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Affinity and International Trade

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Abstract

This paper examines the impact of American public attitudes toward foreign countries on the volume of trade. The issue is whether popular attitudes, as elicited in these surveys, convey any information about trust, risk, or transactions costs beyond what can be explained through standard economic models. The results of this paper suggest that they do, with a one standard deviation increase in warmth of feeling associated with a 20 to 31 percent larger trade volume when evaluated at the sample means. These public attitudes are in turn correlated with indices of cultural affinity and political ideology. A one standard deviation increase in the democracy score is associated with a 5 to 7 percent increase in trade. There might be additional secondary effects if democratization was associated with an increased likelihood of the removal of sanctions or the initiation of preferential trade relations.

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There is a widely held view that easily observable impediments, such as transportation costs, do not adequately capture transactions costs in international trade. One response has been to directly investigate the possible role of transborder business networks or ethnic diasporas in reducing transactions costs (Rauch 2001, Rauch and Trindade 2002, Combes, Lafourcade, and Mayer 2005). In an interesting paper, Guiso, Sapienza, and Zingales (2004) suggest that more diffuse cultural affinity may be another channel. They argue that cultural distance or trust—as proxied by, among other things, the genetic differences across national populations—is a robust explanator of the volume of international trade in the context of a conventional gravity model, with a one standard deviation increase in trust of the importer toward the exporter increasing exports by 32 percent.[1]

This result is intriguing: For example, in the 1980s a debate raged over whether the volume and commodity composition of Japanese trade conformed to conventional models or whether Japan's trade was unique or distinctive (Lawrence 1993). One aspect of this controversy was whether measures of physical distance or transportation costs adequately captured the possible impact of cultural difference, demonstrated, to cite an example, by the fact that Japan was the only OECD country at that time not to use the Roman alphabet. The Guiso, Sapienza, and Zingales result could be interpreted as suggesting that the impact of cultural distance, subject to considerable speculation in the debate over Japan, could indeed be of an economically and policy-relevant magnitude.

That said, it is not obvious how the typical participant in international exchange could assess the genetic make-up of his or her counterparty. Learned characteristics, such as language, that are not genetically determined may be more easily observable by counterparties than somatic differences, especially if electronic rather than face-to-face communication is used. In fairness to Guiso, Sapienza, and Zingales, though, their instruments for trust include cultural as well as genetic markers.

Distinctions among these alternative determinants of trust are important. Setting aside the issue of the social construction of race, ethnicity, and other identifiers, if trust is really a function of something as immutable as genetic distance, then it would seem to be the ultimate fixed effect! In contrast, if what is affecting trade volumes is not trust in a generic sense but rather subjective appraisals of risk based on observed behaviors, institutions, and attitudes, these may change and indeed are possibly subject to public policy intervention.

Moreover, most international trade is conducted by firms, not individuals. In this context the whole notion of identity, at least reduced to the level of the human genome, is problematic. Given the institutional context in which international trade occurs, beyond a basic threshold of successful

[1] The utility of the notion of trust has been questioned on the grounds that in economic settings at least, it confuses more than clarifies (Guinnane 2005). In this discussion I use "trust" when discussing the work of others who use the term themselves.

communication, the impact of cultural markers on trust presumably turns on imprecise notions such as race, nationality, and networks, and the association of particular groups with commercially relevant attributes such as "diligent," "reliable," or "exclusionary." Such beliefs are presumably the product of a complex admixture of received cultural lore and personal experience.

This line of reasoning suggests that what is relevant are socially constructed perceptions and hence a focus on subjective attitudes and beliefs rather than genetic markers. Noland (2004) demonstrates that popular attitudes in recipient countries with respect to economic and social values are statistically correlated with the volume and terms of capital inflows beyond what can be explained on the basis of economic fundamentals, with this effect presumably operating through subjective assessment of risk by investors.

Since 1978 the Chicago Council on Foreign Relations (CCFR) has sponsored quadrennial surveys of US public attitudes on foreign policy issues.[2] One aspect of these polls has been to survey American public opinion by asking respondents to rate their feelings toward other countries on a scale of 0 to 100, with higher figures indicating greater affinity. Table 1 reports the rankings from the initial survey in 1978 and the most recent survey conducted in 2002. The results do not appear enormously surprising: Canada and the United Kingdom, countries with which the United States has long historical and cultural ties, are at the top of the table in both the initial and terminal years of the sample. Some countries exhibit significant changes in "temperature" (the CCFR's term) over the sample period, however. Iran, for example, falls 22 points, and the Soviet Union/Russia rises 21, presumably reflecting the major political changes that occurred within these two entities and in their diplomatic relations with the United States during the sample period. Even countries such as Saudi Arabia, the United Kingdom, and Italy, which have not experienced regime change, display considerable changes in temperature.[3]

Assuming that these responses are a fair proxy for the subjective assessments formed by participants in international trade, the issue is whether popular attitudes, as elicited in these surveys, convey any information about trust, risk, or transactions costs beyond what can be explained through standard economic models. The results of this paper suggest that they do, though establishing a statistically robust relationship is made difficult by the relatively small and unusual sample of countries covered in the CCFR surveys, presumably chosen for their political salience, not their

[2] See Chicago Council on Foreign Relations (2004) for a description of the survey methodology.

[3] As can be seen in table 1, the CCFR country sample has gradually increased over time. The full data set consists of 28 countries and 150 observations. The 28 countries are Afghanistan, Argentina, Brazil, Canada, China, Colombia, Cuba, Egypt, France, Germany, India, Iran, Iraq, Israel, Italy, Japan, Mexico, Nigeria, North Korea, Pakistan, Poland, Russia, Saudi Arabia, South Africa, South Korea, Taiwan, Turkey, and the United Kingdom.

economic relevance to the United States. The estimated coefficients suggest that a one standard deviation increase in the CCFR temperature score is associated with a 20 to 31 percent larger volume of trade when evaluated at the sample means.

These are relatively large numbers, and the issue immediately arises as to how these perceptions affect appraisals of risk and whether the attitudes revealed in the survey data are determined by relatively immutable characteristics such as racial affinity or more malleable drivers like political behavior or institutions. The results reported here indicate that greater democracy is associated with warmer feelings. A one standard deviation increase in democracy would translate into a 5 to 7 percent rise in trade. Presumably this is due to the greater ability of democratic governments relative to authoritarian ones to make credible precommitments to sustain policies and institutions (Przeworski et al. 2000). The relative lack of popular or institutional constraints on authoritarian governments facilitates caprice and hence increases subjective risk assessments by counterparties, and acts implicitly as a barrier to trade.

GRAVITY MODELS OF TRADE VOLUME

The "gravity" model is the standard approach to modeling international trade volume. Trade is expressed as a function of partner income, per capita income, and physical distance as a proxy for transport costs (hence the moniker gravity model). A variety of other determinants have been identified in the now voluminous literature employing this class of models, including common borders, common languages, colonial ties, participation in preferential trade schemes, and many others.[4]

It would be desirable to estimate a full-blown multilateral model, if for no other reason than a multilateral model would lend itself to more precise estimation of greater generality. In this application, estimation is constrained to bilateral trade between the United States and its partners by the availability of the attitudinal data. Moreover, the attitudinal data are for the United States only—there are no reciprocal data on foreign attitudes toward the United States. It could well be that these perceptions are requited or symmetric—countries toward which Americans have warm attitudes in turn have warm feelings toward the United States, but this is conjecture. It would be preferable to be able to observe the attitudes of both parties.

[4] The gravity approach to modeling international trade flows goes back at least to Tinbergen (1962), Pöyhönen (1963), and Linneman (1966). See Frankel (1997), Deardorff (1998), and Rose (2004) for more contemporary discussions. Portes and Rey (2005) use it successfully to model cross-border equity flows, which are presumably weightless!

The first two columns of table 2 report baseline gravity models. The dependent variable is log nonfuel trade. The explanatory variables are purchasing power–adjusted income, income per capita, distance, and dummy variables for the presence of extensive sanctions ("EXT") as defined by Hufbauer et al. (2005), participation in a free trade agreement (FTA) with the United States, membership in the World Trade Organization (WTO), and a common border with the United States. All variables except the dummies are expressed in logs. The sample is constrained by the intersection of the CCFR sample and the availability of the purchasing power–adjusted income data and covers 23 countries (112 observations), or roughly three quarters of nonfuel trade. Data sources are listed in the appendix.

The estimated coefficients in specification in 2.1 are in the ballpark of previous estimates: The pure income or size effect is less than unity, but the sum of income and per capita income is greater than one. The elasticity of trade with respect to distance is approximately –0.8. Participation in the WTO and preferential trade schemes increase trade while the presence of sanctions reduces it. The addition of the common border dummy in specification 2.2 reduces the distance variable to insignificance. Presumably this is related to the prominence of Canada and Mexico in this purely bilateral setup. In this connection a number of other potential explanators were tried but were found to be either statistically insignificant or yielded coefficient estimates that were not robust to changes in specification. These included the number of years a country was at war with the United States in the previous century, measures of corruption, a dummy for English-speaking countries, dummies for limited or moderate sanctions, a dummy for communist countries, and dummies for legal origin (defined both in terms of national origin, e.g., British, French et al., as well as channel of adoption, e.g., originator, direct recipient, indirect recipient).[5] The regressions explain roughly 80 percent of sample variance.

The CCFR temperature variable is added in specification 2.3. The coefficient is positive (i.e., warmer feelings are associated with more trade) and significant at the 10 percent level. The coefficient estimate implies that, evaluated at the sample mean, a one standard deviation increase in affinity would be associated with a 20 percent higher volume of trade.

However, this result is dependent on the inclusion of Iran in the sample—if Iran is removed, the coefficient on temperature becomes insignificant. The issue is that the primary data sources do not report either nonfuel trade or purchasing power–adjusted income data for about one quarter of the observations in the CCFR dataset. In specifications 2.4, 2.5, and 2.6, the regressions are

[5] Presumably the lack of statistical significance of some of these familiar explanators reflects the relatively constrained sample in this application (e.g., it is difficult to distinguish between the effects of a common border and NAFTA).

reestimated with an expanded sample constructed from secondary data sources, as described in the appendix. The inclusion of these additional observations (especially those relating to Cuba, which is both under extensive sanctions and very close to the United States) has a large impact on the coefficients relating to borders, distance, and sanctions. The regressions continue to explain more than 80 percent of the total sample variation (R^2 – overall) and cross-sectional variation (R^2 – between) in the panel, and more than half of temporal variation (R^2 – within). The estimated coefficient on temperature is larger with the extended sample, and the exclusion of Iran reduces but does not eliminate its statistical significance. The estimated coefficient implies that a one standard deviation increase in warmth of feeling would be associated with a 31 percent increase in trade evaluated at the sample mean. The results derived from regressions 2.3 and 2.6 define a range of potential effects, slightly lower than those obtained by Guiso, Sapienza, and Zingales (2004).

MODELING PUBLIC ATTITUDES

The issue then is what determines warmth of feeling. The first column of table 3 reports simple correlations between a number of variables and the CCFR temperature measure. In declining order of significance, a partner country's Polity IV score, ethnic and religious similarity, its per capita income, and having English as a common language are all positively correlated with CCFR temperature.[6] The polity score ranges from 10 (most democratic) to –10 (least democratic), based inter alia on the relative competitiveness of executive recruitment, constraints on the chief executive, and competitiveness of political participation. (Additional information on the variables and their sources are defined in the data appendix.) Physical distance, having a communist government, and genetic distance are all negatively associated with the CCFR score.[7] The number of years at war over

[6] Ethnic and religious similarity between the United States and each of the sample countries was calculated according to the following formula:

$$\sum_{j=1}^{n} \min\{USj, PARTNERj\}$$

where, in the case of ethnic similarity, n is the number of ethnicities, and US_j and $PARTNER_j$ are the shares of ethnicity j in the population of the United States and the trading partner, respectively. In the case of religious similarity, n is the number of religions and US_j and $PARTNER_j$ are the shares of religion j in the population of the United States and the trading partner, respectively. In this paper, 10 religious groups (Muslims, Hindus, Buddhists, Jews, Catholics, Orthodox Christians, Protestants, ethnoreligious, atheists, and nonreligious) and 305 ethnicities (of which 122 had nonzero shares, constituting about 75 percent of the US population) were used in the construction of these variables.

[7] Working with 120 alleles (variants of a gene resulting from mutations) constituting 49 loci (genetic markers) on which sufficient data exist, Cavalli-Sforza, Menozzi, and Piazza (1994) calculate genetic distance coefficients between 42 population groupings and, at a lower level of aggregation, between European populations. These

the past century is unrelated to warmth of feeling, at least in these simple correlations. As one can see in the succeeding columns, there is considerable collinearity among these variables.

Table 4 reports a number of regressions on the CCFR temperature variables. Ethnic similarity and the communist dummy are the most robust regressors. The coefficient on ethnic similarity is positive and significant at the 1 percent level in all specifications, and the communist dummy is negative and significant at the 1 percent level in all reported specifications except the first (4.1).[8] The Polity IV score is significant except when the communist dummy is included. The two variables are highly correlated (–0.55). Religious similarity is positively correlated with the CCFR temperature score (0.55), but is even more highly correlated with ethnic similarity (0.62). In only one specification (4.10) is religious similarity statistically significant when ethnic similarity is included in the regression, and in this case it is estimated with a coefficient that is both smaller and has a larger standard error. The regressions explain around half of overall and cross-sectional sample variation but, not surprisingly given the slowly changing nature of a number of the regressors, a much lower share of temporal variation.

Transborder ethnic and religious affinity change slowly and are not really subject to public policy intervention except at the margin with respect to the national origins of new immigrants. The polity and communism variables are subject to greater change. The United States has limited means to directly affect these variables, but the citizens of foreign countries can change the nature of their governments. Setting aside the issue of communism, using the coefficient estimated in regression 4.9, a one standard deviation increase in the Polity IV score would increase the CCFR temperature score by around 5 degrees. If one then applied this increase to the coefficients estimated in regressions 2.3 and 2.6, this would imply an increase in trade volume of 5 percent and 7 percent, respectively. There might be additional secondary effects if democratization was associated with an increased likelihood of the removal of sanctions or the initiation of preferential trade relations.

To get some sense of how big a political change this represents, "regime change" is defined in the Polity IV dataset as a minimum three-point change in the polity score, denoting "a substantive,

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authors calculate F_{ST}, the genetic distance coefficient, as a function of the difference of the frequencies at which the same alleles in a given locus appear between pairs of populations. The measure is based on the principle that, as two genetically isolated populations evolve, the frequencies at which the same alleles appear in each should diverge, as some alleles move toward extinction and others toward fixation, the state at which the allele has completely replaced the original gene in the population's genetic makeup. Hence, the sum of these differences across alleles and loci, with some additional statistical corrections, gives a rough measure of the dissimilarity of two populations. See the data appendix for more detail on the calculation of this measure in the current application.

[8] The reported version is based on the smaller country sample that is constrained by missing values for per capita income in the primary source. A regression on the extended sample generates results that are qualitatively the same as those reported in regression 4.1 and are not reproduced in the interests of brevity.

normative change in political authority considered sufficient to present greater opportunities for regime opponents to challenge the noninstitutionalized authority of the polity" (Marshall and Jaggers 2004, 29). (It goes without saying that this definition of "regime change" is considerably more modest than that used in popular parlance.) A democratizing episode would be a three-point change in a positive direction, and a one standard deviation in the polity score amounts to more than two successive liberalizing transitions of this magnitude. How would a single democratizing episode affect US public attitudes? Not much: Evaluated at the sample mean, the coefficient estimated in regression 4.9 implies an increase in temperature of less than 2 degrees. How would this impact trade? Evaluated at the sample means, elasticities in regressions 2.3 and 2.6 imply an increase in trade of less than 2 to 3 percent. Presumably the channel is through subjective perceptions of greater "warmth," together with expectations of greater policy stability on the part of democracies (Przeworski et al. 2000).

CONCLUSION

This paper examined data on American public attitudes toward foreign countries on the assumption that these responses are a fair proxy for trust or subjective assessments of risk. The issue is whether these responses convey any information about transactions costs in international trade beyond what can be explained through standard economic models. The results indicate that. after accounting for fundamentals, public attitudes are indeed correlated with trade and that these attitudes are in turn correlated with indices of cultural affinity (i.e., ethnic and religious similarity) and political ideology (i.e., the foreign country's degree of democracy and whether its government is communist.) Warmer attitudes are associated with more trade, though there is considerable uncertainty about the magnitudes of these effects. In large part this seems to be an unavoidable by-product of the small, and from an economic perspective, idiosyncratic country sample covered by the CCFR survey.

The question immediately arises: What is driving these results? The results suggest that the observed attitudes are a function of cultural and ideological factors, and that democratization would be associated with greater affinity and more trade. Some would directly attribute this to greater trust and hence reduced subjective assessments of risk and implicit transactions costs. Alternatively, one could interpret the impact of democracy on trade as reflecting the greater ability of democratic governments to make credible policy precommitments and hence reduce risk perceptions.

APPENDIX

Trade and Income Data

Trade (total and nonfuel). Nonfuel trade is defined as total trade excluding SITC Rev. 1 Category 3 (mineral fuels, etc.).
Source: United Nations (2005) and US Census Bureau (2005) except where noted below.

GDP per capita (PPP exchange rates).
Source: World Bank's *World Development Indicators* except where noted below.

Other Data (lagged one year where possible)

Common Language. Indicator set to unity if English is a national language.
Source: CIA (2004).

Corruption. *Sources:* Control of corruption indicator from Kaufmann, Kraay, and Mastruzzi (2003); Transparency International Corruption Perceptions Index (CPI) score from Transparency International (2004).

Distance. Great-circle distance in kilometers from Chicago to a major city, usually the country's capital.
Source: Agricultural Research Service, USDA, http://www.wcrl.ars.usda.gov/cec/java/lat-long.htm.

Ethnic and Religious Similarity. See text for details.
Source: Barrett, Turian, and Johnson (2003).

Genetic Distance. *Methodology:* Cavalli-Sforza, Menozzi, and Piazza (1994) initially compiled a database of 1,915 distinct populations based on the geographic and ethnic information given in the published data from the original papers collected for their study. This database excluded "mixed" population samples where no additional detail was provided in the underlying source. Beyond this, the 6,633 underlying samples appear to have been pooled into 1,915 populations through a process of matching the population names from the different samples and examining the distribution of alleles within samples to gauge overall similarity and prevent the pooling of genetically distinct populations as well as those with a significant amount of internal heterogeneity. For the purposes of their analysis, the authors then further aggregated the 1,915 populations in two stages. In the first, resulting in 491 populations, they employed a process of culling and pooling based on geographic, anthropological, linguistic, and ethnographic criteria. In the second stage, some of the 491 populations were excluded if they represented an insufficient number of alleles while the rest were pooled into 42 populations based on the similarity of their gene frequency distributions. The authors acknowledge many of the shortcomings with these techniques, particularly in the case of small population groups in which they employed "wider definitions of populations" in order to obtain a sufficient number of gene markers with which to facilitate comparisons. Yet to the extent that the underlying groups were pooled based on characteristics determined by their genetic makeup rather than cultural constructs, the aggregated classification provided a manageable amount of data with which to make comparisons while preserving information beyond what can be conveyed in groupings based purely on cultural and historical associations.

The main challenge posed by the 42-population grouping for this application was adapting the data, based on indigenous, genetically affined populations, to a cross-country dataset consisting of some highly heterogeneous populations with respect to ethnicity. The most obvious example of

this is the question of how to deal with the United States. For this study, the US population is treated as entirely English. While clearly not an ideal representation of the genetic cross-section of the United States, this assumption made the generation of a first approximation of genetic distance coefficients between the United States and trading partners a manageable set of calculations. Many of the European country populations in the dataset map directly to those in Cavalli-Sforza, Menozzi, and Piazza (1994), hence the F_{ST} coefficients are taken straight from that source. For other countries, treating the whole population as genetically homogenous would clearly not have provided a reasonably realistic cross-section of the economically active population. In these cases, genetic distances were calculated as weighted averages of the reported F_{ST} coefficients of several populations using as weights the shares of an ethnicity in the country's population in 2000 as reported in Barrett, Turian, and Johnson (2003). Because many proportionally important ethnicities in the latter source did not map directly to the 42 genetically defined populations, additional assumptions were made about the mappings of each. In the cases where a weighted F_{ST} was calculated, the share of the country's population represented in the calculation was always over 80 percent.
Sources: Cavalli-Sforza, Menozzi, and Piazza (1994) and Barrett, Turian, and Johnson (2003).

PTA. Indicator set to unity if the country had a free trade agreement with the United States.

Polity. Polity 2 series from the Polity IV project database.
Source: Marshall and Jaggers (2004).

Sanctions. Limited sanctions are "minor trade, financial, or travel sanctions" and involve restrictions in up to four of the following categories: economic aid, military aid, trade restrictions on certain military and/or dual-use products, EXIM, OPIC, CCC, or TDA credit guarantees, loans from the international financial institutions, travel, trade, and diplomacy. Moderate sanctions are defined as five or more of the categories listed above in the criteria for limited sanctions. Extensive sanctions are defined as "comprehensive trade and financial sanctions".
Source: Hufbauer et al. (2005).

WTO. Indicator set to unity if country was a member of the World Trade organization.
Source: http://www.wto.org.

War Years. Number of years at war with the United States since 1878.
Gleditsch, Wallensteen, Eriksson, Sollenberg & Strand Armed Conflict 1946-2001 database, Version 1.2; International Peace Research Institute, Oslo (PRIO), Department of Peace and Conflict Research, Uppsala University, http://www.prio.no/cwp/armedconflict/; CIA (2005).

Country Notes

Afghanistan. GDP per capita (PPP).
Source: CIA (2005).

Cuba. Total trade: UN (2005). Nonfuel trade: 1999, 2003: US Census Bureau; 1979–95: assumed equal to total trade. GDP per capita: Applied the *World Development Indicators'* PPP conversion factor for the following countries, which correspond to the closest country in terms of GDP per capita at market exchange rates in the World Bank data for that year, to GDP per capita at market exchange rates: 1979, Ecuador; 1983, Uruguay; 1999, Fiji; 2003, Brazil. 1995: Set equal to the *World Development Indicators'* value for Fiji, the closest country to Cuba in terms of PPP-adjusted GDP per capita reported in Penn World Tables version 6.1 (Heston, Summers, and Aten 2002).

Germany. Data before 1991 correspond to the Federal Republic of Germany.

India. Nonfuel trade: Fuel imports in 1979 were calculated by applying the 1980 share of fuel imports in total imports to total imports in 1979.

Iraq. GDP per capita: CIA (2005) for PPP-adjusted GDP per capita in 2003. PPP-adjusted GDP per capita for other years was calculated by applying to the World Bank's market exchange rate figures the PPP conversion factor implied by the World Bank and CIA data for 2003.

Israel. GDP per capita: CIA (2005). Nonfuel trade: Fuel imports in 1979 were calculated by applying the 1980 share of fuel imports in total imports to total imports in 1979.

North Korea. GDP per capita: CIA (2005) for PPP-adjusted GDP per capita in 2003. PPP-adjusted GDP per capita for other years was calculated by applying the market exchange rate figures from the Bank of Korea, the PPP conversion factor implied by the Bank of Korea, and CIA data for 2003.

Poland. GDP per capita: Set equal to the World Bank's value for the (nonoil producing) country that had the closest PPP-adjusted per capita income in the Penn World Tables version 6.1 and for which World Bank data are available. For 1979, that country was Uruguay, and for 1983 and 1987, Brazil. Nonfuel trade: Data on fuel imports for 1983 and 1987 were not available from UN-COMTRADE. They are assumed to be zero.

Russia. Data before 1991 correspond to the Soviet Union.

Saudi Arabia. GDP per capita: CIA (2005).

South Africa. Nonfuel trade: US Census Bureau, publications FT135, FT460, and FT900, various years.

South Korea. GDP per capita: Applied the *World Development Indicators'* PPP conversion factor for the following countries, which generally correspond to the closest country in terms of GDP per capita at market exchange rates in the World Bank data for that year, to GDP per capita at market exchange rates: 1979, Costa Rica; 1983, Malaysia; 1987,Argentina; 1991, Malta.

Taiwan. GDP per capita: Applied the *World Development Indicators'* PPP conversion factor for the following countries, which correspond to the closest country in terms of GDP per capita at market exchange rates in the World Bank data for that year, to GDP per capita at market exchange rates: 1979, Brazil; 1983,South Africa; 1987, Oman; 1991, Greece; 1995, the Bahamas; 1999, Kuwait; 2003, South Korea. Trade: US Census Bureau, publications FT135, FT460, and FT900, various years and *Taiwan Statistical Data Book* (2004).

Note: In the cases above where PPP-adjusted GDP per capita was derived rather than taken directly from the World Bank data, PPP-adjusted GDP was calculated as the product of per capita income and population data from the *World Development Indicators*.

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Table 1 Affinity of US public for other countries

(100=warmest affinity)

1978		2002	
Canada	72	Canada	77
Great Britain	67	Great Britain	76
France	62	Italy	65
Israel	61	Germany	61
Mexico	58	Japan	60
Germany (West)	57	Mexico	60
Italy	56	Brazil	55
Japan	56	France	55
Brazil	52	Israel	55
Taiwan	51	Russia	55
Iran	50	Poland	50
Poland	50	South Africa	50
India	49	Taiwan	50
Saudi Arabia	48	China	48
South Korea	48	Argentina	47
South Africa	46	India	46
China	44	South Korea	46
Russia (USSR)	34	Egypt	45
Cuba	32	Turkey	45
Afghanistan	n.a.	Nigeria	42
Argentina	n.a.	Colombia	36
Colombia	n.a.	Cuba	35
Egypt	n.a.	North Korea	34
Iraq	n.a.	Saudi Arabia	33
Nigeria	n.a.	Pakistan	31
North Korea	n.a.	Afghanistan	29
Pakistan	n.a.	Iran	28
Turkey	n.a.	Iraq	23

n.a. = not available

Source: Chicago Council on Foreign Relations, *WorldViews 2002*, Topline Data from US Public Survey.

Table 2 Gravity model regressions on nonfuel trade

	2.1	2.2	2.3	2.4	2.5	2.6
Explanatory variable	**Non-fuel Trade[1]**	**Non-fuel Trade[1]**	**Non-fuel Trade[1]**	**Non-fuel Trade[1]**	**Non-fuel Trade[1]**	**Non-fuel Trade[1]**
GDP[1,2]	0.78008	0.74330	0.79044	0.83160	0.73381	0.83959
	(6.70)[a]	(6.40)[a]	(6.79)[a]	(5.42)[a]	(5.04)[a]	(5.43)[a]
GDP per capita[1,2]	0.53943	0.60072	0.50488	0.52703	0.65369	0.47213
	(4.01)[a]	(4.43)[a]	(3.72)[a]	(2.81)[a]	(3.67)[a]	(2.48)[b]
Extensive sanctions	–1.94896	–1.94926	–1.62344	–2.92301	–2.58780	–2.30011
	(-7.05)[a]	(–7.24)[a]	(–5.05)[a]	(–7.40)[a]	(–6.75)[a]	(–4.66)[a]
Distance[1]	–0.78495	0.28190	–0.65338	–0.13383	1.39818	0.04614
	(–3.07)[a]	(0.56)	(–2.46)[b]	(–0.41)	(2.89)[a]	(0.14)
FTA	0.45233	0.40728	0.46498	0.58676	0.39612	0.61060
	(2.74)[a]	(2.52)[b]	(2.85)[a]	(1.97)[b]	(1.38)	(2.08)[b]
WTO	0.46481	0.51326	0.46953	0.11183	0.40040	0.12339
	(2.26)[b]	(2.54)[b]	(2.31)[b]	(0.34)	(1.25)	(0.37)
Border		2.35322			4.17325	
		(2.42)[b]			(4.08)[a]	
CCFR temperature[1]			0.85961			1.31413
			(1.88)[c]			(1.97)[b]
Constant	3.95052	–5.40731	–0.58552	–2.85971	–15.65096	–9.37967
	(1.32)	(–1.11)	(–0.15)	(–0.75)	(–3.28)[a]	(–1.85)[c]
Observations	112	112	112	145	145	145
Number of countries	23	23	23	28	28	28
R^2 (overall)	0.81	0.84	0.81	0.82	0.86	0.82
R^2 (within)	0.83	0.83	0.83	0.55	0.56	0.56
R^2 (between)	0.79	0.84	0.79	0.87	0.91	0.87

1. Specified in natural logarithms.

2. At purchasing power parity exchange rates.

Notes: Superscript "a" denotes significance at the 1 percent level; "b" at the 5 percent level; "c" at the 10 percent level.

t-statistics in parentheses.

Panel estimation method with random effects.

Table 3 Simple correlations between affinity and other variables

	CCFR temperature[1]	Polity	Religious similarity[1]	Ethnic similarity[1]	Genetic distance[1]	War years	GDP per capita[1,2]	Distance[1]	Communist
Polity	0.6189[a]								
	149								
Religious similarity[1]	0.5511[a]	0.4972[a]							
	150	149							
Ethnic similarity[1]	0.6122[a]	0.3627[a]	0.6176[a]						
	150	149	150						
Genetic distance[1]	–0.3154[a]	–0.3166[a]	–0.3958[b]	–0.4786[a]					
	150	149	150	150					
War years	0.0069	–0.0249	–0.007	0.0561	–0.1179				
	150	149	150	150	150				
GDP per capita[1,2]	0.4922[a]	0.4928[a]	0.4081[a]	0.7293[a]	-0.4604[a]	0.0519			
	118	118	118	118	118	118			
Distance[1]	–0.3243[a]	-0.1501[c]	-0.5075[a]	-0.5425[a]	0.2714[a]	0.151[c]	-0.3334[a]		
	150	149	150	150	150	150	118		
Communist	–0.3164[a]	–0.5481[a]	–0.1044	–0.1977[b]	0.0958	0.3786[a]	–0.4437[a]	-0.078	
	150	149	150	150	150	150	118	150	
Common language	0.2937[a]	0.3482[a]	0.2423[a]	0.0671	–0.0768	–0.297[a]	–0.0772	-0.1887[b]	-0.2017[b]
	150	149	150	150	150	150	118	150	150

1. Specified in natural logarithms.

2. At purchasing power parity exchange rates.

Notes: Simple correlations reported with number of observations.

Superscript "a" denotes significance at the 1 percent level; "b" at the 5 percent level; "c" at the 10 percent level.

One observation lost due to missing polity score for Afghanistan in 2003.

Table 4 Regressions on "temperature"

	4.1	4.2	4.3	4.4	4.5	4.6	4.7	4.8	4.9	4.10
Explanatory variable	**CCFR temperature[1]**	**CCFR temperature[1]**	**CCFR temperature[1]**	**CCFR temperature[1]**	**CCFR temperature[1]**	**CCFR temperature[1]**	**CCFR temperature[1]**	**CCFR temperature[1]**	**CCFR temperature[1]**	**CCFR temperature[1]**
Polity	-0.00023	-0.00055			0.00764	0.00732	0.00016	0.00152	0.00714	0.00051
	(-0.07)	(-0.20)			(3.29)[a]	(3.07)[a]	(0.06)	(0.58)	(3.05)[a]	(0.19)
Ethnic similarity[1]	0.07739	0.09160	0.12895		0.11461			0.11650	0.09616	0.08826
	(2.03)[b]	(2.24)[b]	(4.31)[a]		(4.25)[a]			(4.18)[a]	(3.02)[a]	(2.69)[a]
Religious similarity[1]	0.03454	0.05219		0.10622		0.08162	0.09670		0.03453	0.05263
	(1.13)	(1.46)		(3.67)[a]		(2.83)[a]	(3.26)[a]		(1.15)	(1.69)[c]
Communist	0.01427	-0.27734	-0.25951	-0.27563			-0.27221	-0.23543		-0.25188
	(0.07)	(-4.48)[a]	(-5.24)[a]	(-5.54)[a]			(-4.50)[a]	(-3.97)[a]		(-4.23)[a]
Genetic distance[1]	-0.00973	0.00609								
	(-0.44)	(0.25)								
War years	0.01861	0.02754								
	(0.85)	(1.32)								
GDP per capita[1,2]	-0.00381									
	(-0.19)									
Distance[1]	-0.03320	0.00337								
	(-0.43)	(0.04)								
Common language	0.09489	0.13185								
	(1.09)	(1.31)								
Constant	4.64924	4.26997	4.43895	4.08459	4.32937	3.98745	4.07146	4.38572	4.31581	4.36752
	(7.07)[a]	(6.48)[a]	(32.37)[a]	(57.08)[a]	(35.37)[a]	(59.29)[a]	(57.14)[a]	(34.47)[a]	(34.61)[a]	(33.85)[a]
Observations	118	149	150	150	149	149	149	149	149	149
Number of countries	23	27	28	28	27	27	27	27	27	27
R^2 (overall)	0.59	0.49	0.41	0.38	0.50	0.41	0.37	0.42	0.51	0.46
R^2 (within)	0.00	0.19	0.19	0.19	0.03	0.03	0.19	0.18	0.03	0.19
R^2 (between)	0.62	0.51	0.45	0.38	0.55	0.40	0.32	0.44	0.56	0.47

1. Specified in natural logarithms.

2. At purchasing power parity exchange rates.

Notes: Superscript "a" denotes significance at the 1 percent level; "b" at the 5 percent level; "c" at the 10 percent level.
t-statistics in parentheses.
Panel estimation method with random effects.