

TRANSNATIONAL NETWORKS IN INTERNATIONAL TRADE
AN EVALUATION OF ETHNICITY AND CULTURE IN
U.S. TRADE FLOWS

Master of Arts in Law and Diplomacy Thesis

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Abstract

This paper tests the hypothesis that when two countries participate in the same transnational ethnic or cultural network, the volume of trade between them increases. Using the gravity model of international trade and data on the United States in 2000, we find that while older ancestral groups do not influence bilateral trade flows, a one-percentage increase in the foreign-born population increases bilateral trade by at least 9 percent. We also conclude that the linguistic composition of the country positively influences its trade flows. Finally, we apply these empirical findings to the current debate on U.S. immigration policy.

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1

Introduction: Transnational Networks in International Trade

Differences between countries are the central source of gains from trade. In theory, individuals increase their welfare by specializing in their comparative advantage and importing that in which other countries specialize. On the other hand, similarities between countries expedite the transactions of international trade. Buyers and sellers prefer to match themselves with those whom they can trust, often those with similar beliefs, cultures, or ethnicities. The recent erosion of national sovereignty through globalization and the corresponding rise of global transnational networks suggest that the similarities that expedite international transactions are increasingly important. Moreover, since such similarities are often rooted in ethnicity and culture, the composition of a country's population could become increasingly relevant in international trade. This thesis seeks to evaluate and measure the role of ethnicity and culture in international trade in the context of the United States and determine whether this role should influence the composition of the country's population through immigration policy. We begin by reviewing the origins of transnational networks and the social capital that binds these networks together.

Social Capital and the Formation of Transnational Networks

The concept of the transnational network stems from the growing body of literature on social capital. "Social capital" remains a vague and underdeveloped concept, however, with two

opposing definitions of social capital: (1) as a “resource to be employed by persons,” and (2) as something “embodied in networks of cooperation and the norm of reciprocity.”¹ The former is a more traditional economic perspective on social capital while the latter is the more recent interpretation made prominent by Robert Putnam. The definition that this thesis will adopt, however, is that of Thomas Faist who balances these two interpretations to construct the following:

Social capital are those resources that help people or groups to achieve their goal in ties and the assets inherent in patterned social and symbolic ties that allow actors to cooperate in networks and organizations, serving as a mechanism to integrate groups and symbolic communities.²

Therefore, social capital is both a good, in that it provides access to certain resources, as well as an economic instrument that facilitates mutually beneficial cooperation.

A particularly relevant dimension of social capital for this study is its impact on trust and reciprocity within networks. For Putnam, the principle of generalized reciprocity is the “touchstone of social capital.”³ Generalized reciprocity is made up of a series of acts which together make every participant better off. This is a result of the social trust that exists within social capital. According to Putnam, when individuals exhibit greater social trust with one another, “transaction costs” are reduced. From this, Putnam concludes that “a society that relies on generalized reciprocity is more efficient than a distrustful society...;” and, therefore, trusting communities have a measurable economic advantage.⁴

¹ Thomas Faist, *The Volume and Dynamics of International Migration and Transnational Social Spaces*, Clarendon Press: Oxford, 2000, p.102.

² *Ibid.*

³ Robert Putnam, *Bowling Alone: The Collapse and Revival of American Community*, Simon & Schuster: New York, 2000, p.134.

⁴ *Ibid.*, 135.

We can infer that ethnic or cultural groups that exist across national boundaries—what we call “transnational networks”—possess a certain type of social capital. For example, the claim that social capital weakens as network members move farther apart geographically does not apply in the same way to a transnational network because of its ability to function outside geographical space. Thus, we can expect that these transnational communities will have an economic advantage in trade over nations that trade with no established social capital and trust.

Transnational Networks in International Trade

This paper evaluates the argument that transnational networks—specifically, transnational ethnic and cultural networks—between trading partners increase the volume of bilateral exports and imports. First, ethnic and cultural links affect the host country’s exports through three network effects. The first is lower transaction costs established through greater mutual trust and more developed communication systems. Social trust is like an economic lubricant that lowers transaction costs. For risk-averse societies where cheating is unexpected, for example, social trust can lower risk and, therefore, lower transaction costs. Transnational networks also benefit from complex yet efficient global communication systems. These systems, organized by formal institutions such as family clans or informal institutions such as the Chinese *guanxi*, establish a greater facility in the search process of matching buyers with sellers in the international trading system. According to James Rauch, “Within a given foreign market, transnational networks can...help producers of consumer goods to find appropriate distributors, assemblers to find the right component suppliers and investors to find joint-venture partners.”⁵

The second reason individuals might prefer to trade within their network is the fear of exclusion from the network socially or politically for violating a business agreement for a better

⁵ James E. Rauch, “Business and Social Networks in International Trade,” *Journal of Economic Literature*, Vol. 39, No. 4 (December 2001), p.1184.

deal in the marketplace. One of the primary informal barriers to trade is the lack of adequate regulation and enforcement of international business contracts. Transnational networks manage to overcome this trade problem by encouraging cooperation through the threat of social repercussions. For example, a business owner who cheats or defaults on an agreement with another network member might be blacklisted within the network if cheating is culturally unacceptable. We might compare this punishment to a fine or other compensation in a market-based agreement. Arguably, exclusion from the network could be far worse as it excludes one not only from further trade relationships within the network but also from social and political participation.

A third incentive for network members to prefer trade within their transnational network is the potential for further spillover or network effects that benefit the network as a whole. The concept of network externality for goods is that the level of utility one obtains from a good depends upon the number of consumers consuming the good.⁶ In the case of networks, the gains from participating in the network increase as more individuals become active in the network. Assuming that members of a transnational network place a certain value on the existence of the network through cultural, religious, and social activities and organizations, greater engagement in intra-network trade will have a spillover effect that enhances participation on cultural, social, and civic levels.

Ethnic and cultural links to trading partners can also influence a host country's imports. For example, immigration to the host country changes the national demand for imports toward goods that migrants demand but only the homeland produces. This "non-network" effect on imports does not depend on the trust relationships and "network" effects upon which changes in

⁶ S.J. Liebowitz and Stephen E. Margolis, "Network Externality: An Uncommon Tragedy," *The Journal of Economic Perspectives*, Vol. 8, No. 2 (Spring, 1994), p.133.

exports depend. Nonetheless, the ethnic and cultural link established through migration is a central element in establishing overseas demand for the homeland's goods. Immigrants' influence on domestic demand explains why empirical research shows stronger effects of common ethnicity and culture on final and differentiated goods than on intermediate and basic commodities.

Thus, transnational ethnic and cultural networks influence bilateral trade through both exports and imports. The network is the primary avenue through which exports are increased, while increased demand in a host country for the homeland's goods—established through migration—is the primary avenue for the increase in imports.

Hypothesis and Methodology

Given these characteristics of ethnicity, culture, and transnational networks in the context of international trade, we formulate the following hypothesis: *When two countries participate in the same transnational ethnic or cultural network, the volume of trade between them increases.* We will develop and test this hypothesis in the following chapters. In Chapter 2, we review the sociology, anthropology, and economics literature on the role of networks in trade and derive a theoretical model of migration to support our hypothesis. This theoretical backdrop is tested in the subsequent chapters for the case of the United States. We use the United States primarily because of its long history as an immigrant nation. In Chapter 3, we present trends in U.S. data related to ancestral history, current ethnic compositions, and cultural trends. In Chapter 4, we apply this data to the gravity model of international trade to estimate the relationships between ethnicity and culture and international trade, all else equal. Finally, Chapter 5 discusses the policy implications of the important roles of ethnicity and culture in trade by reexamining the current debate on U.S. immigration policy.

2

Theory and Model: Network-Based International Trade

To test the hypothesis that transnational ethnic and cultural networks increase international trade flows, we begin by reviewing the literature in sociology, anthropology, and economics regarding ethnicity, culture, and the role of networks in trade. Second, we develop a two-country migration and trade model to predict the effects of common ethnicity and culture on trade flows. Finally, from this model, we describe our methodology of the gravity model of international trade and outline our predictions.

Review of Literature

A significant challenge to incorporating sociological and anthropological concepts such as ethnicity and culture into international trade theory is the subjective interpretations of these terms. There is no consensus on what ethnicity and culture mean, for example; thus, how can one begin to quantify them? In this section we examine various definitions of ethnicity and culture and how sociologists and anthropologists link them to international migration, transnational networks, and trade.

We begin with two ways of defining “ethnicity”: the first is biological and the second is socio-political. Sociologist Fredrik Barth cites four traits that anthropologists seek when defining a population as an ethnicity:

1. The group is largely biologically self-perpetuating;
2. It shares fundamental cultural values;
3. It makes up a field of communication and interaction;
4. It has a membership which identifies itself, and is identified by others, as constituting a category distinguishable from other categories of the same order.⁷

In sum, this definition of ethnicity outlines clear boundaries for the group, with biological descent carrying central importance. This biological interpretation of ethnicity is linked to another definition of ethnicity: primordialism. Primordialism describes ethnicity as possessing the following traits: assumed blood ties, racial characteristics, language, religion, and customs.⁸ Thus, it defines an ethnic group by those traits given at birth or at the primordial stages of life. In sum, these interpretations define ethnicity as a biological or naturally assigned characteristic.

A contrasting definition on ethnicity is that group members can self-identify with an ethnicity based on social, political, or cultural behaviors. Fredrik Barth argues that what is most central about ethnic groups is that they are “categories of ascription and identification by the actors themselves...”⁹ Similarly, sociologist Max Weber emphasizes that ethnicities are formed around political communities: “It is primarily the political community, no matter how artificially organized, that inspires the belief in common ethnicity.”¹⁰ Therefore, this definition of ethnicity centers around the individual’s self-identification with the ethnic group.

Thus, it is ambiguous whether ethnicity is defined by birth or self-identification. As we describe later, this paper includes both interpretations using one variable for self-identified ethnicity (ethnic stock) and another for natural ethnicity (ethnic flows). Because this paper

⁷ Fredrik Barth, “Ethnic Groups and Boundaries,” in John Hutchison and Anthony Smith (eds.), *Ethnicity*, Oxford University Press: Oxford, 1996, p.75.

⁸ Clifford Geertz, “Primordial Ties,” in John Hutchison and Anthony Smith (eds.), *Ethnicity*, Oxford University Press: Oxford, 1996, pp.43-44.

⁹ *Ibid.*

¹⁰ Max Weber, “The Origins of Ethnic Groups,” in John Hutchison and Anthony Smith (eds.), *Ethnicity*, Oxford University Press: Oxford, 1996, p.35.

focuses, in particular, on immigrant groups, we might also seek some interpretations of ethnicity from the growing sociology literature on diasporas. Milton Esman defines the diaspora as “a minority ethnic group of migrant origin which maintains sentimental or material links with its land of origin.”¹¹ Esman’s limitation to minorities wrongly excludes migrants who become the dominant ethnic group of a country. For example, Esman would not consider the Anglo-Protestant settlers of the United States to be a diaspora, despite the fact that many maintain ethnic and cultural ties to Britain. Thus, what is most critical to our analysis is that the migrants maintain “material links” to the homeland. Thus, the immigrant or diasporic person can serve as a link (in particular, an economic link) between the country of origin and the host country.

Some anthropologists and sociologists argue that cultural similarities are sufficient common characteristics to form an ethnic group. Barth makes this argument citing the case of the American black community. He says that by describing the ethnic group by “cultural stuff,” the boundaries of the group become flexible and can change over time as the culture of the group changes.¹² Culture might be defined as “learned behavior,” “a way of thinking, feeling, and believing,” or “the social legacy individuals acquire from the group.”¹³ Thus, while ethnicity is sometimes believed to have some biological element, culture is purely behavioral. Typically, the learned behavior that we consider aspects of culture include language, religion, social customs, and political beliefs. As in the case of ethnicity, which, through migrants, forms transnational global networks, culture too can establish such networks through the spread of language,

¹¹ Milton Esman, “Diasporas and International Relations,” in John Hutchison and Anthony Smith (eds.), *Ethnicity*, Oxford University Press: Oxford, 1996, p.316.

¹² Paul Gilbert, *Peoples, Cultures and Nations in Political Philosophy*, Georgetown University Press: Washington, 2000, pp.22-23.

¹³ Clyde Kluckhohn, *Mirror for Man*, Whittlesey House: New York, 1949.

religion, and customs globally. Again, these links lower transaction costs and, therefore, establish economic links across borders.

The case of the diaspora is the archetypal example of transnational ethnic and cultural networks. According to Robin Cohen, “By being attached to a strong and tightly integrated diaspora, family- and kin-based economic transactions are made easier and safe.”¹⁴ In other words, Cohen presents a sociological argument for ethnic and cultural networks as a means of reducing transaction costs:

Diasporas allow small and family businesses to adjust to a global scale and to assume a more rational, functional, productive and progressive character. A network of mutual trust of global proportions builds up as capital and credit flow freely between family, kin, fellow villagers and even more loosely associated co-ethnic members.¹⁵

Cohen provides examples of the Japanese *sogo shosha* and the ethnic Chinese clans and *guanxi* of the Southeast Asian Chinese diaspora. Such networks are not limited to the traditional diaspora models, however. We can generalize this theory to include any sort of migrant that maintains ties with his or her homeland as well as natives that take on cultural traits of foreign countries, such as the learning of Spanish among native-born Americans. In sum, ethnic and cultural networks that bind economic agents provide less expensive means of matching agents; in the context of international trade, therefore, these networks more cheaply match buyers to sellers.

Some trade economists have already begun to apply this sociological argument from the literature on ethnic and cultural networks to international trade. Three recent studies have been central in the economics literature on transnational networks and trade. The first is by James Dunlevy and William Hutchison on “The Impact of Immigration on American Import Trade in the Late Nineteenth and Early Twentieth Centuries.” Dunlevy and Hutchison argue that

¹⁴ Robin Cohen, *Global Diasporas*. University of Washington Press: Seattle, 1997, p. 160.

¹⁵ *Ibid.*

immigrants can serve as a link for trade between home and host countries for three reasons: (1) immigrants understand the preferences of the homeland better than natives; (2) immigrants can better recognize market potential in the homeland and how to differentiate goods to cater to the homeland; and (3) greater mutual trust exists between trading agents.¹⁶ The authors fail to make note of the possible impact of immigrants on the host country's demand for the homeland's imports, though, as described previously, this plays an important role in increasing imports. Although the authors describe only the last of their three reasons as the ethnic network's effect on trade, all of them reflect benefits from an established transnational ethnic network. Dunlevy and Hutchison find a strong and significant positive effect from the large immigrant waves on bilateral trade flows, especially in the case of finished and differentiated goods. They reach this conclusion by the gravity model methodology described at the end of this chapter. For comparison, the authors also run the gravity model for the entire data set and by region, a method which this paper uses in Chapter 4.

Following a similar methodology, James Rauch and Vitor Trindade did a study on "Ethnic Chinese Networks in International Trade" in 2002. Rauch and Trindade show how "coethnic networks," in the case of the Chinese diaspora, overcome informal barriers to international trade. An important variable used in their study is the "Chinese share," which is the product of the ethnic Chinese population for both countries of each country pair. As described in Chapter 3, this variable is used in the cases of language and religion in this study's analysis of cultural networks. Also employing the gravity model methodology, Rauch and Trindade conclude that "For trade between countries with ethnic Chinese population shares at the levels

¹⁶ James Dunlevy and William Hutchison, "The Impact of Immigration on American Import Trade in the Late Nineteenth and Early Twentieth Centuries," *The Journal of Economic History*, Vol. 59, No. 4 (December 1999), p.1045.

prevailing in Southeast Asia, the smallest estimated average increase in bilateral trade in differentiated products attributable to ethnic Chinese networks is nearly 60 percent.”¹⁷

Finally, Carl Mosk’s recent study of *Trade and Migration in the Modern World* employs the gravity model of international trade once again to determine how international migration, through the establishment of transnational networks, facilitates and increases trade flows. Mosk concludes that “diversification in trade tends to be positively associated with diversification in migration” and that openness to trade tends to be associated with openness to migration.¹⁸ What is most useful from Mosk’s study, however, is the detailed statistical analysis of the direction of causation between increases in trade and increases in migration. Mosk estimates that the direction of causation depends on the historical context but argues that for the case of immigration in the United States throughout the twentieth century, it has been the migrants that have caused increases in trade volumes.¹⁹ In other immigrant countries at other times in history, the direction of causation is reversed.

Migration and Trade Model

Based on the above literature, we will now develop a stylized two-phase model of migration and trade that predicts the pro-trade phenomenon of ethnic and culture networks. First, we assume that country i has a population possessing the ethnic or cultural characteristic α and country j has a population possessing the ethnic or cultural characteristic β .

In phase one of the model, country i and country j are engaging in free trade at a total value of δ . Country i has a purely ethnic or cultural population described only by α , and country j has a purely ethnic or cultural population described only by β . In phase two, the migration

¹⁷ James Rauch and Vitor Trindade, “Ethnic Chinese Networks in International Trade,” *The Review of Economics and Statistics*, February 2002, 84(1), p.116.

¹⁸ Carl Mosk, *Trade and Migration in the Modern World*, Routledge: London, 2005, pp.194-195.

¹⁹ *Ibid.*, p.224.

phase, a fraction of the population from country j migrates to country i ; we assume no migration in the reverse direction. Thus, the total population of country j decreases, but the population remains purely of the ethnicity or culture described by β . In country i , the size of the population has increased; however, the share of the population that is characterized by α has decreased to a value less than 100 percent, and a minority share of the population is now characterized by β . In sum, country i has become a multi-ethnic or multi-cultural state.

Another effect of the migration is that there now exists an ethnic or cultural link between country i and country j that did not exist before. Based on the properties of ethnic and cultural networks described in Chapter 1 and the literature review, we expect that this link will facilitate trade between the countries. Thus, after migration, country i and country j trade at level φ , where φ is greater than δ . We assume balanced trade so that regardless of whether the ethnic or cultural network facilitates imports or exports, both must increase.

Methodology and Expected Outcomes

To test our hypothesis and this model, we employ the methodology used previously in studies of networks in international trade, the gravity model. The gravity model, in its generalized form, assumes that the level of bilateral trade is a function of the size of the economies, the distance between the countries, and other factors such as common language and shared borders. This paper will use the following variation on the gravity model:

$$\begin{aligned} \ln(\text{trade}) = & \beta_1 + \beta_2 \ln(GDP_i * GDP_j) + \beta_3 \ln(GDPpc_i * GDPpc_j) + \\ & \beta_4 \ln(\text{distnc}_{ij}) + \beta_5(\text{border}_{ij}) + \beta_6(\text{comlang}_{ij}) + \beta_7(PTA_{ij}) + \\ & \beta_8 \ln(\text{ethnicstock}_{ij}) + \beta_9 \ln(\text{ethnicflows}_{ij}) + \beta_{10}(\text{languagेशr}_{ij}) + \\ & \beta_{11}(\text{religionshr}_{ij}) + \varepsilon_{ij} \end{aligned}$$

where *trade* is the value of total bilateral trade, *GDP* is the gross domestic product, *GDPpc* is the gross domestic product per capita, *distnc* is the distance in miles between the capital cities of the

country pair, *border* is a dummy variable taking a value of unity if the countries share a border, *comlang* is a dummy variable taking a value of unity if the countries share a common language, and *PTA* is a dummy variable taking a value of unity if the countries engage in a preferential trade agreement.

The final variables corresponding to β_8 to β_{11} represent variables which will be used to proxy for ethnic and cultural networks. For ethnicity, these variables include *ethnicstock*, which is the total number of individuals in country *i* that self-identify with the ethnic identity derived from country *j*, and *ethnicflows*, which is the total number of individuals in country *i* that were born in country *j*. For culture, we use a set of variables for common language usage and common religious affiliations. *Languageshr* represents a set of three variables: *Ethnishshr*, *Spanishshr*, and *Chineseshr*. *Relgionshr* represents a set of three variables as well: *Protestantshr*, *Catholicshr*, and *Jewishshr*. These variables, which are called “share variables” (indicated by the letters *shr*), take the product of the share of the population in country *i* that speak a given language or identify with a given religion and the share of the population in country *j* that speak that same language or identify with that same religion.

In the following chapter, we estimate values for the coefficients in the above equation. We expect positive and statistically significant values for all of the coefficients except for β_4 , the coefficient for distance.

3

Description of Data:

U.S. as a Multiethnic and Multicultural Nation

This chapter evaluates three characteristics of the United States using data for the year 2000. First, we discuss the U.S. as an open economy by analyzing trends in the flows of trade between the U.S. and its trading partners. Second, census data for the U.S. strongly reflect the multiethnic history of this immigrant country. Using data from the 2000 U.S. census, we find that the ethnic composition of the country, though always multiethnic, is shifting away from the traditional ancestries of Europe and toward newer immigrant sources in Latin America and Asia. Third, we discuss two indicators of American culture—language and religion—and how they characterize American society as multicultural.²⁰

Trade Data: U.S. as Open Economy

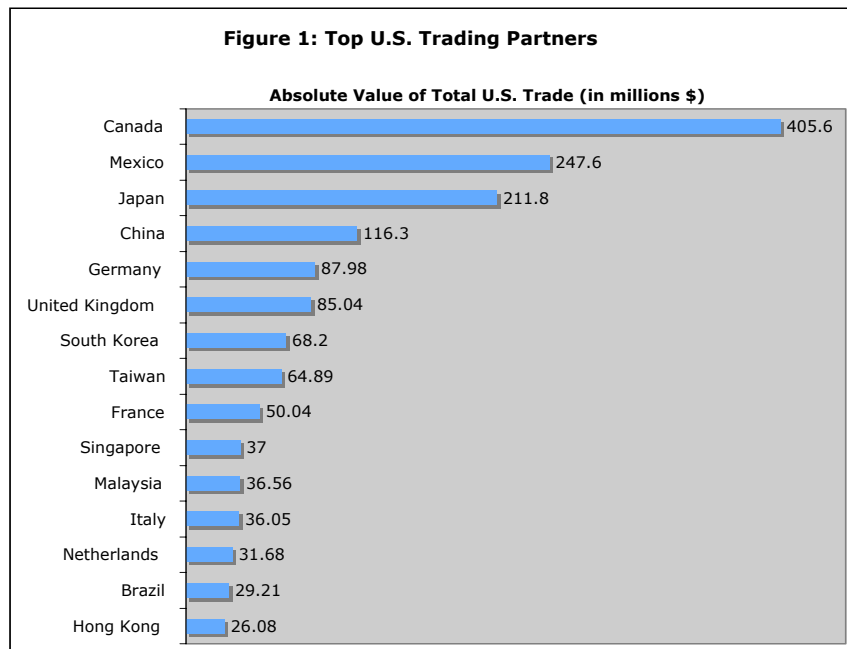
The U.S. Department of Commerce and International Trade Administration assemble National Trade Data, which describes the value of imports and exports between the U.S. and its trading partners for a given year. This analysis uses U.S. trade data for 2000.²¹ Figure 1 puts into perspective where the flow of trade with the U.S. is most clearly directed by showing the top fifteen of the U.S. trading partners. The graph shows the value of total trade with the country by summing the absolute value of bilateral exports and imports. This simple overview of the flow

²⁰ A full list of countries used as U.S. trading partners for this analysis is provided in the appendices.

²¹ Trade data is provided in Appendix A.

of total U.S. trade is important because it shows the clear domination of trade between the U.S. and Canada, Mexico, and Japan.²² These three important trading partners must be given careful consideration in our descriptive statistics of ethnic and cultural networks in U.S. trade because of their unique relationships with the U.S. and their threat as outliers in our analysis. In Chapter 4, the core gravity variables will control for the factors that make these three countries special cases.

Figure 1 also highlights the importance of regions in the direction of U.S. trade flows. In particular, we see an almost exclusive presence of European and Asian nations in the top fifteen trading partners, but for Mexico and Brazil. This raises the question whether impacts from ethnic and cultural networks might be hidden in a macro-perspective of the data and better revealed in a regional perspective. For this reason, we will frequently divide our findings by regions to better understand the impacts from immigrants, in particular.



²² It should be noted that when the European Union countries are combined, they surpass Japan as the third largest US trading partner. However, since this paper is concerned with ethnic and cultural identities, we keep the EU countries separate throughout.

A final note on the trade data is that there is minimal change in the ranking of trade partners when ordered by total trade, exports, or imports. This is to be expected since balanced trade is predicted in theory; however, such cases as the large bilateral U.S. trade deficit with China as well as the large overall U.S. trade deficit make this fact worth pointing out. Thus, our dependent variable for trade will always be the total value of bilateral trade.

Ethnicity Data: U.S. as a Multiethnic Nation

As noted in the previous chapters, ethnicity is a highly ambiguous term with subjective meanings. One of the complicating characteristics of ethnic identity among immigrants is that it erodes across generations. To capture the time sensitivity of ethnicity in this United States case study, we divide ethnic groups into two measurable types: ethnic stocks and ethnic flows. We define the ethnic stock as the number of persons in the host country population who identify with a specific ethnicity and ethnic flows as the number of persons in the host country born in the country or homeland from which the ethnicity is derived. The following two sections elaborate on these concepts and provide descriptive statistics of both.²³

U.S. Ethnic Stock

Because of the “melting pot” history of the United States, the measurement of ethnic stocks is not easily acquired. Many U.S. citizens of European descent either have multiple ethnic ancestries or cannot distinguish their ethnicity from their nationality. To evaluate for ethnic stocks in this study, however, we rely on the U.S. Census Bureau’s question on ancestry in the 2000 Census. Participants were asked the following:

What is this person’s ancestry or ethnic origin? *(For example: Italian, Jamaican, African American, Cambodian, Cape Verdean, Norwegian, Dominican, French Canadian, Haitian, Korean, Lebanese, Polish, Nigerian, Mexican, Taiwanese, Ukrainian, and so on.)*

²³ Raw data on ethnicity is provided in Appendix B.

The list of examples shows how unclear the concept of ethnicity is in the United States context. African American, for example, appears as an ethnicity along side nationalities such as Polish and Italian and sub-national groups such as Taiwanese. What is most useful about the data, however, is that it does not distinguish between first-generation, second-generation, or third-generation immigrant families. All participants are asked to give their “ancestry or ethnic origin,” a change from the 1980 Census which only based this question on the birthplace of the respondent’s parents. The Census approach to ancestry is also useful because it allows for a first and second response, recognizing that many citizens have multiethnic ancestries. According to the Census Bureau, 80 percent of respondents specified at least one ethnicity; the numbers of respondents are shown in Table 3.1.

Table 3.1 - Ancestry, 1990 and 2000

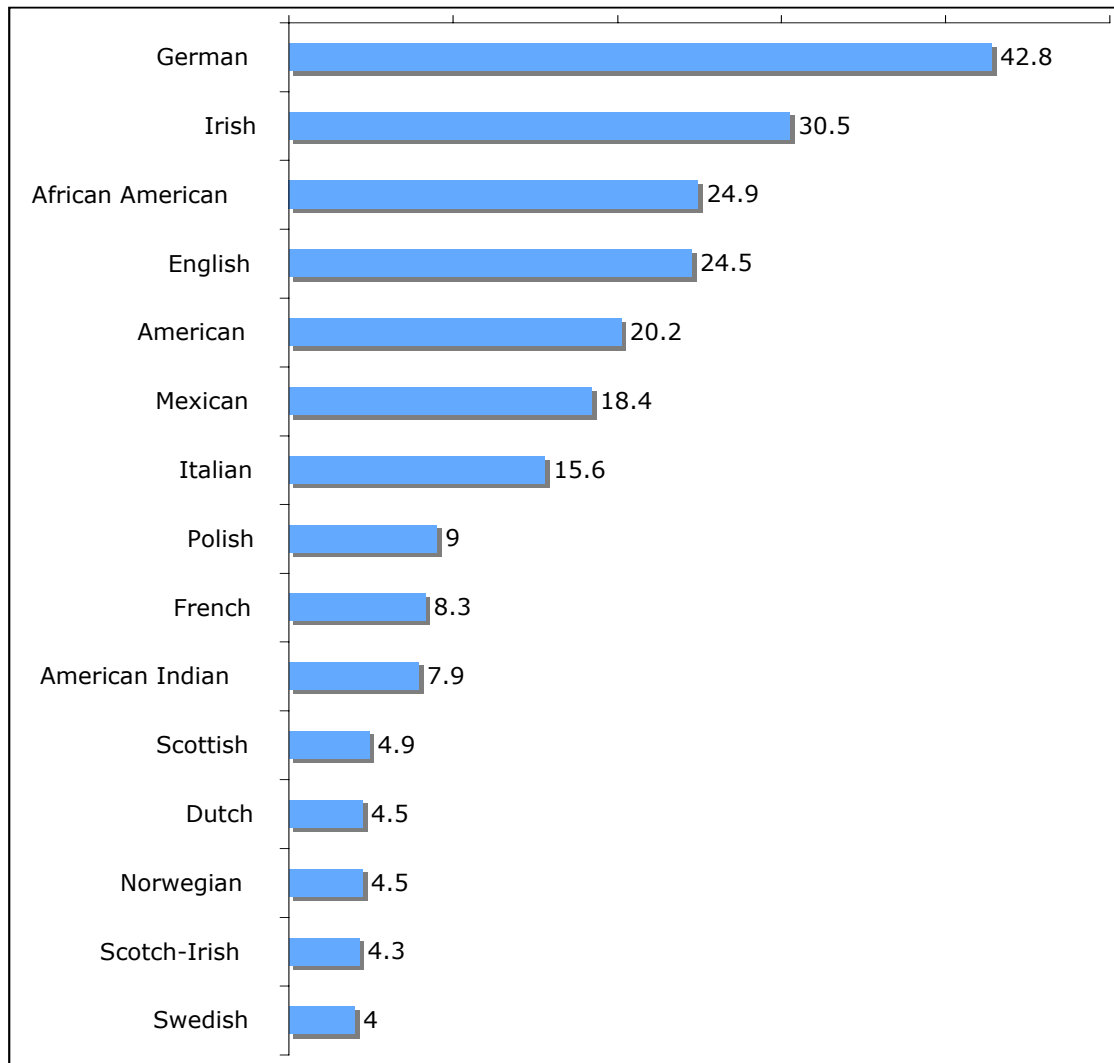
Ancestry	1990		2000		Change, 1990 to 2000	
	Number	Percent	Number	Percent	Numerical	Percent
Total Population	248,709,873	100.0	281,421,906	100.0	32,712,033	13.2
Ancestry specified	222,608,257	89.5	225,310,411	80.1	2,702,154	1.2
Single ancestry	148,836,950	59.8	163,315,936	58.0	14,478,986	9.7
Multiple ancestry	73,771,307	29.7	61,994,475	22.0	-11,776,832	-16.0
Ancestry not specified	26,101,616	10.5	56,111,495	19.9	30,009,879	115.0
Unclassified	2,180,245	0.9	2,437,929	0.9	257,684	11.8
Not reported	23,921,371	9.6	53,673,566	19.1	29,752,195	124.4

A striking trend in the participation rate of the ancestry question is the drop in the number and share of respondents with multiple ancestries and the dramatic rise in the number of unreported ancestries. Moreover, the number who reported their ancestry as “American” went up between 1990 and 2000 by 7.8 million, an increase of 63 percent. Although these statistics do not prove

it, this could be explained by the blurring of ethnic ancestries from Europe in the United States in recent decades. In other words, the inability of individuals to distinguish themselves from English, German, or French ancestry, for example, could persuade them to identify as “American” or to not specify an ancestry.

Another interesting trend is the growth of African American, Hispanic and Asian ancestries vis-à-vis European ancestries in the U.S. Figure 2 shows the fifteen largest ancestral groups in the United States in 2000 in millions.

Figure 2: U.S. Ethnicities, 2000 (in millions)

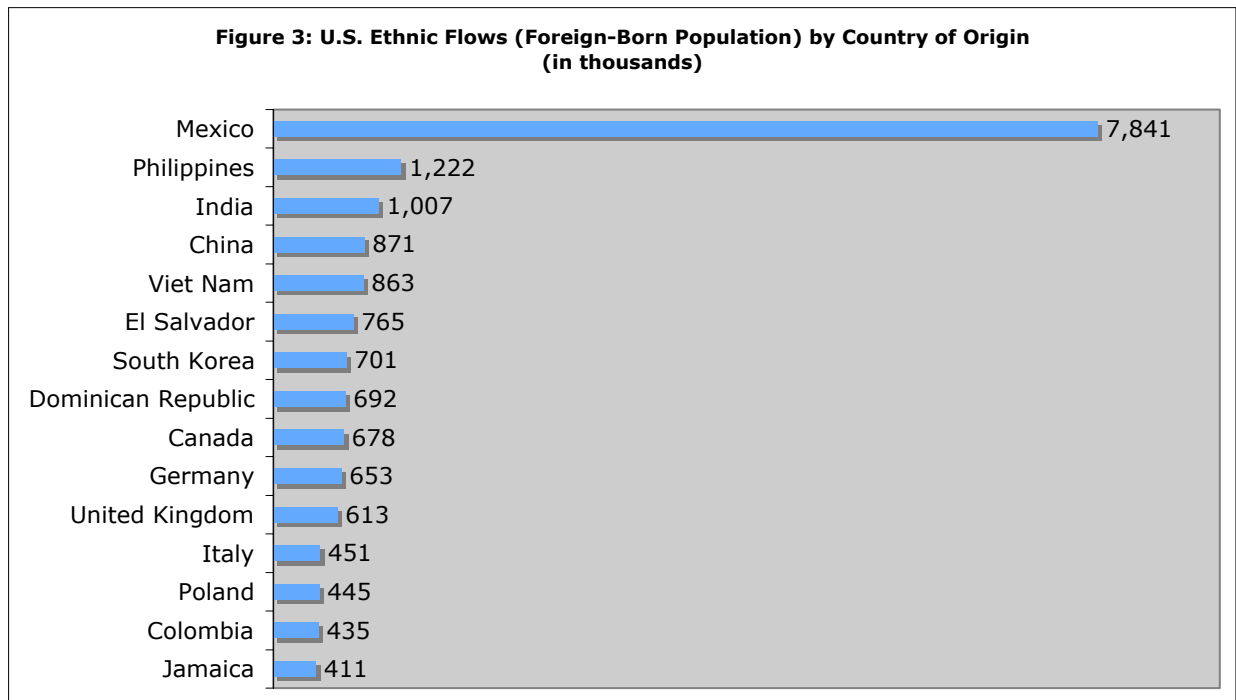


According to the Census Bureau, the “highest growth rates between 1990 and 2000 occurred in groups identified by a general heritage rather than a particular country of origin.”²⁴ Moreover, the three largest country-specific ancestries seen in Figure 2, Germans, Irish and English decreased in size by at least 8 million and by more than 20 percent. All of this suggests a declining prevalence of national ancestries in the United States and the rising importance of large and ambiguous ethnic groups, such as Hispanics or African Americans.

U.S. Ethnic Flows

The recent rise in the share of immigrants in the United States implies that although the ethnic stock is shifting away from identity with the homeland, the large foreign-born populations, who presumably identify more significantly with their birthplaces, might be restructuring how the ethnic composition of the U.S. fits into transnational ethnic networks.

Figure 3 ranks the top fifteen sources of immigrants in the U.S. by their country of origin.



²⁴ “Ancestry: 2000,” Census 2000 Brief, U.S. Department of Commerce, Economics and Statistics Administration, U.S. Census Bureau, p.3.

The obvious outlier in U.S. immigration is Mexico with a current 7,841,000 documented Mexican-born immigrants living in the U.S. Because of the significant gap between Mexico and the second-largest immigrant source, the Philippines, it will often be necessary to remove Mexico from data correlations to better predict the role of ethnic flows without this very important outlier.²⁵

What Figure 3 does not illustrate but should also be considered is the skill-sets of immigrants from these countries. It is clear that the immigrants from Mexico and the Philippines, on the one hand, are primarily low-skilled workers seeking low-skilled jobs in the U.S.; on the other hand, India and South Korean immigrants are typically skilled laborers or entrepreneurs. In both cases, links to the homeland are sustained through economic transactions, most frequently remittances; however, the effect of these ethnic links on trade could also be dependent on the degree of engagement in the international economy on the part of these immigrants, which is also dependent upon skills.

Correlations: Ethnicity and Trade

Simple correlations between these two ethnicity variables and U.S. trade reveal basic trends that are predicted from the model outlined in Chapter 2. Some data are not reported by the Census because the value is too low to mention. Thus, for many of the U.S. trade partners there is a missing data point if immigration has always been or is currently too low to report. For the sake of comparison, we report correlations with those countries excluded, indicated as “without missing data,” and with those countries included but with a missing value changed to zero, implying that the number in the ethnic stock or flow is not statistically different from zero. We begin with various correlations between the ethnic stock (ancestry) and trade flows. Table

²⁵ Because other variables such as shared borders are controlled for in the regressions of the following chapter, this step is unnecessary in Chapter 4.

3.2 shows the correlation percentage between these two variables for all data points as well as by region and other special groupings.

Table 3.2 - Correlations for Ethnic Stock and Trade

Ethnic Stock and Subgroups	Correlation Percentage (without missing data)	Correlation Percentage (with missing data entered as zero)
<i>All Countries</i>	27.53%	34.25%
<i>All, but for Canada, Mexico, and Japan</i>	54.47%	56.52%
<i>Europe</i>	82.44%	83.97%
<i>Asia</i>	34.51%	54.30%
<i>Latin America</i>	99.18%	98.68%
<i>Latin America, but for Mexico</i>	-5.34%	15.66%
<i>Africa</i>	Insufficient Data	77.27%
<i>Middle East</i>	-60.58%	-6.52%

The overall data shows positive correlations of 27.53% and 34.35% between the ethnic stock and trade for missing data excluded and changed to zero, respectively; however, a closer examination of the data by regions and special subgroups shows the great degree of variation. When the top three U.S. trading partners are removed, the correlation increases to 54.47% (56.52% with missing values as zero), driven primarily by the removal of Canada and Japan which have large levels of trade with the U.S. vis-à-vis their migration levels to the U.S. Europe as a region shows a strong correlation of 82.44% (83.97% with missing values as zero), which is synonymous with the large presence of European ancestries in the U.S; however, this high correlation might be explained by high levels of trade between the U.S. and Europe due to low bound tariff rates, fewer non-tariff barriers, and higher levels of foreign direct investment between them. The Asian correlation factor of 34.51% shows an important increase to 54.30% when missing values, primarily for countries in Oceania, are changed to zero. Latin America's percentage is nearly a perfect correlation with Mexico; without Mexico, the percentage is negative without missing values and 15.66% with these values, mostly small Caribbean countries, recorded as zero. The Middle East shows negative correlations in both columns which might be explained by the

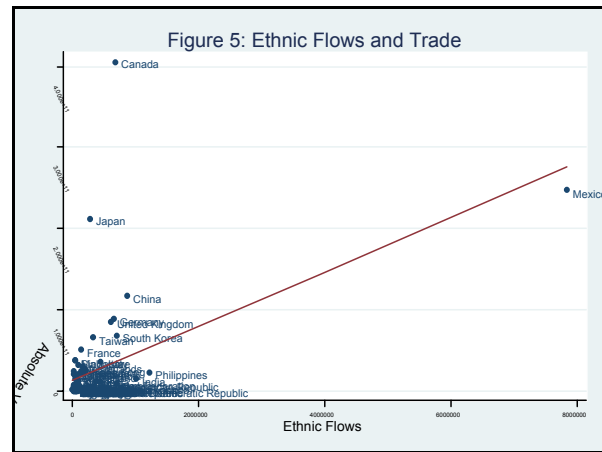
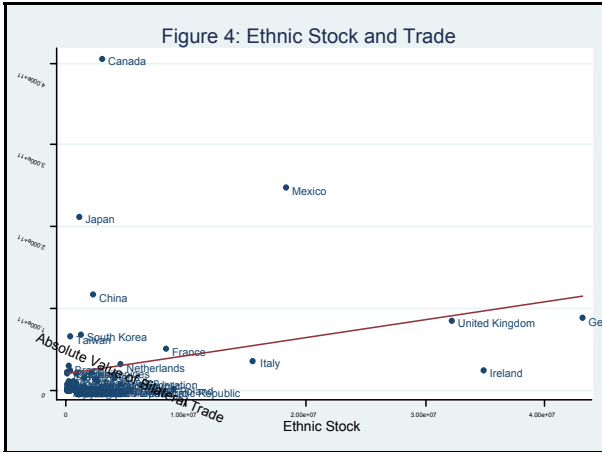
motivations of older immigrant groups from these countries to the U.S. and their lack of interest in maintaining ties to the homeland. Trade in oil, which presumably does not depend on ethnic links, might also explain this negative correlation.

Table 3.3 shows the same set of correlations for ethnic flows and trade. The overall correlation with trade is stronger for ethnic flows than for the ethnic stock. The correlation percentage for Europe is smaller for ethnic flows than for ethnic stocks. Otherwise, the trends tend to be comparable except for the Middle East, which shows a stronger positive effect (with missing data entered as zero) for ethnic flows than for the ethnic stock. This might be explained by a changing motivation on the part of Middle East immigrants to migrate to the U.S.

Table 3.3 - Correlations for Ethnic Flows and Trade

Ethnic Flows and Subgroups	Correlation Percentage (without missing data)	Correlation Percentage (with missing data entered as zero)
<i>All Countries</i>	50.50%	53.70%
<i>All but for Canada, Mexico, and Japan</i>	44.27%	54.92%
<i>Europe</i>	70.96%	75.96%
<i>Asia</i>	17.65%	35.16%
<i>Latin America</i>	98.23%	98.24%
<i>Latin America, but for Mexico</i>	10.82%	22.37%
<i>Africa</i>	56.31%	63.35%
<i>Middle East</i>	-10.42%	29.80%

These simple correlations show that common ethnicity is positively correlated with U.S. trade flows; however, it is important to visualize which specific countries are driving these numbers and how much variation around the mean actually exists. Figure 4 graphs the correlation between ethnic stock and trade, and Figure 5 graphs the correlation between ethnic flows and trade. Figure 4 shows that only a small number of countries are strengthening the correlation, in particular Mexico, the United Kingdom, and Germany, which are among the largest source countries for ancestral groups in the U.S. Even fewer countries distort these effects in Figure 5, in particular, the top three U.S. trading partners, Canada, Mexico, and Japan.



It is clear that the predicted regression line in Figure 5 is greatly distorted by Mexico and somewhat by Canada and Japan. Thus, Figures 6 and 7 repeat the exercise eliminating these three exceptional countries from the data set.

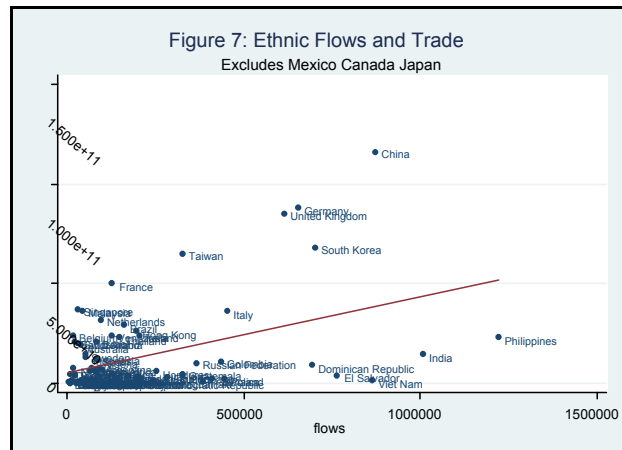
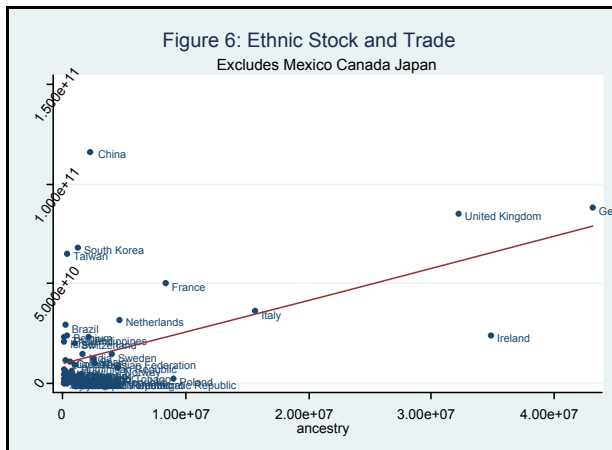


Figure 6 shows a greater positive correlation than Figure 4, which is consistent with the percentages in Table 3.2; and Figure 7 shows a weaker positive correlation than Figure 5, which is consistent with Table 3.3. What is noteworthy, however, is that the variation around the mean in the second two graphs seems smaller than the first two, suggesting we might observe more statistically significant regressions in Chapter 4 when controlling for those variables that make Mexico, Canada, and Japan exceptional.

Culture Data: U.S. as a Multicultural Nation

Culture is arguably more difficult to form into clearly defined variables than ethnicity. Considering differences in values and customs, culture is almost unquantifiable. However, two common manifestations of culture, which frequently form transnational cultural networks, are easily quantified and are likely the most relevant for international trade: language and religion.²⁶

Language

As we will see in Chapter 4, common language is so important for international trade that it has become a core variable used in gravity model estimations. Linguistic differences are major barriers to trade; thus, we usually see positive and very significant effects of common language on bilateral trade flows. Typically, the gravity model treats language variables as dummy variables assigning a value of unity to country pairs that share the same common language, either officially or predominantly. In other words, the United States and Kenya would be assigned a value of unity while the United States and Mexico would be assigned a value of zero. This is the standard method of treating language in gravity model estimations. Sixty-one of the 188 country pairs in our data set on the United States and its trading partners are assigned a value of unity. We call this variable *English1*, and the coefficient estimates of this variable are provided in the “Gravity Model Variables” section of Chapter 4.

A second method of treating language, which this paper will introduce, is to account for the presence of different languages within multicultural countries, such as the United States. The previous method of quantifying language disguises the usage of secondary languages behind the predominant national language. Thus, for example, the country pair of the United States and China, in the previous variable, would be assigned a value of zero because the United States is

²⁶ Raw data on language and religion is provided in Appendices C and D, respectively.

predominantly English-speaking and China is predominantly Mandarin-speaking. However, over 2 million people in the United States speak Chinese; although this is less than one percent of the speaking population of the United States, it is not a trivial number. The U.S. also is home to over 28 million Spanish-speakers, another language population hidden by the dummy variable method. Because English, Spanish, and Chinese are the most widely spoken languages in the United States, we will employ only these three in a second set of language variables called *Englishshr*, *Spanishshr*, and *Chineseshr*.²⁷ These three variables are the logarithmic form of the product of the population that speak a given language in the United States and the corresponding population for the trading partner. All of the data on language usage comes from the *Encyclopedia Britannica Book of the Year 2000*.

Religion

A second important manifestation of culture is religious affiliation. Accounting for the role of religion in trade is not only important because of the presence of religious networks, such as Islamic trading networks, but because of common values which are disseminated through cultures, such as the Protestant work ethic or the Catholic value of social justice. The three major religious groups in the United States are Protestants, Catholics and Jews; although Muslims, Bhuddists and Hindus are major world religions, their presence is not large enough in the United States to analyze. As of 2000, there were 123,010,000 self-proclaimed Protestants, 60,790,000 self-proclaimed Catholics, and 5,640,000 self-proclaimed Jews in the American population. As with the second set of language variables, we compute religion variables as the logarithmic form of the product of a given religious group population in the U.S. and the

²⁷ These are abbreviations for “English share,” “Spanish share,” and “Chinese share.” The formula to compute these values is the natural log of population i plus the natural log of population j . In other words, it is the natural log of the product of populations i and j .

corresponding religious group population for the trading partner. We label the three variables for religion as *Protestantshr*, *Catholicshr*, and *Jewishshr*. Data on religion comes from the “World Christian Database” for 2000 and the *Encyclopedia Britannica Book of the Year 2000*.

4

Analysis and Findings: Applications of the Gravity Model

Gravity Model Variables

As described in Chapter 2, there are some core variables which are considered standard in applications of the gravity model of international trade. These included the GDPs of both countries, the per capita GDPs of both countries, the distance between the capital cities of the countries, and whether or not the countries share a border, a language, or a preferential trade agreement (PTA). For this initial analysis, we will apply the standard dummy variable of language which is equal to unity if both countries' official language is the same; in our analysis of culture later in the chapter, we will broaden this method using the language variables described in Chapter 3.

Before incorporating our two measurements of ethnicity, the ethnic stock and flows, we will begin by running two regressions of the standard gravity model variables. The first regression whose results are outlined in Table 4.1 show the six variables described above run on the log of the total value of U.S. trade. In this case, the shared border and PTA variables are statistically insignificant. The variable which explains the greatest, positive effect on U.S. trade flows are the GDPs of the two countries. When the sum of the two GDPs increases by one percent, the total value of trade increases by 93.96%. When both countries are English-speaking,

bilateral trade volumes increase by 42.40%; and for every one percent increase in the distance between the capital cities, trade falls by 83.92%. Per capita GDP also has a significant, though smaller effect; a one percent increase in the sum of the GDPs per capita explains a 19% increase in trade volumes.

Table 4.1 – Core Gravity Model

Variable	Coefficient (Standard Error)
$\ln(GDP_i * GDP_j)$	0.9396*** (0.0461)
$\ln(GDP_{pci} * GDP_{pcj})$	0.1899*** (0.0693)
$\ln(Distance)$	-0.8392*** (0.1971)
<i>English1</i>	0.4240** (0.1953)
<i>Shared Border</i>	0.1979 (1.1235)
<i>Preferential Trade Agreement</i>	0.7337 (0.6309)
Number of observations	188
F-Statistic	127.06***
Adjusted R-Squared	0.8018

Statistical significance: *** denotes significance at 1% level; ** denotes significance at 5% level; *denotes significance at 10% level.

Because we will consider the effects of regions throughout our analysis, Table 4.2 shows the core gravity model variables with regional dummy variables included for Latin America, Europe, Africa, Asia, and the Middle East. Canada is the only country not included, so all coefficients are interpreted relative to U.S.-Canadian trade; thus, the negative signs on all of the regional coefficient are consistent with the fact that Canada is the top U.S. trading partner. When all of these variables are included, however, only the GDP and GDP per capita variable remain statistically significant. This suggests that the regional factor does not always matter, and we must be careful in our interpretation of these variables.

Table 4.2 – Core Gravity Model with Regional Dummy Variables

Variable	Coefficient (Standard Error)
<i>ln(GDP_i*GDP_j)</i>	0.9654*** (0.0427)
<i>ln(GDP_{pci}*GDP_{pcj})</i>	0.2125*** (0.0721)
<i>ln(Distance)</i>	-0.4398 (0.2722)
<i>English-speaking</i>	0.1314 (0.1910)
<i>Shared Border</i>	-0.4687 (1.3223)
<i>Preferential Trade Agreement</i>	0.9830 (0.6025)
<i>Latin America</i>	-0.0253 (1.5733)
<i>Europe</i>	-1.4985 (1.6000)
<i>Africa</i>	-1.0715 (1.6018)
<i>Asia</i>	-0.3743 (1.6034)
<i>Middle East</i>	-1.6269 (1.6126)
Number of Observations	188
F-Statistic	87.46***
Adjusted R-Squared	0.8357

Statistical significance: *** denotes significance at 1% level; ** denotes significance at 5% level; *denotes significance at 10% level.

These tables provide the basic information we expect from gravity model estimations.

We will now turn to the question of ethnic stocks and flows and their role in U.S. trade flows.

Ethnic Stock Gravity Regressions

In our analysis of the ethnic stock, we will employ two variations of the raw ancestral data. The first is the natural logarithm of the raw data, which we call *ln(Ethnic Stock)*. This variable includes only 63 of the 188 countries because it is only from those 63 countries that there exists a large enough ancestral group for the Census Bureau to report. The second

variation is called $\ln(\text{Ethnic Stock } I)$, which assigns a value of unity to each missing variable in the ethnic stock and brings the total number of observations back to 188. This technique effectively treats the missing value as zero; and we can state by assumption that those values not reported by the Census Bureau are statistically indifferent from zero. Table 4.3 shows the regression estimates of both of these cases when controlling for the core gravity variables. In both cases, the coefficients are slightly positive, but not statistically significant.

Table 4.3 – Ethnic Stock and Core Gravity Model

Variable	Coefficient (Standard Error)	Coefficient (Standard Error)
$\ln(GPDi*GDPj)$	1.0448*** (0.1158)	0.9210*** (0.0575)
$\ln(GDPpci*GDPpcj)$	-0.0932 (0.1335)	0.1945*** (0.0699)
$\ln(\text{Distance})$	-1.1365*** (0.3102)	-0.8013*** (0.2094)
<i>English-speaking</i>	1.0769*** (0.3466)	0.4289** (0.1959)
<i>Shared Border</i>	-0.4869 (1.5322)	0.1886 (1.1258)
<i>Preferential Trade Agreement</i>	0.8626 (1.1964)	0.7528 (0.6331)
$\ln(\text{Ethnic Stock})$	0.0066 (0.1227)	-
$\ln(\text{Ethnic Stock } I)$	-	0.0101 (0.0186)
Number of observations	63	188
F-Statistic	29.83***	108.53***
Adjusted R-Squared	0.7650	0.8010

Statistical significance: *** denotes significance at 1% level; ** denotes significance at 5% level; *denotes significance at 10% level.

When we repeat this regression by region, we find again that the ethnic stock consistently remains small and statistically insignificant. Table 4.4 shows the coefficients for *Ethnic Stock* and *Ethnic Stock I* by region. The only cases of statistical significance are for *Ethnic Stock I* in Europe and Africa. However, the sign of the coefficient is negative in Europe implying that a one percentage increase in the ethnic stock from a European country implies a 6.28% decrease in

U.S.-European trade. And in the case of Africa, the positive trend is led by the only two African countries where there is a measurable ancestral group in the United States, Egypt and Nigeria.

Table 4.4 – Ethnic Stock Gravity Model by Region²⁸

Regression Variable	Latin America	Europe	Africa	Asia	Middle East
<i>ln(Ethnic Stock)</i>	0.0685 (0.3245)	0.0799 (0.1332)	Insufficient Data	0.3473 (0.6128)	Insufficient Data
<i>ln(Ethnic Stock I)</i>	0.0420 (0.0276)	-0.0628** (0.0311)	0.1352* (0.0774)	0.0066 (0.0495)	0.0197 (0.0784)

Statistical significance: *** denotes significance at 1% level; ** denotes significance at 5% level; *denotes significance at 10% level.

We can infer from these regressions, therefore, that the ethnic stock has no impact on international trade flows. In other words, the traditional ancestral groups of the U.S., in particular those of Europe, do not seem to be guiding trade flows toward their places of origin. We will now explore if those born outside of but living in the United States tend to orient trade flows toward their home countries. We do this by employing the *Ethnic Flows* variable.

Ethnic Flows Gravity Regressions

We begin our analysis of the relationship between ethnic flows (that is, immigrants) and trade flows by running regressions of the two variations of the variable: *ln(Ethnic Flows)* and *ln(Ethnic Flows I)*. As with the ethnic stock variable, the *Ethnic Stock I* means that those U.S. trading partners which have a minimal immigrant presence in the U.S. are given a value of unity, which translates into a value of zero in the logarithmic form. Table 4.5 shows the regression estimates for these variables and the core gravity variables.

²⁸ Because shared borders are controlled for in these regressions, it is not necessary to run a comparison regression for Latin America without Mexico. The coefficients on both regressions are the same. Also, because there is minimal change in the estimates of the core gravity variable coefficients, we will only report estimates of the coefficients in question when reporting regional regressions.

Table 4.5 – Ethnic Flows and Core Gravity Model

Variable	Coefficient (Standard Error)	Coefficient (Standard Error)
<i>ln(GPDi*GDPj)</i>	0.8157*** (0.0957)	0.7476*** (0.0602)
<i>ln(GDPpci*GDPpcj)</i>	0.1731 (0.1157)	0.2571*** (0.0673)
<i>ln(Distance)</i>	-0.5004* (0.2570)	-0.4220** (0.2075)
<i>English-speaking</i>	0.6071** (0.2451)	0.2566 (0.1886)
<i>Shared Border</i>	-0.8708 (1.1020)	0.5841 (1.0683)
<i>Preferential Trade Agreement</i>	1.2553* (.7330)	0.7483 (0.5981)
<i>ln(Ethnic Flows)</i>	0.3361*** (0.1110)	-
<i>ln(Ethnic Flows I)</i>	-	0.0991*** (0.0214)
Number of observations	88	188
F-Statistic	50.57	124.26
Adjusted R-Squared	0.7995	0.8219

Statistical significance: *** denotes significance at 1% level; ** denotes significance at 5% level; *denotes significance at 10% level.

The estimates of the ethnic flows coefficients are a sharp contrast to those of the ethnic stocks. In both versions of the variable, the coefficients are statistically significant at the one percent confidence level. In the case of *Ethnic Flows*, meaning among those 88 countries in the data set with a measurable number of immigrants residing in the United States, a one percentage increase in the number of immigrants from the country explains an increase of 33.61% of bilateral trade with the United States. The confidence interval for this estimate ranges from 11.52% to 55.69%. The regression of *Ethnic Stock I* includes all 188 estimating zero immigrants from those countries for which the Census Bureau does not report a number of foreign-born residents in the U.S. In this case, a one percentage increase in the number of immigrants from the sending country explains a 9.91% increase in bilateral trade with the U.S. The confidence

interval for this estimate ranges from 5.69% to 14.13%. In both cases, immigrants have a positive, significant impact on U.S. trade flows.

In order to learn which immigrants in particular are driving this positive effect on trade, we can run these regressions by region. Table 4.6 shows only the *Ethic Flows* and *Ethnic Flows I* coefficients for these regional regressions. Among these regressions, only three coefficient estimates are statistically significant; however, none of them are precise or meaningful. Latin America shows a 31.96% increase in trade with a one percentage increase in immigration (only for *Ethnic Flows*); although statistically significant, the number is not very precise with a confidence interval from 2.68% to 61.24%. Similarly, in Africa, the 10.14% estimate is not very precise with a confidence range of -0.15% to 20.44%; as in the case of ethnic stocks, the statistical significance of this coefficient is likely driven by the very few African countries with measurable immigration into the U.S. Finally, the coefficient of 307.62% in the Middle East case is both an unrealistic and imprecise estimate; the confidence interval for that coefficient is -513.45% to 1,128.68%.

Table 4.6 – Ethnic Flows Gravity Model by Region

Regression Variable	Latin America	Europe	Africa	Asia	Middle East
<i>ln(Ethic Flows)</i>	0.3196** (0.1404)	-0.0064 (0.1651)	-0.0624 (0.9911)	0.1896 (0.2778)	3.0762*** (0.6462)
<i>ln(Ethnic Flows I)</i>	-0.0050 (0.0312)	0.0319 (0.0411)	0.1014** (0.0512)	0.0869 (0.0769)	0.1062 (0.0736)

Statistical significance: *** denotes significance at 1% level; ** denotes significance at 5% level; *denotes significance at 10% level.

We can infer two conclusions from these two sets of regressions. First, unlike in the case of ethnic stocks, ethnic flows (or immigration) have a positive and significant impact on U.S. trade flows. A conservative estimate from the regressions in Table 4.5 is that a one percentage increase in immigration from a sending country increases bilateral trade with the U.S. by about

10 percent. Second, there appears to be no specific region or regions where the correlation between immigration and trade seems to be overwhelmingly or even slightly stronger than elsewhere. This might suggest, though does not prove, that a diverse composition of ethnic flows could contribute to positive effects on trade flows.

Language Network Regressions

As we saw in the section on the core gravity model variables, common language, a dummy variable, is considered important in gravity model estimations. This data set showed from the first regression of this chapter that when two countries are predominantly English-speaking (or where English is the official language), bilateral trade with the US increases by about 42 percent. We now consider how smaller English-speaking groups in foreign countries as well as the minority linguistic groups of the United States, specifically the Spanish-speaking and Chinese-speaking communities, influence US trade. For these regressions, we do not include the dummy variable *English1*.

Table 4.7 provides the regression estimates for language networks. We find that all three of these shared language variables are precise and significant at the 1 percent level. *Englishshr*'s coefficient estimate suggests that a one percent increase in the joint population of English-speakers between the US and the trading partner explains a 5.9 percent increase in bilateral trade. The confidence interval for this estimate is from 3.3 to 8.4 percent. The estimate is also about 5.9 percent for Spanish-speakers with a confidence interval of 2.25 to 9.6 percent. The Chinese language variable explains a 9.1 percent increase in bilateral trade with a confidence interval of 4.6 to 13.7 percent.

Table 4.7 – Language Networks Gravity Model

Variable	Coefficient (Standard Error)
<i>ln(GPDi*GDPj)</i>	0.8758*** (0.0423)
<i>ln(GDPpci*GDPpcj)</i>	0.1735*** (0.0632)
<i>ln(Distance)</i>	-0.7393*** (0.2008)
<i>Shared Border</i>	-0.9183 (1.0222)
<i>Preferential Trade Agreement</i>	0.8246 (.5661)
<i>Englishshr</i>	0.0588*** (0.0130)
<i>Spanishshr</i>	0.0590*** (0.0185)
<i>Chineseshr</i>	0.0915*** (0.0229)
Number of observations	188
F-Statistic	124.24***
Adjusted R-Squared	0.8406

Statistical significance: *** denotes significance at 1% level; ** denotes significance at 5% level; *denotes significance at 10% level.

This first regression leads us to two important conclusions. First, as we suggested at the beginning of this chapter, linguistic links between countries are very important for facilitating trade. The positive and significant estimates of these shared language variables confirm that conclusion. Second, taking into account the multilingual aspect of the U.S. and its trading partners, English language skills are not the only ones that can allow for access to the U.S. market; knowledge of any language, so long as it is represented prominently in the U.S. population, can facilitate trade with the U.S.

We can also look at these regression estimates regionally. Table 4.8 shows the coefficient estimates for Latin America, Europe, Africa, and Asia. The Middle East is excluded since there are not significant linguistic links to that region. These regressions show the importance of English-speakers in Europe and Chinese-speakers in Asia. These are the only

variables that are statistically significant in this regional exercise and they suggest that the United States' linguistic links to those regions have positive effects on trade. Because *Spanishshr* is insignificant for the Latin America case, we might also infer that the Spanish-speaking population does not matter as much for U.S. trade with Latin America.

Table 4.8 Language Networks Gravity Model by Region

Regression Variable	Latin America	Europe	Africa	Asia
<i>Englishshr</i>	0.0428 (0.0310)	0.0567* (0.0339)	0.0399 (0.0263)	0.0423 (0.0366)
<i>Spanishshr</i>	0.0153 (0.0198)	0.0144 (0.0455)	-	0.0459 (0.0811)
<i>Chineseshr</i>	0.0281 (0.0753)	-	-0.0009 (0.1540)	0.0961** (0.0447)

Statistical significance: *** denotes significance at 1% level; ** denotes significance at 5% level; *denotes significance at 10% level.

A possible shortcoming of this analysis of language, however, is that it only accounts for native speakers of English, Spanish, and Chinese. There are many native-born American English-speakers that learn Spanish and, increasingly, Chinese; and there is certainly a movement toward learning English overseas. This suggests that some notion of skills must be introduced; we will return to this idea at the end of the chapter.

Religious Network Regressions

Our final set of regressions focuses on the role of religious affiliations on international trade. Because religion is a more complex sort of variable that can capture only self-proclaimed affiliations, there are some limits to the conclusions which we can draw. For example, although some cases show positive and significant effects of religion on bilateral trade, it might be explained by shared values rather than an established religious network. Table 4.9 provides the first set of regressions on religious networks. The only religion variable which shows statistical significance is the Protestant population share variable which estimates that a one percent

increase in the joint bilateral Protestant population explains a 4.17 percent increase in trade. The confidence interval for this estimate is from 1.3 to 7.0 percent. Because of the highly fragmented nature of Protestantism, it is unlikely that this positive effect is due to religious networks. With reference to Max Weber's philosophy on the Protestant work ethic and the "spirit of capitalism," one might argue that this finding is consistent with a greater interest of Protestants to participate in competitive markets.

Table 4.9 Religious Networks Gravity Model

Variable	Coefficient (Standard Error)
<i>ln(GPDi*GDPj)</i>	0.8845*** (0.0474)
<i>ln(GDPpci*GDPpcj)</i>	0.2363*** (0.0673)
<i>ln(Distance)</i>	-0.7625*** (0.1966)
<i>Shared Border</i>	-0.0730 (1.1357)
<i>Preferential Trade Agreement</i>	1.1461* (0.6334)
<i>Catholicshr</i>	0.0177 (0.0151)
<i>Protestantshr</i>	0.0417*** (0.0185)
<i>Jewishshr</i>	-0.0225 (0.0361)
Number of observations	188
F-Statistic	100.62***
Adjusted R-Squared	0.8100

Statistical significance: *** denotes significance at 1% level; ** denotes significance at 5% level; *denotes significance at 10% level.

Table 4.10 shows the coefficient estimates for the three religion variables by region. No particular region shows any very significant findings in this regional analysis.

Table 4.10 Religious Networks Gravity Model by Region

Regression Variable	Latin America	Europe	Africa	Asia	Middle East
<i>Catholicshr</i>	-0.0231 (0.0639)	-0.0217 (0.0216)	0.0041 (0.0273)	0.0207 (0.0565)	0.1443* (0.0813)
<i>Protestantshr</i>	-0.0350* (0.0207)	0.0230 (0.0226)	0.0672** (0.0279)	-0.0243 (0.0532)	0.0839 (0.1246)
<i>Jewishshr</i>	-0.0340 (0.0436)	-0.0008 (0.0439)	-0.0316 (0.1025)	-	0.1619 (0.1280)

Statistical significance: *** denotes significance at 1% level; ** denotes significance at 5% level; *denotes significance at 10% level.

Thus, we might conclude, in general, that unlike in the case of languages where the multi-lingual nature of American culture had a positive effect on trade through different language networks, only the mainstream Protestant culture of American society remains the primary religious link to the United States market. This is consistent with the arguments of some sociologists who argue that America is not multi-religious but that all Americans are culturally Anglo-Protestant.

Although these regressions do not prove this theory, they are consistent with it.

Conclusions and Possible Shortcomings

Through this gravity model analysis, we have derived two important findings that we should consider with greater detail. First, from our ethnicity regressions, we find that immigrants (that is, ethnic flows) play an important role in the United States' trade flows. Second, at least one aspect of culture—specifically, language—is a significant variable in the determinants of bilateral trade flows.

On the first finding, the regressions which we ran in this chapter suggest that while the aging ancestral groups of the United States do not tend to direct trade toward the countries associated with their ethnicity, immigrants do tend to engage in international trade in a way that shifts trade toward their home countries. This finding is consistent with the model outlined in Chapter 2 and does have some important policy implications. In particular, it raises the question

so frequently asked regarding immigration: who should the U.S. let in? It is neither realistic nor wise to assume that increasing trade flows should be the principal objective of the United States' immigration policy; however, this conclusion suggests that immigrants' impact on trade does require greater attention in the broader literature of the economic impact of immigrants in the United States. One policy approach is given close examination in Chapter 5.

We should consider one possible shortcoming in linking these regression estimates to the above conclusion. The finding that immigrants (or ethnic flows) play a role in U.S. trade flows relies on the validity of the model described in Chapter 2. It is very likely that alternative models could argue that the correlation between immigration and trade is a function of U.S. openness, on multiple levels, to specific countries or that extensive levels of trade between countries could facilitate immigration in a later phase. As noted in Chapter 2, however, Most shows that the direction of causation for the U.S. in the twentieth century is consistent with our model.

The second finding that language plays a significant role in bilateral trade flows is not entirely a new one; however, the nuanced method of quantifying language use in this paper suggests other ways of interpreting this fact. First, it is the prominent presence of any language spoken overseas, not only of English, that positively effects trade flows, shown by the cases of Spanish and Chinese language usage in the U.S. This is consistent with our first finding on immigration and with our broader model: transnational networks—including linguistic networks—facilitate international trade. Therefore, as with the case of immigrants, the linguistic composition of the United States plays a role in its trade flows; and, shifts in the linguistic composition of the country might be achieved through an immigration policy that attracts immigrants who possess certain language skills.

There is a shortcoming in the data on language that might also have policy implications, however. The data on language which this paper employs is of native speakers of the three languages reported; thus, it does not account for the many people in and out of the United States that learn English, Spanish, and Chinese. If we consider from our findings, however, that a host country like the United States prefers, with the objective of improving trade, to attract speakers of certain languages, it would be equally if not more worthwhile to attract those who learn those language. This is a question of skills acquisition and is treated in our final chapter on immigration policy.

5

Policy Application: Rethinking U.S. Immigration Policy

The findings of this analysis have direct implications on the ethnic and cultural composition of the U.S. population and, therefore, on U.S. immigration policy. In this final chapter, we begin by outlining some new objectives for immigration policy, given the conclusions from Chapter 4. Next, we review the historical and current U.S. immigration policies and explain why they might fail to achieve these objectives. Finally, we evaluate an alternative immigration policy for the United States, specifically one based on skills and determine how it might achieve these new objectives.

New Objectives for U.S. Immigration Policy

Economists who research the economic impact of immigration on the U.S. economy tend to focus their attention on the effect of immigrants on wages, national income, and inequality; it is rare that an economist or a policymaker would concern himself or herself with an immigrant's impact on U.S. trade. This paper concluded, however, that an impact does exist through both ethnic identity and language skills. Let us assume, therefore, that immigration policy was considered a means of influencing trade flows between the U.S. and its trading partners. In particular, we assume, hypothetically, that a policymaker is assigned the task of maximizing U.S. trade flows with immigration policy as his or her instrument.

Given the findings of this analysis and this hypothetical mission, the policymaker would outline two objectives of immigration policy. The first objective would be to promote an immigration policy of openness that allows immigrants to enter the United States under clear and open criteria. In other words, a policy that would restrict large levels of immigration from any particular region or country would not be desirable. This objective allows for a large level of “ethnic flows” and would, therefore, contribute to greater flows of trade between the U.S. and an array of trading partners. The second objective would be to encourage the immigration of individuals from a variety of language networks. An immigration policy that focuses on the knowledge of a single language would not achieve this objective as well as one that encourages immigration of individuals that are literate in their homeland’s language, the host country’s language, and, perhaps, other languages as well. In sum, the policymaker would seek large levels of immigration with diverse linguistic composition.

U.S. Immigration Policy: Past and Present

The United States has witnessed two major phases in immigration policy: the first in the late nineteenth and early twentieth centuries and the second from the mid-twentieth century to the present. The first wave of immigrants from the mid-nineteenth century resulted in an approach to immigration policy that lasted in the United States from 1882 to the Kennedy and Johnson administrations of the 1960’s: the quota system or, more generally, selecting immigrants by national origin. It began in May 1882 with the passing of the Chinese Exclusion Act, which prohibited the entry of Chinese migrants to the United States. This act was followed by an endless list of “statutes and administrative actions” that imposed numerical limits on immigrants

of nationalities that Americans deemed “inferior.”²⁹ Although economic prosperity in the 1920’s might have offset this trend, the Great Depression dragged the restrictive quota system into the 1930’s and 1940’s. In the years from 1931 to 1940, only 528,431 people immigrated to the United States and the ethnic and cultural bias was toward Protestants from northwest Europe.³⁰ The quota system persisted throughout World War II and the early years of the Cold War keeping immigration levels low and from selective countries of origin.

It is clear that the quota system did not achieve the two objectives outlined in the previous section. First, the quota system kept immigration levels very low through quantitative restrictions varying from country to country. This clearly violates the first objective of an open policy that allows for high levels of immigration. Second, the quota system was guided by the ethnic and cultural composition of the United States. Thus, prejudices toward Asians, for example, who were a very small part of the U.S. population, restricted immigration from East Asia. Ultimately, the quota system was biased toward the immigration of Protestants from northern Europe. These ethnic and cultural biases violate the second objective for linguistic diversity; without the presence of Asian languages, for example, in the U.S., the economy was excluded from participation in cultural trading networks with the East Asia region. In sum, under the hypothetical objectives outlined above, a non-diverse quota system fails.

In the 1960’s, U.S. immigration policy fundamentally changed. President Lyndon Johnson promoted the passage of the Immigration Act of 1965, which removed quantitative restrictions from the immigration system. Focus shifted from entry by national origin to family reunification. Specifically, the Act states that spouses, unmarried minor children, and parents of

²⁹ Roger Daniels, *Guarding the Golden Door: American Immigration Policy and Immigrants Since 1882*, Hill and Wang: New York, 2004, p.3.

³⁰ Daniels, pp.58-59.

U.S. citizens were exempt from numerical requirements. Following World War II, because of growing prosperity in Western Europe and Soviet controls on Eastern Europe, the composition of U.S. immigration shifted to Latin Americans and Asians.³¹ Thus, the new Immigration Act of 1965 affected these groups first and foremost. Parents, spouses and children of the growing numbers of Latin American and Asian immigrants began to enter the United States. Thus, the numbers of Latin Americans and Asians in the United States grew exponentially. The policy of family reunification and the ethnic bias toward Latin America and Asia continue through the present.

Since the first great wave of immigrants to the U.S. in the mid-nineteenth century, current immigration levels under the family reunification policy are at record highs. This fact, combined with the elimination of quantitative restrictions on immigrants, suggests that the current U.S. approach to immigration policy achieves the first objective of widespread and open immigration. On the second objective, family reunification is not so successful, however. Although it does not make use of nation-specific quotas, it is biased toward the composition of the foreign-born population at the time of the Act's passage. As stated, in the 1960's, American immigration had shifted toward Latin America and Asia. Because of family reunification, these remain the primary sources of immigrants; and this violates the second objective of broad linguistic diversity in the composition of immigrants. Thus, an alternative policy should seek to maintain the high levels of immigration that the 1965 act encouraged but in a way that broadens the ethnic and linguistic diversity of the immigrant pool.

³¹ *Ibid.*, p.136-137.

Skills-Based Immigration: An Alternative Policy

When President John F. Kennedy proposed to Congress in July 1963 a phasing out of the quota system, he outlined, in the following order, what an immigration formula should entail:

1. The skills of the immigrant and their relationship to our need;
2. The reuniting of families;
3. The priority of registration. [First come, first served.]³²

The resulting Immigration Act of 1965 gave the priority to the second of these, although the first was not excluded entirely. In recent years, however, as low-skilled immigrants from Mexico and Latin America are approaching record levels, academics and policymakers have reentered a debate on immigration reform. Among the most frequently cited policy alternatives is the skills-based (or point system) approach to immigration. George Borjas advocates this system, citing the success of such systems in Australia, Canada, and New Zealand.³³ Borjas argues that if the objective of U.S. immigration policy is to maximize the social welfare of natives, which he defines as a function of individual income and more equal income distribution, fewer immigrants overall should be allowed in and, as a share of those admitted, the vast majority should be skilled workers. He advocates that a skills-based point system can achieve this by allocating points to those individuals that the U.S. decides are most needed in the economy. If applied in the way Borjas recommends, the needed points for entry would be high (to limit the number of immigrants) and the source of points would be knowledge of needed skills. The structure of the point system, however, can change depending on the objectives of the immigration policy.

For the objectives related to trade outlined previously, the skills-based point system would be most useful. First, the point system could set the threshold of points low enough such

³² *Ibid.*, p.131.

³³ George Borjas, *Heaven's Door: Immigration Policy and the American Economy*, Princeton University Press: Princeton, 1999, p.192.

that a large number of immigrants could enter the country. Although this is contrary to Borjas' case for lower immigration, we must consider the differences in the objectives of the policy. Second, the point system could easily allocate more points to those who are (1) literate in their home country's native language, (2) literate in English, and (3) literate in other languages. This would shift the composition of the immigrant pool to a greater variety of individuals who know more languages or who know those languages associated with countries with which the U.S. seeks to expand trade.

Despite this, expanding trade should not be the primary objective of U.S. immigration policy. As in Borjas' argument, it is likely that raising the social welfare of natives is the primary objective of the policy; and clearly the skills-based point system can achieve this. Within the framework of the point system, however, it is easier for political agents to negotiate which criteria should be matched with greater weight. According to the findings of this study, under a point system, those in the economy that seek to expand U.S. trade should advocate for (1) large numbers of immigrants and (2) a composition of immigrants that know a diversity of languages.

Conclusions and Extensions

The original hypothesis of this thesis was the following: *When two countries participate in the same transnational ethnic or cultural network, the volume of trade between them increases.* The data analysis of this study partially accepts this hypothesis for the case of the United States. On the one hand, ancestral networks that link the older European ethnic groups of the United States to their homeland do not influence international trade flows. Similarly, religious networks, in general, do not play any significant role in U.S. trade flows. On the other hand, we found that the immigrant stock of the United States (the ethnic flows) and the linguistic

composition of the entire population have an important and positive effect on trade.

Considering, therefore, that the ethnicity of immigrants and the language skills of the U.S. population influence trade, U.S. immigration policy should adjust to account for these findings.

We conclude that these objectives might be met, at least partially, by the implementation of a skills-based point system for immigration that keeps immigration levels high and allocates more points to individuals with higher levels of literacy in more languages. Thus, further research should explore more deeply the relationship between skilled immigrants and trade to confirm or reject this trade-based policy recommendation for skills-based immigration in the U.S.

Appendix A
Value of Bilateral Trade with the United States in 2000, US\$ in millions

Country	Exports	Imports	Total (Absolute Value)
Afghanistan	8.2	0.8	8.9
Albania	21.0	7.8	28.7
Algeria	867.4	2,724.0	3,592.0
Angola	226.0	3,557.0	3,783.0
Antigua and Barbuda	138.7	2.3	141.0
Argentina	4,700.0	3,102.0	7,802.0
Armenia	57.1	23.0	80.1
Aruba	289.2	1,511.0	1,800.0
Australia	12,460.0	6,439.0	18,900.0
Austria	2,554.0	3,233.0	5,786.0
Azerbaijan	210.3	20.9	231.2
Bahamas	1,065.0	275.0	1,340.0
Bahrain	448.7	337.6	786.3
Bangladesh	239.3	2,418.0	2,658.0
Barbados	305.6	38.6	344.2
Belarus	31.1	104.1	135.2
Belgium	13,960.0	9,931.0	23,890.0
Belize	208.5	93.8	302.4
Benin	26.4	2.4	28.8
Bermuda	428.1	39.0	467.1
Bhutan	0.7	0.9	1.6
Bolivia	251.4	190.7	442.1
Bosnia and Herzegovina	44.1	17.8	61.9
Botswana	31.5	40.9	72.4
Brazil	15,360.0	13,860.0	29,210.0
Bulgaria	112.8	235.3	348.1
Burkina Faso	15.8	2.5	18.2
Burundi	1.7	8.0	9.7
Cambodia	32.2	826.0	858.2
Cameroon	59.2	155.1	214.3
Canada	176,000.0	229,000.0	405,600.0
Cape Verde	7.2	4.2	11.4
Cayman Islands	354.0	6.5	360.5
Central African Republic	1.8	3.0	4.7
Chad	10.8	4.8	15.6
Chile	3,455.0	3,228.0	6,683.0
China	16,250.0	100,000.0	116,300.0
Colombia	3,689.0	6,969.0	10,660.0
Comoros	0.7	3.5	4.2
Congo	82.1	509.7	591.9
Costa Rica	2,445.0	3,547.0	5,993.0
Cote d'Ivoire	94.9	383.9	478.8
Croatia	89.8	140.8	230.6

Cyprus	191.8	23.4	215.2
Czech Republic	733.5	1,071.0	1,804.0
Democratic Republic of Congo	10.0	212.2	222.2
Denmark	1,513.0	2,974.0	4,487.0
Djibouti	16.8	0.4	17.2
Dominica	37.3	6.9	44.3
Dominican Republic	4,443.0	4,384.0	8,827.0
Ecuador	1,037.0	2,210.0	3,248.0
Egypt	3,329.0	887.8	4,217.0
El Salvador	1,775.0	1,933.0	3,708.0
Equatorial Guinea	94.9	154.7	249.7
Eritrea	16.6	0.2	16.8
Estonia	89.5	573.1	662.6
Ethiopia	165.2	28.7	193.8
Fiji	23.1	146.0	169.1
Finland	1,571.0	3,250.0	4,820.0
France	20,250.0	29,780.0	50,040.0
French Polynesia	93.9	43.9	137.9
Gabon	63.4	2,209.0	2,272.0
Gambia	9.1	0.4	9.5
Georgia	108.8	31.9	140.7
Germany	29,240.0	58,740.0	87,980.0
Ghana	190.8	204.5	395.3
Greece	1,218.0	591.8	1,810.0
Grenada	79.3	27.1	106.3
Guatemala	1,895.0	2,605.0	4,500.0
Guinea	67.4	88.4	155.8
Guinea Bissau	0.3	0.5	0.8
Guyana	159.0	141.0	300.0
Haiti	576.1	297.0	873.1
Honduras	2,575.0	3,090.0	5,665.0
Hong Kong	14,630.0	11,450.0	26,080.0
Hungary	569.3	2,716.0	3,285.0
Iceland	255.9	260.1	516.0
India	3,663.0	10,690.0	14,350.0
Indonesia	2,547.0	10,390.0	12,930.0
Iran	16.6	168.7	185.3
Iraq	10.3	6,111.0	6,121.0
Ireland	7,727.0	16,410.0	24,140.0
Israel	7,750.0	12,970.0	20,720.0
Italy	11,000.0	25,050.0	36,050.0
Jamaica	1,378.0	647.7	2,025.0
Japan	65,250.0	147,000.0	211,800.0
Jordan	312.7	73.2	386.0
Kazakhstan	124.5	424.8	549.3
Kenya	238.0	109.5	347.5
Kiribati	4.5	1.4	5.8

Kuwait	791.2	2,762.0	3,553.0
Kyrgyzstan	24.5	1.9	26.4
Lao People's Democratic Republic	4.0	9.6	13.7
Latvia	133.9	286.5	420.5
Lebanon	354.1	76.8	430.9
Lesotho	0.9	140.3	141.2
Liberia	43.2	45.4	88.6
Libyan Arab Jamahiriya	17.9	0.0	17.9
Lithuania	59.3	135.1	194.4
Luxembourg	397.6	332.5	730.1
Macau; SAR of China	69.8	1,266.0	1,336.0
Macedonia	68.5	137.1	205.6
Madagascar	15.5	157.8	173.3
Malawi	13.7	55.4	69.1
Malaysia	11,000.0	25,570.0	36,560.0
Maldives	6.1	94.1	100.2
Mali	32.0	9.7	41.7
Malta	334.6	484.1	818.7
Marshall Islands	65.1	5.0	70.2
Mauritania	16.2	0.4	16.5
Mauritius	24.3	286.1	310.4
Mexico	112,000.0	136,000.0	247,600.0
Micronesia (Federated States of)	29.2	13.7	43.0
Moldova; Republic of	27.4	105.5	132.9
Mongolia	17.7	116.6	134.3
Morocco	524.7	444.3	969.0
Mozambique	58.0	24.4	82.4
Namibia	80.2	42.3	122.5
Nepal	35.1	229.4	264.5
Netherlands	21,970.0	9,704.0	31,680.0
Netherlands Antilles	674.1	718.1	1,392.0
New Caledonia	19.3	31.4	50.7
New Zealand	1,974.0	2,080.0	4,054.0
Nicaragua	379.1	590.0	969.1
Niger	36.2	7.0	43.2
Nigeria	718.5	10,550.0	11,270.0
Norway	1,544.0	5,710.0	7,254.0
Oman	200.3	257.5	457.8
Pakistan	462.4	2,167.0	2,630.0
Palau	18.2	13.6	31.7
Panama	1,609.0	306.9	1,916.0
Papua New Guinea	21.2	34.6	55.8
Paraguay	444.0	40.9	484.9
Peru	1,662.0	1,996.0	3,658.0
Philippines	8,790.0	13,940.0	22,730.0
Poland	757.2	1,040.0	1,797.0
Portugal	956.6	1,579.0	2,536.0

Qatar	192.1	488.1	680.2
Romania	232.5	469.9	702.4
Russian Federation	2,318.0	7,796.0	10,110.0
Rwanda	19.1	5.1	24.1
Saint Kitts and Nevis	57.9	36.8	94.7
Saint Lucia	105.3	22.3	127.6
Saint Vincent and the Grenadines	37.3	8.8	46.1
Samoa	64.2	5.5	69.7
San Marino	0.9	7.4	8.3
Sao Tome and Principe	1.0	0.5	1.5
Saudi Arabia	6,230.0	14,220.0	20,450.0
Senegal	81.8	4.2	86.0
Serbia and Montenegro	30.1	2.3	32.3
Seychelles	7.2	8.1	15.3
Sierra Leone	18.7	3.8	22.5
Singapore	17,820.0	19,190.0	37,000.0
Slovakia	110.0	240.8	350.8
Slovenia	140.3	313.6	453.9
Solomon Islands	6.0	0.5	6.4
Somalia	4.9	0.4	5.3
South Africa	3,085.0	4,204.0	7,289.0
South Korea	27,900.0	40,300.0	68,200.0
Spain	6,323.0	5,731.0	12,050.0
Sudan	16.9	1.8	18.7
Suriname	131.0	135.3	266.3
Swaziland	67.1	52.6	119.7
Sweden	4,557.0	9,603.0	14,160.0
Switzerland	9,942.0	10,170.0	20,120.0
Syrian Arab Republic	226.2	158.3	384.5
Taiwan	24,380.0	40,510.0	64,890.0
Tajikistan	12.7	9.0	21.7
Tanzania; United Republic of	44.9	33.7	78.5
Thailand	6,643.0	16,390.0	23,030.0
Togo	10.6	6.0	16.6
Tonga	7.6	4.8	12.4
Trinidad and Tobago	1,097.0	2,228.0	3,325.0
Tunisia	289.0	94.0	383.0
Turkey	3,731.0	3,042.0	6,773.0
Turkmenistan	72.5	28.0	100.5
Uganda	27.4	29.1	56.5
Ukraine	186.2	873.0	1,059.0
United Arab Emirates	2,291.0	972.3	3,264.0
United Kingdom	41,580.0	43,460.0	85,040.0
Uruguay	538.5	313.0	851.5
Uzbekistan	151.4	34.5	185.9
Vanuatu	1.3	0.6	1.9
Venezuela	5,552.0	18,650.0	24,200.0

Viet Nam	367.7	821.7	1,189.0
Yemen	189.3	248.4	437.7
Zambia	19.1	17.7	36.8
Zimbabwe	53.3	112.4	165.6

Appendix B
Ethnic Stock and Flows to United States in 2000, in thousands

Country	Ethnic Stock	Ethnic Flows
Afghanistan	0.0	27.0
Albania	113.7	0.0
Algeria	0.0	0.0
Angola	0.0	0.0
Antigua and Barbuda	0.0	0.0
Argentina	0.0	89.0
Armenia	385.5	52.0
Aruba	0.0	0.0
Australia	0.0	36.0
Austria	730.3	65.0
Azerbaijan	0.0	0.0
Bahamas	0.0	13.0
Bahrain	0.0	0.0
Bangladesh	0.0	85.0
Barbados	0.0	54.0
Belarus	0.0	0.0
Belgium	348.5	17.0
Belize	0.0	59.0
Benin	0.0	0.0
Bermuda	0.0	3.0
Bhutan	0.0	0.0
Bolivia	0.0	44.0
Bosnia and Herzegovina	0.0	0.0
Botswana	0.0	0.0
Brazil	181.1	160.0
Bulgaria	0.0	0.0
Burkina Faso	0.0	0.0
Burundi	0.0	0.0
Cambodia	197.1	122.0
Cameroon	0.0	0.0
Canada	2,988.2	678.0
Cape Verde	0.0	0.0
Cayman Islands	0.0	0.0
Central African Republic	0.0	0.0
Chad	0.0	0.0
Chile	0.0	83.0

China	2,271.6	871.0
Colombia	584.0	435.0
Comoros	0.0	0.0
Congo	0.0	0.0
Costa Rica	0.0	77.0
Cote d'Ivoire	0.0	0.0
Croatia	374.2	0.0
Cyprus	0.0	0.0
Czech Republic	1,699.9	49.0
Democratic Republic of Congo	0.0	0.0
Denmark	1,430.9	8.0
Djibouti	0.0	0.0
Dominica	0.0	9.0
Dominican Republic	908.5	692.0
Ecuador	323.0	281.0
Egypt	142.8	126.0
El Salvador	802.7	765.0
Equatorial Guinea	0.0	0.0
Eritrea	0.0	0.0
Estonia	0.0	0.0
Ethiopia	0.0	68.0
Fiji	0.0	33.0
Finland	623.6	19.0
France	8,309.7	127.0
French Polynesia	0.0	0.0
Gabon	0.0	0.0
Gambia	0.0	0.0
Georgia	0.0	0.0
Germany	43,100.0	653.0
Ghana	0.0	80.0
Greece	1,153.3	136.0
Grenada	0.0	42.0
Guatemala	463.5	327.0
Guinea	0.0	0.0
Guinea Bissau	0.0	0.0
Guyana	162.4	202.0
Haiti	548.2	385.0
Honduras	266.8	250.0
Hong Kong	0.0	195.0
Hungary	1,398.7	87.0
Iceland	0.0	0.0
India	1,546.7	1,007.0
Indonesia	0.0	53.0
Iran	338.3	0.0
Iraq	0.0	81.0
Ireland	34,800.0	202.0
Israel	106.8	82.0

Italy	15,600.0	451.0
Jamaica	736.5	411.0
Japan	1,103.3	274.0
Jordan	0.0	39.0
Kazakhstan	0.0	0.0
Kenya	0.0	28.0
Kiribati	0.0	0.0
Kuwait	0.0	0.0
Kyrgyzstan	0.0	0.0
Lao People's Democratic Republic	179.9	74.0
Latvia	0.0	11.0
Lebanon	440.3	127.0
Lesotho	0.0	0.0
Liberia	0.0	0.0
Libyan Arab Jamahiriya	0.0	0.0
Lithuania	660.0	39.0
Luxembourg	0.0	0.0
Macau; SAR of China	0.0	0.0
Macedonia	0.0	0.0
Madagascar	0.0	0.0
Malawi	0.0	0.0
Malaysia	0.0	43.0
Maldives	0.0	0.0
Mali	0.0	0.0
Malta	0.0	0.0
Marshall Islands	0.0	0.0
Mauritania	0.0	0.0
Mauritius	0.0	0.0
Mexico	18,400.0	7,841.0
Micronesia (Federated States of)	0.0	0.0
Moldova; Republic of	0.0	0.0
Mongolia	0.0	0.0
Morocco	0.0	38.0
Mozambique	0.0	0.0
Namibia	0.0	0.0
Nepal	0.0	0.0
Netherlands	4,541.8	93.0
Netherlands Antilles	0.0	0.0
New Caledonia	0.0	0.0
New Zealand	0.0	20.0
Nicaragua	230.4	245.0
Niger	0.0	0.0
Nigeria	164.7	87.0
Norway	4,477.7	18.0
Oman	0.0	0.0
Pakistan	253.2	197.0
Palau	0.0	0.0

Panama	119.5	69.0
Papua New Guinea	0.0	0.0
Paraguay	0.0	0.0
Peru	293.0	328.0
Philippines	2,116.5	1,222.0
Poland	8,977.2	445.0
Portugal	1,173.7	206.0
Qatar	0.0	0.0
Romania	367.3	99.0
Russian Federation	2,652.2	364.0
Rwanda	0.0	0.0
Saint Kitts and Nevis	0.0	0.0
Saint Lucia	0.0	0.0
Saint Vincent and the Grenadines	0.0	0.0
Samoa	0.0	0.0
San Marino	0.0	0.0
Sao Tome and Principe	0.0	0.0
Saudi Arabia	0.0	20.0
Senegal	0.0	0.0
Serbia and Montenegro	140.3	0.0
Seychelles	0.0	0.0
Sierra Leone	0.0	0.0
Singapore	0.0	29.0
Slovakia	797.8	22.0
Slovenia	176.7	0.0
Solomon Islands	0.0	0.0
Somalia	0.0	0.0
South Africa	0.0	69.0
South Korea	1,190.4	701.0
Spain	2,487.1	80.0
Sudan	0.0	0.0
Suriname	0.0	0.0
Swaziland	0.0	0.0
Sweden	3,998.3	49.0
Switzerland	911.5	29.0
Syrian Arab Republic	142.9	45.0
Taiwan	293.6	325.0
Tajikistan	0.0	0.0
Tanzania; United Republic of	0.0	0.0
Thailand	146.6	147.0
Togo	0.0	0.0
Tonga	0.0	0.0
Trinidad and Tobago	164.7	173.0
Tunisia	0.0	0.0
Turkey	117.6	97.0
Turkmenistan	0.0	0.0
Uganda	0.0	0.0

Ukraine	892.9	149.0
United Arab Emirates	0.0	0.0
United Kingdom	32,200.0	613.0
Uruguay	0.0	73.0
Uzbekistan	0.0	0.0
Vanuatu	0.0	0.0
Venezuela	0.0	126.0
Viet Nam	1,029.4	863.0
Yemen	0.0	0.0
Zambia	0.0	0.0
Zimbabwe	0.0	0.0

Appendix C
Language Usage, Number of Native Speakers in 2000, in thousands

Country	English	Spanish	Chinese
Afghanistan	0	0	0
Albania	0	0	0
Algeria	0	0	0
Angola	0	0	0
Antigua and Barbuda	69	0	0
Argentina	0	32,400	0
Armenia	0	0	0
Aruba	9	7	0
Australia	18,300	99	217
Austria	0	0	0
Azerbaijan	0	0	0
Bahamas	260	0	0
Bahrain	0	0	0
Bangladesh	3,300	0	0
Barbados	253	0	0
Belarus	0	0	0
Belgium	0	50	0
Belize	190	140	0
Benin	0	0	0
Bermuda	63	0	0
Bhutan	0	0	0
Bolivia	0	3,400	0
Bosnia and Herzegovina	0	0	0
Botswana	590	0	0
Brazil	0	0	0
Bulgaria	0	0	0
Burkina Faso	0	0	0
Burundi	0	0	0
Cambodia	0	0	340

Cameroon	7,700	0	0
Canada	18,100	229	768
Cape Verde	0	0	0
Cayman Islands	0	0	0
Central African Republic	0	0	0
Chad	0	0	0
Chile	0	13,500	0
China	0	0	1,150,000
Colombia	0	37,900	0
Comoros	0	0	0
Congo	0	0	0
Costa Rica	72	3,505	7
Cote d'Ivoire	0	0	0
Croatia	0	0	0
Cyprus	0	0	0
Czech Republic	0	0	0
Democratic Republic of Congo	0	0	0
Denmark	18	0	0
Djibouti	0	0	0
Dominica	77	0	0
Dominican Republic	0	7,970	0
Ecuador	0	11,500	0
Egypt	0	0	0
El Salvador	0	5,839	0
Equatorial Guinea	0	0	0
Eritrea	0	0	0
Estonia	0	0	0
Ethiopia	0	0	0
Fiji	170	0	0
Finland	0	0	0
France	90	0	0
French Polynesia	0	0	13
Gabon	0	0	0
Gambia	0	0	0
Georgia	0	0	0
Germany	0	0	0
Ghana	1,320	0	0
Greece	0	0	0
Grenada	101	0	0
Guatemala	0	7,180	0
Guinea	0	0	0
Guinea Bissau	0	0	0
Guyana	759	0	0
Haiti	0	0	0
Honduras	12	6,104	0
Hong Kong	152	0	6,600
Hungary	0	0	0

Iceland	0	0	0
India	190,000	0	0
Indonesia	0	0	0
Iran	0	0	0
Iraq	0	0	0
Ireland	3,670	0	0
Israel	0	0	0
Italy	0	0	0
Jamaica	2,440	0	0
Japan	80	0	240
Jordan	0	0	0
Kazakhstan	0	0	0
Kenya	2,600	0	0
Kiribati	21	0	0
Kuwait	0	0	0
Kyrgyzstan	0	0	0
Lao People's Democratic Republic	0	0	0
Latvia	0	0	0
Lebanon	0	0	0
Lesotho	510	0	0
Liberia	580	0	0
Libyan Arab Jamahiriya	0	0	0
Lithuania	0	0	0
Luxembourg	5	0	0
Macau; SAR of China	2	0	400
Macedonia	0	0	0
Madagascar	0	0	0
Malawi	520	0	0
Malaysia	6,900	0	1,310
Maldives	0	0	0
Mali	0	0	0
Malta	8	0	0
Marshall Islands	65	0	0
Mauritania	0	0	0
Mauritius	2	0	4
Mexico	0	89,700	0
Micronesia (Federated States of)	1	0	0
Moldova; Republic of	0	0	0
Mongolia	0	0	0
Morocco	0	0	0
Mozambique	0	0	0
Namibia	13	0	0
Nepal	6,600	0	0
Netherlands	0	0	0
Netherlands Antilles	17	0	0
New Caledonia	0	0	0
New Zealand	3,344	0	0

Nicaragua	27	4,804	0
Niger	0	0	0
Nigeria	51,000	0	0
Norway	24	0	0
Oman	0	0	0
Pakistan	17,000	0	0
Palau	18	0	0
Panama	393	2,158	0
Papua New Guinea	130	0	0
Paraguay	0	348	0
Peru	0	20,100	0
Philippines	38,900	460	0
Poland	0	0	0
Portugal	0	0	0
Qatar	0	0	0
Romania	0	0	0
Russian Federation	0	0	0
Rwanda	0	0	0
Saint Kitts and Nevis	43	0	0
Saint Lucia	150	0	0
Saint Vincent and the Grenadines	112	0	0
Samoa	93	0	0
San Marino	0	0	0
Sao Tome and Principe	0	0	0
Saudi Arabia	0	0	0
Senegal	0	0	0
Serbia and Montenegro	0	0	0
Seychelles	28	0	0
Sierra Leone	500	0	0
Singapore	1,206	0	2,488
Slovakia	0	0	0
Slovenia	0	0	0
Solomon Islands	9	0	0
Somalia	0	0	0
South Africa	3,700	0	0
South Korea	0	0	50
Spain	0	29,800	0
Sudan	0	0	0
Suriname	390	0	0
Swaziland	40	0	0
Sweden	32	0	0
Switzerland	0	0	0
Syrian Arab Republic	0	0	0
Taiwan	0	0	4,430
Tajikistan	0	0	0
Tanzania; United Republic of	3,300	0	0
Thailand	0	0	7,500

Togo	0	0	0
Tonga	29	0	0
Trinidad and Tobago	1,205	0	0
Tunisia	0	0	0
Turkey	0	0	0
Turkmenistan	0	0	0
Uganda	2,400	0	0
Ukraine	0	0	0
United Arab Emirates	0	0	0
United Kingdom	57,700	0	0
Uruguay	0	3,110	0
Uzbekistan	0	0	0
Vanuatu	60	0	0
Venezuela	0	23,000	0
Viet Nam	0	0	1,080
Yemen	0	0	0
Zambia	1,800	0	0
Zimbabwe	5,200	0	0

Appendix D

Religious Affiliations, Number of Self-Proclaimed Participants in 2000, in thousands

Country	Protestants	Catholics	Jews
Afghanistan	0	0	0
Albania	0	180	0
Algeria	0	0	0
Angola	1,640	5,670	0
Antigua and Barbuda	29	7	0
Argentina	2,740	32,100	520
Armenia	0	0	0
Aruba	0	68	0
Australia	1,380	5,120	0
Austria	430	6,060	0
Azerbaijan	0	0	0
Bahamas	135	50	0
Bahrain	0	0	0
Bangladesh	0	0	0
Barbados	79	12	0
Belarus	0	1,800	0
Belgium	0	8,990	0
Belize	68	144	0
Benin	0	1,320	0
Bermuda	10	9	0
Bhutan	0	0	0
Bolivia	740	7,200	0
Bosnia and Herzegovina	0	520	0

Botswana	180	60	0
Brazil	38,000	119,000	384
Bulgaria	0	0	0
Burkina Faso	1,100	0	0
Burundi	940	3,730	0
Cambodia	0	0	0
Cameroon	2,700	5,370	0
Canada	8,520	13,800	414
Cape Verde	16	390	0
Cayman Islands	0	0	0
Central African Republic	880	580	0
Chad	1,090	1,540	0
Chile	1,860	11,500	0
China	60,000	8,881	0
Colombia	0	35,200	0
Comoros	4	0	0
Congo	660	1,110	0
Costa Rica	0	3,090	0
Cote d'Ivoire	840	3,280	0
Croatia	30	3,370	0
Cyprus	0	0	0
Czech Republic	200	4,020	0
Democratic Republic of Congo	16,000	20,700	0
Denmark	4,600	0	0
Djibouti	19	0	0
Dominica	13	54	0
Dominican Republic	520	6,650	0
Ecuador	0	11,500	0
Egypt	640	0	0
El Salvador	1,000	4,570	0
Equatorial Guinea	0	430	0
Eritrea	0	0	0
Estonia	200	0	0
Ethiopia	4,920	0	0
Fiji	430	0	0
Finland	4,420	0	0
France	1,090	45,000	607
French Polynesia	115	91	0
Gabon	220	610	0
Gambia	0	0	0
Georgia	0	0	0
Germany	35,100	27,900	226
Ghana	3,790	2,780	0
Greece	0	0	0
Grenada	0	54	0
Guatemala	2,410	8,420	0
Guinea	150	150	0

Guinea Bissau	0	70	0
Guyana	147	90	0
Haiti	1,570	4,720	0
Honduras	650	5,440	0
Hong Kong	300	290	0
Hungary	2,560	6,350	0
Iceland	250	0	0
India	11,000	10,000	0
Indonesia	12,500	7,380	0
Iran	0	0	0
Iraq	0	277	0
Ireland	0	3,410	0
Israel	0	0	4,772
Italy	0	47,200	0
Jamaica	1,010	270	0
Japan	600	528	0
Jordan	0	0	0
Kazakhstan	330	0	0
Kenya	8,130	5,630	0
Kiribati	33	46	0
Kuwait	0	185	0
Kyrgyzstan	0	0	0
Lao People's Democratic Republic	0	0	0
Latvia	355	361	0
Lebanon	0	1,180	0
Lesotho	300	830	0
Liberia	1,300	162	0
Libyan Arab Jamahiriya	0	0	0
Lithuania	0	2,620	0
Luxembourg	0	425	0
Macau; SAR of China	0	0	0
Macedonia	0	0	0
Madagascar	2,930	3,160	0
Malawi	2,050	1,800	0
Malaysia	0	1,142	0
Maldives	0	0	0
Mali	0	250	0
Malta	0	370	0
Marshall Islands	41	5	0
Mauritania	0	0	0
Mauritius	0	320	0
Mexico	3,720	88,000	245
Micronesia (Federated States of)	40	45	0
Moldova; Republic of	0	0	0
Mongolia	0	0	0
Morocco	0	0	0
Mozambique	1,760	2,210	0

Namibia	847	273	0
Nepal	0	0	0
Netherlands	3,500	5,050	0
Netherlands Antilles	0	154	0
New Caledonia	30	125	0
New Zealand	1,300	500	0
Nicaragua	810	3,590	0
Niger	0	0	0
Nigeria	17,000	9,300	0
Norway	3,940	0	0
Oman	0	0	0
Pakistan	1,500	1,450	0
Palau	5	7	0
Panama	400	2,250	0
Papua New Guinea	2,830	1,330	0
Paraguay	270	4,740	0
Peru	1,670	22,400	0
Philippines	4,060	62,000	0
Poland	0	35,300	0
Portugal	0	9,100	0
Qatar	0	0	0
Romania	0	1,140	0
Russian Federation	1,340	0	245
Rwanda	730	5,300	0
Saint Kitts and Nevis	26	0	0
Saint Lucia	0	122	0
Saint Vincent and the Grenadines	71	13	0
Samoa	112	38	0
San Marino	0	24	0
Sao Tome and Principe	15	135	0
Saudi Arabia	0	0	0
Senegal	0	200	0
Serbia and Montenegro	0	392	0
Seychelles	0	69	0
Sierra Leone	0	0	0
Singapore	283	133	0
Slovakia	330	3,260	0
Slovenia	0	1,622	0
Solomon Islands	335	85	0
Somalia	0	0	0
South Africa	11,500	2,660	176
South Korea	8,510	2,760	0
Spain	0	26,700	0
Sudan	0	3,580	0
Suriname	68	87	0
Swaziland	660	0	0
Sweden	7,660	102	0

Switzerland	2,870	3,138	0
Syrian Arab Republic	0	360	0
Taiwan	440	301	0
Tajikistan	0	0	0
Tanzania; United Republic of	0	10,800	0
Thailand	0	290	0
Togo	610	1,170	0
Tonga	0	16	0
Trinidad and Tobago	383	375	0
Tunisia	0	0	0
Turkey	0	0	0
Turkmenistan	0	0	0
Uganda	8,950	10,200	0
Ukraine	1,780	590	0
United Arab Emirates	0	0	0
United Kingdom	30,000	5,712	312
Uruguay	150	2,550	0
Uzbekistan	0	0	0
Vanuatu	90	27	0
Venezuela	0	22,000	0
Viet Nam	0	5,980	0
Yemen	0	0	0
Zambia	2,210	1,640	0
Zimbabwe	2,360	780	0

Bibliography

- Abowd, John M. and Richard B. Freeman. *Immigration, Trade, and the Labor Market*. University of Chicago Press: Chicago, 1991.
- “Ancestry: 2000.” Census 2000 Brief. U.S. Department of Commerce, Economics and Statistics Administration, U.S. Census Bureau.
- Borjas, George J. *Heaven’s Door: Immigration Policy and the American Economy*. Princeton University Press: Princeton, 1999.
- Cohen, Robin. *Global Diasporas*. University of Washington Press: Seattle, 1997.
- Cornelius, Wayne A., Takeyuki Tsuda, Philip L. Martin, and James F. Hollified (eds.). *Controlling Immigration: A Global Perspective, Second Edition*. Stanford University Press: Stanford, 1992.
- Daniels, Roger. *Guarding the Golden Door: American Immigration Policy and Immigrants Since 1882*. Hill and Wang: New York, 2004.
- Duignan, Peter and Lewis H. Gann. *The Debate in the United States over Immigration*. Hoover Institution Press: Stanford, 1998.
- Dunlevy, James A. and William K. Hutchison. “The Impact of Immigration on American Import Trade in the Late Nineteenth and Early Twentieth Centuries.” *The Journal of Economic History*. Vol.59, No.4 (December 1999), p.1043-1062.
- Epstein, Gil S. and Ira N. Gang. “Ethnic Networks and International Trade.” Discussion Paper No. 1232. Institute for the Study of Labor, August 2004.
- Encyclopaedia Britannica Book of the Year 2000*. Encyclopaedia Britannica, Inc.
- Faist, Thomas. *The Volume and Dynamics of International Migration and Transnational Social Space*. Clarendon Press: Oxford, 2000.

Fitzgerald, Keith. *The Face of the Nation: Immigration, the State, and the National Identity*.

Stanford University Press: Stanford, 1996.

Gilbert, Paul. *Peoples, Cultures and Nations in Political Philosophy*. Georgetown University

Press: Washington, 2000.

Hutchinson, John and Anthony D. Smith (eds.). *Ethnicity*. Oxford University Press: Oxford,

1996.

Kluckhohn, Clyde. *Mirror for Man*. Whittlesey House: New York, 1949.

Kotkin, Joel. *Tribes: How Race, Religion and Identity Determine Success in the New Global*

Economy. Random House: New York, 1992.

Liebowitz, S.J. and Stephen E. Margolis. "Network Externality: An Uncommon Tragedy." *The*

Journal of Economic Perspectives. 8:2 (Spring 1994), p.133-150.

Mosk, Carl. *Trade and Migration in the Modern World*. Routledge Taylor & Francis Group:

London, 2005.

Oommen, T.K. *Citizenship, Nationality, and Ethnicity*. Polity Press: Cambridge, 1997.

Ozkirimli, Umut. *Theories of Nationalism: A Critical Introduction*. St. Martin's Press: New

York, 2000.

Portes, Alejandro. "Social Capital: Its Origins and Applications in Modern Sociology." *Annual*

Review of Sociology. Vol. 24 (1998), p.1-24.

Putnam, Robert D. *Bowling Alone: The Collapse and Revival of American Community*. Simon

and Schuster: New York, 2000.

Rauch, James E. "Business and Social Networks in International Trade." *Journal of Economic*

Literature. 39:4 (December 2001), p.1177-1203.

Rauch, James E. and Vitor Trindade. "Ethnic Chinese Networks in International Trade." *The Review of Economics and Statistics*. 84:1 (February 2002), p.116-130.

Tichenor, Daniel J. *Dividing Lines: The Politics of Immigration Control in America*. Princeton University Press: Princeton, 2002.

"United States Census 2000." U.S. Census Bureau. <http://www.census.gov>.

Wallace, Walter L. *The Future of Ethnicity, Race, and Nationality*. Praeger: Westport, 1997.

"World Christian Database." <http://www.worldchristiandatabase.org>.

Zachary, G. Pascal. *The Diversity Advantage: Multicultural Identity in the New World Economy*. Westview Press: Cambridge, 2003.