2010

Cultural Diversity, Immigration and International Trade: An Empirical Examination of the Relationship in Nine OECD Countries

Roger White
Whittier College, rwhite1@whittier.edu

Bedassa Tadesse
University of Minnesota - Duluth, btadesse@d.umn.edu

In: Cultural Diversity: Issues, Challenges and Perspectives ISBN: 978-1-60876-203-3
Editor: Lydia B. Kerwin

Chapter 3

CULTURAL DIVERSITY, IMMIGRANTS AND INTERNATIONAL TRADE: AN EMPIRICAL EXAMINATION OF THE RELATIONSHIP IN NINE OECD COUNTRIES

***Roger White*[1†] *and Bedassa Tadesse*[‡2]**
[1]Department of Economics, Franklin and Marshall College
[2]Department of Economics, University of Minnesota – Duluth

ABSTRACT

Employing a variant of the standard gravity equation and data from nine OECD immigrant host countries and 67 trading partners for the years 1996-2001, we examine the immigrant-trade relationship. Particular emphasis is placed on the potential influences of host country cultural diversity and host-home cultural distance. Data from the World Values Surveys and the European Values Surveys are used to calculate the cultural distances between immigrants' host and home countries. Cultural distance is taken to be a proxy measure for the extent to which immigrants' host countries are culturally divergent from their home countries. To estimate the cultural diversity of each host country's population during our reference period, we calculate Simpson Index of Diversity values. We find that greater cultural differences inhibit both host country imports and exports, with imports seemingly affected to a greater extent. We also observe that immigrants increase trade flows, perhaps by exploiting superior information regarding host country markets (relative to their home country counterparts) and home country markets (relative to their host country counterparts) and/or by acting as conduits that bridge cultural differences between their host and home countries. Greater cultural diversity within the host country population is found to be positively correlated with the estimated proportional influences of immigrants on trade. Our findings imply that immigrants play greater roles in facilitating international trade than is generally discussed in the literature:

† Corresponding author: Email: roger.white@fandm.edu. Address: 415 Harrisburg Pike, Lancaster, PA 17603 USA. Phone: (717) 291-3920. Fax: (717) 291-4369.
‡ Email: btadesse@d.umn.edu. Address: 165 SBE, Department of Economics, Duluth, MN 55812 USA. Phone: (218) 726-8365. Fax: (218) 726-6905.

fully or partially offsetting the influences of the lack of trust and commitments that may correspond with greater cultural differences between potential trading partners.

INTRODUCTION

A voluminous literature has emerged that relates immigration and bilateral trade between immigrants' host and home countries. That trade confers benefits to both exporting and importing economies underscores the importance of this relationship. The corresponding policy relevance is emphasized by the fact that the public and political discussions of immigration policy are frequently contentious and vigorously debated. As pronounced cultural differences between trading partners can complicate interactions, hinder the development of rapport and trust and inhibit trade flows, we consider a relationship between immigration, cultural distance, cultural diversity and trade between immigrants' host and home countries. Employing data on immigration and trade for nine OECD host countries and 67 immigrant home countries, we examine variation in the immigrant-trade relationship across these host countries as well as the potential influences of host country cultural diversity and cultural distance, which has been found in prior studies to be detrimental to international trade flows. In doing so, we extend the related literature, inform the public and political discussions of immigration and, potentially, provide information that benefits policy formulation.

Previous studies have reported that immigrants exert positive influences on their host countries' trade with their respective home countries. The effects of immigrants are assumed to increase trade through two broad channels. If immigrants arrive in the host country to find desired home country products or reasonable substitutes are unavailable, they may increase host country imports from their respective home countries. White (2007a) refers to this as a "transplanted home bias" effect. Related to this effect is the possibility that immigrants' consumption exposes native-born residents and immigrants from other countries who reside in the host country to home country products. This would potentially lead to a consumption spillover effect as these individuals begin to also consume the home country products. If so, then the host country's imports from the immigrants' home countries would increase further.

Immigrants may also possess knowledge of home country markets or of host country characteristics that, if successfully exploited, increases trade flows. Dunlevy (2006) labels this effect the "information bridge hypothesis". Greenaway et al. (2007) posit that the effect is a combination of a "cultural bridge" and an "enforcement bridge". For instance, immigrants' knowledge of home country customs and expected business practices may overcome information asymmetries associated with cultural differences. Connections to home country business networks may also permit immigrants to transmit information regarding future business opportunities or to deter opportunistic behavior through a form of reputation-enforcement (Rauch and Watson, 2002; Rauch and Trindade, 2002; and Rauch, 2001 and 1999). Effectively, this channel involves immigrants acting to reduce trade-related transaction costs. Bryant et al. (2004) liken the expected abilities of immigrants to act as trade-intermediaries to the influence of reductions in shipping costs that are attributable to technological improvements. In both cases, the cost of trading falls and, thus, more trade would be expected to occur.

A closer look at Greenaway et al.'s (2007) description of the channels through which immigrants affect trade between their home and host countries leads to three important questions that are relevant for social and economic policy formulation. First, does cultural diversity (i.e., disparities or, more specifically, cultural distance) between immigrants' host and home countries inhibit international trade? Second, if it does inhibit trade, then do immigrants counter the effects of cultural differences? Third, does cultural diversity within the immigrants' host countries affect the abilities of immigrants to offset any trade-inhibiting effects of cultural differences and, thus, to increase trade? With the exception of the work by Tadesse and White (2007; 2008a; 2008b) and White and Tadesse (2008a), which we review in the next section, the available literature does not address these questions.

We hypothesize that immigrants increase trade through transplanted home bias effects and via information bridge channels; however, greater cultural distance between their host and home countries may hinder trade flows. We also expect the relative influences of immigrants and cultural differences on host-home country trade flows to vary across host countries that differ in the extents to which their populations are culturally diverse. Defining a nation's culture as an amalgam of its population's shared habits and traditions, learned beliefs and customs, attitudes, norms and values, it follows that cultural dissimilarity would correspond with host-home country social/institutional dissimilarity and/or information asymmetries and that immigrants may prove capable of offsetting, in whole or in part, the expected trade-inhibiting effects of cultural differences. Further, we anticipate a positive relationship between immigrant-trade links and the diversity of a host country since, in a more culturally diverse host country, the population is likely more receptive to the introduction of home country products. This implies that greater cultural diversity may correspond with larger consumption spillover effects. Similarly, greater diversity within the host country may better enable immigrants to fully exercise their knowledge of and connections to their home countries; thus, increasing the probability that immigrants increase host-home country trade by acting as trade-intermediaries.

To address our research questions, we employ data on immigration and trade practices of nine culturally and economically heterogeneous OECD host countries with 67 immigrant origin (i.e., home) countries during the years 1996-2001. We use data from the World Values Surveys (WVS) and the European Values Surveys (EVS) (Inglehart et al., 2004; Hagenaars et al., 2003) to calculate the cultural distances between immigrants' host and home countries. The surveys provide data from representative national samples that pertain to a broad and varying set of topics related to economics, politics, religion, sexual behavior, gender roles, family values, communal identities, civic engagement, ethical concerns, environmental protection, and scientific and technological progress (Inglehart et al., 2004). The cultural distance variable is a proxy for the extent to which immigrants' host countries are divergent (culturally) from their home countries. We calculate Simpson Index of Diversity values to estimate the cultural diversity of each host country's population during our reference period.

Our empirical analysis emulates prior studies of the immigrant-trade relationship and employs a variant of the standard gravity equation. Results from our empirical model indicate that with considerable variation across host countries, immigrants generally increase host country imports from and exports to their respective home countries. More importantly, our study shows that greater cultural differences between host and home countries inhibits both host country imports and exports, with imports seemingly affected to a greater extent. We also observe that immigrants increase trade flows, perhaps by exploiting superior information

regarding host country markets (relative to their home country counterparts) and home country markets (relative to their host country counterparts) and by acting as conduits that bridge cultural differences between their host and home countries. This finding implies that immigrants play greater roles in facilitating international trade than is generally discussed in the literature: fully or partially offsetting the influences of the lack of trust and commitments that may correspond with greater cultural differences between potential trading partners.

Greater cultural diversity within the host country population is found to be positively correlated with the estimated proportional influences of immigrants on trade. Accordingly, among the host countries included in our study, the magnitudes of immigrant-trade links for Denmark, the Netherlands and Norway tend to be below-average when compared to the remaining host economies in our sample. Each of these countries has fewer immigrants as a share of their populations and the Simpson Index of Diversity shows that these host countries' populations are less culturally diverse than are the other host economies in our study. To the contrary, estimated immigrant-trade links are significantly larger for Australia, Canada, Germany, Sweden and the United States. In this later group of host countries, immigrants comprise greater shares of the populations and these countries' populations are relatively more diverse. The relationship between the cultural diversity of host country populations and the immigrant-trade link is not entirely straightforward, however. Estimated immigrant-trade links for Italy, for example, are often relatively high in magnitude although the Italian population is neither large nor particularly diverse.

The chapter proceeds as follows. In the next section, we review the related literature, placing emphasis on prior studies that involve the host countries in our data and those which consider the influence of cultural distance on trade flows. This is followed by presentation of the empirical specification and details regarding the data and variable construction. We then introduce our measure of cultural distance, discuss our estimation results and then extend our discussion to address the issue of host country cultural diversity. Finally, we conclude.

REVIEW OF IMMIGRANT-TRADE LINK LITERATURE

As mentioned, pro-trade influences of immigrants have been reported for a number of host nations. Gould (1994), examining US data, first reports evidence of an immigrant-trade link, and subsequent studies have identified positive influences of immigrants on trade for several other host countries. For example, Bacarezza et al. (2006) for Bolivia, Piperakis et al. (2003) for Greece, Hong and Santhapparaj (2006) for Malaysia, Bryant et al. (2004) for New Zealand, Faustino and Leitao (2008) for Portugal, Blanes (2003; 2006) and Blanes and Martin-Montaner (2006) for Spain, and Kandogen (2005) for Switzerland each report pro-trade immigrant influences. In addition to confirming what appears to be a general immigrant-trade relationship, these studies have employed a myriad of econometric specifications to explore variation in immigrant-trade relationship across product types (e.g., different industry or sector classifications, various product types, and the degree to which products are homogeneous or differentiated) and home country cohorts (e.g., categorized based on average income levels and relative economic and social development). Further, these studies have examined a variety of time periods and diverse sets of home countries.

Other noteworthy studies include Combes et al. (2005) which reports a positive influence of migrants on intra-France trade. Also emphasizing the role of networks, Rauch and Trindade (2002) employ Chinese population shares to proxy for the existence of ethnic Chinese networks and find that such networks increase trade flows. Parsons (2005) considers the EU-15, all members of which are high HDI countries, as a singular host cohort and reports pro-trade effects of immigrants from Eastern Europe. A number of studies also report positive influences of immigrants on US state-level exports (Co et al., 2000; Herander and Saavedra, 2005; Bardhan and Guhathakurta, 2005; Bandyophadyay et al., 2006; Dunlevy, 2006; and Tadesse and White, 2007 and 2008a; White and Tadesse, 2008b; and White, 2009b), and a separate strand of the immigrant-trade literature considers the influences of immigrants on intra-industry trade: Blanes (2004), Faustino and Leitao (2008) and White (2008) report that immigrants increase intra-industry trade for Spain, Portugal and the US, respectively. Given that the literature relating to the immigrant-trade relationship is quite varied and multifaceted, we proceed by restricting our attention to those studies that examine the host countries included in our data, use aggregate trade data or that emphasize the influence of cultural distance on trade flows.

Gould (1994) suggests that superior knowledge of US characteristics and home country markets (i.e., the "information bridge" channel) allows immigrants to provide information that reduces transactions costs and concludes that immigrants exert positive influences, for both consumer and producer goods, on US exports to and imports from their home countries. Mundra (2005) employs a semi-parametric approach to examine variation in the US immigrant-trade link across product types. Evaluation of disaggregated trade data corroborates the findings of Gould; however, analysis of aggregate trade data suggests that immigrants exert positive and negative effects, respectively, on US imports from and exports to their home countries. Considering that the immigrant-trade relationship may vary by the home countries' relative level of economic development. White (2007a) classifies home countries according to World Bank (2006) income classifications and finds the US immigrant-trade link is driven by immigrants from lower-income countries and is more pronounced for imports rather than exports.

White (2009b) considers variation in the US immigrant-trade link across home countries classified by World Bank income classifications and Rauch (1999) product types. The immigrant-trade link is found to be weakest for exports of homogenous products to high-income home countries and strongest for imports of differentiated products from lower-income home countries. White (2007b) considers a possible immigrant-trade link for Denmark; a small host country that is open to trade, well-integrated globally and proximate to both major trading partners and primary immigrant source nations. Also employing World Bank income classifications and Rauch product classifications, White (2007b) reports that the Danish immigrant-trade is greatest in magnitude for trade in differentiated products with high income countries, and weakest, yet still positive, when examining trade in homogenous products with low income countries. The difference in findings, relative to White (2009b), is thought to be attributable to differences in host country characteristics; namely, that the US has historically been a nation with a sizeable foreign-born population, while the Danish population was, until recently, relatively homogenous. Specifically, in 1980, only 2.6 percent of the Danish population was foreign-born but by 2000 that percentage had increased to 5.6 percent.

Similarly, Head and Ries (1998) and Wagner et al.,(2002) report a positive influence of immigrants on trade between Canada and immigrant home countries. Examining China-Taiwan trade, Ching and Chen (2000) also report evidence of pro-trade immigrant effects. Helliwell (1997) reports a positive effect of immigrants on international trade but, in contrast to Combes et al.'s (2005) finding for intra-France trade, fails to find a positive effect of migrants on inter-provincial trade. Head and Ries (1998) build on the work of Gould (1994) by considering the mechanisms through which immigrants may influence trade. The authors report positive effects of immigrants on both Canadian exports to and imports from immigrants' respective home countries and conclude that recent changes in Canadian immigration policy may have had important and significant effects on Canada's international trade flows. Deviating from prior research, Wagner et al. (2002) base their empirical approach on the notion that constant-elasticity specifications fail to account for potential non-linearity in trade levels and immigrant stocks. A positive relationship is reported between immigrants and Canada-home country trade flows; however, the estimated effects are somewhat smaller than suggested by prior studies.

Girma and Yu (2002) examine the UK immigrant-trade link and categorize the home countries in their data as either "commonwealth" or "non-commonwealth" nations, reporting a positive influence of immigrants on trade only for the latter classification. Girma and Yu assume that personal contacts and connections to networks apply to all immigrants, regardless of home country. As a result, commonality of legal norms and judicial systems, differences in formal and informal contracting structures and in communications systems between the UK and commonwealth-affiliated home countries are thought to diminish immigrants' opportunities to affect trade. Thus, institutional dissimilarities between the UK and non-commonwealth home countries are thought to underlie the abilities of immigrants from such nations to enhance trade flows.

White and Tadesse (2007b) examine the immigrant-trade link for Italy during the 1996-2001 period. Categorizing home countries based on whether they are former Soviet republics or former communist nations, the authors indirectly test whether institutional differences across home countries manifest as variation in immigrant-trade links. Supporting the findings of Girma and Yu for the UK, a positive and significant immigrant-trade link is reported for Italy and post-communist countries; however, no significant relationship is observed for non-post-communist home countries. Likewise, no significant relationship was reported for either the cohort of former Soviet republics or that of non-former Soviet republics. Murat and Pistoresi (2006) examine Italy both as a host country and as a home country, considering an emigrant-trade link. Employing data for the 1990-2005 period, emigrant networks are found to have positive and significant impacts on Italy's bilateral trade flows; however, immigrants were not found to exert any significant influence on Italy's exports. A negative and significant relationship for Italy's imports was, however, reported. The negative relationship between immigrants and trade flows, while rare, has also been reported in other studies. Girma and Yu (2002) suggest that it represents a trade-substitution effect attributable to immigrants leaving their home countries and, thus, no longer trading internationally with their host country.

To determine whether increased cultural pluralism, fostered through the abandonment of the White Australia policy in 1973, generated variation in immigrant-trade links across home countries, White and Tadesse (2007a) classify home countries based on whether or not preferential treatment (in terms of immigrant entry, assisted migration, etc) was

afforded under the White Australia policy. The authors report significant variation in the pro-trade effects of immigrants across the two country classifications. Immigrants from nations not afforded entry preference under the policy exert stronger proportional influences on Australian imports from their home countries, while immigrants from nations that were afforded preference exert stronger influences on Australian exports to their home countries. The authors conclude that the White Australia policy led to a relative homogenization of the Australian population. Abandonment of the policy resulted in the demographic composition of subsequent immigrant inflows being substantially different from the characteristics of the existing Australian population. More recent immigrants arrived to find an Australia that, culturally speaking, was quite different from their home countries. The resulting variation in the influence of immigrants on Australian-home country trade flows is thus thought to stem from Australia-home country cultural (dis)similarities.

Few other studies have considered the influence of cultural differences on trade flows. Boisso and Ferrantino (1997) employ an index of linguistic distance as a proxy for cultural differences and report that greater cultural differences inhibit trade. Somewhat similarly, Dunlevy (2006) includes variables to indicate whether trading partners commonly use English or Spanish, finding a pro-trade common language effect. Employing the Geert Hofstede Cultural Dimensions for International Business (Hofstede, 1980), a four-dimensional measure of national culture, Linders et al. (2005) examine bilateral trade data for 92 countries during 1992. The authors report that greater cultural distance corresponds with increased trade and suggest that greater cultural differences increase the likelihood that firms will choose to trade with rather than establish operations in more culturally-distant locales.

Specifically considering the potential effect of cultural distance on US trade with 54 countries during the 1997-2004 period, White and Tadesse (2008a) employ data from the WVS and the EVS to construct a measure of US-home country cultural distance. Using both a composite measure of cultural distance and two underlying dimensions of cultural differences, separately, the authors report that greater cultural differences between the US and the immigrants' home countries acts to inhibit trade flows. Tadesse and White (2007) perform a similar analysis using US state-level exports, while Tadesse and White (2008a) consider the influence of cultural distance on US state-level exports at both the aggregate level and with trade values decomposed into cultural and non-cultural product groupings. These two studies examine exports to 75 countries during the year 2000 and conclude that cultural distance does in fact inhibit US state-level exports and that cultural products are affected to a greater extent.

The study most similar to the analysis presented in this chapter is that of Tadesse and White (2008b). A complement to the work presented here, the authors explore the influence of cultural distance on trade for the nine OECD countries examined in this chapter and report that greater cultural distance, as measured using the WVS and EVS data, has a consistently negative and economically significant influence on trade. The current work extends that of Tadesse and White (2008b) to emphasize the role of cultural diversity in affecting immigrants' abilities to influence trade and to determine whether immigrants' pro-trade effects act to counter the expected trade-inhibiting influence of cultural differences.

INTUITION AND EMPIRICAL SPECIFICATION

The literature suggests that variation across home countries should be expected in terms of the existence and magnitudes of immigrant-trade links. Additionally, as immigrant-trade links are influenced by host-home country (dis)similarities and historic connections, it seems reasonable to expect variation in the immigrant-trade relationship across host countries. To consider this possibility, we emulate prior studies of the immigrant-trade relationship and employ a variation of the standard gravity equation.[1] The gravity equation posits that trade between two countries i and j during year t $\left(\tilde{T}_{ijt}\right)$ increases with the countries' combined economic mass $\left(Y_{it}Y_{jt}\right)$ and decreases with geodesic distance $\left(GD_{ij}\right)$. Higher home country GDP $\left(Y_{jt}\right)$ implies greater potential export markets for host country i to serve and an increased probability that the host country imports from home country j. Similarly, higher host country GDP $\left(Y_{it}\right)$ signals an increased capacity to both export and import. Geodesic distance between the capital cities of host country i and home country j is a proxy for transport costs. We also include: $\left(\left(\frac{IM_{ij}}{CD_{ij}}\right)^{\delta}, X_{ij}^{\gamma}\right)$, where $\frac{IM_{ij}}{CD_{ij}}$ is the ratio of the immigrant stock from country j residing in country i and the cultural distance between each host-home country pairing, and. $\mathbf{X}_{ij}^{\phi}$ is a vector containing additional trade-facilitating/inhibiting factors. Equation (1) thus illustrates.

$$\tilde{T}_{ij} = \alpha\left(\frac{Y_i^{\beta_1}Y_j^{\beta_2}}{GD_{ij}^{\gamma_1}}\left(\frac{IM_{ij}}{CD_{ij}}\right)^{\delta}\mathbf{X}_{ij}^{\phi}\right) \tag{1}$$

The equation postulates that immigrants and cultural distance exert positive and negative influences, respectively, on trade, and that the extent to which cultural distance affects trade may be related to the stock of immigrants from country j living in country i. The equation also predicts strictly positive realizations of import and export values. Trade data often contain cases wherein values are equal to zero. Following Eaton and Tamura (1994) and Head and Ries (1998), we modify equation (1) to permit realization of zero trade values; thus, yielding equation (2).

$$\tilde{T}_{ij} = \alpha\left(\frac{Y_i^{\beta_1}Y_j^{\beta_2}}{GD_{ij}^{\gamma_1}}\left(\frac{IM_{ij}}{CD_{ij}}\right)^{\delta}\mathbf{X}_{ij}^{\phi}\exp^{(\varepsilon_{ij}-\eta)}\right) \tag{2}$$

[1] Tinbergen (1962) first applies the gravity specification to trade and more recent research has established theoretical foundations for the model. See, for example, Anderson and van Wincoop (2003) and Feenstra et al. (2001).

In equation (2), η is a fixed amount of trade that we subtract from the level predicted by equation (1) so that when latent trade values are negative, observed imports and/or exports will be zero. Thus, the observed data on country j's imports from or exports to country i can be described as $T_{ij} = \max\left[\tilde{T}_{ij}, 0\right]$. Substituting this identity, expanding the vector X_{ij}^{ϕ}, allowing α to be the constant of proportionality, taking natural logarithms of the continuous variables on both sides of the resulting equation, and assuming that ε_{ij} is an identically and independently distributed error term results in our estimation equation. To capture potential variation in the influences of immigrants across host countries, we include a series of terms that interact the immigrant stock, cultural distance and host country dummy variables.

$$\ln(T_{ijt} + \eta) = \alpha_0 + \delta_1 \ln IM_{ijt} + \delta_2 \ln CD_{ij} + \delta_I (\ln IM_{ijt} \times \ln CD_{ij} \times HOST_j) \tag{3}$$

$$+ \delta_H HOST_j + \beta_1 GDP_j + \gamma_1 \ln GD_{ij} + \phi_1 \Delta \ln XRATE_{ijt} + \phi_2 \ln OPEN_{ij}$$

$$+ \phi_3 \ln POP_{jt} + \phi_4 \ln REM_{jt} + \phi_5 BORDER_{ij} + \phi_6 COMLANG_{ij} + \phi_7 FTA_{ij}$$

$$+ \phi_8 OPEC_{jt} + \phi_9 SEAPORT_j + \beta_\Omega \Omega_t + \varepsilon_{ijt}$$

Our vector of dependent variable includes aggregate imports and exports as well as disaggregated (manufacturing and non-manufacturing sectors and 1-digit SITC sectors) import and export values, each of which is regressed in turn on the set of explanatory variables. All trade data are from the SourceOECD Database. As i represents each host country, the corresponding GDP values (included in equations (1) and (2)) do not vary across trading partners; the effects are thus subsumed into the coefficients on the host country-specific and time dummy variables.

The immigrant stock from home country j residing in host country i during year t, IM_{ijt}, controls for the effects of immigrants on trade. The coefficient on the immigrant stock variable, $\hat{\delta}_1$, captures a portion of the influence of immigrants on host-home country trade flows. We consider this coefficient to represent a "base effect" that applies equally across host-home country pairs. The coefficients on the CD_{ij} variables represent the effects of cultural distance on trade flows, while coefficients on the $HOST_j$ variables capture variation in trade flows, all else equal, across host countries. The coefficients on the IM_{ijt} and CD_{ij} variables are expected to be positive and negative, respectively. We also include a term which interacts the IM_{ijt}, CD_{ij} and $HOST_j$ variables. The measures of cultural distance we employ are based on surveys completed between 1998 and 2001. Since our data period spans a similar period (1996-2001), we assume that cultural distance does not change over our reference period. Thus, for each host country i, the influence of immigrants on trade is given as the sum of the coefficients on the immigrant stock variable and the corresponding interaction term: $\hat{\delta}_1 + \hat{\delta}_I$.

Immigrant stock data are from national statistic agencies and have been compiled by the Migration Policy Institute (2007).[2,3] Data for six of the nine host countries in our data set are complete in the sense that the statistical agency provides annual immigrant stock values for the years 1996-2001. Due to a lack of available data for immigrant stock values, it is necessary to estimate immigrant stock values for the years 1997-2000 for Australia and Canada and, for the years 1996-1998, for Sweden. Available immigrant stock values are accepted as correct and are employed as benchmark values. We accept the reported immigrant stock values as accurate and employ them as benchmarks. Adopting the methodology employed in White (2007a), immigrant inflow data are used to estimate immigrant stocks for the remaining years. For example, immigrant stocks for Australia, for the years 1997-2000, are constructed as $IM_{ijt} = IM_{ij1996} + \sum_{1997}^{t} IN_{ijt} + \rho_j$. IN_{ijt} is the immigrant inflow from home country j to host country i (in this case, Australia) during year t. ρ_j is an adjustment factor accounting for return migration and deaths of immigrants during non-benchmark years. The adjustment factor is the immigrant stock from home country j in Australia during 2001 less the sum of immigrants from country j in Australia in 1996 and the inflow from country j during the years 1997-2001 divided by five: $\rho_j = \dfrac{IM_{ij2001} - \left(IM_{ij1996} + \sum_{t=1997}^{2001} IN_{ijt} \right)}{5}$. For Canada and Sweden, immigrant stock variables are estimated similarly.

Given that our analysis focuses on the role of cultural diversity in international trade, we forego presentation of the cultural distance variable here and instead offer a detailed discussion of the variable in the next section. Annual changes in the host-home country exchange rate ($\Delta \ln XRATE_{ijt}$), given as home country currency units per host country currency unit, represents terms of trade effects. An increase in the variable signals a depreciation of the home vis-à-vis the host currency and thus an expected increase (decrease) in host country imports (exports). A measure of trade openness ($OPEN_{jt}$) is the sum of imports and exports divided by GDP (Head and Ries, 1998). The population of country j (POP_{jt}) serves to proxy for market size. To control for each home country's relative lack of outside trading opportunities, we follow Wagner, Head and Ries (2002) and measure economic remoteness as $REM_{jt} = 1/\sum_{k=1}^{K} \left[(Y_{kt} / Y_{wt}) / D_{jk} \right]$, where Y_{wt} is gross global product and k identifies potential trading partners for country j other than the host country i.[4] All monetary

[2] Annual immigrant stock data compiled by the Migration Policy Institute for Denmark, Germany, Italy, the Netherlands, Norway and the US are from Danmarks Statistik, Statistiches Bundesamt, Istituto Nazionale di Statistica, Centraal Bureau voor de Statistiek, Statistisk Sentralbyrå, and the US Census Bureau, respectively. Immigrant stock (1996 and 2001) and inflow (1996-2001) data for Australia are from the Australian Bureau of Statistics. Likewise, immigrant stock (1996 and 2001) and inflow (1996-2001) data for Canada are from Statistics Canada. Immigrant stock data (1990 and 1999-2001) and inflow (1990-1999) for Sweden are from Statistiska Centralbyrån.

[3] Data for Australia, Canada, Denmark, The Netherlands, Norway, Sweden and the US are foreign-born populations by country of birth. Data for Germany and Italy are foreign-born populations by country of nationality.

[4] Internal distance, when k=j, is derived as $0.4 \times \sqrt{Land\ Mass_j}$ (Head and Mayer, 2000).

values, trade flows and otherwise, have been normalized to 1995 US dollars using GDP deflators. Unless noted, data for explanatory variables are from the World Bank (2006).

Several dummy variables are also included in our estimation equation. $BORDER_{ij}$ is equal to one if the host and home countries are adjacent and controls for the expected increased levels of trade associated with corresponding reductions in transportation costs. As common language has been identified as an important determinant of trade flows in gravity specifications (Dunlevy, 2006; Hutchinson, 2002), $COMLANG_{ij}$ is equal to one if the predominant language used in the host country is also commonly used in country j (CIA, 2006). Capturing the effects of trade agreements, FTA_{ij} is equal to one if country j is in an agreement with country i during year t. $OPEC_j$ controls for imports of petroleum and related products and is equal to one if country j was an OPEC member for six or more months in year t. $SEAPORT_{jt}$ is equal to one if country j is not landlocked and captures related geographic effects on trade. Finally, a vector of time dummies, Ω_t, absorbs macroeconomic fluctuations and trade-influencing policy decisions. Table 1 presents descriptive statistics for the full sample and for each host country.

Comparing descriptive statistics for host countries to mean values of the full sample provides interesting insights on the diversity of host countries examined. Considering each host country's aggregate imports from and exports to immigrants' home countries reveals Canada and Italy as typical host countries with average values near those found for the full sample, while corresponding values for the US and Germany are significantly higher and values for Australia, Denmark and Norway are significantly lower. With regard to host-home country cultural differences, Norway's cultural distance from the immigrants' home countries considered is typical, Italy is the most culturally-similar to the home countries in our data and Sweden is the most culturally-dissimilar. In terms of the size of the immigrant population, Australia, Canada and Germany can be considered as typical host countries with number of immigrants close to the average found for all countries in our data, while the immigrant populations in the US and Norway lay on opposite ends, with that of the US being the largest and that of Norway being the lowest. Given such heterogeneity in our host nations, we believe that estimation of the proportional effects of immigrants and cultural differences on trade provides a more accurate portrait of the immigrant-trade links to date.

HOST-HOME COUNTRY CULTURAL DISTANCE

Given our focus on the effect of cultural differences on trade and the role that immigrants play to counteract the hypothesized negative effect of cultural disparity between immigrants' home and host countries, in this section we discuss, our measure of cultural difference and its components. In calculating the variable, we follow Tadesse and White (2007, 2008a, 2008b) and White and Tadesse (2008a) and use data from the World Values Surveys and the European Values Surveys (Inglehart et al., 2004; Hagenaars et al., 2003). The surveys provide data from representative national samples that pertain to a broad and varying set of topics that include economics, politics, religion, sexual behavior, gender roles, family values, communal

identities, civic engagement, ethical concerns, environmental protection, and scientific and technological progress (Inglehart et al., 2004). Factor analysis is employed to classify respondents along two dimensions of culture: Traditional authority vs. Secular-Rational authority (TSR) and Survival values vs. Self-Expression values (SSE) (Inglehart et al., 2004).[5]

Traditional vs. Secular-Rational Authority

The TSR dimension of culture reflects the contrast between societies in which deference to the authority of a God, a nation or the family is viewed as important or as an expectation (i.e., Traditional authority) and those societies in which the individual and self-expression are stressed (i.e., Secular-rational authority). Underscoring the role of family obligation in traditional societies, a common goal is to make one's parents proud. Children are expected to express love and respect for their parents regardless of the parents' behavior. Parents, on the other hand, are expected to provide the best for their children even if it entails sacrifices that leave the parents worse-off. It is common for members of such societies to view large families and large numbers of children as positive, or desirable, achievements. Divorce and abortion, along with euthanasia and suicide, are viewed in a very negative light.

The emphasis placed on national pride and respect for authority in traditional societies is characterized by obedience to traditional/religious authority, adherence to family/communal obligations, and norms of sharing. That said, individuals in traditional societies rarely discuss politics and are seemingly passive in their acceptance of national authority. This may follow from a pervasive social emphasis on conformity. Emblematic of this is an adoption of absolute standards regarding what is good and what is evil. Members of secular-rational societies, on the other hand, tend to hold opposing views on these topics. They adhere to rational-legal norms and emphasize individual achievement and economic accumulation. Table 2 presents average *TSR* values for each of the 68 countries in our data, listed in ascending order.

Along the *TSR* dimension, of the nine host countries in our data, only Canada and the US have values below the group average of -0.13. The US, being one of the most traditional of the western postindustrial societies, is the most traditional host country in our data. The average *TSR* value for our nine hosts is equal to 0.45, which is significantly different from the overall mean value at the one percent level of significance. Thus, we can surmise that the host countries we examine tend to be characterized, although not in all individual instances, as significantly less aligned with the typical traditional society and, hence, significantly more oriented towards having secular-rational values than the countries in our data.

[5] Although the WVS/EVS provides data for 81 countries, incomplete data restricts our analysis to 68 nations.

Table 1. Descriptive Statistics

Variable	All Hosts	Australia	Canada	Denmark	Germany	Italy	Netherlands	Norway	Sweden	US
Aggregate $Exports_{ijt}$	2,846,355	600,654***	3,064,109	585,827***	6,651,118***	2,929,166	2,062,156**	655,787***	1,060,742***	8,067,804***
	(11,516,076)	(1,606,299)	(21,953,655)	(1,368,579)	(11,630,257)	(6,181,892)	(5,722,386)	(1,568,748)	(1,919,262)	(20,963,739)
Manufactured $Exports_{ijt}$	2,373,484	314,973***	2,247,306	407,154***	6,163,385***	2,670,057	1,427,504***	221,429***	941,041***	7,019,242***
	(9,685,055)	(770,635)	(16,866,301)	(959,798)	(10,768,369)	(5,574,322)	(3,623,542)	(482,451)	(1,670,911)	(18,627,374)
Non-Manufactured $Exports_{ijt}$	472,863	285,681***	816,843	178,673***	487,733	259,109***	634,652	434,358	117,701***	1,048,455***
	(2,181,436)	(939,424)	(5,142,456)	(426,613)	(1,017,709)	(619,761)	(2,160,012)	(1,169,514)	(268,817)	(2,685,990)
Aggregate $Imports_{ijt}$	3,043,045	707,249***	2,667,156	577,183***	5,760,861***	2,679,597	1,925,247***	449,139***	867,773***	11,818,257***
	(12,303,484)	(1,864,083)	(15,264,857)	(1,363,921)	(9,615,832)	(5,814,895)	(4,369,482)	(944,642)	(1,900,474)	(29,514,658)
Manufactured $Imports_{ijt}$	2,553,470	639,539***	2,350,911	464,913***	4,773,483***	2,140,572	1,490,492***	376,801***	721,960***	10,077,052***
	(10,743,097)	(1,782,487)	(13,816,945)	(1,156,805)	(8,328,884)	(4,956,609)	(3,609,111)	(824,098)	(1,657,528)	(25,659,622)
Non-Manufactured $Imports_{ijt}$	489,580	67,709***	316,021**	112,269***	987,378***	539,025	434,755	72,337***	145,813***	1,741,481***
	(2,077,562)	(172,680)	(1,485,276)	(247,036)	(1,912,395)	(981,210)	(880,029)	(154,674)	(348,530)	(5,358,722)
Cultural $Distance_{ij}$	1.4645	1.3162***	1.3461***	1.7492***	1.3504***	0.9979***	1.551**	1.5030	2.0617***	1.3055***
	(0.7022)	(0.5877)	(0.5561)	(0.7535)	(0.6208)	(0.4646)	(0.7256)	(0.72)	(0.7686)	(0.4983)
$Immigrants_{ijt}$	60,715	48,521	59,749	2,693***	83,170	12,520***	13,370***	1,510***	10,445***	314,454***
	(328,645.9)	(137,592.2)	(105,116.8)	(4,968.08)	(260,396.5)	(22,072.93)	(34,134.62)	(3,926.5)	(27,574.15)	(891,510.1)
	(4,921.81)	(3,470.61)	(3,148.05)	(4,524.67)	(4,590.94)	(3,766.16)	(4,557.85)	(4,389.39)	(4,419.64)	(3,216.87)

Table 1. (Continued)

Variable	All Hosts	Australia	Canada	Denmark	Germany	Italy	Netherlands	Norway	Sweden	US
Geodesic Distance$_{ij}$ (kilometers)	7,073.57	13,744.87***	7,917.84***	4,960.51***	4,869.25***	8,735.95***	4,970.56***	5,142.00***	5,093.30***	8,227.89***
GDP$_{jt}$	362,039.96	377,963.00	374,928.02	381,824.09	359,116.23	369,814.26	379,151.12	381,709.84	380,836.13	260,035.15***
	(1,096,381)	(1,146,323)	(1,147,248)	(1,147,220)	(1,136,473)	(1,145,425)	(1,147,571)	(1,147,244)	(1,147,400)	(592,571)
Population$_{jt}$	71,387.40	71,935.06	71,926.72	72,296.23	71,164.06	71,525.55	72,142.10	72,308.97	72,243.90	68,284.84
	(190,910.49)	(191,279.93)	(191,529.13)	(191,424.16)	(191,590.22)	(191,587.39)	(191,473.94)	(191,419.66)	(191,442.02)	(189,924.10)
Openness$_{jt}$	0.7422	0.7457	0.7402	0.7413	0.7433	0.7445	0.7342	0.741	0.7405	0.7487
	(0.409)	(0.4091)	(0.4107)	(0.4107)	(0.4103)	(0.4099)	(0.4066)	(0.4108)	(0.4107)	(0.4061)
Remoteness$_{jt}$	25,705.47	25,671.99	25,708.94	25,691.11	25,728.81	25,719.44	25,715.61	25,681.55	25,701.65	25,730.15
	(45,322.26)	(45,389.6)	(45,370.9)	(45,380.18)	(45,359.99)	(45,365.2)	(45,367.3)	(45,384.97)	(45,374.75)	(45,359.23)
Δ ln Exchange Rate$_{ijt}$	0.0556	0.0460	0.0865***	0.0400	0.0356*	0.0590	0.0347**	0.0477	0.0443	0.1069***
	(0.2039)	(0.2136)	(0.1993)	(0.2014)	(0.2012)	(0.2048)	(0.2012)	(0.1988)	(0.2071)	(0.1969)
Common Language$_{ij}$	0.2255	0.4179***	0.3881***	0.4925***	0.1493***	0.1642***	0.0299***	0.00***	0.00***	0.3881***
	(0.418)	(0.4938)	(0.4879)	(0.5006)	(0.3568)	(0.3709)	(0.1704)	(0.00)	(0.00)	(0.4879)
Adjacency$_{ij}$	0.0381	0.00***	0.0149***	0.0149***	0.1194***	0.0597*	0.0299	0.0448	0.0299	0.0299
	(0.1916)	(0.00)	(0.1214)	(0.1214)	(0.3247)	(0.2372)	(0.1704)	(0.2071)	(0.1704)	(0.1704)
OPEC$_{j}$	0.0597	0.0597	0.0597	0.0597	0.0597	0.0597	0.0597	0.0597	0.0597	0.0597
	(0.237)	(0.2372)	(0.2372)	(0.2372)	(0.2372)	(0.2372)	(0.2372)	(0.2372)	(0.2372)	(0.2372)
Seaport$_{j}$	0.8209	0.8209	0.8209	0.8209	0.8209	0.8209	0.8209	0.8209	0.8209	0.8209
	(0.3835)	(0.3839)	(0.3839)	(0.3839)	(0.3839)	(0.3839)	(0.3839)	(0.3839)	(0.3839)	(0.3839)

Sample sizes for individual host countries equal 402 observations. The "all hosts" sample is equal to 3,618 observations. Population and Trade values in 1,000s. GDP values in 100,000s. All monetary values are in 1995 US dollars. "***", "**" and "*" denote statistical significance from the "all hosts" mean at the 1%, 5% and 10% levels, respectively.

Table 2. Traditional vs. Secular-Rational Authority (TSR)

Country	TSR	Country	TSR	Country	TSR
El Salvador	-2.23	Argentina	-0.6	Greece	0.32
Morocco	-1.75	Turkey	-0.5	France	0.33
Colombia	-1.65	Poland	-0.4	New Zealand	0.33
Nigeria	-1.27	Portugal	-0.37	Belgium	0.4
Tanzania	-1.25	**United States**	**-0.37**	Latvia	0.43
Jordan	-1.09	India	-0.28	Korea (Rep.)	0.45
Vietnam	-1.03	Azerbaijan	-0.21	Slovak Republic	0.47
Egypt	-1.01	**Canada**	**-0.15**	Finland	0.51
Algeria	-0.99	*Group Average*	*-0.13*	Luxembourg	0.51
Pakistan	-0.97	Romania	-0.12	Ukraine	0.51
Zimbabwe	-0.95	Albania	-0.02	Switzerland	0.53
Mexico	-0.86	Uruguay	-0.02	Russian Federation	0.62
Uganda	-0.85	**Australia**	**0.01**	Bulgaria	0.66
Bangladesh	-0.84	Croatia	0.05	**Netherlands**	**0.67**
Brazil	-0.81	**Italy**	**0.1**	Slovenia	0.7
Peru	-0.78	Spain	0.18	Estonia	0.75
Dominican Republic	-0.73	United Kingdom	0.2	**Norway**	**0.75**
South Africa	-0.69	Israel	0.21	**Denmark**	**0.92**
Philippines	-0.67	Macedonia	0.21	**Germany**	**0.93**
Indonesia	-0.66	Austria	0.24	Czech Republic	0.97
Chile	-0.64	Armenia	0.27	China	1.13
Ireland	-0.62	Hungary	0.27	**Sweden**	**1.19**
Venezuela	-0.62	Iceland	0.31	Japan	1.21

Bold type indicates the country is one of the nine hosts in our data.

Survival vs. Self-Expression Values

The *SSE* dimension of culture reflects differences between societies that emphasize hard work and self-denial (i.e., Survival values) and those that place greater emphasis on quality of life issues, such as women's emancipation and equal status for racial and sexual minorities (i.e., Self-expression values). Societies in which individuals focus more on survival tend to emphasize economic and physical security more than autonomy. The uncertainty surrounding economic and physical well-being manifests more generally as members of such societies find foreigners/outsiders, ethnic diversity and cultural change to be threatening. This corresponds with an intolerance of homosexuals and minorities, adherence to traditional gender roles, and an authoritarian political outlook.

Members of societies in which self-expression values are emphasized tend to hold opposing preferences from individuals in societies that emphasize survival. Self-expression values commonly emerge in societies where individuals perceive high levels of economic and physical security. The rationale is that when survival is no longer in doubt, uncertainty is diminished and cultural diversity becomes acceptable and, at times, sought out. Along with an appreciation of greater diversity is an increased tolerance towards deviation from traditional gender roles and sexual norms. Equal rights are more likely to be afforded to minorities and other groups. Average *SSE* values for the countries in our data are presented in Table 3. As in Table 2, countries are ranked in ascending *SSE* value order.

None of the host countries in our data have *SSE* values that are below the group average of 0.03. In fact, seven of the ten highest *SSE* values belong to host countries in our data set. The average *SSE* value for our nine hosts is equal to 0.95, which is significantly different from the overall mean value at the one percent level of significance. Thus, the host countries we examine are significantly less focused on survival as compared to the typical home country in our data and, thus, individuals in these societies are more likely to emphasize self-expression values.

The characteristics represented by the *TSR* and *SSE* dimensions which underlie our measure of host-home country cultural distance correspond to the channels through which immigrants are thought to influence trade. The emphasis on family and religion and associated adherence to family/communal obligations and norms of sharing suggests that, especially in the absence of formal contracting or access to a well-functioning judiciary or acceptance/adherence to the rule of law, the importance of business and social networks would be magnified. Repeated interaction with members of business and social networks would build trust since subsequent interaction is viewed as representative of commitment and reciprocity of trust and respect would be expected. It is reasonable to expect less trade will take place when functioning trade channels and formal contracting are weak or non-existent. In such instances, immigrants have a positive role to play as trade-intermediaries. This relates to the information bridge hypothesis and would materialize as immigrants acting to reduce trade-related transaction costs and increasing, potentially, both host country exports to and imports form their respective home countries.

The uncertainty associated with being survival-oriented, along the *SSE* dimension may also make immigrants' connections more valuable in terms of decreasing transactions costs and thus more effective with respect to increasing trade flows. Similarly, that foreigners and outsiders are viewed as threats is another example of the basis for which immigrants' network connections may prove useful in increasing trade flows. The transplanted home bias effect can result from product differentiation, variation in output mix or relative efficiencies in production across host-home country pairings. As mentioned, immigrants would essentially be acting to fill voids – aiding in the matching of potential buyers and sellers, conveying information about profitable trading opportunities or about potential parties to transactions, or otherwise – and, in doing so, facilitating transactions.

Calculation of Host-Home Country Cultural Distances

We construct average TSR and SSE values for each participating nation and then derive the cultural distance from each host country i to each home country j as

$CD_{ij} = \sqrt{\left(\overline{TSR}_j - \overline{TSR}_i\right)^2 + \left(\overline{SSE}_j - \overline{SSE}_i\right)^2}$.[1] Table 4 presents the corresponding cultural distances between all host-home country pairs in our data, while Figure 1 illustrates differences across TSR and SSE dimensions and cultural distances between several host-home country pairs.

ESTIMATION RESULTS/DISCUSSION

Following Ranjan and Tobias (2005), Eaton and Tamura (1994) and Head and Ries (1998), we estimate equation (3) using the Tobit regression.[2] Given the parameter η, the resulting coefficients are not true elasticities. However, as the values of η, relative to the mean values of corresponding dependent variable measures are quite small, we can heuristically interpret the coefficients as elasticities. Table 5 presents results obtained when aggregate exports and imports, as well as manufactured and non-manufactured goods exports and imports, are employed as dependent variables.[3] Focusing first on the immigrant stock variables, we find positive and significant coefficients across all estimations. Considered in conjunction with the coefficient on the variable that interacts the immigrant stock, cultural distance and host country dummy variables, we find strong evidence of pro-trade immigrant effects; however, the magnitudes of the effects vary considerably across host countries. For example, the proportional immigrant effect on aggregate imports is largest for the US (0.2968), Canada (0.2727) and Australia (0.2714) and is smallest for Denmark (0.124) and Norway (0.1242). A similar pattern emerges when aggregate exports are considered: Australia (0.3544), Germany (0.2534) and Italy (0.2443) are estimated to have the largest proportional effects, while Denmark (0.1195) has the smallest; the immigrant-export effect for Norway is not significantly different from zero.

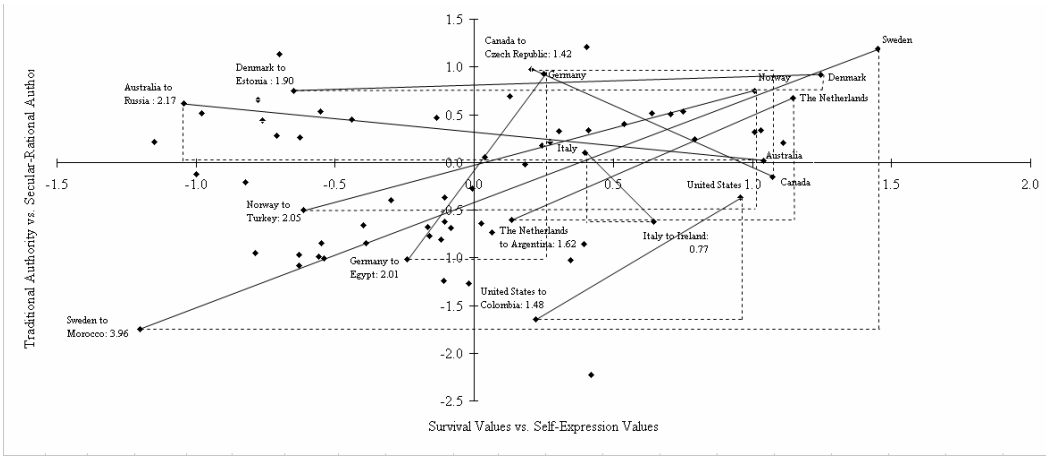

Figure 1. Cultural Distances, Select Host-Home country Pairs

[1] On average, the Values Surveys provide TSR and SSE values for 1,190 residents of each nation in our sample. Mean values are un-weighted arithmetic averages.

[2] We also provide similar estimates derived by employing random effects GLS approach as a robustness check.

[3] The full set of estimation results is available upon request.

Table 3. Survival vs. Self-Expression Values (SSE)

Country	SSE	Country	SSE	Country	SSE
Morocco	-1.20	Egypt	-0.24	Greece	0.30
Macedonia	-1.15	Philippines	-0.17	Venezuela	0.34
Russian Federation	-1.04	Peru	-0.16	Mexico	0.39
Romania	-1.00	Slovak Republic	-0.14	Italy	0.40
Ukraine	-0.98	Brazil	-0.12	Japan	0.40
Azerbaijan	-0.82	Tanzania	-0.11	France	0.41
Zimbabwe	-0.79	Portugal	-0.11	El Salvador	0.42
Bulgaria	-0.78	Vietnam	-0.11	Belgium	0.54
Latvia	-0.76	South Africa	-0.08	Luxembourg	0.64
Armenia	-0.71	Nigeria	-0.02	Ireland	0.65
China	-0.70	India	-0.01	Finland	0.71
Estonia	-0.65	Chile	0.03	Switzerland	0.75
Jordan	-0.63	*Group Average*	0.03	Austria	0.79
Pakistan	-0.63	Croatia	0.04	United States	0.96
Hungary	-0.63	Dominican Republic	0.07	Iceland	1.01
Turkey	-0.61	Slovenia	0.13	Norway	1.01
Algeria	-0.56	Argentina	0.13	New Zealand	1.03
Bangladesh	-0.55	Uruguay	0.18	Australia	1.04
Albania	-0.54	Czech Republic	0.20	Canada	1.07
Korea (Rep.)	-0.44	Colombia	0.22	United Kingdom	1.11
Indonesia	-0.40	Spain	0.25	Netherlands	1.15
Uganda	-0.39	Germany	0.25	Denmark	1.25
Poland	-0.30	Israel	0.27	Sweden	1.45

See Table 2 notes.

With respect to the cultural distance variables, we find negative coefficients in all estimations, although significance is lacking with respect to aggregate exports and exports of manufactured goods. From Table 1, we see that host countries which are relatively more culturally-distant from the home countries included in this data (i.e. Denmark, the Netherlands, Norway and Sweden) also tend to host fewer immigrants relative to host countries that are, on average, less culturally-distant (i.e. Australia, Canada, Germany, Italy and the US). In fact, Denmark and Norway have by far the fewest immigrants among the host countries included in this data set and, with the exception of Sweden, are more culturally-distant from the home countries in the data than all other host countries. Thus, the observed variation in immigrant-trade links across aggregate export and import measures may reflect the relative inability of immigrants who reside in more culturally-distant host countries to overcome the trade-inhibiting effects of the relatively larger cultural differences between their home and host countries.

Table 4. Host-Home Country Cultural Distances

Host:	Australia	Canada	Denmark	Germany	Italy	Netherlands	Norway	Sweden	US
Albania	1.58	1.61	2.02	1.24	0.94	1.82	1.73	2.33	1.54
Algeria	1.89	1.83	2.63	2.09	1.45	2.38	2.34	2.97	1.64
Argentina	1.09	1.04	1.88	1.54	0.75	1.62	1.61	2.22	0.85
Armenia	1.77	1.83	2.06	1.16	1.12	1.90	1.78	2.35	1.79
Australia	0.00	0.16	0.93	1.21	0.65	0.67	0.74	1.25	0.39
Austria	0.34	0.48	0.81	0.88	0.42	0.56	0.55	1.16	0.63
Azerbaijan	1.87	1.89	2.35	1.56	1.26	2.15	2.07	2.67	1.79
Bangladesh	1.80	1.76	2.51	1.95	1.34	2.27	2.23	2.85	1.58
Belgium	0.63	0.77	0.87	0.60	0.33	0.66	0.58	1.21	0.88
Brazil	1.42	1.36	2.20	1.78	1.05	1.95	1.92	2.54	1.16
Bulgaria	1.93	2.01	2.04	1.06	1.30	1.92	1.79	2.29	2.01
Canada	0.16	0.00	1.08	1.36	0.72	0.82	0.90	1.39	0.25
Chile	1.21	1.16	1.98	1.59	0.83	1.73	1.70	2.32	0.97
China	2.07	2.18	1.96	0.97	1.50	1.90	1.75	2.15	2.23
Colombia	1.85	1.73	2.76	2.58	1.76	2.50	2.53	3.10	1.48
Croatia	1.00	1.05	1.48	0.90	0.36	1.27	1.19	1.81	1.01
Czech Republic	1.27	1.42	1.04	0.06	0.89	0.99	0.83	1.27	1.54
Denmark	0.93	1.08	0.00	1.00	1.18	0.26	0.29	0.34	1.32
Dominican Republic	1.23	1.16	2.03	1.67	0.90	1.77	1.76	2.37	0.96
Egypt	1.64	1.57	2.44	2.01	1.28	2.18	2.16	2.78	1.36
El Salvador	2.33	2.18	3.25	3.17	2.33	2.99	3.04	3.57	1.94
Estonia	1.84	1.94	1.90	0.92	1.23	1.80	1.66	2.15	1.96

Tasble 4. (Continued)

Host:	Australia	Canada	Denmark	Germany	Italy	Netherlands	Norway	Sweden	US
Finland	0.60	0.75	0.68	0.62	0.51	0.47	0.39	1.01	0.91
France	0.71	0.82	1.02	0.62	0.23	0.81	0.73	1.35	0.89
Germany	1.21	1.36	1.00	0.00	0.84	0.93	0.78	1.23	1.48
Greece	0.80	0.90	1.11	0.61	0.24	0.91	0.83	1.44	0.95
Hungary	1.69	1.75	1.98	1.10	1.04	1.82	1.71	2.28	1.71
Iceland	0.30	0.47	0.65	0.98	0.65	0.38	0.44	0.99	0.69
India	1.09	1.08	1.73	1.24	0.55	1.49	1.44	2.07	0.97
Indonesia	1.59	1.56	2.28	1.72	1.10	2.04	1.99	2.62	1.39
Ireland	0.75	0.64	1.65	1.60	0.77	1.39	1.42	1.99	0.40
Israel	0.79	0.87	1.20	0.72	0.16	0.99	0.91	1.53	0.90
Italy	0.65	0.72	1.18	0.84	0.00	0.94	0.89	1.52	0.73
Japan	1.35	1.51	0.89	0.31	1.10	0.91	0.76	1.05	1.67
Jordan	2.00	1.94	2.74	2.20	1.57	2.50	2.46	3.09	1.74
Korea (Rep.)	1.55	1.63	1.75	0.84	0.91	1.60	1.48	2.03	1.62
Latvia	1.85	1.92	2.06	1.13	1.20	1.92	1.80	2.34	1.90
Luxembourg	0.64	0.79	0.73	0.57	0.47	0.53	0.44	1.06	0.93
Macedonia	2.20	2.25	2.50	1.58	1.55	2.34	2.23	2.78	2.18
Mexico	1.08	0.98	1.97	1.80	0.96	1.70	1.72	2.31	0.75
Morocco	2.85	2.78	3.62	3.05	2.45	3.37	3.34	3.96	2.56
Netherlands	0.67	0.82	0.26	0.93	0.94	0.00	0.16	0.60	1.06
New Zealand	0.32	0.48	0.62	0.98	0.67	0.36	0.42	0.96	0.71
Nigeria	1.66	1.56	2.52	2.21	1.43	2.26	2.26	2.87	1.33
Norway	0.74	0.90	0.29	0.78	0.89	0.16	0.00	0.63	1.12

Table 4. (Continued)

Host:	Australia	Canada	Denmark	Germany	Italy	Netherlands	Norway	Sweden	US
Pakistan	1.94	1.89	2.66	2.10	1.48	2.42	2.38	3.00	1.70
Peru	1.44	1.38	2.20	1.76	1.04	1.95	1.92	2.54	1.19
Philippines	1.39	1.35	2.13	1.66	0.96	1.88	1.85	2.47	1.16
Poland	1.40	1.39	2.03	1.44	0.86	1.80	1.74	2.37	1.26
Portugal	1.21	1.20	1.87	1.35	0.69	1.63	1.58	2.21	1.06
Romania	2.04	2.07	2.47	1.63	1.41	2.29	2.19	2.78	1.97
Russian Federation	2.17	2.25	2.31	1.33	1.53	2.19	2.06	2.56	2.23
Slovak Republic	1.26	1.36	1.45	0.60	0.65	1.30	1.18	1.75	1.38
Slovenia	1.14	1.27	1.14	0.27	0.65	1.02	0.88	1.41	1.35
South Africa	1.33	1.28	2.09	1.66	0.93	1.84	1.81	2.43	1.09
Spain	0.81	0.89	1.24	0.75	0.17	1.03	0.95	1.58	0.90
Sweden	1.25	1.39	0.34	1.23	1.52	0.60	0.63	0.00	1.64
Switzerland	0.60	0.75	0.63	0.64	0.56	0.42	0.34	0.96	0.93
Tanzania	1.70	1.61	2.55	2.21	1.44	2.29	2.29	2.89	1.38
Turkey	1.73	1.72	2.34	1.68	1.18	2.12	2.05	2.67	1.57
Uganda	1.67	1.62	2.41	1.89	1.24	2.16	2.13	2.75	1.43
Ukraine	2.08	2.15	2.26	1.30	1.44	2.13	2.00	2.53	2.13
United Kingdom	0.20	0.35	0.73	1.13	0.72	0.47	0.56	1.05	0.59
United States	0.39	0.25	1.32	1.48	0.73	1.06	1.12	1.64	0.00
Uruguay	0.86	0.90	1.42	0.95	0.25	1.19	1.13	1.76	0.85
Venezuela	1.25	1.14	2.14	1.96	1.13	1.88	1.90	2.48	0.90
Vietnam	1.31	1.27	2.05	1.60	0.88	1.80	1.77	2.39	1.09
Zimbabwe	2.06	2.02	2.76	2.15	1.58	2.52	2.47	3.10	1.84

Table 5. Aggregate, Manufacturing and Non-Manufacturing Imports and Exports - Tobit Coefficients

		ln Manuf.	ln Non-Manuf.		ln Manuf.	ln Non-Manuf.
Dep. Variable:	ln $Imports_{ijt}$	$Imports_{ijt}$	$Imports_{ijt}$	ln $Exports_{ijt}$	$Exports_{ijt}$	$Exports_{ijt}$
	(a)	(b)	(c)	(d)	(e)	(f)
ln $Immigrants_{ijt}$	0.2107***	0.222***	0.2758***	0.2443***	0.2673***	0.1454***
	(0.0258)	(0.0275)	(0.0306)	(0.0221)	(0.0219)	(0.0257)
ln $Immigrants_{ijt}$ x ln Cultural $Distance_{ij}$	0.0607	0.0498	0.1066**	0.1101***	0.0614*	0.2592***
x Host Country: Australia	(0.0376)	(0.0401)	(0.0446)	(0.0322)	(0.0319)	(0.0375)
ln $Immigrants_{ijt}$ x ln Cultural $Distance_{ij}$	0.062*	0.1082***	0.0015	-0.0543*	-0.1129***	0.1742***
x Host Country: Canada	(0.0371)	(0.0396)	(0.0439)	(0.0317)	(0.0315)	(0.037)
ln $Immigrants_{ijt}$ x ln Cultural $Distance_{ij}$	-0.0867**	-0.0232	-0.1183**	-0.1248***	-0.1259***	0.0166
x Host Country: Denmark	(0.0409)	(0.0436)	(0.0484)	(0.0349)	(0.0346)	(0.0408)
ln $Immigrants_{ijt}$ x ln Cultural $Distance_{ij}$	0.0375	0.0495	0.0735*	0.0091	0.0007	0.1276***
x Host Country: Germany	(0.0375)	(0.04)	(0.0444)	(0.032)	(0.0318)	(0.0374)
ln $Immigrants_{ijt}$ x ln Cultural $Distance_{ij}$	0.0231	0.071*	-0.013	-0.0892***	-0.1052***	0.0572*
x Host Country: The Netherlands	(0.0349)	(0.0372)	(0.0413)	(0.0298)	(0.0296)	(0.0348)
ln $Immigrants_{ijt}$ x ln Cultural $Distance_{ij}$	-0.0865**	-0.0941**	-0.1499***	-0.2444***	-0.2596***	-0.0661*
x Host Country: Norway	(0.0364)	(0.0388)	(0.0431)	(0.0311)	(0.0309)	(0.0363)
ln $Immigrants_{ijt}$ x ln Cultural $Distance_{ij}$	-0.0167	-0.0307	-0.0099	-0.0435	-0.0543	0.0655*
x Host Country: Sweden	(0.0393)	(0.0419)	(0.0466)	(0.0336)	(0.0333)	(0.0392)
ln $Immigrants_{ijt}$ x ln Cultural $Distance_{ij}$	0.0861**	0.1468***	-0.0154	-0.0362	-0.0728**	0.2222***
x Host Country: United States	(0.0352)	(0.0376)	(0.0417)	(0.0301)	(0.0299)	(0.0352)
ln Cultural $Distance_{ij}$	-0.7758***	-1.2148***	-0.6172**	-0.1655	-0.1035	-1.235***
	(0.2313)	(0.2467)	(0.2739)	(0.1978)	(0.196)	(0.2308)
Δ ln Exchange $Rate_{ijt}$	0.4108***	0.5933***	0.4469***	-0.342***	-0.1892	-0.6029***

Table 5. (Continued)

		ln Manuf.	ln Non-Manuf.		ln Manuf.	ln Non-Manuf.
	(0.1434)	(0.153)	(0.1697)	(0.1227)	(0.1216)	(0.1432)
ln Geodesic Distance$_{ij}$	-0.3989***	-0.5593***	-0.0796	-0.4641***	-0.4411***	-0.6899***
	(0.042)	(0.0448)	(0.0497)	(0.0359)	(0.0356)	(0.0419)
ln GDP$_{jt}$	0.8615***	0.9671***	0.8558***	0.6104***	0.5983***	0.6428***
	(0.0562)	(0.06)	(0.0665)	(0.0481)	(0.0476)	(0.0561)
ln Trade Openness$_{jt}$	0.3635***	0.9783***	-0.0275	0.047	0.0584	0.1078
	(0.0727)	(0.0776)	(0.0861)	(0.0622)	(0.0616)	(0.0726)
ln Population$_{jt}$	0.0631*	0.119***	-0.0801**	0.0546*	0.0484*	0.029
	(0.034)	(0.0363)	(0.0403)	(0.0291)	(0.0288)	(0.034)
ln Economic Remoteness$_{jt}$	-0.078	-0.1452***	0.1274**	-0.1688***	-0.2011***	-0.1421***
	(0.0492)	(0.0525)	(0.0582)	(0.0421)	(0.0417)	(0.0491)
Shared Border$_{ij}$	0.7473***	0.4321**	1.2788***	0.8551***	0.7551***	0.9957***
	(0.1621)	(0.1729)	(0.1918)	(0.1386)	(0.1373)	(0.1617)
Common Language$_{ij}$	0.2724***	0.195**	0.3915***	0.3032***	0.4306***	0.2664***
	(0.0783)	(0.0835)	(0.0927)	(0.0669)	(0.0663)	(0.0781)
FTA$_{ijt}$	0.2273**	0.2436**	0.4192***	0.2241***	0.1524**	0.4639***
	(0.09)	(0.096)	(0.1065)	(0.077)	(0.0763)	(0.0898)
OPEC$_{j}$	-0.2795**	-2.2475***	0.9305***	-0.1036	-0.2759***	0.3211**
	(0.1267)	(0.1352)	(0.15)	(0.1084)	(0.1074)	(0.1264)
Seaport$_{j}$	0.9291***	1.0264***	1.2957***	0.7254***	0.6387***	0.9805***
	(0.0813)	(0.0867)	(0.0964)	(0.0695)	(0.0689)	(0.0811)
Constant	-7.1652***	-8.765***	-11.9943***	0.3432	0.6089	0.2197
	(1.7233)	(1.8382)	(2.0398)	(1.474)	(1.4605)	(1.7191)
N	3,618	3,618	3,618	3,618	3,618	3,618

Table 5. (Continued)

		ln Manuf.	ln Non-Manuf.		ln Manuf.	ln Non-Manuf.
Pseudo-R^2	0.25	0.26	0.19	0.27	0.28	0.22
Adjusted R^2	0.73	0.68	0.67	0.74	0.73	0.65
Log-likelihood	-6,984	-7,207	-7,551	-6,433	-6,399	-6,973
LR Statistic	4,606***	5,008***	3,506***	4,758***	5,098***	4,005***

Coefficients on dummy variables representing years and host countries not reported. Statistical significance is denoted as follows: "***", "**", and "*" indicate significance from zero at the 1%, 5%, and 10% levels, respectively.

Table 6. Proportional Immigrant Effects, Imports

	Average	Australia	Canada	Denmark	Germany	Italy	Netherlands	Norway	Sweden	USA
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
Aggregate Imports	0.2195	0.2714***	0.2727***	0.124***	0.2482***	0.2107***	0.2338***	0.1242***	0.194***	0.2968***
	(0.0627)	(7.29)	(7.4)	(3.29)	(6.84)	(8.17)	(7.61)	(4.8)	(5.2)	(8.38)
Manufactured Products	0.2528	0.2718***	0.3302***	0.1988***	0.2715***	0.222***	0.293***	0.1279***	0.1913***	0.3688***
	(0.075)	(6.84)	(8.4)	(4.94)	(7.01)	(8.07)	(8.94)	(4.63)	(4.81)	(9.76)
Non-Manufactured Products	0.2619	0.3824***	0.2773***	0.1575***	0.3493***	0.2758***	0.2628***	0.1259***	0.2659***	0.2604***
	(0.0806)	(8.65)	(6.36)	(3.52)	(8.13)	(9.01)	(7.22)	(4.11)	(6.01)	(6.21)
SITC-0: Food and Live Animals	0.3557	0.4955***	0.4213***	0.2909***	0.4666***	0.3661***	0.4033***	0.128***	0.3186***	0.3108***
	(0.1107)	(10.37)	(8.96)	(6.03)	(10.08)	(11.09)	(10.27)	(3.88)	(6.68)	(6.87)
SITC-1: Beverages and Tobacco	0.2439	0.339***	0.3934***	0.0489	0.3881***	0.4678***	0.3533***	-0.138***	0.125**	0.2669***
	(0.2204)	(5.3)	(6.3)	(0.75)	(6.33)	(10.37)	(6.75)	(3.04)	(1.96)	(4.45)
SITC-2: Crude Materials, Inedible, Except Fuels	0.2512	0.3723***	0.3106***	0.1918***	0.3088***	0.2485***	0.2877***	0.0514	0.2581***	0.2831***

Table 6. (Continued)

	Average	Australia	Canada	Denmark	Germany	Italy	Netherlands	Norway	Sweden	USA
	(0,1064)	(6.94)	(5.93)	(3.57)	(6.0)	(6.77)	(6.59)	(1.4)	(4.84)	(5.63)
SITC-3: Mineral Fuels, Lubricants and Related Materials	0.2321	0.3217***	0.3131***	-0.1546	0.434***	0.2938***	0.2685***	0.0397	0.1178	0.4582***
	(0.1848)	(2.71)	(2.88)	(1.3)	(4.17)	(3.77)	(2.97)	(0.48)	(1.04)	(4.48)
SITC-4: Animal and Vegetable Oils, Fats and Waxes	0.5249	0.653***	0.7506***	0.4037***	0.6875***	0.4097***	0.5931***	0.2747***	0.4101***	0.542***
	(0.1591)	(7.57)	(9.41)	(4.47)	(9.07)	(7.00)	(9.06)	(4.64)	(4.78)	(7.21)
SITC-5: Chemicals and Related Products, n.e.s.	0.2017	0.3083***	0.3147***	0.0546	0.2712***	0.2002***	0.3065***	0.0346	0.0916*	0.3228***
	(0.1361)	(6.29)	(6.55)	(1.1)	(5.75)	(5.89)	(7.65)	(1.02)	(1.86)	(7.0)
SITC-6: Manufactured Goods Classified by Material	0.2229	0.3027***	0.3044***	0.1564***	0.2195***	0.1435***	0.2709***	0.1194***	0.196***	0.2935***
	(0.0729)	(6.64)	(6.76)	(3.38)	(4.95)	(4.56)	(7.2)	(3.77)	(4.29)	(6.77)
SITC-7: Machinery and Transport Equipment	0.2538	0.2467***	0.3773***	0.1592***	0.2584***	0.2501***	0.3267***	0.0944***	0.2589***	0.3125***
	(0.0855)	(5.49)	(8.5)	(3.49)	(5.91)	(8.04)	(8.82)	(3.02)	(5.76)	(7.32)
SITC-8: Miscellaneous Manufactured Articles	0.3415	0.2664***	0.4272***	0.348***	0.4217***	0.2915***	0.4131***	0.1341***	0.2879***	0.4832***
	(0.1078)	(5.99)	(9.74)	(7.74)	(9.76)	(9.50)	(11.29)	(4.35)	(6.48)	(11.45)
SITC-9: Commodities and Transactions, n.e.c.	0.1148	0.0593	0.2581***	0.1838***	0.0201	0.2469***	0.1846***	0.2017***	-0.2858***	0.2441***
	(0.1798)	(0.98)	(4.48)	(3.12)	(0.35)	(5.95)	(3.81)	(4.93)	(4.72)	(4.41)

Statistical significance is denoted as follows: "**", "*", and "#" indicate significance from zero at the 1%, 5%, and 10% levels, respectively. Bold (italicized) font indicates corresponding effect is greater

(less) than the average effect listed in leftmost column. Values presented in parentheses below average effects are standard deviations. Values presented below proportional immigrant effects are

z-statistics. Z-statistics are constructed as

$$Z = \frac{\hat{\beta}_{CD} + \hat{\beta}_{INTER}}{VAR(\hat{\beta}_{CD}) + VAR(\hat{\beta}_{INTER}) + 2 \times COVAR(\hat{\beta}_{CD}, \hat{\beta}_{INTER})}$$

Table 7: Proportional Immigrant Effects, Exports

	Average	Australia	Canada	Denmark	Germany	Italy	Netherlands	Norway	Sweden	USA
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
Aggregate Exports	0.1917	**0.3544*** **	0.19***	0.1195***	**0.2534*** **	**0.2443*** **	0.1551***	-0.0001	**0.2008*** **	**0.2081*** **
	(0.0979)	(11.12)	(6.03)	(3.7)	(8.16)	(11.05)	(5.9)	(0.0)	(6.3)	(6.86)
Manufactured Products	0.1922	**0.3287*** **	0.1544***	0.1414***	**0.268*** **	**0.2673*** **	0.1621***	0.0077	**0.213*** **	**0.1945*** **
	(0.0951)	(10.41)	(4.94)	(4.42)	(8.71)	(12.21)	(6.22)	(0.35)	(6.74)	(6.48)
Non-Manufactured Products	0.2406	**0.4046*** **	**0.3196*** **	0.162***	**0.273*** **	0.1454***	0.2026***	0.0793***	0.2109***	**0.3676*** **
	(0.1083)	(10.88)	(8.69)	(4.3)	(7.55)	(5.66)	(6.6)	(3.07)	(5.67)	(10.4)
SITC-0: Food and Live Animals	0.2102	**0.383*** **	**0.3037*** **	0.1204***	**0.2253*** **	0.1322***	0.1732***	0.0634**	0.1371***	**0.3535*** **
	(0.1128)	(9.13)	(7.33)	(2.84)	(5.53)	(4.56)	(5.01)	(2.18)	(3.26)	(8.87)
SITC-1: Beverages and Tobacco	0.2440	0.0673	**0.4375*** **	0.1048**	**0.3267*** **	**0.3782*** **	0.2054***	0.012	**0.2495*** **	**0.4942*** **
	(0.182)	(1.27)	(8.48)	(2.0)	(6.54)	(10.51)	(4.85)	(0.31)	(4.81)	(10.13)
SITC-2: Crude Materials, Inedible, Except Fuels	0.3185	**0.5893*** **	**0.3735*** **	0.2937***	**0.3742*** **	0.1737***	0.2534***	0.1539***	0.3101***	**0.3445*** **
	(0.129)	(13.56)	(8.75)	(6.7)	(8.9)	(5.79)	(7.12)	(5.1)	(7.17)	(8.39)
SITC-3: Mineral Fuels, Lubricants and Related Materials	0.4578	**0.6726*** **	**0.6087*** **	0.394***	**0.6208*** **	0.3594***	0.4052***	0.1274***	0.4111***	**0.5209*** **
	(0.1686)	(9.4)	(8.88)	(5.51)	(9.4)	(7.44)	(7.24)	(2.62)	(5.96)	(8.05)
SITC-4: Animal and Vegetable Oils, Fats and Waxes	0.3637	**0.6822*** **	**0.6532*** **	0.2066***	**0.4613*** **	0.1731***	0.3304***	0.0417	0.2356***	**0.5309*** **
	(0.2328)	(10.59)	(10.49)	(3.35)	(8.0)	(4.11)	(6.76)	(0.93)	(3.85)	(9.37)
SITC-5: Chemicals and Related Products, n.e.s.	0.2241	**0.2953*** **	**0.317*** **	0.2079***	**0.3169*** **	**0.2602*** **	**0.2254*** **	0.0285	0.1762***	0.2184***
	(0.0977)	(4.32)	(4.66)	(3.04)	(4.68)	(11.12)	(3.44)	(0.45)	(2.58)	(3.24)

Table 7. (Continued)

SITC-6: Manufactured Goods Classified by Material	0.2202	**0.2894*** **	**0.2535*** **	0.1198***	**0.3332*** **	**0.2485*** **	0.2081***	0.044*	**0.2488*** **	**0.2369*** **
	(0.0879)	(8.38)	(7.44)	(3.43)	(9.93)	(10.40)	(7.31)	(1.84)	(7.21)	(7.22)
SITC-7: Machinery and Transport Equipment	0.1844	**0.2473*** **	0.1337***	0.1766***	**0.2572*** **	**0.2654*** **	0.153***	0.0222	**0.2469*** **	0.1798***
	(0.0847)	(7.78)	(4.26)	(5.49)	(8.32)	(12.06)	(5.83)	(1.01)	(7.77)	(5.95)
SITC-8: Miscellaneous Manufactured Articles	0.2194	**0.2997*** **	**0.2498*** **	0.1445***	**0.3216*** **	**0.2528*** **	0.1872***	0.0376*	0.2228***	**0.2584*** **
	(0.0867)	(9.87)	(8.33)	(4.71)	(10.9)	(12.04)	(7.48)	(1.78)	(7.34)	(8.96)
SITC-9: Commodities and Transactions, n.e.c.	0.1907	**0.4247*** **	0.1573***	0.1363***	**0.2099*** **	**0.3034*** **	0.1268***	0.01	0.1658***	**0.1921*** **
	(0.1188)	(10.25)	(3.84)	(3.25)	(5.21)	(10.53)	(3.71)	(0.35)	(4.0)	(4.88)

Table 8: Simpson's Diversity Indexes by Host Country and Year

	Average	Australia	Canada	Denmark	Germany	Italy	Netherlands	Norway	Sweden	USA
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
2001	14.03%	30.62%	24.96%	7.04%	13.25%	3.71%	11.32%	4.58%	14.26%	16.54%
2000	14.05%	31.70%	24.77%	6.91%	13.18%	3.58%	11.16%	4.63%	14.09%	16.44%
1999	13.63%	31.45%	25.10%	6.79%	13.13%	2.89%	11.07%	4.53%	13.92%	13.81%
1998	13.75%	31.24%	24.53%	6.62%	13.11%	2.70%	10.94%	4.37%	16.56%	13.64%
1997	13.53%	31.05%	24.07%	6.45%	12.83%	2.59%	10.84%	4.38%	16.11%	13.45%
1996	13.37%	31.21%	23.99%	6.23%	12.81%	1.87%	10.83%	4.49%	15.73%	13.20%
Avg.	13.73%	31.21%***	24.57%***	6.68%***	13.05%***	2.89%***	11.03%***	4.5%***	15.11%***	14.52%

The remaining coefficients in Table 5 conform to expectations. Coefficients on the variables representing changes in host-home country exchange rates are positive and negative, and generally significant, with respect to imports and exports, respectively. Greater geodesic distance between host and home countries, implying higher transport costs, corresponds with reduced trade levels. Also, as expected, higher home country GDP corresponds to both greater host country exports and imports. Likewise, home countries that are relatively more open to trade tend to trade more with the host countries in our sample. Coefficients on the home country population variables are positive and significant in all, but one estimation. Intuitively, this would mean that larger populations imply larger markets for host country exports to serve and, perhaps, a greater ability of the home countries to export to the host countries. Home country economic remoteness is found, in many instances, to have a negative effect on trade with the host country. Estimated coefficients on the dummy variables suggest that host-home country adjacency, commonality of language, free trade agreements and having coastal access all facilitate trade and that, with the exception of trade in non-manufactured goods, the nine host countries tend to trade relatively less with home countries that are members of OPEC.

To further examine variation in immigrant-trade links across host countries, we estimate equation (2) while employing disaggregated measures of trade – imports and exports of manufactured and non-manufactured products and 1-digit SITC sector values of imports and exports – as dependent variables. The resulting proportional immigrant effects on host country imports and exports are presented in Tables 6 and 7, respectively. For most host countries and measures of trade, estimated proportional immigrant effects are positive and significant; however, variation in effects is again noted across host economies. Column (a) of Table 6 reports average immigrant effects and corresponding standard deviations. Immigrant effects that are greater in magnitude than the corresponding average effect are noted by bold typeface.

Comparing magnitudes of the proportional immigrant effects on aggregate, manufactured and non-manufactured goods imports, separately, across host countries (the first three trade measures presented in Table 6), we see above-average immigrants effects for Australia, Canada, Germany, The Netherlands and the US; however, only the effects reported for the US (aggregate imports (0.2968) and manufactured goods imports (0.3688)) and Canada (manufactured goods imports (0.3302)) are greater than one standard deviation above the associated mean effects. The corresponding estimated proportional effects (aggregate, manufactured and non-manufactured goods imports) for Denmark and Norway fall below the relevant mean values, as do estimated effects for aggregate and manufactured goods imports for Italy and Sweden. In fact, the estimated effects for Norway, while positive and significant, fall short of the mean effect by more than one standard deviation. Similarly, for Denmark, the estimated effect of immigrants on aggregate imports and imports of non-manufactured products lies below the mean effect by are more than one standard deviation.

When considering the estimated proportional effects of immigrants on host country exports to their respective home countries, a similar pattern emerges. From the results presented for the first three trade measures in Table 7 we see, again, that proportional immigrant effects for Australia, Germany and the US are greater in magnitude as compared to the mean effect. Likewise, for Italy and Sweden, the corresponding effect of immigrants on aggregate and manufactured goods exports is greater than the mean effect. Unlike the results presented in Table 6 for imports, here we observe only the effects estimated for Australia (0.3544, 0.3287 and 0.4046 for aggregate, manufactured and non-manufactured goods exports, respectively) and the US (0.3676 for non-manufactured goods exports) are greater

than one standard deviation above the relevant mean. Most striking is that, in the case of Norway, of the three estimated proportional immigrant effects, only the effect on non-manufactured goods exports (0.0793) is significant and even this effect is less than one standard deviation below the corresponding mean effect.

Decomposing the aggregate import and export values into 1-digit SITC sector-level values permits examination of immigrant-trade relationships at a much greater level of detail. Since we see variation in the magnitudes of the effects across host countries when aggregate, manufactured and non-manufactured goods trade values are employed as the dependent variables in our estimations, it is expected that similar variation will be found when more disaggregated measures of trade are employed. Proportional immigrant effects are again reported in Tables 6 and 7. Since the estimated immigrant-trade links are quite consistent across measures of trade, yet vary across host countries, we consider this as indicative of the robustness of our general results. We find that Australia, Canada, Germany and the US are the host countries where, consistently, above-average proportional immigrant-trade effects are estimated. Denmark, Norway and Sweden tend to have below-average proportional immigrant-trade effects, while effects for Italy and the Netherlands are more mixed.

We assume that host-home country cultural distance does not vary during our reference period when estimating the proportional influences of hypothetical one percent increases in immigrant stocks on host-home country trade flows. Assuming, instead, immigrant stocks remain constant and allowing hypothetical one percent increases in cultural distances permits the determination of the relative effects of cultural distance on trade. Comparing proportional cultural distance effects to the proportional immigrant-import effects (presented in Table 6), we find that in 91 cases both effects are significant and, in such instances, the cultural distance effect exceeds the immigrant-import effect by an average factor of 6.13. In only one case (US imports of SITC-1 products) is the cultural distance effect (-0.1726) less than the corresponding immigrant-export effect (0.2669). Comparison of proportional cultural distance effects to immigrant-export effects (presented in Table 7) reveals that in only one of the 68 instances in which both the cultural distance and immigrant-export effects are significant (Australian exports of manufactured products) is the immigrant-export effect (0.3287) greater than the cultural distance effect (-0.0421). Across all 68 cases, the average cultural distance effect-to-immigrant-export effect ratio is 5.8. Thus, we conclude the trade-inhibiting influence of cultural distance far exceeds the trade-enhancing effects of immigrants.

CULTURAL DIVERSITY AND THE IMMIGRANT-TRADE LINK

The empirical results presented in Section 5 address the first two of our three principal questions. We find that greater cultural distance between countries does act to hinder trade. However, immigrants exert pro-trade influences that offset, at least in part, the trade-inhibiting influences of cultural distance. These pro-trade immigrant effects vary across product classifications and economic sectors and, more importantly, across host countries that differ to the extent which their populations are culturally diverse. This brings us to our third question: does cultural diversity within the immigrants' host countries affect the abilities of immigrants' to increase trade? To address this question, we calculate annual values, for each host country, of the Simpson's Index of Diversity. These values, along with host country-specific average values, are presented in Table 8.

Simpson's Indexes of Diversity is calculated as $1-\frac{\sum n_{ij}(n_{ij}-1)}{N_i(N_i-1)}$, where n_{ij} is the total number of individuals born in a particular country, inclusive of immigrants and the native-born. N_i is the total population of host country i. Simpson's Index of Diversity ranges in value from 0 to 1, with higher values indicating greater diversity. The index effectively reflects the probability that two randomly selected individuals are from different countries.

The coefficients summarized in Tables 6 and 7 represent the expected proportional responses of imports and exports, respectively, to a small (i.e., one percent) proportional increase in the immigrant stock variable. By comparing average Simpson's Index vales to the estimated proportional effects of immigrants on trade that are presented in Table 6 and 7, we can determine whether greater cultural diversity in the immigrants' host country corresponds with immigrants' influences on trade that are of greater or lesser magnitude. Beginning with immigrants' proportional influences on host country imports, the correlation coefficient between the average Simpson's Index values and the estimated immigrant-import effects reported in Table 8 is equal to 0.33. The corresponding correlation coefficient between the average Simpson's Index values and the immigrant-export effects (reported in Table 8) is equal to 0.49. In both cases, the coefficients are statistically significant. Thus, we can say that greater host country cultural diversity is positively related to immigrant-import and immigrant-export effects.[1]

These findings are not entirely surprising when one glimpses the values in Tables 6 through 8. A consistent pattern emerges regarding the pattern of above-average cultural diversity and above-average magnitudes for the immigrant-trade effects. The values in the table indicate that Australia, Canada and Sweden are significantly more culturally diverse than are the remaining host countries; however, since the US is not significantly different from the cohort-average, it can be taken as significantly more diverse than Denmark, Germany, Italy, the Netherlands or Norway. Revisiting Table 6, we see that the estimated immigrant-import effects for Australia, Canada, Sweden and the US are above the corresponding cohort-averages in 38 of 52 instances (73.1%), while the estimated immigrant-export effects for the remaining host countries are above the corresponding cohort averages in 31 of 65 instances (47.7%). Performing the same accounting for the values in Table 7, we see that the estimated immigrant-export effects for the four most culturally-diverse host countries are above-average for 71.1 percent of the cases, while the immigrant-export effects in the remaining hosts are above-average in only 33.8 percent of cases.

Based on these results, while we can say that cultural diversity within the immigrants' host countries fosters the creation of trade-between immigrants host and home countries, the inference that it enhances the abilities of immigrants to affect trade is not entirely straightforward. Sweden, for example, is one anomaly. Estimated to have the third most culturally-diverse population among the nine host countries considered, the immigrant-trade effects for Sweden are below average in 18 of 26 instances. For Australia and Canada, estimated effects exceed the corresponding averages in 22 of 26 cases, while 23 of 26 estimated effects for the US are above-average. Germany, on the other hand, is estimated to be relatively less culturally-diverse, yet in 24 of 26 instances the corresponding immigrant-trade effect exceeds the cohort average. Results for Denmark and Norway, however, are very

[1] Both correlation coefficients are significant from zero at the 1% level.

much in line with the general finding of a positive relationship between host country diversity and greater proportional immigrant-trade links.

CONCLUSION

In an attempt to gain a deeper understanding of how immigrants affect host-home country trade flows, we have examined the relationship between immigrants, cultural distance and trade for a group of culturally and economically heterogeneous host countries. Our analysis extends the related literature, informs the public and political discussions of immigration and, potentially, provides information beneficial in the formulation of public policy. Our results indicate that immigrants, generally speaking, appear to increase both host country imports from and exports to their respective home countries. However, considerable variation is observed across host countries in terms of pro-trade effects. For example, the magnitudes of immigrant-trade links for Denmark and Norway – both of which have fewer immigrants than other host economies considered in this study – are generally positive but also tend to be below-average when compared to the remaining host economies in our sample. Australia, Canada, Germany (with immigrant populations of typical size relative to the full sample of host countries) and the US (with the largest number of immigrants), on the other hands, frequently are estimated to have immigrant-trade links that are above-average in magnitude.

We also report that greater cultural difference between host countries and home countries inhibits both host country imports and exports, with imports seemingly affected to a greater extent. This is consistent with the notion that greater cultural differences between societies complicate interactions, hinder the development of rapport and trust and, thus, act to inhibit trade flows. Greater cultural diversity of the host countries' populations, on the other hand, corresponds with increased magnitudes and incidence of statistically significant immigrant-export and immigrant-import effects. This suggests that where populations are more diverse, there may be increased likelihoods that the native-born populations and immigrants from other countries are more tolerant of distinct cultures and more open to altering their consumption, partaking in products from a given immigrant groups' home country. It also may indicate that greater diversity correlates with a higher probability that the host country will afford immigrants the opportunities that allow them to reduce trade-related transaction costs.

That immigrants increase trade flows by exploiting superior information regarding host country markets (relative to their home country counterparts) and home country markets (relative to their host country counterparts), while cultural differences inhibit trade flows implies that immigrants play greater roles in facilitating international flows than is usually discussed in the literature: fully or partially offsetting the influences of lack of trust and commitments that correspond to cultural differences between potential trading partners; thus, initiating trade and facilitating transactions.

REFERENCES

Anderson, J. E. & van Wincoop, E. (2003). "Gravity with Gravitas: A Solution to the Border Puzzle," *American Economic Review, 93, 1*, 190-192.

Bacarreza, C., Javier, G. & Ehrlich, L. (2006). “The Impact of Migration on Foreign Trade: A Developing Country Approach”, MPRA Paper No. 1090. Online at: http://mpra.ub.uni-muenchen.de/1090/.

Bandyopadhyay, S., Coughlin, C. C. & Wall. H. J. (2006). “Ethnic Networks and US Exports,” Federal Reserve Bank of St. Louis WP#2005-069A. January.

Bardhan, A. D. & Guhathakurta. S. (2005). “Global Linkages of Subnational Regions: Coastal Exports and International Networks,” *Contemporary Economic Policy, 22, 2*, 225-236.

Blanes, J. V. (2006). "Immigrant’s Characteristics and their different effects on bilateral trade. Evidence from Spain," WP#06.08, Universidad Pablo de Olavide, Departamento de Economía.

_____ (2004) "Does Immigration Help to Explain Intra-Industry Trade? Evidence for Spain," Economic Working Papers at Centro de Estudios Andaluces E2004/29, Centro de Estudios Andaluces.

_____ (2003) “The Link Between Immigration and Trade in Spain,” Universidad Pablo de Olavide, Presented at XXVIII Simposio de Analisis Economico, 11-13 December, Seville.

_____ & Martín-Montaner, J. A. (2006) "Migration Flows and Intra-Industry Trade Adjustments," *Review of World Economics, 127, 3*, 567-584. October.

Boisso, D. & Ferrantino, M. (1997). “Economic Distance, Cultural Distance, and Openness in International Trade: Empirical Puzzles,” *Journal of Economic Integration, 12, 4*, 456-484. December.

Bryant, J., Genc, M. & Law, D. (2004). “Trade and Migration to New Zealand,” New Zealand Treasury WP#04/18. Wellington, New Zealand.

Ching, H. S. & Chen, L. (2000). “Links between Emigrants and the Home Country: the Case of Trade between Taiwan and China,” in *Regional Cohesion and Competition in the Age of Globalization*, edited by H. Kohno, P. Nijkamp and J. Poot. Cheltenham UK: Edward Elgar.

Co, C. Y., Euzent, P. & Martin, T. (2004). “The Export Effect of Immigration into the USA,” *Applied Economics 36*, *6*, 573-583.

Combes, P., Lafourcade, M. & Mayer, T. (2005). “The Trade Creating Effects of Business and Social Networks: Evidence from France,” *Journal of International Economics, 66*, 1-29.

Dunlevy, J. A. (2006). “The Impact of Corruption and Language on the Pro-Trade Effect of Immigrants: Evidence from the American States,” *Review of Economics and Statistics, 88*, 1.

Eaton, J. & Tamura, A. (1994). “Bilateralism and Regionalism in Japanese and U.S. Trade and Foreign Direct Investment Patterns,” *Journal of the Japanese and International Economies, 8*, 478-510.

Faustino, H. & Leitão, N. C. (2008). “Using the Gravity Equation to Explain the Portuguese Immigration-Trade Link,” Technical University of Lisbon, School of Economics and Management Working Paper #12/2008/DE/SOCIUS.

Feenstra, R. C., Markusen, J. & Rose, A. (2001). “Using the Gravity Equation to Differentiate Among Alternative Theories of Trade,” *Canadian Journal of Economics, 34, 2*, 430-447.

Girma, S. & Yu. Z. (2002). “The Link Between Immigration and Trade: Evidence from the U.K.,” *Weltwirtschaftliches Archive, 138*, 115-130.

Gould, D. M. (1994). "Immigration Links to the Home Nation: Empirical Implications for US Bilateral Trade Flows," *Review of Economics and Statistics, 76*, 302-316.

Greenaway, D., Mahabir, P. A. & Milner, C. (2007). Does the Presence of Ethnic Chinese in Trading Partner Countries Influence Bilateral Trade Flows with China?" Leverhulme Centre for Research in Globalisation and Economic Policy, University of Nottingham Working Paper.

Hagenaars, J. A., Halman, L. & Moors, G. (2003). "Exploring Europe's Basic Values Map," in Wil Arts, Jacques Hagenaars and Loek Halman et al., eds., *The Cultural Diversity of European Unity, Boston, MA*, Koninklijke Brill.

Head, K. & T. Mayer (2000). "Non-Europe: The Magnitude and Causes of Market Fragmentation in Europe," *Weltwirtschaftliches Archive, 136, 2*, 285-314.

Head, K. & Ries. J. (1998). "Immigration and Trade Creation: Econometric Evidence from Canada," *Canadian Journal of Economics, 31*, 47-62.

Helliwell, J. F. (1997). "National Borders, Trade and Migration," *Pacific Economic Review, 3, 3*, 165-185.

Herander, M. G. & Saavedra, L. A. (2005). "Exports and the Structure of Immigrant-Based Networks: The Role of Geographic Proximity," *Review of Economics and Statistics, 87, 2*, 323-335.

Hofstede, G. (1981). "Culture and Organizations," *International Studies of Management and Organization, 10, 4*, 15-41.

Hong, T. C. & Santhapparaj, A. S. (2006). "Skilled labor immigration and external trade in Malaysia: A pooled data analysis," *Perspectives on Global Development and Technology, 5(4)*, 351-166, November.

Hutchinson, W. K. (2002). Does Ease of Communication Increase Trade? Commonality of Language and Bilateral Trade, *Scottish Journal of Political Economy, 49, 5*, 544-556.

Inglehart, R., Basanez, M., Diez-Medrano, J., Halman L. & Luijkx, R. editors (2004).. *Human Beliefs and Values: A Cross-cultural Sourcebook based on the 1999-2002 values surveys*, Siglo Veintiuno Editores, S.A. de C.V., Mexico City.

Kandogan, Y. (2005). Is Immigration Necessary and Sufficient? The Swiss Case on the Role of Immigrants on International Trade, Working Paper.

Linders, G., Slangen, A. deGroot, H. L. F. & Beugelsdijk, S. (2005). Cultural and Institutional Determinants of Bilateral Trade, Tinbergen Institute Discussion Paper-TI-2005-074/3, The Netherlands.

Migration Policy Institute (2007). Country and Comparative Data, Washington, DC. Online. Available at: http://www.migrationinformation.org/datahub/comparative.cfm.

Mundra, K. (2005). "Immigration and International Trade: A Semiparametric Empirical Investigation, *Journal of International Trade & Economic Development, 14, 1*, 65-91.

Murat, M. and B. Pistoresi (2006). "Migration and Bilateral Trade Flows - Evidence from Italy," Working Paper.

Parsons, C. (2005). "Quantifying the Trade-migration Nexus of the Enlarged EU: A Comedy of Errors or Much Ado about Nothing?" Sussex Migration Working Paper No. 27.

Piperakis, A. S., Milner, C. & Wright, P. W. (2003). "Immigration, Trade Costs and Trade: Gravity Evidence for Greece," *Journal of Economic Integration 18*, 750-62.

Rauch, J. & Watson, J. (2002). "Entrepreneurship in International Trade," National Bureau of Economic Research WP# 8708, NBER: Cambridge, MA.

Rauch, J. & Trindade, V. (2002). Ethnic Chinese Networks in International Trade, *Review of Economics and Statistics, 84, 1*, 116-130.

Rauch, J. (2001). "Business and Social Networks in International Trade," *Journal of Economic Literature, 39*, 1177-1203.

_____ (1999). "Networks versus Markets in International Trade," *Journal of International Economics, 48*, 7-35.

Ranjan, P. & Tobias, J. (2005). Bayes and Gravity, Iowa State University WP# 05026. Ames, IA.

Tadesse, B. & White, R. (2007). Cultural Distance as a Determinant of Bilateral Trade Flows: Do Immigrants Counter the Effect of Cultural Differences? *Applied Economic Letters* (Forthcoming).

_____ (2008a). "Do Immigrants Counter the Effect of Cultural Distance on Trade? Evidence from U. S. State Level Exports," *The Journal of Socio-Economics, 37, 6*, 2304-2316.

_____ (2008b). "Does Cultural Distance Hinder Trade in Goods? A Comparative Study of Nine OECD Member Nations," *Open Economies Review*, forthcoming

Tinbergen, J. (1962). *The World Economy. Suggestions for an International Economic Policy*. New York, NY: Twentieth Century Fund.

United States Central Intelligence Agency (CIA) (2006) CIA World Factbook. Online. Available at: https://www.cia.gov/cia/publications/factbook/index.html.

Wagner, D., Head, K. & Ries, J. (2002). "Immigration and the Trade of Provinces," *Scottish Journal of Political Economy, 49, 5*, 507-525.

White, R. (2009a). "Immigration, Trade and Product Differentiation," *Economic Issues 14, 1*, 43-63 (March).

_____(2009b). "Immigration, Trade and Home Country Development: State-Level Variation in the US Immigrant-Export Link," Forthcoming in the *Journal of International Migration and Integration*._

_____ (2008). "Exploring a US Immigrant - Intra-Industry Trade Link," *Eastern Economic Journal 34, 2*, 252-262 (Spring).

_____(2007a) "Immigrant-Trade Links, Transplanted Home Bias and Network Effects," *Applied Economics 39, 7*, 839-852 (April).

_____ (2007b). "An Examination of the Danish Immigrant-Trade Link," *International Migration 45*, 5.

_____ & B. Tadesse (2007a). "Immigration Policy, Cultural Pluralism and Trade: Evidence from the White Australia Policy," *Pacific Economic Review 12, 4* (October).

_____ (2007b). "East-West Migration and the Immigrant-Trade Link: Evidence from Italy," Forthcoming in *The Romanian Journal of European Studies*.

White, R. & Tadesse, B. (2008a). Cultural Distance and the US Immigrant-Trade Link, *The World Economy, 31, 8*, 1078-1096._

_____ (2008b). "Immigrants, Cultural Distance and U.S. State-Level Exports of Cultural Products," *The North American Journal of Economics and Finance, 19, 3*, 331-348.

World Bank (2006). World Development Indicators: CD-ROM Version, Washington, DC, Development Data Group of the World Bank's International Economics Department.