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Democracy and Trade: Ties of Interest and Community

Introduction

For many countries in world politics, evidence that they are engaged in a peace-promoting system of dynamic, mutually reinforcing relationships is growing. Democracies engage in fewer militarised disputes with each other than they do with autocracies, or than autocracies do with each other. This is true even when the effect of other influences, such as proximity, alliance, relative power, and wealth or economic growth rates are controlled for (Bremer, 1992; Maoz and Russett, 1993b). With similar controls, dense networks of intergovernmental organisations also are associated with reduced conflict among pairs of member states — a relationship of possible mutual causality that may reflect the preferences of states at peace with each other to form international organisations as well as the capacity of organisations to reduce and manage conflict among their members (Russett and Oneal, 1998). Also, with the same controls, international trade appears to reduce conflict (Oneal and Russett, 1997). Economically interdependent states are less likely to engage in militarised disputes or war with each other¹ In the opposite direction, states experiencing militarised conflict are likely to conduct less trade with each other in the years of conflict or immediately thereafter, suggesting the reciprocal structure of a vicious or virtuous circle of causality; i.e., trade promotes peace, and peace promotes trade (Kim, 1997). All this implies that the structure of peaceful international relations associated with the visions of Immanuel Kant, Woodrow Wilson, and the founders of the European Union — of peace built on a tripod of shared democracy, economic interdependence, and international law and organisation — has substance. Other reciprocal relationships among these variables are also possible. In other words, peace, democracy, interdependence, and international organisations support one another both directly and indirectly (Russett, 1998, forthcoming).

Ultimately those relationships for which there is good theory and empirical evidence must be incorporated in a large system of simultaneous equations.

That system, however, must be assembled in stages from single-equation models. In this chapter we propose an additional relationship, hypothesising that shared democratic polity is also positively associated with international trade. Several arguments support such a conjecture. Since entrepreneurs in democratic countries have reason to believe that democracy may promote peace, they may justifiably anticipate less likelihood of interference in their international business from war or threats of war when they are dealing with a democracy than with a non-democracy. They are also likely to be more familiar with and more confident in the business practices and laws in another democracy than in an autocracy, where such capricious acts as expropriations may threaten their interests (Olson, forthcoming). Finally, democratic statesmen may be less concerned that a democratic trading partner will use gains from trade to threaten their security than when the state enters into trade with a non-democracy. They may try to regulate international trade accordingly.

We therefore hypothesise that trade between pairs of states with democratic polities is greater than that between states not sharing such a polity type. We expect this relationship to hold up in the context of customary economic models of international trade patterns, and of our further hypothesis that trade will be positively influenced by ties of common language and similar culture. Moreover, in line with earlier results we also hypothesise that alliances, the absence of militarised disputes, and a generalised openness to trade are also associated with the likelihood of increased trade between any pair of states. Our research here thus relates annual trade between major trading states and other states, and between pairs of states which are contiguous but not major trading states, to measures of democracy, alliance, interstate disputes, openness to trade, and shared language, while controlling for the partners' economic size and the distance separating them. The investigation covers the period between 1962 and 1989. Although this research design cannot distinguish the relative strength of the various hypothesised mechanisms by which joint democracy may promote trade, it is an essential first step in establishing a relationship.

Economics, Politics and Trade

No one doubts that considerations of economics influence international trade. Most simply, the economic size of the trading state is directly related to the type and amount of trade it conducts (Tinbergen, 1962: 262), and of course trade substantially follows patterns of comparative advantage. Nonetheless, economics is not everything. It is impossible to explain the preferential trade within the eastern and western political blocs during the cold war, or probably still-discernible trading preferences within former colonial empires (Brams, 1966), simply by the economic invisible hand of comparative advantage. Political and

cultural hands are all too visible. Yet in large degree previous theory and evidence on the relationship between political characteristics and trade is contradictory and inconclusive.

Richard Cobden (1886: 222) in 1836 stated, 'Besides dictating the disuse of warlike establishments, free trade (for of that beneficent doctrine we are speaking) arms its votaries by its own pacific nature, in that eternal truth — *the more any nation traffics abroad upon free and honest principles, the less it will be in danger of wars*' (emphasis in original). Mercantilists, Marxists, and imperialists, however, have been well aware that foreign trade can be an instrument of national power not always resulting in mutual benefit. Albert Hirschman (1945) conceptualised this phenomenon nicely. With the rapid expansion of foreign trade after World War II the influence of the state on trade flows may well have increased. Deardorff and Stern (1987: 15) assert: 'The case for free trade rests on a model of a world in which there is assumed to be perfect competition, absence of market impediments, and given technology. It is by relaxing some of these idealised assumptions that various cases for trade intervention have been developed'. The influence of government has become widespread and complex. The effect of tariffs has decreased, but has been replaced by myriad and often more subtle non-tariff barriers (Yoffie, 1993: 262). States attempt to control trading patterns on behalf of private interests, and on behalf of perceived state and national interests (Krasner, 1978). They promote trade with states deemed stable and reliable sources, and discourage it, by various barriers, with adversaries and potential enemies. Diaz-Alejandro (1975: 214) nicely summed up the situation some time ago: 'Which markets are allowed to operate and how, which are encouraged and which are repressed — these are political decisions, both nationally and internationally'.

Mansfield's (1994) study of wars from 1855 to 1964 showed clearly that war is strongly and negatively related to international trade. Others have reported similar findings (Polachek, 1980; Gasiorowski and Polachek, 1982; Pollins, 1989a). Liberal thinkers have argued that the absolute gains accruing to each trading partner both increase trade and decrease conflict (Snidal, 1991), but realists maintain that relative gains of one partner may be used perversely to threaten the survival of the other (Grieco, 1988b; Gowa and Mansfield, 1993).

In view of the positive association between peace and trade found by Oneal and Russett (1997), we might expect that trade between democratic partners would be greater than that when one or both partners are not democracies. A democratic trading partner may feel its security less threatened by another democratic state than by an autocracy. Hence it can enter into relationships of economic interdependence for absolute gains without worrying as much about the hazard of relative gains by the other as it would with a non-democratic partner. In Powell's (1991: 1313) terms, 'If the use of force is no longer at issue, then a

state's relative loss will not be turned against the state. Relative gains no longer matter, and co-operation now becomes feasible'.

Some empirical support for this argument already exists in the literature. Dixon and Moon (1993) reported that U.S. exports to 76 countries over an 18-year post-World War II period were greater when the importer was democratic and shared other United States political interests than when it was not. Gowa and Mansfield (1993), in a study of trade among seven major powers at intervals during the twentieth century, found that joint democracy was related to trade in only one of 42 cases. Mansfield and Bronson (1997a) also failed to find an effect for democracy in major powers' trading patterns, though, as they admit, the dichotomous democracy measure they derive from Doyle (1986) is fairly crude. Morrow, Siverson, and Tabares (1996), however, using a different research design, showed that trade was significantly increased between democracies, as well as between states sharing certain alliance characteristics. Institutional arrangements reinforce preferences. The European Union insists that to participate in its system a state must be, and remain, a liberal democracy; Mercosur in South America adopted the same policy in 1996.

Besides democracy, the effect of other aspects of the political system on trade have been investigated. Several analyses (Gowa and Mansfield, 1993; Mansfield and Bronson, 1997a) have found trade to be positively related to alliance ties. Both Gowa and Mansfield and Morrow et al. report that the polarity of alliance systems affects the pattern of trade. Mansfield's (1992) evidence indicates that the concentration of capabilities also is positively related to trade. Not surprisingly, studies (Aitken, 1973; Pollins, 1989b) have found increased trade by members of the European Union or GATT compared to non-members. Mansfield and Busch (1995) related non-tariff barriers created by industrial states (import levies, quotas, authorisation and licensing requirements, export restraints and the like) to domestic factors likely to create demands for protection. These factors included the number of parliamentary constituencies, the unemployment rate, the presence of a proportional representation system, and the real exchange rate. They established a significant and positive relationship between the predictive factors and non-tariff barriers, which were negatively related to tariffs.

Research Design

We now have the basis for investigating the effect of a variety of political, cultural, and economic variables on states' trading patterns. As a check on the robustness of our findings, we analyse two overlapping data sets of 'economically relevant' dyads during the Cold War years. This set of 'economically relevant' dyads gives us a much larger sample than the analyses simply of major

powers' trade that are common in the literature (e.g., Gowa and Mansfield, 1993; Mansfield and Bronson, 1997a; Morrow et al, 1996; Morrow et al. in this volume). Our set, which adds partners of the largest trading states in the system and contiguous states to the major powers, is also bigger than Oneal and Russett's (1997) global analyses of "politically relevant" states (major powers and contiguous states, with an average N of 600 per year). At the same time, it is sufficiently similar to the Oneal and Russett analyses to serve as a plausible extension of that research program.

Data set 1 (analysis reported in Table 2) consists first of 11 of the 14 largest exporting states in 1986, as listed in the IMF Direction of Trade Statistics (DOTS). These 14 countries participated in 71 percent of world exports in that year. Each of the 11 exporters, all of them relatively democratic, was paired with the others, as well as with the 68 other states of various political types on which complete data were available. Because more trade is anticipated between neighbours than between those more widely separated, we added from the group of 68 other states the 79 contiguous dyads (as defined by Maoz and Russett, 1993b) with available data but not already included. States in this data set are listed in Table 1. In 1989, trade of the eleven major exporters among themselves constituted 57 percent of the total trade in this data set, and trade among the 79 contiguous dyads which did not contain major exporters made up 2 percent of the total. The time period 1962-1989 permitted the largest possible data set — 882 dyads for each year — without missing data yet containing the variables we needed to include. The results thus are not distorted by year-to year changes in the 'sample'.

Because of missing data between 1962 and 1972 the remaining 3 of the 14 largest exporting states, the Soviet Union, the People's Republic of China (PRC), and the Republic of Korea (ROK), joined those from data set 1 as major trading partners only from 1973 to 1989. Data set 2 (analysis reported in Table 3) was thus formed to assess the effect of including all the trade of these non-democratic countries. It consisted of most of the dyads in data set 1, plus dyads formed by the USSR, PRC and ROK with each other and with 48 other states which were not major exporters (as noted in Table 1, some states drop out for lack of data on their trade with the new three, and two new ones are added). This data set contains 1042 dyads observed for each of 17 years. For the dyad formed by PRC and ROK, where trade data were unavailable before 1983, and for the United States — PRC dyad before 1972, we assumed missing data meant no trade and coded it as such. Otherwise no data were missing for any variable.

Table 1: States Forming Dyads in Data Sets 1 and 2

	Argentina	+	Guinea		Peru
	Australia	+	Haiti		Philippines
	Austria	+	Honduras		Portugal
*	Belgium (incl. Luxembourg)		Iceland	+	Rumania
	Benin		India	+	Saudi Arabia
+	Bolivia		Indonesia		Senegal
	Brazil	+	Iran	+	Sierra Leone
	Burma	+	Iraq	++	Singapore
	Cameroon		Ireland	+	South Africa
*	Canada		Israel		Spain
+	Chile	*	Italy		Sri Lanka
+++	China		Ivory Coast	*	Sweden
	Colombia		Jamaica	*	Switzerland
+	Congo	*	Japan	+	Syria
	Costa Rica	+++	Korea, Republic of		Tanzania
	Czechoslovakia		Madagascar		Thailand
	Denmark		Malaysia		Trinidad
	Dominican Republic		Mexico	+	Tunisia
	Ecuador		Morocco		Turkey
	Egypt	*	Netherlands	+	Uganda
	Finland		New Zealand	+++	U.S.S.R.
*	France		Nicaragua	*	United Kingdom
+	Gabon	+	Nigeria	*	United States
*	Germany, West		Norway		Uruguay
	Ghana		Pakistan	+	Venezuela
	Greece		Panama		Yugoslavia
	Guatemala	+	Paraguay	++	Zimbabwe

*	major exporting state in both data sets
+	not in data set 2
++	only in data set 2
+++	in both data sets, but as major exporting state only in set 2

Along with many other investigators, we made use of the gravity equation theory, which was set forth by Tinbergen (1962) and recently reviewed by Deardorff (1995), to establish the basic economic influences on trade. With trade as the dependent variable, we included on the right-hand side the gravity equation

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variables (gross domestic product of both partners and the distance separating them) and also several other variables hypothesised to affect trade. As is customary with gravity equations, we used the natural logarithms of the values of all the variables.²

Dependent variable For TRADE we used the logged value of the sum of exports and imports recorded in dots in current dollars for each of the 14 major trading states. In a few cases it was necessary to use partner data which, for exports, was converted into imports by multiplying by 1.1, and, for imports, was converted into exports by dividing by 1.1 according to the DOTS convention (1989). Zero trade was coded as 1. We summed exports and imports for three reasons. First, as noted by Mansfield and Busch (1995), Yoffie (1993) and others, states, for both political and economic reasons, in varying degrees regulate both imports and exports. Second, we wished to include the contribution to trade of both members of the dyad in one equation. Although for individual dyads the quantity of imports and of exports are often quite unequal, for data set 1 the ratio of exports to imports was 0.9. Third, the right-hand variables in the gravity equation are the same for exports and for imports; one country's exports are another's imports.

Independent variables: Democracy Using the Polity III data set of Jagers and Gurr (1995), we subtracted the autocracy score of each state from its democracy score, creating a continuous regime score for each state on a 21-point scale ranging from -10 to +10. If for illustration we take a score of +6 or above as characterising a democracy, 34.3 percent of the dyads in data set 1 showed scores which would be classed as democratic, and with a score of -6 or lower for an autocracy, only 2.8 percent were autocratic pairs. Of the rest, 40.0 percent were democratic-autocratic dyads, and the remainder would be dyads of which one or both members' regime score fell into the middle 'anocratic' range. In data set 2, where the three autocratic major traders were included, the comparable shares were 31.8 percent, 6.8 percent, and 40.2 percent.

In several instances, the Jagers-Gurr data showed unscored notations indicating a transition period or other change in the dyadic relationship. Where this interval was no more than three years in duration, we interpolated assumed scores to fill the gap between the last reported score and the first score after the interval. In the case of Tanzania, where the reported scores were stable, we extrapolated the data backward in time for one year to eliminate missing data.

We then created two measures to characterise the polity of both members of a dyad jointly. One was formed by subtracting the lower regime score from the higher one to reflect the polity gap between the members; i.e., assuming that great differences in polity type would discourage trade (Oneal and Ray, 1997). This measure, called DEMDIFF, has a 21-point scale. Second, we created a variable, DEM_L, again on a 21-point scale, which listed the lower of the two regime scores for the dyad. This was in conformity with the 'weak link' assumption

(Oneal and Russett, 1997) that the degree of democracy of the less democratic partner would most influence the amount of trade. Both measures find some support in theory (we set the lower limit for these measures at 1 by adding 1 and 11, respectively, to all values). In these data sets, however, *DEMDIFF* and *DEM_L* show little difference in practice. They correlate with each other at above .93 in data set 1 and nearly .90 in data set 2. As a result, either measure provides a reasonable evaluation of the effect of political relationships between democracies on their trade with one another as contrasted with the effect of democracy-autocracy relationships on their trade. We did not aim to investigate the effect of autocracy-autocracy political relations on trade within those dyads.³ The choice does not materially affect the regression results, and so for both data sets we report the results for *DEM_L* since we prefer the theoretical implications of its weak link assumption.⁴

LANGUAGE We would expect trade to be facilitated by the ease of communication in a common language, and by cultural similarities for which language may serve in part as a proxy. Thus, if members of a dyad shared a common official language (Barrett, 1982), a value of 1 was shown, otherwise zero. Language was shared between members of 11.8 percent of dyads in data set 1 and 10.2 percent in data set 2.

DISPUTE Although some recent research has evinced good evidence that trade reduces military conflict (Oneal and Russett, 1997), other workers have found that military manifestations of political disputes discourage trade. A pattern of two-way causation is very plausible (Kim, 1997). The effect of conflict on trade may appear at the state level, as governments actively limit, discourage or forbid trade with adversary states. This may vary from the kind of controls imposed on East-West trade during the Cold War, to economic sanctions, full embargoes, and laws against trading with the enemy. In addition, private traders will likely avoid, or at least seek an extra profit margin on, trade which is likely to be interrupted or even physically destroyed by possible military hostilities. Thus we control for dispute by using data for militarised interstate disputes (*MIDS*) provided in 1995 by the Correlates of War project. We created a dichotomous variable which showed 1 if dyad members were engaged in a *MID* of any sort in a particular year and 0 if they were not. Scores of 1 were obtained in 1.5 percent of dyad-years in both data sets.

ALLIANCE Again in common with previous analyses, we anticipated that trade would be more common between states that were militarily allied than, in general, with other other states. So, using the criteria and data of Maoz and Russett (1993b), we assigned to the dyad a value of 1 if an alliance was present and 0 if it was not. We updated this material for the years after 1986, and inserted values for some indirect alliances where data were missing from the study by Maoz and Russett. Of all dyad members, 34.0 percent shared an alliance in data set 1 and 30.1 percent in data set 2.

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OPENNESS We would expect that pairs of states operating generally open economies, not only for economies are small and hardly self-sufficient but from the choice of commitment to the liberal principles of free trade and comparative advantage, would trade more with each other. Thus we calculated an index for openness to all trade by dividing the total world trade (dots) for a dyad member by its gross domestic product (Summers and Heston, 1991, updated as Penn World Table version 5.6a), both in current dollars. As in the case of the democracy variable, for the dyadic analysis we constructed two measures, *OPENDIFF* and *OPEN_L*. Again, regression results showed little difference between them. Because *OPEN_L* employed the theoretically-attractive weak link assumption, and was somewhat more widely dispersed throughout its range, we used it exclusively.

DISTANCE Distance is a key component of the gravity model, and clearly transportation cost (and hence the cost of imports) increases as some function of the distance between importer and exporter. For non-contiguous states we calculated distance between capital cities in nautical miles using an arc-distance formula (Robinson et al., 1984). For three very large states — Canada, the Soviet Union, and the United States — which have direct access to two or more oceans, we also used an alternative city on a distant coast (i.e., Vancouver as well as Ottawa for Canada, Vladivostok as well as Moscow for the Soviet Union, New Orleans and San Francisco as well as Washington for the United States). For dyad members sharing a common land border we used a distance of one mile.

GDP Economic size is an essential component of the gravity model. Gross domestic product data in current dollars, at purchasing power parity, was obtained from the Penn World Table. In gravity models the GDPs of the two trading states are multiplied together; thus we sum their logs.

Theory does not give us strong a priori guidance for a choice between contemporaneous and lagged effects for *DISPUTE* and democracy. Plausibly, *DISPUTE* will reduce trade for some period in the future as well as contemporaneously, on the grounds that states and entrepreneurs will be less likely to risk much trading with states which had recently been hostile. Similarly, it may take some period of time to recognise and respond to a change in regime in a trading partner. Below we estimate our equations with *DISPUTE* and democracy for the contemporary year. For both variables, we also tried estimating the equations with one and two year lags; the results were essentially indistinguishable from those we report here.

We therefore estimate the regression parameters in the equation:

$$\log \text{TRADE}_{ij} = \log a + b_1 \log \text{DEM}_L + b_2 \log \text{LANGUAGE} + b_3 \log \text{DISPUTE} + b_4 \log \text{ALLIANCE} + b_5 \log \text{OPEN}_L + b_6 \log \text{DISTANCE}_{ij} + b_7 \log \text{GDP}_{i+j} + \log e$$

The ideal strategy for estimating this regression is uncertain. As Pollins (1989b) points out, historically most research using gravity equation models has

been presented in annual cross-sections. Recently, in an attempt to make more powerful and efficient use of their data, researchers in this field of quantitative international relations have employed pooled time series analysis (Pollins, 1989a; Dixon and Moon, 1993; Morrow et al., 1996). Although the number of cross-sections in each of their studies exceeded the number of time periods, none shows as much cross-sectional dominance as the present study with its 882 and 1042 cross-sections. Beck and Katz (1995) recently proposed a method for dealing with time-series, cross-sectional analysis when T is greater than N. This is unsuited to panel data like ours, for which a fully satisfactory method of dealing with the error terms in the pooled model is not presently available. Consequently, for both data sets we conduct annual ordinary least squares estimates of the coefficients in separate annual analyses. The year-by-year procedure of course only gives us the comparative effect of democracy on trade in each individual year, not the effect of changes in dyads' degree of democracy over time. But it also avoids confounding the two effects. We can also see whether there is any trend in the strength of the coefficient for democracy over time. Table 2 presents regression results from data set 1 and Table 3 from data set 2. Regression diagnostics showed no serious multicollinearity; we used the Huber (White) correction for heteroskedasticity.

Table 2: Predictors of Annual Dyadic Trade; Eleven Major Trading States, Data Set 1

	1962	1963	1964	1965	1966	1967	1968
DEM _L	0.0804 (.0474)	0.0563 (.0471)	0.1343 (.0442)#	0.1868 (.0434)*	0.1548 (.0451)*	0.1619 (.0450)*	0.0333 (.0423)
LANGUAGE	0.4931 (.1659)#	0.5078 (.1664)#	0.6618 (.1389)*	0.6032 (.1371)*	0.5981 (.1371)*	0.6992 (.1303)*	0.7432 (.1374)*
DISPUTE	-0.4956 (.4127)	-0.5571 (.4054)	-0.5623 (.5063)	-1.1374 (.5971)	-1.3178 (.8470)	-2.1550 (.8835)#	-0.9764 (.6956)
ALLIANCE	0.1152 (.0764)	0.1561 (.0796)	0.0768 (.0715)	-0.0029 (.0711)	-0.0087 (.0728)	-0.0143 (.0724)	0.0004 (.0732)
OPEN _L	0.6393 (.0739)*	0.6373 (.0716)*	0.5357 (.0380)*	0.5239 (.0385)*	0.5778 (.0652)*	0.5697 (.0609)*	1.0745 (.0744)*
DISTANCE	-0.1996 (.0213)*	-0.1896 (.0229)*	-0.1822 (.0204)*	-0.1858 (.0206)*	-0.1802 (.0207)*	-0.2021 (.0199)*	-0.1994 (.0210)*
GDP	0.8298 (.0249)*	0.8346 (.0259)*	0.8198 (.0206)*	0.8201 (.0207)*	0.8436 (.0226)*	0.8510 (.0211)*	0.9212 (.0232)*
R ²	0.6772	0.6701	0.7114	0.7188	0.7242	0.7252	0.7191

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	1969	1970	1971	1972	1973	1974	1975
DEM _L	0.0411 (.0415)	0.0278 (.0401)	0.0373 (.0386)	0.0512 (.0375)	0.0652 (.0382)	0.0674 (.0399)	0.0406 (.0389)
LANGUAGE	0.7690 (.1284)*	0.8177 (.1260)*	0.7713 (.1227)*	0.8258 (.1191)*	0.7670 (.1153)*	0.7053 (.1221)*	0.7777 (.1172)*
DISPUTE	-1.9732 (.8793)	-1.7447 (.7470)	-1.6747 (.9866)	-0.5677 (.5997)	-0.5941 (.7335)	-0.0313 (.3410)	-1.2490 (.7420)
ALLIANCE	0.0149 (.0703)	0.0406 (.0719)	0.0531 (.0674)	0.0435 (.0696)	0.0181 (.0689)	-0.0118 (.0694)	-0.0303 (.0671)
OPEN _L	1.0722 (.0680)*	1.1151 (.0678)*	1.0752 (.0571)*	1.1347 (.0618)*	1.1498 (.0608)*	1.1430 (.0652)*	1.1287 (.0565)*
DISTANCE	-0.2133 (.0188)*	-0.1990 (.0224)*	-0.2131 (.0185)*	-0.2005 (.0208)*	-0.2216 (.0190)*	-0.2237 (.0214)*	-0.2349 (.0182)*
GDP	0.9390 (.0219)*	0.9313 (.0217)*	0.9172 (.0202)*	0.9260 (.0200)*	0.9240 (.0193)*	0.9283 (.0197)*	0.9503 (.0201)*
R ²	0.7391	0.7420	0.7608	0.7765	0.7791	0.7773	0.7827

	1976	1977	1978	1979	1980	1981	1982
DEM _L	0.0149 (.0378)	0.0274 (.0385)	0.0362 (.0383)	0.0609 (.0397)	0.0716 (.0414)	0.0855 (.0452)	0.0808 (.0440)
LANGUAGE	0.7013 (.1224)*	0.7025 (.1204)*	0.6029 (.1248)*	0.5416 (.1232)*	0.4919 (.1317)*	0.5432 (.1297)*	0.6022 (.1300)*
DISPUTE	-0.2591 (.4886)	-0.2024 (.3776)	-.6355 (.5599)	-0.2687 (.4461)	-0.2119 (.3266)	-0.7467 (.3916)	-0.3430 (.3402)

Table 3: Predictors of Annual Dyadic Trade; Fourteen Major Trading States, Including USSR, China and Korea, Data Set 2

	1973	1974	1975	1976	1977	1978	1979
DEM _L	0.1253 (.0419)#	0.1613 (.0436)*	0.1382 (.0432)*	0.0848 (.0404)	0.0777 (.0418)	0.1362 (.0426)*	0.1513 (.0433)*
LANGUAGE	0.8739 (.1160)*	0.8375 (.1241)*	0.9027 (.1187)*	0.8290 (.1197)*	0.8277 (.1207)*	0.6768 (.1181)*	0.6029 (.1234)*
DISPUTE	-1.2132 (.5150)	-1.2773 (.5841)	-1.0647 (.4735)	-0.0723 (.6131)	-0.6807 (.5995)	-0.7993 (.5001)	-0.3661 (.4481)
ALLIANCE	-0.0153 (.0766)	-0.0675 (.0796)	-0.0708 (.0799)	-0.0378 (.0759)	-0.0176 (.0742)	-0.0490 (.0687)	-0.0553 (.0699)
OPEN _L	1.2842 (.0600)*	1.2539 (.0615)*	1.2799 (.0606)*	1.3377 (.0594)*	1.3402 (.0622)*	1.2425 (.0619)*	1.2962 (.0619)*
DISTANCE	-0.2417 (.0214)*	-0.2476 (.0239)*	-0.2559 (.0238)*	-0.2324 (.0253)*	-0.2313 (.0223)*	-0.2422 (.0189)*	-0.2473 (.0176)*
GDP	0.9311 (.0212)*	0.9353 (.0220)*	0.9556 (.0233)*	0.9505 (.0230)*	0.9554 (.0234)*	0.9265 (.0214)*	0.9261 (.0210)*
R ²	0.7181	0.7075	0.7090	0.7240	0.7128	0.7305	0.7382

	1980	1981	1982	1983	1984	1985	1986
DEM _L	0.1209 (.0419)#	0.1206 (.0459)#	0.1188 (.0446)#	0.1281 (.0435)#	0.1566 (.0431)*	0.1778 (.0437)*	0.2201 (.0444)*
LANGUAGE	0.5582 (.1328)*	0.6169 (.1276)*	0.6666 (.1280)*	0.6389 (.1144)*	0.6354 (.1156)*	0.6572 (.1142)*	0.7037 (.1085)*
DISPUTE	-0.1292 (.3568)	-0.6931 (.3808)	-0.1737 (.3206)	-1.0520 (.4176)#	-0.5167 (.2829)	-0.5425 (.3818)	-1.5729 (.4956)#
ALLIANCE	-0.0034 (.0663)	0.0440 (.0698)	0.0345 (.0696)	0.0662 (.0686)	0.0478 (.0697)	0.0501 (.0705)	0.0000 (.0694)
OPEN _L	1.2774 (.0588)*	1.3190 (.0659)*	1.3289 (.0629)*	1.303 (.0618)*	1.3060 (.0697)*	1.3000 (.0610)*	1.2690 (.0583)*
DISTANCE	-0.2541 (.0179)*	-0.2601 (.0191)*	-0.2513 (.0188)*	-0.2630 (.0191)*	-0.2533 (.0185)*	0.2444 (.0170)*	-0.2503 (.0174)*
GDP	0.9350 (.0195)*	0.9234 (.0204)*	0.9313 (.0203)*	0.9291 (.0204)*	0.9237 (.0197)*	0.9072 (.0186)*	0.903 (.0183)*
R ²	0.7389	0.7224	0.7283	0.7339	0.7253	0.7258	0.7334

	1987	1988	1989
DEM _L	0.2281 (.0441)*	0.2215 (.0464)*	0.2007 (.0482)*
LANGUAGE	0.6790 (.1138)*	0.7695 (.1096)*	0.7830 (.1096)*
DISPUTE	-0.5437 (.3632)	-0.3286 (.4010)	-0.6653 (.5432)
ALLIANCE	0.0555 (.0879)	0.0623 (.0870)	0.0599 (.0915)

Results: Democracy Matters

Most of the results are similar in both data sets. The R²s are very substantial and increase over the years of the study. The gravity variables — GDP and the DISTANCE between the two states — show a highly significant relationship to trade, with the expected sign throughout. But the gravity equation variables by themselves account for only a little more than half of all the total variance; thus the political and cultural variables add significantly to the total variation that can be explained.

Common LANGUAGE between dyadic members is strongly and positively related to trade, virtually always at the .001 level (we assess statistical significance for a one-tailed test, since all our hypotheses are signed). Significance continues at the .002 level even when the three dyads formed between the United States, Canada, and Great Britain — the principal English-speaking states — are removed.

The relationship to trade of the presence of a militarised DISPUTE in the dyad is somewhat erratic, reducing trade to a statistically significant degree in 10 of the 28 years of the study in data set 1. Unexpectedly, ALLIANCE is only once significantly related to trade. This finding is consistent with the results for bipolar

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alliances, but not multilateral ones, in the study of Morrow, Siverson and Tabares (1996), and contrary to the findings of Gowa and Mansfield (1993) and Mansfield and Bronson (1997a,b), perhaps because our specification includes a good continuous measure of democracy, or because our data are not limited to trade of the major powers. Also, the time period of our study overlaps that of Gowa and Mansfield in just three (1965, 1975, and 1985) of the eight years they examine. These are three of the five years for which Gowa and Mansfield report a significant relationship between bilateral alliance and trade.

$OPEN_{i,t}$, the ratio of trade with the world to the gross domestic product of the dyad member less likely to engage in trade, is positively related to dyadic trade at the highest level of significance in all years. The greater the world trade of that member as a function of its GDP, the more likely is trade within the dyad. This relationship to trade is little affected by any collinearity of the openness measure with GDP. Economically liberal states trade heavily with one another.

As for the effect of democracy, in data set 1 $DEM_{i,t}$ is significantly related to trade between the two states in 17 of the 28 years, most often at the .01 or .001 level. The sign of the coefficient is always positive, indicating that the more democratic the less democratic polity is, the greater is trade between them likely to be. This corresponds to the findings by Dixon and Moon (1993) and Morrow et al. (1996) with their somewhat different time periods of reference. Political liberalism thus has an independent effect, additional to that of economic liberalism. It fails to achieve even a .05 level of significance in 1963, 1968-72, and 1975-79. It performs worst in the last period, years which include most of the period of the energy crisis following the Six Day Arab-Israel war, so they probably reflect the shifting patterns of international trade that resulted. The value of oil exports to the democracies — largely from autocracies — was much higher during those years than previously; reciprocally, the oil-exporting autocracies had far greater funds to import goods from the democracies. A reason for the non-significant results in earlier years is less readily apparent, and warrants further inquiry.

Table 3, with fewer years but somewhat more autocratic traders, allows us a clearer view of the effect of the political differences in democracy-autocracy pairs. It shows that $DEM_{i,t}$ is related to trade in all 17 years. In all but two of the years this result is at a significance level of .01 or .001, and the coefficients also are higher than in Table 2 for data set 1. There is a pretty clear trend toward a larger coefficient over the period. The results for the other variables are not markedly different from what we found in Table 2. $ALLIANCE$ is never significant. $DISPUTE$ is significant in 7 of the 17 years. $OPEN_{i,t}$ is always highly significant, as is the effect of common $LANGUAGE$. We also ran the equations with $DEM_{i,t}$ and $DISPUTE$ lagged, with quite similar results, though we do not show the table. Our results therefore seem robust.

Given the great differences of the variance and metrics of each of the variables, the best way to weigh the relative impact of each variable is by comparing their standardised (beta) regression coefficients. We do so for the equation for the most recent year (1989) in data set 2 (Table 3), a year in which the democracy coefficient was fairly large but less so than in the immediately preceding years. Doing so, the impact of the gravity model variables is of course very large, with betas of .85 for GDP and -.26 for distance. That was expected. The impact of a generally liberal economic policy (OPEN) is also great, however, at .42. Language (.10) and democracy (.07) also make a difference, of similar magnitude. The beta coefficients for dispute (-.03) and alliance (.01) are very small, reflecting the fact that the coefficients for those two variables were not significant in 1989, nor in most years.

The results can also be illustrated by two very different examples, the dyads Belgium-Netherlands and USSR-United States. For the former pair, all the cultural and political variables lean in the direction we hypothesised to increase dyadic trade: both democratic, common language (Flemish/Dutch), no militarised disputes, alliance, open economies, also geographically contiguous. In 1989 their trade amounted to about \$31 billion, or roughly 8 percent of their combined GNPs. For the latter pair, with the variables all much less favourable according to our hypotheses, their dyadic trade amounted to roughly \$2.6 billion, or only .03% of their combined GNPs.

Conclusions

We find virtually no support for the hypothesised relationship of alliance to trade. Support for the influence of militarised disputes is moderate, and somewhat inconsistent. As expected, much of the variance in trade is explained by economic size and proximity, from the standard gravity model of economics. But, as hypothesised, openness to trade, shared democratic governance, and common language also are clearly and positively related to the degree that states trade with each other. Together, they show that states, which have developed similar economic and political institutions, norms, and culture, will trade together substantially more than purely economic models might suggest. Moreover, they suggest that in their relations with each other politically and economically liberal states, and their private entrepreneurs, are willing to discount security concerns about possible relative gains in order that they may mutually obtain absolute gains in their economic relationships. Weede (1996) has elaborated a chain of influences, running from trade, over prosperity and democracy, to peace. Here we find a reinforcing reverse linkage as well, with joint democracy feeding back to greater trade, and hence promoting peace indirectly as well as directly.

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Notes

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1. These and other assertions we make here are not uncontested, though we feel confident in the assertions and discuss the reasons and counterarguments in detail elsewhere. (Russett 1996, Oneal and Russett 1997) We also are aware that the chapter by Morrow, Siverson, and Tavares in this volume agrees with us about the pacific results of shared democracy, but not of economic interdependence. We are unsure why they reach a different conclusion, but suspect it is because their analysis is restricted to great powers, with special concerns for security and relative power.
2. ⁵In antilogarithmic form our dummy variables take on values of e (the base of natural logarithms) and one; these natural logarithms thus are one and zero.
3. For example, a democratic-democratic dyad will be very low on DEMDIFF and very high on DEM_L; a democratic-autocratic dyad will be just the opposite: very high on DEMDIFF and very low on DEM_L. Autocratic-autocratic dyads, very low on both DEMDIFF and DEM_L, are unusual, as noted above.
4. Adding a term for the higher democracy (DEM_H) score to the equation made no material difference.