera	314131.0	28489.5	362081.7	32553.2
Prob(Jarque-Bera)	0.000	0.000	0.000	0.000
Number of observations	170687	170687	195319	195319

Attributes of the Panel Data Set

Number of cross-sections	7932	
Number of periods (1962-2009)	48	
Total number of lines in data set	375,168	100.00%
Maximum number of usable observations	187,207	43.52%
Minimum number of usable observations	163,310	49.89%

Note: The data set is available from authors upon request for academic purposes.

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Table 2
Baseline Gravity Specifications

Dependent Variable: TRDREAL

Regressors	ZS1	ZS2	ZS3	ZS4	ZS5	ZS6
CONSTANT	-25.5445	-17.2168	-27.0255	-47.5990	-18.3647	-26.5884
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
YREAL	1.0379	0.6879	1.0755	1.4633	0.9041	1.0697
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
YPCREAL	0.1081	0.3753	0.1067	-0.0688	0.0996	0.1068
	(0.000)	(0.000)	(0.000)	(0.004)	(0.000)	(0.000)
L	-1.2434	-0.7331	-1.2820	-0.7643	-1.3664	-1.2771
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
R^2	0.653	0.861	0.672	0.863	0.6180	0.650
F	117881.5	142.4	7673.3	144.0	33513.0	144608.2
CROSS-SECTION EFFECT	None	Fixed	None	Fixed	Random	None
PERIOD EFFECT	None	None	Fixed	Fixed	None	Random
OBS	187207	187207	187207	187207	187207	187207
	LS	LS	LS	LS	EGLS	EGLS

Note: p-values are given in parentheses. White diagonal standard errors and covariance.

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Table 3
Impact of Globalization 1

Dependent Variable: TRDREAL

Regressors	ZS11	ZS12	ZS21	ZS22	ZS51	ZS52
CONSTANT	-26.0338	-26.1183	-24.7242	-21.9932	-26.3579	-25.1325
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
YREAL	1.0677	1.0688	0.8862	0.8169	1.0856	1.0600
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
YPCREAL	0.1083	0.1048	0.2465	0.2820	0.0830	0.0770
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
L	-1.2703	-1.2814	-0.7099	-0.7199	-1.3663	-1.3747
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
GLOB4	-0.3658	-0.1727	0.0068	0.0701	-0.0820	0.0068
	(0.000)	(0.000)	(0.4486)	(0.000)	(0.000)	(0.4206)
GLOBFC	-0.5615	-0.3682	-0.1177	-0.0339	-0.2525	-0.1504
	(0.000)	(0.000)	(0.000)	(0.012)	(0.000)	(0.000)
GLOB3	-0.7573		-0.3444		-0.5219	
	(0.000)		(0.000)		(0.000)	
GLOB31		-0.7673		-0.2156		-0.4141
		(0.000)		(0.000)		(0.000)
R^2	0.667	0.669	0.861	0.861	0.650	0.649
F	62722.5	63108.5	143.0	142.7	18093.3	17984.4
CROSS-SECTION EFFECT	None	None	Fixed	Fixed	Random	Random
OBS	187207	187207	187207	187207	187207	187207
	LS	LS	LS	LS	EGLS	EGLS

Note: p-values are given in parentheses. White diagonal standard errors and covariance.

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Table 4
Impact of Globalization 2

Dependent Variable: TRDREAL

GLOBVAR→	GLOB3	GLOB31	GLOB3	GLOB31	GLOB3	GLOB31
Regressors	**ZS11Y**	**ZS12Y**	**ZS21Y**	**ZS22Y**	**ZS51Y**	**ZS52Y**
CONSTANT	-20.7466	-21.9434	-24.5057	-22.0897	-25.0543	-24.4133
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
YREAL	0.9585	0.9837	0.8916	0.8228	1.0631	1.0502
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
YPCREAL	0.1066	0.1018	0.2181	0.2711	0.0710	0.0639
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
L	-1.2708	-1.2827	-0.7124	-0.7212	-1.3679	-1.3768
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
GLOB4	-4.3083	-2.7931	0.5357	0.4205	-0.1712	-0.1479
	(0.000)	(0.000)	(0.001)	(0.000)	(0.296)	(0.000)
GLOBFC	-6.6850	-5.1702	-0.7256	-0.7904	-1.7420	-1.7171
	(0.000)	(0.000)	(0.003)	(0.000)	(0.000)	(0.000)
GLOBVAR	-5.7072	-5.9588	-1.4197	-0.4698	-2.2196	-1.7562
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
GLOB4 x YREAL	0.0803	0.0533	-0.0109	-0.0072	0.0017	0.0030
	(0.000)	(0.000)	(0.001)	(0.000)	(0.601)	(0.000)
GLOBFC x YREAL	0.1233	0.0963	0.0120	0.0151	0.0297	0.0313
	(0.000)	(0.000)	(0.012)	(0.000)	(0.000)	(0.000)
GLOBVAR x YREAL	0.1030	0.1070	0.0219	0.0051	0.0351	0.0274
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
R^2	0.670	0.672	0.861	0.861	0.651	0.651
F	42280.6	42581.3	143.0	142.6	12158.6	12091.7
CROSS-SECTION EFFECT	None	None	Fixed	Fixed	Random	Random
OBS	187207	187207	187207	187207	187207	187207
	LS	LS	LS	LS	EGLS	EGLS

Note: p-values are given in parentheses. White diagonal standard errors and covariance.

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Table 5
Impact of Globalization 3

Dependent Variable: TRDREAL

GLOBVAR→	GLOB3	GLOB31	GLOB3	GLOB31	GLOB3	GLOB31
Regressors	**ZS11B**	**ZS12B**	**ZS21B**	**ZS22B**	**ZS51B**	**ZS52B**
CONSTANT	-20.2458	-21.6620	-20.1781	-17.8863	-23.5974	-23.1138
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
YREAL	0.9065	0.9489	0.7205	0.6583	0.9835	0.9830
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
YPCREAL	0.2341	0.1915	0.4853	0.5180	0.2220	0.1875
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
L	-1.2751	-1.2870	-0.7567	-0.7485	-1.3742	-1.3833
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
GLOB4	-4.8037	-3.1530	0.2545	0.1916	-0.5753	-0.4405
	(0.000)	(0.000)	(0.125)	(0.264)	(0.000)	(0.010)
GLOBFC	-7.0531	-5.4017	-0.9650	-0.9788	-2.0992	-1.9678
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
GLOBVAR	-6.1424	-6.2887	-1.5338	-0.3556	-2.5734	-1.9831
	(0.000)	(0.000)	(0.000)	(0.045)	(0.000)	(0.000)
GLOB4 x YREAL	0.1245	0.0836	0.0251	0.0177	0.0384	0.0274
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
GLOBFC x YREAL	0.1546	0.1138	0.0497	0.0428	0.0647	0.0546
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
GLOBVAR x YREAL	0.1509	0.1499	0.0709	0.0500	0.0816	0.0721
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
GLOB4 x YPCREAL	-0.1022	-0.0688	-0.0890	-0.0595	-0.0851	-0.0548
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
GLOBFC x YPCREAL	-0.0715	-0.0383	-0.0957	-0.0692	-0.0819	-0.0539
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
GLOBVAR x YPCREAL	-0.1172	-0.1086	-0.1355	-0.1371	-0.1170	-0.1188
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
R^2	0.671	0.673	0.862	0.862	0.652	0.651
F	31896.7	32120.7	144.2	144.1	9260.5	9229.1
CROSS-SECTION EFFECT	None	None	Fixed	Fixed	Random	Random
OBS	187207	187207	187207	187207	187207	187207
	LS	LS	LS	LS	EGLS	EGLS

Note: p-values are given in parentheses. White diagonal standard errors and covariance.

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Table 6
Revealed Functioning of Economic Regions

A. Bilateral linkages between countries (basis points)

		1	2	3	4	5	6	7	8	9	10
1	EU15 ONLY	180									
2	EU15-MEDITERRANEAN	106	46								
3	MEDITERRANEAN ONLY	67	39	21							
4	MEDITERRANEAN – OIC COUNTRIES	119	80	36	129						
5	OIC COUNTRIES ONLY	314	167	41	193	490					
6	OIC COUNTRIES – EX-COMMUNIST COUNTRIES	57	28	23	28	62	15				
7	EX-COMMUNIST COUNTRIES ONLY	309	147	119	175	338	131	598			
8	EAST ASIAN COUNTRIES	188	90	54	116	392	59	268	155		
9	LATIN-CARIBBEAN COUNTRIES	304	175	49	64	188	13	242	338	763	
10	OTHER COUNTRIES	340	157	52	108	435	57	255	317	242	520

B. Bilateral linkages between countries (multiples of the minimum, rounded up)

		1	2	3	4	5	6	7	8	9	10
1	EU15 ONLY	14									
2	EU15-MEDITERRANEAN	8	4								
3	MEDITERRANEAN ONLY	5	3	2							
4	MEDITERRANEAN – OIC COUNTRIES	9	6	3	10						
5	OIC COUNTRIES ONLY	24	13	3	15	38					
6	OIC COUNTRIES – EX-COMMUNIST COUNTRIES	4	2	2	2	5	1				
7	EX-COMMUNIST COUNTRIES ONLY	24	11	9	14	26	10	46			
8	EAST ASIAN COUNTRIES	15	7	4	9	30	5	21	12		
9	LATIN-CARIBBEAN COUNTRIES	24	14	4	5	15	1	19	26	59	
10	OTHER COUNTRIES	26	12	4	8	34	4	20	25	19	40

C. Bilateral linkages between countries (percentage of number of country pairs in trading regions)

		1	2	3	4	5	6	7	8	9	10
1	EU15 ONLY	78									
2	EU15-MEDITERRANEAN	82	90								
3	MEDITERRANEAN ONLY	52	60	40							
4	MEDITERRANEAN – OIC COUNTRIES	58	78	35	89						
5	OIC COUNTRIES ONLY	53	57	14	41	38					
6	OIC COUNTRIES – EX-COMMUNIST COUNTRIES	44	44	36	28	21	30				
7	EX-COMMUNIST COUNTRIES ONLY	55	52	42	39	26	46	50			
8	EAST ASIAN COUNTRIES	81	78	47	63	73	51	53	83		
9	LATIN-CARIBBEAN COUNTRIES	54	62	17	14	14	5	19	66	64	
10	OTHER COUNTRIES	63	58	19	25	35	21	21	65	20	48

Note: In Panel A, counts of positive fixed effects are re-scaled to sum up to 10,000. In Panel B, counts are represented as multiples of the minimum count. In Panel C, the positive fixed effect counts are divided by the maximum possible number of bilateral relationships between the countries of trading regions.

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Table 7
Regions and Foreign Trade 1

Dependent Variable: TRDREAL

Region (REG)→	ASIA	EU	EXCOM	LAT	MED	OIC
Regressors	**3ZS11**	**3ZS12**	**3ZS13**	**3ZS14**	**3ZS15**	**3ZS16**
CONSTANT	-25.5247	-25.4487	-24.6019	-27.034	-25.3436	-24.7441
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
YREAL	1.0290	1.0386	1.0346	1.0369	1.0422	1.0404
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
YPCREAL	0.1197	0.1049	0.0935	0.1172	0.1130	0.0758
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
L	-1.2263	-1.2553	-1.2868	-1.0690	-1.2868	-1.2666
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
REG-REG	0.5011	-0.1193	0.0442	0.5607	-0.4984	-0.4525
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
REG-NON-REG	0.0968	0.0874	-0.8149	-0.5155	-0.4019	-0.4735
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
R^2	0.655	0.654	0.662	0.658	0.656	0.657
F	71163.9	70796.2	73492.3	72189.6	71544.1	72001.0
CROSS-SECTION EFFECT	None	None	None	None	None	None
PERIOD EFFECT	None	None	None	None	None	None
OBS	187207	187207	187207	187207	187207	187207
	LS	LS	LS	LS	LS	LS

Note: p-values are given in parentheses. White diagonal standard errors and covariance.

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Table 8
Regions and Foreign Trade 2

Dependent Variable: TRDREAL

Region (REG)→	ASIA	EU	EXCOM	LAT	MED	OIC
Regressors	**3ZS11**	**3ZS12**	**3ZS13**	**3ZS14**	**3ZS15**	**3ZS16**
CONSTANT	-24.0170	-24.0194	-24.8534	-27.6444	-24.7594	-24.9933
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
YREAL	1.0225	1.0435	1.0345	1.0395	1.0428	1.0408
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
YPCREAL	0.1259	0.1074	0.0910	0.1191	0.1147	0.0756
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
L	-1.3778	-1.4497	-1.2532	-1.0154	-1.3600	-1.2396
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
REG-REG	-1.6993	-4.5856	5.1167	7.7320	-2.6842	0.6187
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
REG-NON-REG	-4.3984	-4.2947	-0.3245	-0.6718	-2.7456	0.1741
	(0.000)	(0.000)	(0.0035)	(0.000)	(0.000)	(0.143)
REG-REG x L	0.2636	0.5734	-0.6547	-0.9128	0.2841	-0.1295
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
REG-NON-REG x L	0.5101	0.5023	-0.0569	0.0119	0.2730	-0.0745
	(0.000)	(0.000)	(0.000)	(0.658)	(0.000)	(0.000)
R^2	0.657	0.656	0.663	0.660	0.657	0.657
F	51391.8	51203.4	52666.5	51997.9	51272.5	51449.2
CROSS-SECTION EFFECT	None	None	None	None	None	None
PERIOD EFFECT	None	None	None	None	None	None
OBS	187207	187207	187207	187207	187207	187207
	LS	LS	LS	LS	LS	LS

Note: p-values are given in parentheses. White diagonal standard errors and covariance.

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Table 9
Role of Institutions

Dependent Variable: TRDREAL

Regressors	4ZS1	4ZS2	4ZS3	4ZS4	4ZS5	4ZS6
CONSTANT	-24.7165	-17.9807	-25.3505	-50.9095	-20.2441	-24.9702
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
YREAL	1.0272	0.7253	1.0597	1.5566	0.9216	1.0494
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
YPCREAL	0.1107	0.3860	0.0985	-0.0889	0.1319	0.1027
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
L	-1.2584	-0.9109	-1.2926	-0.9335	-1.3528	-1.2830
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
DURABLE	0.0186	-0.0017	0.0534	0.0005	-0.0077	0.0435
	(0.000)	(0.444)	(0.000)	(0.832)	(0.000)	(0.000)
POLITY	-0.0906	0.1341	-0.2766	0.1132	0.1542	-0.2249
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
DIRECPOLITY	-0.1477	0.3954	-0.6149	0.3114	0.4308	-0.4824
	(0.005)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
POLITY x DIRECPOLITY	0.0564	-0.1376	0.2081	-0.0876	-0.1449	0.1652
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
R^2	0.663	0.860	0.680	0.863	0.635	0.660
F	45967.2	144.1	6429.0	146.1	14152.9	59077.9
CROSS-SECTION EFFECT	None	Fixed	None	Fixed	Random	None
PERIOD EFFECT	None	None	Fixed	Fixed	None	Random
OBS	163310	163310	163310	163310	163310	163310
	LS	LS	LS	LS	EGLS	EGLS

Note: p-values are given in parentheses. White diagonal standard errors and covariance.

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Table 10
Effects of Culture on Foreign Trade

Dependent Variable: TRDREAL

Regressors	5ZS1	5ZS11	5ZS3	5ZS31	5ZS5	5ZS51	5ZS6	5ZS61
CONSTANT	-26.8589	-26.8876	-28.1557	-28.1798	-19.4163	-19.4196	-27.7043	-27.7270
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
YREAL	1.0486	1.0480	1.0837	1.0829	0.9106	0.9101	1.0768	1.0759
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
YPCREAL	0.1204	0.1219	0.1195	0.1212	0.0974	0.0977	0.1195	0.1212
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
L	-1.1831	-1.1765	-1.2279	-1.2204	-1.2943	-1.2885	-1.2203	-1.2129
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
DSAMERLG	-0.1026	-0.1604	-0.1205	-0.1829	0.0905	0.0318	-0.1152	-0.1767
	(0.000)	(0.000)	(0.000)	(0.000)	(0.035)	(0.447)	(0.000)	(0.000)
DSAMELNG	2.0832	1.1959	2.0717	1.1107	2.3467	1.2878	2.0715	1.1248
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
DSAMERLG x DSAMELNG	-1.0625		-1.1513		-1.2880		-1.1344	
	(0.000)		(0.000)		(0.000)		(0.000)	
R^2	0.664	0.663	0.682	0.681	0.629	0.628	0.662	0.661
F	61921.2	73937.2	7573.8	7673.3	17182.8	20565.4	76870.0	91841.7
CROSS-SECTION EFFECT	None	None	None	None	Random	Random	None	None
PERIOD EFFECT	None	None	Fixed	Fixed	None	None	Random	Random
OBS	187207	187207	187207	187207	187207	187207	187207	187207
	LS	LS	LS	LS	EGLS	EGLS	EGLS	EGLS

Note: p-values are given in parentheses. White diagonal standard errors and covariance.

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Table 11
Effects of Regions and Culture on Foreign Trade

Dependent Variable: TRDREAL

Region (REG)→	EU	MED	MED	EU	MED	MED
Regressors	**6ZS11**	**6ZS12**	**6ZS120**	**6ZS31**	**6ZS32**	**6ZS320**
CONSTANT	-26.8784	-26.8387	-25.1540	-28.1465	-28.1182	-26.5501
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
YREAL	1.0502	1.0543	1.0401	1.0856	1.0910	1.0785
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
YPCREAL	0.0986	0.1179	0.1156	0.1017	0.1170	0.1171
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
L	-1.1627	-1.2072	-1.2943	-1.2181	-1.2613	-1.3471
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
REG-REG	0.1173	-0.3427	-0.6324	-0.0066	-0.5195	-0.8195
	(0.000)	(0.000)	(0.000)	(0.731)	(0.000)	(0.000)
REG-NON-REG	0.1558	-0.3459	-0.5345	0.1174	-0.4062	-0.6037
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
DSAMELNG	1.0375	1.0933		0.9314	0.9701	
	(0.000)	(0.000)		(0.000)	(0.000)	
DSAMERLG			-0.1239			-0.1776
			(0.000)			(0.000)
REG-REG x DSAMELNG	0.7824	-0.4982		0.8691	-0.2492	
	(0.000)	(0.000)		(0.000)	(0.015)	
REG-NON-REG x DSAMELNG	0.5907	0.0780		0.5749	0.1555	
	(0.000)	(0.048)		(0.000)	(0.000)	
REG-REG x DSAMERLG			0.2589			0.3317
			(0.000)			(0.000)
REG-NON-REG x DSAMERLG			0.2644			0.2912
			(0.000)			(0.000)
R^2	0.664	0.665	0.657	0.681	0.683	0.676
F	46350.9	46503.2	44778.9	7264.7	7320.3	7099.7
CROSS-SECTION EFFECT	None	None	None	Fixed	Fixed	Fixed
PERIOD EFFECT	None	None	None	None	None	None
OBS	187207	187207	187207	187207	187207	187207
	LS	LS	LS	LS	LS	LS

Note: p-values are given in parentheses. White diagonal standard errors and covariance.

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Table 12
Effects of Regions and Culture on Foreign Trade (continued)

Dependent Variable: TRDREAL

Region (REG)→	EU	MED	MED	EU	MED	MED	EU
Regressors	**6ZS51**	**6ZS52**	**6ZS520**	**6ZS61**	**6ZS62**	**6ZS620**	**7Z**
CONSTANT	-20.9151	-19.0727	-18.1626	-27.7066	-27.6736	-26.0864	-26.4070
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
YREAL	0.9248	0.9093	0.9059	1.0787	1.0840	1.0715	1.0479
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
YPCREAL	0.0567	0.1011	0.0992	0.1009	0.1170	0.1166	0.1111
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
L	-1.1566	-1.3204	-1.3923	-1.2087	-1.2524	-1.3384	
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	
REG-REG	1.1527	-0.2513	-0.4803	0.0179	-0.4863	-0.7837	-1.2112
	(0.000)	(0.036)	(0.002)	(0.347)	(0.000)	(0.000)	(0.000)
REG-NON-REG	0.6950	-0.2639	-0.4519	0.1257	-0.3945	-0.5891	0.0007
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.963)
DSAMELNG	1.4452	1.3233		0.9495	0.9911		1.1428
	(0.000)	(0.000)		(0.000)	(0.000)		(0.000)
DSAMERLG			0.0511			-0.1656	-0.2976
			(0.308)			(0.000)	(0.000)
REG-REG x DSAMELNG	0.1068	-0.5420		0.8542	-0.2949		
	(0.648)	(0.000)		(0.000)	(0.004)		
REG-NON-REG x DSAMELNG	0.4714	-0.2018		0.5791	0.1411		0.4912
	(0.001)	(0.000)		(0.000)	(0.000)		(0.000)
REG-REG x DSAMERLG			0.3044			0.3162	
			(0.204)			(0.000)	
REG-NON-REG x DSAMERLG			0.3036			0.2837	0.3014
			(0.001)			(0.000)	(0.000)
R^2	0.630	0.629	0.619	0.661	0.662	0.653	0.665
F	12937.1	12893.3	12640.7	57354.9	57642.3	55798.8	46521.1
CROSS-SECTION EFFECT	None	None	None	Random	Random	Random	None
PERIOD EFFECT	Fixed	Fixed	Fixed	None	None	None	Random
OBS	187207	187207	187207	187207	187207	187207	187207
	LS	LS	LS	EGLS	EGLS	EGLS	EGLS

Note: p-values are given in parentheses. White diagonal standard errors and covariance.