Political Proximity and International Trade

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Abstract

The impact of politics on international trade has often been excluded by economists both from theoretical and empirical analysis. In this paper, we examine empirically the impact of politics on trade flows. Results indicate that political differences have an impact on bilateral trade that is robust to a wide range of econometric specifications. However, the impact of political differences on trade flows vanishes when the costs of reducing the latter become fairly important.

1 Introduction

A growing body of empirical economic literature focuses on the examination of the impact of different trade costs on international economic exchanges. Physical trade barriers measured by distance, contiguity or access to water and policy-induced barriers to trade have been extensively studied. Similarly, a number of trade barriers not entirely associated with physical distance have also been examined, obtaining remarkably robust results. Recent empirical work on international trade has repeatedly shown that proximity between countries, defined in multiple ways, fosters trade. Accordingly, including variables to control for similar cultural and historical characteristics such as

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linguistic proximity or colonial links has become a common practice in the gravity-like literature.

Surprisingly, in our opinion, the role of political proximity between countries in international trade has not received sufficient attention in recent literature. Political science, in general, and International Political Economy (IPE), in particular, assigns a privileged place to political forces in the study of international economic interactions. The increasing recognition of IPE as a distinct field of study suggests that more attention should be devoted to politics when economic interactions between states are examined. Differences in political interests can have significant consequences in trade flows. Michaels and Zhi (2007) estimate that French opposition to the Iraq War in the United Nations Security Council led to a reduction of French exports to the United States by about 15 percent and of American exports to France by nearly 8 percent. Political proximity may encourage economic exchanges in a number of ways. The negotiation of trade agreements or other acts facilitating trade may depend on the willingness of a government's officers to negotiate with each other, which in turn may be partially determined by shared political ideologies or common political interest. Developed countries might grant access to GSP (generalized system of preferences) programs to developing countries by taking into consideration common political interests. The United States has, for example, denied access to Laos, Myanmar, and Sudan to its GSP program based on political reasons [Sekkel (2009)]. Moreover, when interests diverge radically states may decide to use economic sanctions such as embargoes or import or export quotas, thus hampering trade. Additionally, citizens may react to diverging political interests between countries by reducing bilateral trade flows or preferring products from countries with similar political characteristics. The numerous anti-apartheid boycotts or the boycott of French cheeses by American consumers are just a few examples of how political incompatibilities may shape consumers preferences.

Political proximity can be defined in various ways. Following Eysenck's description of the political spectrum, in this paper, we examine the impact of political distance on international trade using three different measures: similarity of countries' interests as measured by UN vote correlation, political distance materialized in differences between the forms of government of each country using

the Polity IV database and ideological distance of citizens using the Latinobarometer survey. The remainder of the paper is organized as follows. The next section reviews related empirical literature, and section 3 briefly discusses the theoretical foundations of the gravity equation and describes the estimation methods used here. Section 4 reviews Eysenck's depiction of the political spectrum. Sections 5, 6 and 7 study the link between bilateral trade flows and similarity of interests, polity distance and ideological distance respectively. Section 8 offers a conclusion.

2 Related empirical literature

There have been very few attempts to incorporate the role of political proximity between countries in the analysis of bilateral trade flows. While controlling for past or current colonial links and linguistic proximity has become the most common practice in estimations of the gravity equation, very few papers control for political characteristics.

Among the publications that take into consideration the impact of political characteristics, a large number examine the question, inspired by the liberal peace hypothesis, of whether democracies trade more [1]. Rosendorff (2005) proposes a theoretical model where democracies trade more because they more frequently join trade agreements and because they have a greater propensity to unilateral liberalization. In Mansfield, Milner, and Rosendorff (2000), when trade agreements must be approved by the legislative branch in both countries, dyads are more likely to reach an agreement. A reduced number of studies examine empirically the question estimating different versions of the gravity model. Decker and Lim (2009) and Bliss and Russett (1998) conclude that dyads formed by two democratic countries trade more than those where at least one of the countries is not a democracy. Similarly, Yu (2010) estimates a gravity model that uses the Polity IV index as a measure of democracy and, controlling for endogeneity, finds that the democratization of a country increases its exports. Mehanna (2003) examines whether politics and culture affect trade in the Middle East. For that purpose, the author incorporates a measure of political freedoms using several surveys published by Freedom House and the Corruption Perceptions Index constructed by

[1] Gartzke (2007) offers an outstanding discussion on the link between trade and peace.

Transparency International into his estimates of the gravity equation. Corruption seems to have a robust impact on bilateral trade flows while the evidence for political freedom is rather weak.

There are very few publications directly related to the present paper. To the best of our knowledge only two papers focus directly on the empirical estimation of the impact of political affinity on trade flows. Dixon and Moon (1993) investigate if American exports to 76 countries during 18 years are explained by the similarity of the foreign policy between the United States and each of the countries considered, as measured by the correlation of votes in the United Nations General Assembly. The authors find that similarity of foreign policy positively affects American exports. Similarly, Morrow, Siverson, and Tabares (1998) uses the tau indicator developed in Bueno de Mesquita (1975), which aims to measure the degree of similarity in countries' interests by using data on security alliances between countries. These authors focusing only on seven major powers, the United States, Great Britain, France, Germany, Russia, and Italy from 1907 to 1990, find that a higher degree of mutual security commitments significantly increases trade. However, one can wonder if poor measuring of trade flows at the beginning of the twentieth century has biased the estimates.

Nonetheless, these two publications have a major flaw that can be explained by their publication date: their estimations do not include the multilateral resistance terms. This important error was clearly identified for the first time in Anderson and van Wincoop (2003). As a consequence, one cannot be sure if similarity in foreign policy is a statistically significant variable in explaining American exports or if the degree of mutual security commitments actually explains trade between major powers.

While this literature is directly or indirectly related to the question of political characteristics and international trade, the authors either do not focus their efforts on the study of the linkages of political proximity and international trade or, when they do focus on some measure of political proximity, do not correctly handle econometric estimations. Furthermore, none of the previous articles tries to capture the impact of purely ideological differences. Consequently, the question of the impact of political proximity on bilateral trade flows remains virtually unexamined.

The interest of this paper resides thus in its evaluation, taking into consideration the characteristics of both the importing and exporting country, of the significance of political proximity on bilateral trade flows. In particular, our research constitutes, to the best of our knowledge, the first attempt to include purely ideological differences into the analysis. Moreover, we use two innovative measures to evaluate political distance. Finally, we use for our estimations a very large sample that includes almost every country from 1948 to 2006.

3 Theoretical Foundations of the empirical investigation

It can be argued that the weight of political factors is so reduced that it should not be included in economic analysis. Additionally, it is not clear what should be included in a definition of political proximity relevant for the interests of the present writing. To examine these two interrogations we use what has become the workhorse of empirical international economy: the gravity equation.
Despite its success empirically explaining bilateral trade flows, one long-addressed criticism to the use of the gravity equation in economics was the lack of economic theory to support it. This, however, has changed with a number of recent and not-so-recent developments. Several authors, among which Bergstrand (1985) seems to be the first, have derived the gravity equation from a framework close to the Dixit-Stiglitz-Krugman model of trade. Anderson (1979) derived the gravity equation in a framework where each country is the only provider of a particular good and consumers have CES preferences while Helpman, Melitz, and Rubinstein (2008) developed a model of heterogeneous firms that yields gravity. Some authors point out that the gravity equation evolved from having no theoretical foundations to having too many [Baldwin and Taglione (2006)].

These theoretical developments led to the detection of some inconsistencies in the way the gravity equation was being estimated. As aforementioned, Anderson and van Wincoop (2003) pointed out perhaps the mistake that has the gravest consequences for the consistency of estimations. The authors showed that the theoretical foundation of the gravity equation provided the analytical form of the gravitational constant (the gravitational un-constant in Baldwin and Taglione (2006) terms). Ignoring the correct form of the gravitational constant will lead to an omitted variable bias.

If the degree of competition and characteristics of the home country and the accessibility of the home country's market by the foreign country (e.g., Anderson and van Wincoop (2003) multilateral resistance terms) are not included in some way into the estimation of the gravity equation, they will be in the residual of the estimation. This causes what has been referred to by Baldwin and Taglione (2006) as the "the gold medal of classic gravity model mistakes."

To avoid this mistake, we include in our estimations year fixed effects to capture the "gravitational un-constant." We also estimate the gravitational model including country-pair time invariant fixed effects. However, as explained in Baldwin and Taglione (2006) this will remove only a share of the gold medal mistake bias as we are working with panel data. A possible solution would be to include time variant country specific fixed effects. However, due to great number of countries and years included in our sample the number of dummies that should be included in the estimation cannot be handled by common econometric software and would require particularly powerful hardware. Instead, we use the "Tetrads" method as developed in Head, Mayer, and Ries (2010) to capture all of the exporter and importer country time variant attributes as well as the multilateral resistance variables.

The Tetrads method uses the multiplicative form of the "theoretical" gravity equation to cancel time variant country specific attributes by taking the ratio of ratios. To see this we denote $M_{i,t}$ all the observed and unobserved characteristics of a particular country i in period t that affect bilateral trade flows. In our case the observed characteristics include the population, N_i, and y_i, the per capita income of country i. Similarly we denote $\delta_{i,j,t}$ all the characteristics of a given pair of countries [2]. The theoretical gravity equations in its most simple form estates:

$$X_{i,j,t} = G_t M_{it} M_{jt} \delta_{i,j,t} \tag{1}$$

The second step involves defining the gravity equation for a reference importer k:

$$X_{i,k,t} = G_t M_{it} M_{kt} \delta_{i,k,t} \tag{2}$$

[2]Head, Mayer, and Ries (2010) refer to $M_{i,t}$ and $\delta_{i,j,t}$ as monadic and dyadic terms respectevely.

Dividing the trade flow from country i to country j by the trade flow from country i to the reference importer j, we obtain:

$$\frac{X_{i,j,t}}{X_{i,k,t}} = \frac{M_{jt}\delta_{i,j,t}}{M_{kt}\delta_{i,k,t}} \tag{3}$$

We still have however in equation three the characteristics of country j and of the reference exporter k. In order to supress all individual country characteristics from our version of the gravity equation, we define a reference exporter l. Next we divide the trade flow from the referee exporter to country j by the trade flow from the reference exporter to the reference importer:

$$\frac{X_{l,j,t}}{X_{l,k,t}} = \frac{M_{jt}\delta_{l,j,t}}{M_{kt}\delta_{l,k,t}} \tag{4}$$

The next step consits of taking the ratio of ratios, to obtain a gravity equation free from individual coutry characteristics:

$$r_{i,j,l,k,t} = \frac{M_{jt}\delta_{i,j,t} \backslash M_{kt}\delta_{i,k,t}}{M_{jt}\delta_{i,j,t} \backslash M_{kt}\delta_{i,k,t}} = \frac{\delta_{i,j,t}}{\delta_{i,k,t}} \frac{\delta_{l,k,t}}{\delta_{l,j,t}} \tag{5}$$

Linearizing equation five we obtain:

$$\ln r_{i,j,l,k,t} = \ln \delta_{i,j,t} + \ln \delta_{i,k,t} - \ln \delta_{l,k,t} - \ln \delta_{l,j,t} \tag{6}$$

We suppose that $\delta_{i,j}$ is formed by a linear combination of observed ($D_{i,j}$) and unobserved ($u_{i,j}$) characteristics linking a given pair of countries. We have therefore:

$$\ln r_{i,j,l,k,t} = aD_{i,j,l,k,t} + u_{i,j,l,k,t} \tag{7}$$

Where:

$$D_{i,j,lk,t} = D_{i,j,t} + D_{i,k,t} - D_{l,k,t} - D_{l,j,t} \text{ and } u_{i,j,l,k,t} = u_{i,j,t} + u_{i,k,t} - u_{l,k,t} - u_{l,j,t} \tag{8}$$

Equation 8 presents some clear estimation isssues. First, $u_{i,k,t}$, $u_{lk,t}$ and $u_{l,j,t}$ appear repeteadly across observations. $u_{lk,t}$ is present in all observation and can be taken into account by year

dummys. Secondly, the repeated presence of these three differente unobserved terms requires the use of a three way non nested clustering. In order to do this the method of Cameron, Gelbach, and Miller (2011) is implemented. Finally, the presence of $u_{i,j,t}$ is controlled by dyadic fixed effects.

Santos Silva and Tenreyro (2006) and Westerlund and Wilhelmsson (2009) highlight an additional problem that arises when the sample used to estimate the gravity equation includes a great number of bilateral trade zeroes. This problem is evidently the case in our sample, which includes almost every country for the 1948-2006 period. Estimating the gravity equation using ordinary least squares to estimate the log-linearized gravity equation implies dropping all the pairs with zero trade flows. Dropping zeroes can have important consequences in the estimation, as zero trade observations are more likely to occur between small and distant countries. To address this problem, we follow two different strategies. First, we proceed to cleaning trade bilateral flows data, which in our case comes from the IMF's Direction of Trade Statistics (DOTS) database, from inaccurate observations. DOTS states that trade flows in the database are recorded with an accuracy of up to 10,000 dollars [Head, Mayer, and Ries (2010)]. Accordingly, we set trade flows below 5,000 dollars to zero and trade flows between 5,000 and 9,999 dollars to 10,000. Secondly, we estimate the gravity model using a Tobit estimator. It should be noted, however, that the Tobit model assumes log-normality and homoscedasticity. Additionally, results of Tobit estimations have been shown to be very sensitive to the data cleansing method used and to the choice of the left censor value [Head, Mayer, and Ries (2010)]. Furthermore, Santos Silva and Tenreyro (2006) highlight that there are no reasons to believe that the inconsistencies of the Tobit estimations are negligible. For this reason we also perform, as recommended in Westerlund and Wilhelmsson (2009) and Santos Silva and Tenreyro (2006), estimations of the gravity model using the Poisson pseudo-maximum-likelihood (PPML) estimator. PPML has been shown to be more performant in an important number of cases. Additionally, Santos Silva and Tenreyro (2006) point out that the log-linearization, traditionally performed in the gravity-like literature, assumes that the error term $\eta_{H,F}$ is statistically independent from the regressors. However, the assumption of homoscedasticity is often violated by the data samples used to estimate the gravity equation. The PPML has been shown to be more performant in the presence

of heteroskedasticity as compared to OLS and Tobit. The results of our estimations using PPML are at odds with the results of all other estimation methods used in this paper. We present them nonetheless in an appendix of the present paper.

4 What is political proximity?

So far, we have discussed the theoretical foundations of the gravity equation that we will use to empirically test the linkages between both variables. However, it is still not clear what available international measures would correctly describe governments' political stances. Moreover, the traditional right-wing/left-wing dichotomy does not seem to be capable alone to describe in a comprehensive manner an individual's political opinions. For example, Euroskepticism is a common trait of many far-left and far-right political parties in Europe. Similarly, as argued in Danso, Maio, Esses, Ashton, Bond, and Keung (2005), the Pope's views on abortion or same-sex marriage can be classified as ideas characteristic of the Right, whereas his opposition to the death penalty or some of his views on capitalism can be seen as left-wing ideas. Indeed, political scientists have long debated how the political position of a person or government should be described. It is needless to say that the purpose of the present writing is not to enter into the debate. Hans Eysenck, however, provides us with a clear definition of the political spectrum [Eysenck (1998)] that has proven to be remarkably robust. Eysenck (1957) asked a group of individuals to rate a large number of political statements and then, using the factor analysis method[3], found which traits were determinant in the definition of individuals' political opinions. The British psychologist noticed that the stance of individuals on two matters was a remarkable predictor of individuals' beliefs and political opinions. The first of these two matters was dubbed "Radicalism" by Eysenck and corresponds to a person's location on the right/left scale. Liberal economic policies, anti-immigration measures and ethics defined as religious morality situate an individual in the right portion of the left-wing/right-wing axis. On the contrary, income redistribution, the nationalization of production means and secularism would place and individual on the left part of this axis.

[3]Factor analysis is a statistical technique used to find the smallest combination of variables that is able to explain the variation of the remaining variables. The variables able to explain such variation are called factors.

The second factor indentified by the author corresponds to the individual's stance on the authoritarianism/libertarianism scale. Authoritarianism is associated in Eysenck's depiction of the political spectrum with anti-abortion opinions, militarism and severe punishments for criminals. Libertarianism is described on the contrary by pacifism and racial equality, among other traits. Figure 1 summarizes Eysencks's representation of the political spectrum. In the present paper,

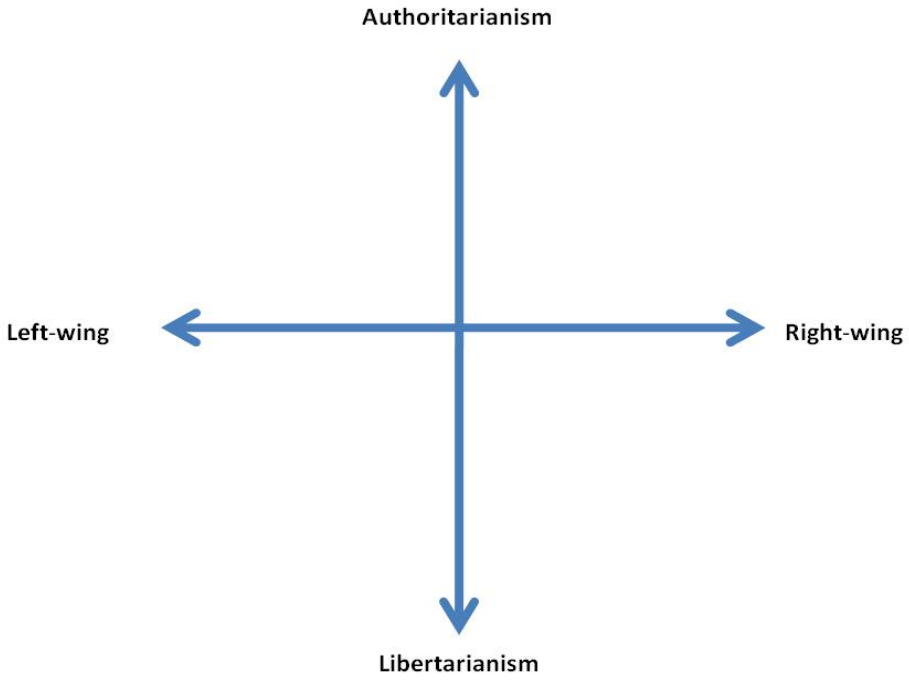

Figure 1: Eysenck's Political Spectrum

we have chosen to follow Eysenck's representation of the political spectrum as its importance has been thoroughly confirmed. A number of reasons support this. First, other researchers have conducted a similar analysis to the one performed be Eysenck and have reached similar conclusions. In particular, Ferguson (1949) performed at almost the same time a very similar examination by asking 1252 Americans to state their opinion on a broad range of matters and conducted a factor analysis with the collected information. The American author also found that two variables

were particular relevant. The variables indentified by Ferguson are roughly the same as found by Eysenck. Furthermore, Danso, Maio, Esses, Ashton, Bond, and Keung (2005) reconducted the same investigation more than 50 years later and concluded that "the political attitude factors that were obtained [in this study] show a remarkable similarity to the dimensions decades ago by Eysenck." Finally, Eysenck's representation of the political spectrum has proven to be relevant to describe individuals' behavior in a significant number of countries (e.g., England, France, Germany, United States). [Eysenck (1953) Sidanius, Ekehammar, and Ross (1979) and Dator (1969)]. In short, we have decided to follow in the present paper Eysenck's political spectrum, as it has proven to be robust to both time and geographical changes.

5 Similarity of interests

The first measure we use to test the linkages between political proximity and bilateral trade flows is the correlation of UN roll-call votes. Several authors have used UN vote correlation to describe the compatibility of political interests between states [Oatley and Yackee (2004), Gartzke (2000), Gartzke (1998), Kilby (2009)]. We posit that this measure encompasses the two dimensions identified by Eysenck. There are reasons to maintain that the voting pattern of a State Member in the General Assembly is a good measure of its locus on Eysenck's political spectrum representation. First of all, it is important to note that the decisions adopted by the General Assembly, besides those related to the approval of budgetary matters, are not binding. As a result, Member States may use them to express their governments' opinions on a large spectrum of matters. Furthermore, as aforementioned, the two relevant factors that enter into Eysenck's representation of the political spectrum are a good predictor of an individual's opinions and beliefs. Thus the UN vote correlation can be seen as the simultaneous expression of government's locus on both axes of Eysenck's political spectrum.

The data of the United Nations General assembly voting correlation is taken from "The Affinity of Nations" database constructed by Erick Gartzke using official United Nations vote records. In fact, the majority of resolutions of the General Assembly are adopted by consensus. However, when

countries do not reach a consensus, a vote takes place. Results can be recorded in two different ways. If a Member State requests a recorded vote the position of each country is registered. If no country requests a recorded vote, only the number of countries that abstained or voted in favor or against a resolution is registered. Only the first sort of vote recording can be used to compute the correlation of votes. Additionally, it must be noted that recorded votes take place only in the most contentious issues. The correlation of votes may then offer a good measure of political distance between UN members. Finally, it is worth mentioning that Gartzke's data covers an extensive period starting in 1948 and ending in 2006 [4].

To evaluate the impact of political proximity defined in this way, we add to the simplest stochastic version of the gravity equation presented above the trade costs determinants usually included in recent publications and, naturally, the UN General Assembly vote correlation. Our version of the gravity equation has then the following form:

$$\ln(X_{H,F}) = \beta + \alpha_1 \ln(N_H) + \alpha_2 \ln(y_H) + \alpha_3 \ln(N_F) + \alpha_4 \ln(y_F) + \ln(D_{H,F}) + \varepsilon \tag{9}$$

where $X_{H,F}$ are the nominal imports of F from H, β is a constant, N_H the population of H, y_H the per capita income in H, N_F the population of F, y_F the per capita income in F and $D_{H,F}$ the trade cost terms. We include in the trade term costs several factors that have been showed to affect the trade costs between two countries. Accordingly, we set:

$$\begin{aligned} D_{H,F} = \alpha_5 * dist_{H,F} + \alpha_6 * border + \alpha_7 * comlang + \alpha_8 * \mathrm{col}_{H,F} + \alpha_9 * RTA \\ + \alpha_{10} * WTO + \alpha_{11} * comcur + \alpha_{12} * acpEU_H + \alpha_{14} UNVC_{H,F} \end{aligned} \tag{10}$$

where $dist_{H,F}$ is the geographical weighted distance in km between H and F, comlang is a dummy variable that indicates that both countries share the same official language, $\mathrm{col}_{H,F}$ a dummy variable equal to one if H and F were ever tied by a colonial relationship, RTA a dummy variable that indicates the existence of a regional trade agreement linking the two countries, WTO a dummy

[4] There were no United Nations General Assembly recorded votes on 1964. Missing values were replaced by interpolated data.

that signifies that both countries are members of the WTO, *comcur* a dummy for common currency and $acpEU_{H,F}$ a dummy variable equal to one if H benefits from the trade preferences granted by the EU to ACP countries trough the Cotonou Agreement. $UNVC_{H,F}$ is the correlation of United Nations General Assembly votes between H and F.

As mentioned in the previous section, we estimate the gravity equation with a number of different methods. Table 1 presents the results of these estimations. The first column, Year FE, corresponds to the results of the estimation using the Ordinary Least Squares method with fixed effects for each year. Standard errors are robust to heteroskedasticity and to correlations within dyads. The specification presented in the second column, Dyad FE, is similar to the first one, but we add to

Table 1: Gravity Regression Results

	(1)	(2)	(3)	(4)	(5)
Model	YearFE	DyadFE	LagExport	Tobit	Tetrad
Lagged Exports			0.832***		
			(0.00172)		
Ln Pop., Origin	0.878***	0.0969*	0.149***	0.897***	
	(0.00663)	(0.0527)	(0.00212)	(0.00681)	
Ln per cap. inc., Origin	1.014***	0.560***	0.170***	1.033***	
	(0.00789)	(0.0176)	(0.00234)	(0.00807)	
Ln Pop., Dest.	0.765***	0.888***	0.130***	0.779***	
	(0.00643)	(0.0469)	(0.00187)	(0.00658)	
Ln of per cap. inc., Dest.	0.869***	0.589***	0.146***	0.883***	
	(0.00803)	(0.0162)	(0.00215)	(0.00818)	
Distance in km	-0.947***		-0.158***	-0.968***	
	(0.0152)		(0.00339)	(0.0156)	
Shared Boder	0.551***		0.0802***	0.554***	
	(0.0695)		(0.0126)	(0.0707)	
Shared Official Language	0.501***		0.0765***	0.506***	
	(0.0325)		(0.00613)	(0.0332)	
Former colonial relationship	1.173***		0.173***	1.170***	
	(0.0724)		(0.0123)	(0.0731)	
Regional Trade Agreement	0.896***	0.428***	0.134***	0.881***	0.431***
	(0.0459)	(0.0299)	(0.00860)	(0.0472)	(0.0349)
Both belong to WTO	0.160***	0.129***	0.0101**	0.162***	0.123**
	(0.0208)	(0.0180)	(0.00415)	(0.0213)	(0.0496)
Shared Currency	0.757***	0.474***	0.119***	0.780***	-0.003
	(0.0834)	(0.0812)	(0.0159)	(0.0857)	(0.0567)
EU's ACP	0.351***	-0.312***	0.0196*	0.387***	-0.210**
	(0.0593)	(0.0583)	(0.0114)	(0.0601)	(0.0877)
UNGA vote correlation	0.128**	0.176***	0.0819***	0.131***	0.441***
	(0.0504)	(0.0352)	(0.00965)	(0.0509)	(0.0446)
Constant	-6.033***	-9.411	-1.144***	-6.134***	1.45e-08***
	(0.169)	(34.4188)	(0.0400)	(0.172)	(0.0192)
Observations	429556	429556	380404	429556	408625
R^2	0.625	0.849	0.886		

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

year fixed effects, fixed effects for each dyad. The third column is also similar to the first one, but this time, we add to the regressors one year lagged exports from H to F. There are a number of reasons for including lagged trade flows. First of all, countries that have traded intensively in the past may continue to trade extensively in the present for reasons other than those captured by the variables included in the gravity equation. For example, firms may have had to incur sunk costs to enter a particular market. Additionally, consumers may become accustomed to the products coming from countries that traded heavily in the past with their own country [Martínez-Zarzoso, Felicitas, and Horsewood (2009)]. The fourth column is included to address the problems generated by the great number of zero trade flows in our database, and it shows the results of a Tobit model estimation. As aforementioned, the results of the Tobit estimation have been reported to be particularly sensitive to the choice of the lower bound. For our estimation we chose the smallest trade observation as the lower bound [ln(0.05)]. Finally, the fifth column presents the result of the Tetrads method discussed above with France and the United States used as reference countries. Cameron, Gelbach, and Miller (2011) multiway non nested clustering method is used.

The results of column 1 are in line with those obtained in most estimations of the gravity equation, and all included variables are statistically significant at least at the 5% level. Per capita income of both the origin and destination countries increase trade with an associated coefficient close to 1. As expected, population of both countries increases trade significantly but slightly less than per capita income. Not surprisingly the estimation shows that distance hinders trade ($\alpha_5 = -0.947$). Having a common border, sharing an official language, a currency or having formerly been in a colonial relationship all increase trade. Similarly, trade is higher when a regional trade agreement links two countries, when both countries belong to the WTO and when the exporting country benefits from the Cotonou agreement to enter the European Union market. More importantly, a higher correlation of the UN General Assembly voting is statistically significant at the 5% level and has the expected sign ($\alpha_{14} = 0.128$). The estimation presented in the third column yields similar results, but the obtained coefficients are considerably smaller. It is worthwhile to note that under this specification, ACP trade preferences are only significant at the 10% level. The coefficient

associated with the UN vote correlation is smaller but remains highly statistically significant.

The results of the second specification are similar, with all variables being statistically significant at the 10% level. With the inclusion of dyadic fixed effects, the associated coefficients are smaller than those of the first specification. More notably the coefficient associated with the dummy for benefiting from the Cotonou agreement to enter the EU market remains statistically significant but changes sign. The coefficient associated with UN vote correlation is now significant at the 5% level and is slightly greater ($\alpha_{14} = 0.176$).

The Tobit model yields results that follow very closely those of the first specification. All coefficients are significant at the 5% level and have the same sign as in the first column. The coefficient of UN vote correlation is almost the same as that one of the first specification ($\alpha_{14} = 0.131$). Finally, with the Tetrads method, the coefficient associated with UN vote correlation is remarkably high, 0.441, and significant at the 1% level. Additionally, the coefficients of RTA and WTO dummies remain positive and statistically significant. On the contrary, sharing a currency is no longer statistically significant at the 20% level while trade preferences to ACP countries remains significant but reduce trade.

In summary, in all 5 retained specifications, UN vote correlation is statistically significant at the 5% level and has a positive sign. Furthermore, when using the Tetrads method the coefficient associated with our measure of political proximity is higher than the one associated with common membership to a regional trade agreement. All these results indicate that political proximity fosters trade.

Table 2: Restricted by relative importance Gravity Regression

	(1) RI <0.05	(2) 0.5 <RI <0.10	(3) 0.10 <RI <0.15	(4) 0.15 <RI <0.2	(5) 0.2 <RI <0.6	(6) 0.6 <RI
Ln Pop., Origin	0.0724	0.621***	0.191	0.364	0.792**	1.580***
	(0.0557)	(0.225)	(0.353)	(0.423)	(0.381)	(0.436)
Ln per cap. inc., Origin	0.574***	0.244***	0.260**	0.402***	0.444***	0.177
	(0.0184)	(0.0839)	(0.115)	(0.142)	(0.152)	(0.133)
Ln Pop., Dest.	0.943***	0.240*	0.285	0.595**	0.622***	0.562
	(0.0510)	(0.142)	(0.184)	(0.241)	(0.224)	(0.399)
Ln of per cap. inc., Dest.	0.585***	0.541***	0.508***	0.703***	0.571***	0.574***
	(0.0173)	(0.0505)	(0.0703)	(0.0854)	(0.0713)	(0.120)
Regional Trade Agreement	0.410***	0.330***	0.321***	0.262**	0.372***	1.231***
	(0.0336)	(0.0618)	(0.0741)	(0.129)	(0.0860)	(0.378)
Both belong to WTO	0.132***	0.133**	0.162**	0.0768	0.0792	0.0438
	(0.0189)	(0.0607)	(0.0786)	(0.0874)	(0.0817)	(0.136)
Shared Currency	0.409***	0.310**	0.692***	0.569**	0.207	-0.560
	(0.0909)	(0.146)	(0.221)	(0.231)	(0.145)	(0.450)
UNGA vote correlation	0.152***	0.287***	0.0966	0.234	0.0662	-0.267
	(0.0383)	(0.0926)	(0.108)	(0.180)	(0.106)	(0.171)
Constant	-10.16	-4.317***	-3.549**	-6.475***	-6.696***	-2.852
	(59,207)	(1.312)	(1.569)	(2.262)	(2.031)	(1.939)
Observations	390318	14221	5714	2955	5651	10697
R^2	0.832	0.959	0.972	0.976	0.967	0.874

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

In spite of the encouraging results presented in Table 1, one can wonder how much governments are willing to sacrifice to foster trade with politically similar partners. The example of China is particularly relevant. China's exports and imports from and toward Western countries have increased dramatically over the last two decades while China's government remains politically distant to developed democracies in the West. This trend forces us to ask if countries are ready to let political differences hinder trade flows when the stakes become important. To tackle this question, we use an indicator of how important trade relationship is for the importing country. Accordingly, we utilize the share that exports to the home country represent in the total of the foreign country exports. We dub this variable Relative Importance (RI). We expect that countries in which exports to the foreign country are very important will not restrict their imports originating in the foreign country for political reasons. To verify this hypothesis, we split our data sample in 6 different groups according to the value of the RI variable and we estimate the gravity equation in the obtained subsamples. The specification of the gravity equation used includes year and dyadic fixed-effects and corresponds to the same specification in column 2 of Table 1. The results of the six estimations of the gravity equation conducted in this way are presented in Table 2.

The coefficient associated with the UN General Assembly vote correlation in columns 3, 4, 5 and 6 is not significant at the 20% level. In other words, when the exports of the foreign country to the home country represent more than 10% of the total foreign country exports, then political distance does not affect the home country exports to the foreign country. On the contrary, when the RI variable is less than 10% (columns 1 and 2), the coefficient associated with our variable of political distance is statistically significant at the 1% level and has the expected positive sign. Furthermore, it is worthwhile to note that political distance seems to have a bigger impact when exports of the foreign country to the home country are larger than 5% of the foreign country's total exports. This may be the case because below this level the costs of putting trade barriers in place may be too high compared to the reduced harm inflicted to the trade partner. The results of the estimations then confirm the hypothesis stated above: when the economic costs of restricting trade flows are fairly important for the importing country, political distance as revealed

Table 3: Second stage least squares regression

Ln Pop., Origin	1.019***
	(0.0135)
Ln per cap. inc., Origin	1.155***
	(0.0207)
Ln Pop., Dest.	0.891***
	(0.0134)
Ln of per cap. inc., Dest.	0.960***
	(0.0172)
Distance in km	-1.055***
	(0.0190)
Shared Boder	0.701***
	(0.0832)
Shared Official Language	0.587***
	(0.0420)
Former colonial relationship	1.167***
	(0.0910)
Regional Trade Agreement	0.369***
	(0.0717)
Both belong to WTO	0.184***
	(0.0246)
Shared Currency	0.516***
	(0.129)
EU's ACP	0.682***
	(0.0885)
UNGA vote correlation	2.052***
	(0.497)
Constant	-11.97***
	(0.794)
Observations	232651
R^2	0.639
First-stage F	448.19

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

by the correlation of votes in the UN General Assembly does not affect trade flows. Finally, one could still argue that the results presented exhibit endogeneity problems. In particular, there may be a problem of reverse causality. Countries may trade more not only because they are politically similar but they may also be more politically similar because they trade more. To examine this possibility we estimate a two-stage least squares regression. Our instrumental variable is constructed using the Cingranelli-Richards Human Rights Dataset. In particular, we use the Physical Integrity Rights Index that is constructed by adding up country scores in four matters: torture, extrajudicial killing, political imprisonment and disappearance. Each country receives a note that ranges from 0 to 2 in each one of these matters. Countries with the highest scores are those where human rights are better respected. We choose a measure of the respect of human rights because this constitutes perhaps the most contentious issue in the United Nations. For this reason, most votes take place on resolutions directly or indirectly related to human rights. It is evident that countries with similar profiles concerning the respect of human rights will vote similarly on these issues. On the contrary, there are no reasons to believe that human rights respect is correlated with the exports of a country. China's Physical Integrity Rights Index, for example, decreased from 2 in 1990 to 0 in 2005 while its exports exploded during the same period. As we are concerned with political distance between two countries, we cannot simply use the Physical Integrity Rights Index as our instrument. For this reason, we take the absolute value of the difference between the indexes of two countries as our instrument.

Table 3 presents the results from the second stage regression and the F statistic of the first stage regression. The F value of the first stage regression [5], 448.19, is considerably larger than the usual rule-of-thumb value of 10. Results remain similar to those of column 1 of table 1. All included variables are significant at the 1% level. More importantly, the coefficient associated with the UN vote correlation is also statistically significant at the 1% level and increases considerably ($\alpha_{14} = 2.052$) instead of decreasing.

[5] The F-value presented here corresponds to the F-value of the UNGA vote correlation regressed on the instrument alone.

However, one may argue that China is an outlier and thus the instrument may be unnappropiate. We present therefore, in appendix E, the results of tests for weak identification (AP Chi-square and Kleibergen-Paap LM statistic) and for under identification (AP F statistic, Cragg-Donald Wald F statistic and Kleibergen-Paap F statistic) of the first stage regression. We also present weak and under identification tests for the second stage. In all the cases where a p-value can be derived the null hypothesis is rejected at the 1 percent level. For the weak identification tests the values are always largely above Stock and Yogo's critical values. We also perfomed a two-stage regression using the tetrad method. The results are presented in appendix K. The results show that the coefficient associated to the UNGA variable has the expected positive sing. However its P-value is of 0.158.

Finally, additionnal robustness test are performed. These indicate that the results are robust to a change in benchmark countries [6], to the inclusion/exclusion of geographical variables [7] and to division of the sample by into developping and developped countries [8].

In the light of all of the above, we believe that there are enough reasons to advance that political proximity as revealed by the correlation of votes between states in the General Assembly of the United Nations increases trade as the results of our empirical examination are robust to a great deal of different econometric specifications. However, the effect of political proximity vanishes when the stakes for the trading partners become fairly important. Finally, the link between trade and political distance is robust to an eventual endogeneity problem triggered by reverse causality.

6 Authoritarianism/libertarianism axis

In the previous section, we examined the impact of political proximity on trade using a measure that is likely to reflect a country's position both on the left/right and authoritarianism/libertarianism axes. We now turn to the study of the impact of a country's position in only one of the two axes.

[6] See appendix G
[7] see appendix F
[8] see appendix I

To do this, we use a measure that we believe reveals countries' locations only on the authoritarianism/libertarianism axis.

Our measure is built using data of the Polity IV project undertaken by the Center for Systemic Peace and George Mason University. The project codes the characteristics of countries' political regimes. In this paper, we use the Polity IV score that proposes a quantitative measure that classifies the form of government from fully institutionalized autocracies, through mixed, or incoherent, authority regimes to fully institutionalized democracies. The score is constructed by subtracting two subscores. The first of these two subscores notes countries' democratic characteristics. Those countries that present all the characteristics of a fully institutionalized democracy obtain a score of 10, whereas countries that do not have any democratic characteristics obtain a note of 0. The characteristics defined as democratic for the purposes of the project relate to the existence of institutions through which citizens can choose their representatives, the existence of constraints on use of executive power and the respect of civil liberties [9]. The second subscore examines if countries present the characteristics of an autocratic regime. In particular, according to the Polity IV project definition, autocracies have political chiefs that are chosen among the elite and have few constraints on exertion of power. A regime that presents all the characteristics of a fully institutionalized autocracy receives a score of 11 while a regime presenting none receives a score of 0. As a consequence, the Polity IV score ranges from 0 to 10, for fully institutionalized democracies, and to -11 for fully institutionalized autocracies.

Two important features of the Polity IV score are worthy of note. First of all, a country can at the same time present democratic and autocratic traits. Secondly, the authors of the Polity IV project have deliberately decided to set aside all characteristics pertaining to the right/left scale [Marshall and Jaggers (2009)]. The Polity IV score is therefore the ideal measure of a country's locus on the authoritarianism-liberalism axis.

As we are concerned with the distance between two countries in a one-dimensional space, the authoritarianism/liberalism axis, our measure of the distance is naturally given by the absolute value of the difference between two countries' Polity IV scores. The gravity equation we use to evaluate

[9] A detailed list of the characteristics retained by the Polity IV project and their respective weights can be found in appendix A

the impact the distance between countries on the authoritarianism/libertarianism axis is naturally identical to the equation specified in the previous section, but now $D_{H,F}$ is given by:

$$D_{H,F} = \alpha_5 * dist_{H,F} + \alpha_6 * border + \alpha_7 * comlang + \alpha_8 * \text{col}_{H,F} + \alpha_9 * RTA$$
$$+ \alpha_{10} * WTO + \alpha_{11} * comcur + \alpha_{12} * acpEU_H + \alpha_{14} PD_{H,F} \quad (11)$$

where $PD_{H,F}$ denotes the distance separating the H country from the F country in the authoritarianism/libertarianism axis.

Table 4: Gravity Regression Results

	(1) YearFE	(2) DyadFE	(3) LagExport	(4) Tobit	(5) Tetrad
L.lflow			0.842***		
			(0.00163)		
Ln Pop., Origin	0.920***	0.308***	0.146***	0.934***	
	(0.00758)	(0.0509)	(0.00213)	(0.00772)	
Ln per cap. inc., Origin	1.056***	0.701***	0.163***	1.071***	
	(0.00758)	(0.0176)	(0.00222)	(0.00773)	
Ln Pop., Dest.	0.818***	0.976***	0.130***	0.829***	
	(0.00764)	(0.0451)	(0.00197)	(0.00776)	
Ln of per cap. inc., Dest.	0.894***	0.670***	0.139***	0.905***	
	(0.00786)	(0.0161)	(0.00204)	(0.00797)	
Ln of dist. in km	-0.905***	-0.148	-0.141***	-0.919***	
	(0.0157)	(8,022)	(0.00321)	(0.0159)	
Shared Boder	0.663***		0.0983***	0.671***	
	(0.0719)		(0.0120)	(0.0732)	
Shared Official Language	0.459***		0.0624***	0.463***	
	(0.0346)		(0.00607)	(0.0353)	
Former colonial relationship	0.973***		0.132***	0.969***	
	(0.0755)		(0.0119)	(0.0762)	
Regional Trade Agreement	0.681***	0.421***	0.103***	0.663***	0.445***
	(0.0415)	(0.0269)	(0.00744)	(0.0422)	(0.03485)
Both belong to WTO	0.105***	0.177***	-0.00660*	0.107***	0.1971***
	(0.0210)	(0.0175)	(0.00399)	(0.0214)	(0.04805)
Shared Currency	0.641***	0.422***	0.0838***	0.648***	0.0308
	(0.0877)	(0.0726)	(0.0160)	(0.0902)	(0.52)
EU's ACP	0.291***	-0.463***	-0.00764	0.310***	-0.4931***
	(0.0643)	(0.0582)	(0.0118)	(0.0650)	(0.08642)
Political Distance	-0.00819***	-0.000936	-0.00172***	-0.00787***	0.0053***
	(0.00138)	(0.00116)	(0.000266)	(0.00140)	(0.00152)
Constant	-6.678***	-9.562	-1.097***	-11.19***	2.44e-08
	(0.158)	(84974)	(0.0358)	(0.178)	(0.01020)
Observations	445558	445558	404218	445558	425965
R^2	0.641	0.850	0.897		

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

in the previous section. Table 3 summarizes the main results of all five retained specifications. Accordingly, column 1 presents the results of the ordinary least squares estimation with year fixed effects while the second column specification also includes dyadic fixed effects. The third column summarizes the results of the specification that includes the one period lagged exports and the fourth column the results of the Tobit model with the same lower bound of ln(0.05). Finally, the fifth column presents the result yield by the Tetrads method.

Results of the estimation of the first model are once again in line with the most common findings in the gravity equation literature. All variables included are statistically significant at the 1% level and all coefficients have the expected signs. Accordingly, the size of the population and the per capita income of both the origin and destination country increase trade while distance reduces it. Sharing an official language, a border or a currency also increase trade. Similarly, trades increases when both countries belong to the WTO, are linked by a regional trade agreement, were formerly linked by a colonial relationship or the origin country benefits from the Cotonou Agreement. As expected, geographical distance hinders trade with a coefficient close to -1. More importantly, distance on the authoritarianism/libertarianism axis as revealed by the measure we constructed is a statistically significant variable at the 1% level that reduces exports ($\alpha_{14} = -0.00819$). The Tobit model yields very similar results with all variables being significant at the same level and their associated coefficients having similar magnitudes. Similarly, the political distance variable is statistically significant at the 1% level, but its associated coefficient is slightly smaller ($\alpha_{14} = -0.00787$).

The specification summarized in column 3 yields similar results to the year fixed-effects and Tobit models but with smaller coefficients associated with all variables. However, benefiting from the Cotonou Agreement to enter the European market is no longer a statistically significant variable at the 10% level, and it also flips sign, becoming negative. The coefficient associated with our political distance variable continues to be negative and significant at the 1% level. The dyadic fixed effects specification displays similar results with a negative coefficient associated with trade preferences to ACP countries but, contrary to results from the lagged exports specification, the variable is significant at the 1% level. In the same way, the Tetrads method results are similar to these two

Table 5: Second Stage least squares regression

Ln Pop., Origin	0.911***
	(0.00905)
Ln per cap. inc., Origin	1.065***
	(0.00822)
Ln Pop., Dest.	0.818***
	(0.00905)
Ln of per cap. inc., Dest.	0.887***
	(0.00850)
Ln of dist. in km	-0.889***
	(0.0175)
Shared Boder	0.533***
	(0.0782)
Shared Official Language	0.464***
	(0.0457)
Former colonial relationship	0.959***
	(0.0983)
Regional Trade Agreement	0.206***
	(0.0449)
Both belong to WTO	0.0233
	(0.0278)
Shared Currency	0.501***
	(0.0835)
EU's ACP	0.359***
	(0.0716)
Political Distance	-0.0552***
	(0.00632)
Constant	-8.035***
	(0.181)
Observations	101336
R^2	0.723
First-stage F	2025.16

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

specifications, with the dummy for ACP trade preferences being statistically significant and having a negative coefficient.

It is important to note that in the dyadic effects specification the coefficient associated with the political distance variable has the expected negative sign ($\alpha_{14} = -0.000936$), but the variable is not statistically significant at the 10% level. In the same way, the Tetrads method also yields results in contradiction with the other four specifications, as the political distance variable is statistically significant but the coefficient associated with it is positive[10] Additionally, we also segmented our database in 8 subsamples according to the value of the RI variable. The results show that distance in the authoritarianism/libertarianism axis is statistically significant in seven out of eight subsamples. The eight estimations of the gravity equation undertaken in this fashion are presented in appendix J.

In summary, the results of the performed estimations of the gravity equation seem to indicate that the distance separating two countries' loci on the authoritarianism/libertarianism axis negatively affects trade flows. However, to rule out the existence of an eventual endogeneity problem triggered by reverse causality that may bias the estimations, we perform, as we did in the previous section, a two-stage least squares regression. Following Yu (2010), we use the infant mortality rate collected by the World Bank as the instrumental variable for this purpose. [11]. The link between democracy and infant mortality has been examined by a significant number of authors. Zweifel and Navia (2000) studied 138 countries between 1950 and 1990 and showed that, at the same level of development and controlling for a great number of variables, the degree of democracy in a country has a positive impact on infant mortality. Franco, Alvarez-Dardet, and Ruiz (2004), Zweifel and Navia (2000) and Lake and Baum (2001) all find similar results.

Once again, as we are concerned with distance, we take the absolute value of the difference of infant mortality rates between two countries. Table 4 presents the results of the second-stage regression and the F statistic of the first-stage regression[12]. The value of the F statistic is many times larger

[10]The results yield by the Poisson pseudo-maximum likelihood estimator are similar to those obtained using the Tetrads method. Results from the estimation are presented in appendix B

[11]The data was taken from the 2006 World Development indicators CD-ROM published by the World Bank

[12]The F-value presented here corresponds to the F-value of the UNGA vote correlation regressed on the instrument alone.

than the rule-of-thumb value of 10. The results of the second stage regression are very similar to those of year fixed effects and Tobit specifications, both in statistical significance and in the magnitude of coefficients. More importantly, our variable of political distance has the expected negative sign ($\alpha_{14} = -0.0552$) and is statically significant at the 1% level.

It seems clear that evidence in favor of the impact of the distance separating countries on the authoritarianism/libertarianism axis is not as unequivocal as it is for the correlation of votes in the General Assembly of the United Nations. Our conclusion must indeed be tinged in the light of the results yielded by the dyadic fixed effects specification and the Tetrads method. However, evidence in favor of the hypothesis nonetheless indicates that a negative relation between distance on this axis and bilateral trade flows exists.

7 Right/left axis

We have examined the impact of political proximity on international trade using an overall measure of political proximity and a measure of countries' positions on the authoritarianism/libertarianism axis. We are left then with the impact of distance between countries on the right/left axis. However, information on countries' loci on this axis is not readily available on a worldwide basis. For this reason, we have to restrict our sample both on its geographic and temporal coverage. In this section, we use the data provided by The Manifesto Project, which offers a sample that covers 596 elections in 55 countries during the period beginning in 1948 and ending in 2002. The Manifesto project offers a quantitative measure of the Right-left position of most of the political parties as given in Laver (2002).

For the purpose of this paper, we compute the weighted average of the right-left position of each country. The weights correspond to the percentage of votes obtained by each party in each election. Then, as in the previous section, we take as a measure of the distance between countries on right/left axis the absolute value of the difference of the computed means. As a last step, we standardize the right-left distance measure in order to facilitate the interpretation of the results. Additionally, the

gravity equation we use in this section is similar to that one of previous sections but $D_{H,F}$ is now given by:

$$D_{H,F} = \alpha_5 * dist_{H,F} + \alpha_6 * border + \alpha_7 * comlang + \alpha_8 * RTA + \alpha_9 * WTO + \alpha_{10} RLD_{H,F} \quad (12)$$

where $RLD_{H,F}$ denotes the distance between the H country and the F country on the right/left axis.

The retained specifications are the same used in previous sections. Table 6 summarizes the main results of all four retained specifications. Accordingly, column 1 presents the results of the ordinary least squares estimation with year fixed effects while the second column specification also includes dyadic fixed effects. The third column summarizes the results of the Tobit model with the same lower bound of ln(0.05) as in the two previous sections. Finally, the fourth column presents the result yield by the Tetrads method.

The results from the four specifications are broadly in line with those of the gravity literature. In the first column, with the exception of the population of destination, all included variables are significant at least at the 10% level. However, the coefficient associated the population of origin and destination is negative. More importantly, the coefficient associated with our measure of the distance separating countries on the right-left axis has the expected sign and is significant at the one percent level. The dyadic fixed effects specification yields similar results. The only unusual coefficient that may be signalled is the one associated with the population of origin. In this specification too the right-left distance has the expected sign and is significant at the one percent level.

We observe similar results in the third column. The coefficients associated with the populations of origin and destination are both negative and the latter is not significant at the ten percent level. Once again the coefficient associated to the right-left distance is negative and significant at the one percent level. Finally, the Tetrads specification yields also a negative right-left distance coefficient significant at the five percent level. The dummy for common currency is however not significant

Table 6: Gravity Regression Results

VARIABLES	(1) YearFE	(2) DyadFE	(3) Tobit	(4) Tetrad
Ln Pop., Origin	-0.233***	-0.0562	-0.224***	
	(0.0345)	(0.172)	(0.0342)	
Ln per cap. inc., Origin	1.15308***	0.66758***	1.13939***	
	(0.0273)	(0.0567)	(0.0268)	
Ln Pop., Dest.	-0.00990	0.450***	-0.0116	
	(0.0345)	(0.162)	(0.0341)	
Ln of per cap. inc., Dest.	0.82790**	0.61076***	0.82578***	
	(0.0263)	(0.0555)	(0.0260)	
Distance in km	-0.949***		-0.942***	
	(0.0345)		(0.0341)	
Shared Boder	0.688***		0.693***	
	(0.125)		(0.123)	
Shared Official Language	0.581***		0.582***	
	(0.117)		(0.116)	
Former colonial relationship	0.605***		0.602***	
	(0.189)		(0.187)	
Regional Trade Agreement	0.189***	0.236***	0.194***	0.39456***
	(0.0529)	(0.0342)	(0.0524)	(0.0461)
Both belong to WTO	0.358***	0.218***	0.353***	0.48220**
	(0.0546)	(0.0431)	(0.0541)	(0.16)
Shared Currency	0.261*	0.216**	0.268*	0.05041
	(0.148)	(0.0842)	(0.147)	(0.0976)
Right-Left distance	-0.0408***	-0.0339***	-0.0380***	-0.02640**
	(0.0148)	(0.00705)	(0.0146)	(0.0112)
Constant	-6.765***	-11.18***	-10.60***	1.225***
	(0.319)	(1.063)	(0.395)	(0.0204)

at the ten percent level.

In summary, the results from the four specifications of the gravity equation retained in this section indicate that the variable we use to reflect distance separating countries on the right/left axis has a negative effect on trade flows.

8 Concluding Remarks

The impact of political differences between countries on international trade has often been excluded by economists both from theoretical and empirical analysis. In this paper, we empirically evaluated the role of political differences on trade flows. As a result and in light of all the findings presented above, we can draw the following conclusions.

First, the results presented here indicate that political distance as revealed by the correlation of roll-cast votes on the General Assembly of the United Nations has an impact on bilateral trade that is robust to a wide range of econometric specifications (including the implementation of an instrumental variable strategy). However, the impact of political differences on trade flows vanishes when the costs of reducing the latter become fairly important.

Secondly, evidence presented in this paper suggests that politics as understood as the distance that separates two countries on the authoritarianism/libertarianism axis likewise has a negative effect on bilateral trade flows. However, the link between trade flows and politics defined in this fashion is not robust to all the econometric specifications tested here.

Finally, the measure used in this paper to reflect the distance separating countries in the right-wing/left-wing political scale has a robust negative impact on trade flows.

Additional research could focus on the determination of the channels through which political distance affects trades. The quantification of the share of the impact that is conveyed by changes in consumers' preferences or by trade policy would allow a better understanding of the links between political distance and bilateral trade flows.

Appendixes

Appendix A: PolityIV coding criteria

Democratic Criteria

Authority Coding	**Scale Weight**
Competitiveness of Executive Recruitment (XRCOMP):	
Election	+2
Transitional	+1
Openness of Executive Recruitment (XROPEN):	
Dual/election	+1
Election	+1
Constraint on Chief Executive (XCONST):	
Executive parity or subordination	+4
Intermediate category	+3
Substantial limitations	+2
Intermediate category	+1
Competitiveness of Political Participation (PARCOMP):	
Competitive	+3
Transitional	+2
Factional	+1

Authocratic Criteria

Authority Coding	**Scale Weight**
Competitiveness of Executive Recruitment (XRCOMP):	
Selection	+2
Openness of Executive Recruitment (XROPEN):	
Closed	+1
Dual/designation	+1
Constraint on Chief Executive (XCONST):	
Unlimited authority	+3
Intermediate category	+2
Slight to moderate limitations	+1
Regulation of participation (PARREG):	
Restricted	+2
Sectarian	+1
Competitiveness of Political Participation (PARCOMP):	
Repressed	+2
Suppressed	+1

Appendix B: Poisson pseudo maximum likelihood

Poisson pseudo-maximum likelihood estimator

	(1)	(2)
VARIABLES	UNGA	PD
Ln Pop., Origin	0.767***	0.817***
	(0.0207)	(0.0204)
Ln per cap. inc., Origin	0.800***	0.823***
	(0.0280)	(0.0225)
Ln Pop., Dest.	0.767***	0.826***
	(0.0223)	(0.0226)
Ln of per cap. inc., Dest.	0.815***	0.861***
	(0.0246)	(0.0253)
Ln of dist. in km	-0.602***	-0.584***
	(0.0302)	(0.0364)
Shared Boder	0.528***	0.503***
	(0.0770)	(0.0926)
Shared Official Language	0.552***	0.479***
	(0.0759)	(0.0863)
Former colonial relationship	-0.0343	-0.0404
	(0.0851)	(0.0961)
Regional Trade Agreement	0.235***	0.245***
	(0.0647)	(0.0741)
Both belong to WTO	0.0946	0.0189
	(0.0698)	(0.0611)
Shared Currency	0.149	0.0711
	(0.104)	(0.0879)
EU's ACP	0.118	-0.0321
	(0.105)	(0.105)
UNGA vote correlation	-0.328***	
Autho.-libert. distance		0.027
		(0.0051)
Constant	-6.437***	-7.488***
	(0.486)	(0.499)
Observations	682683	690535

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Appendix C: Cross-correlation table

Variables	Flow	PID	UNGA
flow	1.000		
PID	-0.033	1.000	
	(0.000)		
UNGA	-0.048	-0.135	1.000
	(0.000)	(0.000)	

Appendix D: Instrument included in the regression Tetrad Method

	(1)
VARIABLES	ln flow
regional trade agreement	0.252***
	(0.0438)
both countries in WTO	0.118
	(0.0744)
common currency	-0.544***
	(0.0833)
ACP to EU	-0.176*
	(0.102)
UNGA vote correlation	0.146***
	(0.0525)
PID	-0.00268
	(0.00433)
Constant	4.39e-09
	(0.0119)
Observations	223,334
R-squared	0.010

Robust Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Appendix E: Weak and under indentification instrument tests

First stage tests

```
First-stage regressions
-----------------------

F test of excluded instruments:
  F(  1, 21566) =   319.88
  Prob > F      =   0.0000
Angrist-Pischke multivariate F test of excluded instruments:
  F(  1, 21566) =   319.88
  Prob > F      =   0.0000


Summary results for first-stage regressions
-------------------------------------------
                                                (Underid)           (Weak id)
Variable     | F(  1, 21566)  P-val | AP Chi-sq(  1) P-val | AP F(  1, 21566)
s3uni        |     319.88    0.0000 |      319.94    0.0000 |      319.88

NB: first-stage test statistics cluster-robust

Stock-Yogo weak ID test critical values for single endogenous regressor:
                                    10% maximal IV size             16.38
                                    15% maximal IV size              8.96
                                    20% maximal IV size              6.66
                                    25% maximal IV size              5.53
Source: Stock-Yogo (2005).  Reproduced by permission.
NB: Critical values are for Cragg-Donald F statistic and i.i.d. errors.

Underidentification test
Ho: matrix of reduced form coefficients has rank=K1-1 (underidentified)
Ha: matrix has rank=K1 (identified)
Kleibergen-Paap rk LM statistic          Chi-sq(1)=307.08   P-val=0.0000

Weak identification test
Ho: equation is weakly identified
Cragg-Donald Wald F statistic                                    2673.78
Kleibergen-Paap Wald rk F statistic                               319.88

Stock-Yogo weak ID test critical values for K1=1 and L1=1:
                                    10% maximal IV size             16.38
                                    15% maximal IV size              8.96
                                    20% maximal IV size              6.66
                                    25% maximal IV size              5.53
Source: Stock-Yogo (2005).  Reproduced by permission.
NB: Critical values are for Cragg-Donald F statistic and i.i.d. errors.

Weak-instrument-robust inference
Tests of joint significance of endogenous regressors B1 in main equation
Ho: B1=0 and orthogonality conditions are valid
Anderson-Rubin Wald test           F(1,21566)=    17.96     P-val=0.0000
Anderson-Rubin Wald test           Chi-sq(1)=     17.96     P-val=0.0000
Stock-Wright LM S statistic        Chi-sq(1)=     17.97     P-val=0.0000

NB: Underidentification, weak identification and weak-identification-robust
    test statistics cluster-robust
```

stage.jpg

Second stage tests

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Second Stage
--------------------

Underidentification test (Kleibergen-Paap rk LM statistic):           307.075
                                                      Chi-sq(1) P-val =    0.0000
------------------------------------------------------------------------------
Weak identification test (Cragg-Donald Wald F statistic):            2673.779
                         (Kleibergen-Paap rk Wald F statistic):       319.877
Stock-Yogo weak ID test critical values: 10% maximal IV size             16.38
                                         15% maximal IV size              8.96
                                         20% maximal IV size              6.66
                                         25% maximal IV size              5.53
Source: Stock-Yogo (2005).  Reproduced by permission.
NB: Critical values are for Cragg-Donald F statistic and i.i.d. errors.
------------------------------------------------------------------------------
Hansen J statistic (overidentification test of all instruments):         0.000
                                                     (equation exactly identified)
------------------------------------------------------------------------------
Instrumented:         s2uni
Included instruments: lpop_o lgdpcap_o lpop_d lgdpcap_d ldistw contig
                      comlang_off col_hist rta wto comcur acp_to_eu yFE34 yFE35
                      yFE36 yFE37 yFE38 yFE39 yFE40 yFE41 yFE42 yFE43 yFE44
                      yFE45 yFE46 yFE47 yFE48 yFE49 yFE50 yFE51 yFE52 yFE53
                      yFE54
Excluded instruments: PID
Dropped collinear:    yFE2 yFE3 yFE4 yFE5 yFE6 yFE7 yFE8 yFE9 yFE10 yFE11 yFE12
                      yFE13 yFE14 yFE15 yFE16 yFE17 yFE18 yFE19 yFE20 yFE21
                      yFE22 yFE23 yFE24 yFE25 yFE26 yFE27 yFE28 yFE29 yFE30
                      yFE31 yFE32 yFE33 yFE55
------------------------------------------------------------------------------
```

stage.jpg

Appendix F: Robustnees check to exclusion/inclusion of variables

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
VARIABLES	lflow	lflow	lflow	lflow	lflow	lflow	lflow	lflow
Ln Pop., Origin	0.780***	0.866***	0.872***	0.866***	0.884***	0.876***	0.871***	0.878***
	(0.00834)	(0.00678)	(0.00674)	(0.00675)	(0.00662)	(0.00658)	(0.00655)	(0.00663)
Ln per cap. inc., Origin	0.964***	1.000***	1.009***	1.012***	1.031***	1.020***	1.004***	1.014***
	(0.00972)	(0.00789)	(0.00786)	(0.00785)	(0.00776)	(0.00772)	(0.00784)	(0.00789)
Ln Pop., Dest.	0.709***	0.763***	0.769***	0.763***	0.779***	0.770***	0.767***	0.765***
	(0.00811)	(0.00661)	(0.00656)	(0.00657)	(0.00647)	(0.00645)	(0.00641)	(0.00643)
Ln of per cap. inc., Dest.	0.844***	0.875***	0.883***	0.886***	0.904***	0.893***	0.877***	0.869***
	(0.00984)	(0.00796)	(0.00790)	(0.00789)	(0.00779)	(0.00775)	(0.00788)	(0.00803)
ln of distance in km		-1.143***	-1.114***	-1.051***	-1.025***	-1.023***	-0.945***	-0.947***
		(0.0142)	(0.0142)	(0.0152)	(0.0148)	(0.0148)	(0.0153)	(0.0152)
common currency			1.171***	1.102***	0.827***	0.847***	0.746***	0.757***
			(0.0863)	(0.0863)	(0.0858)	(0.0858)	(0.0834)	(0.0834)
Shared Boder				0.729***	0.602***	0.560***	0.547***	0.551***
				(0.0681)	(0.0682)	(0.0709)	(0.0697)	(0.0695)
Shared Official Language					0.625***	0.503***	0.499***	0.501***
					(0.0327)	(0.0328)	(0.0325)	(0.0325)
Former colonial relationship						1.198***	1.214***	1.173***
						(0.0746)	(0.0731)	(0.0724)
Regional Trade Agreement							0.883***	0.896***
							(0.0459)	(0.0459)
EU's ACP								0.351***
								(0.0593)
Both belong to WTO	0.161***	0.262***	0.235***	0.231***	0.200***	0.200***	0.170***	0.160***
	(0.0248)	(0.0215)	(0.0213)	(0.0213)	(0.0211)	(0.0210)	(0.0209)	(0.0208)
UNGA vote correlation	0.520***	0.121**	0.122**	0.0874*	0.109**	0.182***	0.0925*	0.128**
	(0.0572)	(0.0533)	(0.0527)	(0.0524)	(0.0507)	(0.0501)	(0.0501)	(0.0504)
Constant	-13.39***	-4.095***	-4.482***	-5.069***	-5.714***	-5.616***	-6.006***	-6.033***
	(0.127)	(0.169)	(0.169)	(0.176)	(0.171)	(0.171)	(0.169)	(0.169)
Observations	429,556	429,556	429,556	429,556	429,556	429,556	429,556	429,556
R-squared	0.515	0.609	0.611	0.612	0.618	0.622	0.625	0.625

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Appendix G: Robustennes to benchmark countries

	(1)	(2)	(3)	(4)	(5)
	RI: MEX	RI: ITA	RI: NZL	RI: JPN	ETH
	RE: FRA	RE: COL	RE: SWE	RE: ARG	USA
VARIABLES	ln flow	ln flow	ln flow	ln flow	ln flow
regional trade agreement	0.288***	0.448***	0.165***	0.538***	0.0813
	(0.0426)	(0.0414)	(0.0406)	(0.0536)	(0.0532)
both countries in WTO	-0.176**	-0.0523	0.230***	-0.206***	0.0741
	(0.0737)	(0.0752)	(0.0757)	(0.0667)	(0.123)
common currency	0.506***	0.515***	0.588***	0.368***	0.103
	(0.0727)	(0.0634)	(0.0946)	(0.129)	(0.0970)
ACP to EU	-0.257	0.279***	0.695***	1.131***	0.147
	(0.177)	(0.0810)	(0.126)	(0.103)	(0.202)
UNGA vote correlation	0.526***	0.292***	0.251***	0.288***	0.279***
	(0.0537)	(0.0674)	(0.0578)	(0.0644)	(0.0529)
Constant	-3.75e-09	5.21e-09	4.19e-10	-1.40e-08	-2.39e-09
	(0.0156)	(0.0171)	(0.0152)	(0.0167)	(0.0202)
Observations	308,781	309,317	332,822	348,962	250,636
R-squared	0.087	0.075	0.060	0.092	0.080

Robust Standard errors in parentheses

RI: Reference Importer, RE: Reference Exporter

*** p<0.01, ** p<0.05, * p<0.1

Appendix I Robustness to income Tetrad Method

	(1)	(2)	(3)	(4)
From	Developing	Developing	Developed	Developed
to	Developing	Developed	Developed	Developing
VARIABLES	ln flow	ln flow	ln flow	ln flow
regional trade agreement	0.150**	0.409***	0.390***	0.407***
	(0.0672)	(0.0465)	(0.0398)	(0.0487)
both countries in WTO	0.129	0.0190	-0.0735	-0.124
	(0.175)	(0.114)	(0.108)	(0.160)
common currency	-0.183	0.0730	0.143**	0.166**
	(0.202)	(0.0938)	(0.0724)	(0.0649)
ACP to EU	0.0812	-0.0784	-0.321***	0.640
	(0.155)	(0.0932)	(0.0987)	(0.482)
UNGA vote correlation	0.272**	0.177***	0.188***	0.189***
	(0.124)	(0.0498)	(0.0404)	(0.0516)
Constant	1.88e-09	1.38e-08	1.61e-08	1.34e-08
	(0.0199)	(0.0109)	(0.00927)	(0.0113)
Observations	30,347	140,880	204,015	116,287
R-squared	0.024	0.036	0.042	0.072

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Appendix J: Authoratirianism-Libertarianism Restricted Gravity Regression

Restricted by relative importance Gravity Regression

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	RI <0.01	0.01 <RI <0.025	0.025 <RI <0.05	0.05 <RI <0.10	0.10 <RI <0.15	0.15 <RI <0.2	0.2 <RI <0.6	0.6 <RI
Ln Pop., Origin	0.0283	0.976***	1.151***	0.993***	0.632*	1.092***	1.256***	-1.732***
	(0.0603)	(0.117)	(0.159)	(0.238)	(0.355)	(0.400)	(0.434)	(0.524)
Ln per cap. inc., Origin	0.676***	0.532***	0.564***	0.422***	0.347***	0.721***	0.485***	0.288*
	(0.0195)	(0.0441)	(0.0722)	(0.0720)	(0.131)	(0.144)	(0.170)	(0.152)
Ln Pop., Dest.	1.029***	0.577***	0.250**	0.202	0.255	0.629***	0.577**	0.829*
	(0.0560)	(0.0925)	(0.111)	(0.131)	(0.185)	(0.234)	(0.239)	(0.435)
Ln of per cap. inc., Dest.	0.662***	0.684***	0.654***	0.542***	0.514***	0.603***	0.643***	0.656***
	(0.0193)	(0.0335)	(0.0394)	(0.0464)	(0.0658)	(0.0893)	(0.0688)	(0.109)
Regional Trade Agreement	0.357***	0.324***	0.203***	0.372***	0.289***	0.183	0.427***	1.377***
	(0.0381)	(0.0487)	(0.0537)	(0.0581)	(0.0832)	(0.120)	(0.0830)	(0.344)
Both belong to WTO	0.179***	0.104***	0.0666	0.187***	0.220***	0.273***	0.168**	0.0341
	(0.0206)	(0.0373)	(0.0436)	(0.0550)	(0.0774)	(0.0925)	(0.0832)	(0.161)
Shared Currency	0.398***	0.174	0.204**	0.297**	0.507***	0.730***	0.259**	-0.703*
	(0.0946)	(0.134)	(0.104)	(0.123)	(0.154)	(0.233)	(0.123)	(0.398)
Political Distance	-0.00715***	-0.00451**	-0.00579*	-0.00145	-0.01017**	-0.00218***	-0.0157**	-0.0152*
	(0.00133)	(0.00230)	(0.00305)	(0.00343)	(0.00519)	(0.00084)	(0.00608)	(0.00899)
Constant	-11.24	-10.33***	-10.94	-6.930***	-4.679**	-11.93***	-10.41***	-4.503**
	(81,506)	(0.758)	(4.876e+06)	(1.293)	(1.988)	(2.092)	(2.966)	(2.185)
Observations	343651	40407	22564	14885	5867	3062	5292	9830
R^2	0.805	0.927	0.950	0.961	0.971	0.976	0.969	0.862

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Appendix K: 2SLS model with tetraded variables

	(1)
VARIABLES	ln flow
UNGA vote correlation	0.638
	(0.452)
regional trade agreement	0.230***
	(0.0347)
both countries in WTO	0.108*
	(0.0551)
common currency	-0.603***
	(0.0845)
ACP to EU	-0.145
	(0.0945)
Constant	-9.76e-09***
	(2.16e-09)
Observations	223,334
R-squared	0.004

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Appendix L: Data Sources

A considerable share of the data has been provided by Professor Thierry Mayer.

Variable	**Source**
Trade flows	International Monetary Fund Direction of Trade Statistics
GDP	World Bank's World Development indicators CD-ROM,
	The Groningen Growth and Development Centre's
	Total Economy Database, Correlates of War
	Katherine Barbieri's 1870-2006 trade dataset
Population	World Bank's World Development indicators CD-ROM
Distance	CEPII distance database
Shared Border	CEPII distance database
Official Language	CEPII distance database
Former Colonial Relationship	Thierry Mayer's Database
Regional Trade Agreements	Baier and Bergstrand (2007)
	and World Trade Organization website
EU's ACP	European Commission website
Shared Currency	Glick and Rose (2002)
UNGA's vote correlation	Erick Gartzke's Affinity of Nations database
PolityIV	Polity IV Project: Political Regime Characteristics and
	Transitions, 1800-2008 database
Political opinions in Latin America	The Latinobarmetro databank
Respect for Human Rights	The Cingranelli-Richards (CIRI) Human Rights Dataset
Infant mortality rate	World Bank's World Development Indicators

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