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Do immigrants counter the effect of cultural distance on trade? Evidence from US state-level exports

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ABSTRACT

We examine the effects of immigrants and cultural distance on US state-level exports, placing emphasis on the extent to which immigrants may offset the influence of cultural distance with respect to the initiation and intensification of exports. Our findings suggest that greater cultural differences between the US and immigrants' home countries reduce both the likelihood that exporting occurs and, when exporting is taking place, the level of exports. Immigrants are found to exert pro-export effects that offset, at least partially, the trade-inhibiting effects of cultural distance. The estimated effects of both cultural distance and immigrants are found to be greater when the level of exports is examined as compared to when the likelihood that exporting occurs is considered; however, significant variation in the export-initiation and intensification effects of immigrants and cultural distance is reported across states.

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1. Introduction

That immigrants exert a positive effect on bilateral trade flows has been established by a number of earlier studies. Bandyopadhyay et al. (2008), White (2007) and Wagner et al. (2002) review the associated literature. Broadly speaking, it is assumed that immigrants exert pro-import influences through their preferences for home country goods when neither desired products nor acceptable substitutes are available in their host countries. Similarly, immigrants may increase both host country imports from and exports to their home countries through their connections to business and social networks and/or if they possess knowledge of political and social obligations required to conduct business in their home countries or if they are privy to otherwise unknown information regarding markets and trading opportunities.

Modern economies are characterized by extensive cross-border transactions of goods and services, yet the contracts involved are often incomplete. International trade law and rational behavior alone may not be sufficient to ensure the proper conduct of transactions. Thus, involved parties are potentially vulnerable to opportunistic behavior. This implies that cross-border trade requires some level of trust and degree of commitment between the involved parties. An understanding of the norms and values of the societies where trading partners live facilitates the build-up of such trust and commitment (Elsass and Viega, 1994). However, as people from dissimilar cultures may have considerably different perceptions of the same situation or series of events (Doz and Hamel, 1998), pronounced cultural differences can complicate interactions and hinder

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development of the rapport and trust necessary to complete transactions. Thus, greater cultural differences may lower both the likelihood that trade deals will be completed and the volume of transactions that may take place.

Few studies have considered a potential relationship between cultural distance, immigrants and trade. Notable exceptions include Boisso and Ferrantino (1997) and Dunlevy (2006). Employing an index of linguistic distance as a proxy for cultural differences, Boisso and Ferrantino (1997) report that greater dissimilarity inhibits trade flows. However, the authors neither consider immigrants as a determinant of trade flows nor that immigrants may offset the trade-inhibiting effects of cultural differences. Dunlevy (2006), on the other hand, reports a greater pro-export effect of immigrants in home countries with corrupt political systems and somewhat weaker effects in home countries that commonly use English or Spanish. With common language representing cultural similarity and corruption indicating a possible lack of trust between trading partners, Dunlevy's findings suggest that immigrants counter the effects of cultural differences. Building upon the works of Boisso and Ferrantino (1997) and Dunlevy (2006), we use a new measure of cultural distance calculated using data from the World Values Surveys (WVS) and European Values Surveys (EVS) (Inglehart et al., 2004; Hagenaars et al., 2003) to evaluate the extent to which immigrants offset the trade-inhibiting effects of cultural distance.

We conduct our analysis using state-level aggregate exports and exports of cultural and non-cultural goods, separately, as dependent variables. Our classification of goods into cultural and non-cultural products follows the definition of cultural products employed by the United Nations Education, Scientific and Cultural Organization (UNESCO, 2005). Briefly stated, cultural products are goods or services that convey ideas, symbols and ways of life. Examples include books, magazines, multimedia products, software, recordings, films, videos, audiovisual programs, crafts and fashion design which may have both tangible (physical support) and intangible (cultural content) components (Cano et al., 2000).[2]

While the influence of immigrants on their host's imports of cultural products from their home countries is intuitive, the means by which immigrants may increase exports of cultural products from their host state to their home country is less straightforward. We posit that immigrants, through their connections to home country business and/or social networks or as a result of their possession of information regarding trading opportunities, may increase exports of cultural and non-cultural products alike. Further, through personal connections to home country residents and via demonstration effects, immigrants may increase exports of goods embedded with their host country's culture. For example, the presence of immigrants in a host country may make visitation by relatives and/or friends more likely. If so, such individuals gain greater exposure to the host country and to goods that embed the host country's culture, which they might have perceived less favorably prior to their travel. Similarly, immigrants may transport products that are embedded with the host country's culture as gifts for friends and relatives (e.g., clothing and music albums produced in the host country) or as personal items for use when visiting or returning to their home country. Corresponding demonstration effects might contribute to increased demand for imports that otherwise would not have occurred.

Our analysis of US state-level exports, for the year 2000, to 75 countries for which the cultural distance between the US and each home country can be calculated contributes to the literature in several ways. First, we show that the initiation and conduct of transactions between individuals in different states and countries diminishes with greater differences in shared norms and values (i.e., cultural distance inhibits trade flows). Second, distilling the influence of immigrants into export-initiation effects and export-intensification effects, we document pro-export immigrant effects that act to offset the export-inhibiting effects of cultural distance. Finally, considering the extent to which immigrants and cultural distance influence trade, we report significant variation across immigrants' states of residence, implying variation in the ability immigrants to counter the trade-inhibiting effects of cultural distance.

Our discussion proceeds as follows. In Section II, we provide a brief review of the literature on immigrant-trade links. Section III presents our empirical model and our measure of US-home country cultural distance. Section IV discusses the econometric results, while Section V concludes.

2. The literature review

As mentioned, a growing number of studies have examined aggregate import and export data and reported positive immigrant-trade links. For example, Gould (1994) examines US trade data and first documents a positive relationship between immigrants and host-home country trade flows. Wagner et al. (2002), Head and Ries (1998) and Helliwell (1997) each examine Canadian data and report pro-trade effects of immigrants. Similarly, Ching and Chen (2000) find a positive influence of immigrants on Canada–Taiwan trade. Additionally, Girma and Yu (2002) for the UK, Blanes (2003, 2005, 2006) and Blanes and Martín-Montaner (2006) for Spain, Piperakis et al. (2003) for Greece, Hong and Santhapparaj (2006) for Malaysia, and Bryant et al. (2004) for New Zealand all report positive influences of immigrants on trade between the noted host countries and immigrants' home countries. Combes et al. (2005) even report an intra-France migrant–trade relationship.

Several studies have also examined a potential link between immigrants and US state-level exports. Generally, these studies have focused on possible network effects (Bandyopadhyay et al., 2008; Dunlevy, 2006; Herander and Saavedra, 2005; Bardhan and Guhathakurta, 2005). The results from such studies suggest that immigrants mitigate the effect of transaction costs, including those associated with informal trade barriers, by providing information about demand, languages, business practices, laws and by instilling confidence that may facilitate trade. Broadly speaking, the results are consistent with the

[2] A listing of cultural products classifications is provided in Appendix C.

notions that immigrants increase trade via their preferences for home country goods, if they possess information that permits the identification of advantageous exchange possibilities, and via connections to networks that may help to build trust and commitments between potential trading partners. The measure of cultural distance we employ serves as a proxy for the extent to which trust and commitment may be lacking between potential trading partners and permits consideration of the extent to which immigrants (through the use of their knowledge and network connections) may offset the trade-inhibiting effects of cultural distance; thus, increasing the likelihood that exporting occurs and/or the intensity of the existing level of exports.

3. Theoretical framework, empirical model and data

The theoretical gravity model was derived by Anderson (1979). In its basic form, the model posits that state i's exports to country j ($\tilde{X}_{ij}$) increase with the trading partners' combined economic mass and decreases with the geodesic distance between trading partners. Economic mass is given as the product of the incomes of the exporting state (Y_i) and that of the importing country (Y_j), while the geodesic distance (GD_{ij}) between the capital cities of host states and home countries serves as a proxy for transportation costs. Following the theoretical model, we derive our econometric specification by defining X_{ij}, state i's exports to country j, as a function of income, geodesic distance and several factors that may inhibit trade (formal and informal barriers) or facilitate trade between the exporting state and the importing country. We also include a vector of variables, represented by the expression $\exp(Z_1^{ij}\alpha - Z_2^{ij}\lambda)$, that affect the likelihood that trade deals will be completed (export-initiation) and/or and the volume of transactions when there is already positive trade flow (export-intensification). Z_1^{ij} is a vector of the ratio of the stock of immigrants from country j living in state i and the cultural distance between the US and each home country, $(IM_{ij}/CD_{ij})^{\alpha}$, and Z_2^{ij} is a vector of all other export-inhibiting/facilitating factors described in the modified gravity model of Head and Ries (1998). Thus, our theoretical model can be described as:

$$\tilde{X}_{ij} = \kappa \frac{Y_i^{\beta_1} Y_j^{\beta_2}}{GD_{ij}^{\beta_3}} \exp\left(\left(\frac{IM_{ij}}{CD_{ij}}\right)^{\alpha} (Z_2^{ij}\lambda)\right) \tag{1}$$

Eq. (1) postulates positive and negative effects of the stock of immigrants and cultural distance, respectively, on state-level exports. It also indicates that the extent to which the cultural distance between the US and each country affects state-level exports may be influenced by the stock of immigrants from country j living in state i. Additionally, while Eq. (1) predicts strictly positive realizations of imports, trade data often contain numerous cases of zero imports or exports. Thus, following Eaton and Tamura (1994) and Head and Ries (1998), we modify Eq. (1) to obtain a specification that allows for realization of zero export values.

$$\tilde{X}_{ij} = \kappa \frac{Y_i^{\beta_1} Y_j^{\beta_2}}{GD_{ij}^{\beta_3}} \exp\left(\left(\frac{IM_{ij}}{CD_{ij}}\right)^{\alpha} (Z_2^{ij}\lambda) + \varepsilon_{ij} - \eta\right) \tag{2}$$

κ represents the constant of proportionality, ε_{ij} is an assumed identically and independently distributed error term, and η is the fixed amount of trade that is subtracted from the level predicted by Eq. (1). When the latent exports value is negative, observed exports of state i will be zero. Thus, observed data on state-level exports can be described as $X_{ij} = \max[\tilde{X}_{ij}, 0]$. Substituting this identity, rearranging the resulting expression, expanding the vector Z_2^{ij}, and taking natural logarithms where appropriate, results in our estimation equation.

$$\begin{aligned}\ln(X_{ij} + \eta) = {} & \kappa + \alpha_1 \ln IM_{ij} - \alpha_2 \ln CD_{ij} + \alpha_3(\ln IM_{ij} \times STATE_i) + \alpha_4(\ln CD_{ij} \times STATE_i) + \beta_1 \ln Y_i + \beta_2 \ln Y_j - \beta_3 \ln GD_{ij} \\ & + \beta_4 \ln\left(\frac{Y_i}{POP_i}\right) + \beta_5 \ln\left(\frac{Y_i}{POP_i}\right) + \beta_6 \ln OPEN_j - \beta_7 \Delta \ln XRATE_{ij} + \beta_8 \ln REMOTE_j + \beta_9 FTA_{ij} - \beta_{10} LLOCK_j \\ & + \beta_{11} ENGLISH_j + \varepsilon_{ij}\end{aligned} \tag{3}$$

As mentioned, we employ aggregate exports, cultural goods exports and non-cultural goods exports, all at the state-level, as dependent variables. State-level export data are from the World Trade Atlas (GTI, 2006). We note the expected signs of the coefficient estimates in Eq. (3). For geodesic distance (GD_{ij}), cultural distance (CD_{ij}), the change in the US dollar-country j exchange rate ($XRATE_{ij}$) and lack of coastal access ($LLOCK_j$), we anticipate coefficient estimates will be negative. Based on the existing literature, with the exception of the coefficients on the gross state product per capita variable and the interaction terms, which could take either positive or negative values, we expect all remaining coefficients to have positive signs.

The set of explanatory variables in Eq. (3) includes IM_{ij}, the state-level immigrant stock which is obtained from the 2000 decennial census (US Bureau of the Census, 2006a), Y_i and Y_j are, respectively, Gross State Product and home country Gross Domestic Product. Geodesic distance (GD_{ij}) is calculated using the great circle method. POP_i and POP_j represent host state and home country populations. Data for home country output levels and populations are from the World Bank (2006), while corresponding host state data are from the US Bureau of Economic Analysis (2006) and the US Bureau of the Census (2006b). All monetary values have been normalized to constant 1995 US dollars.

The remaining explanatory variables, with the exception of the cultural distance variable (to be discussed in detail below), are standard in most studies that employ the gravity specification. $OPEN_j$, the sum of each country's imports and exports divided by its GDP, is a general measure of a country's propensity to trade. We include the change in the value of each home country's currency against the US dollar to capture terms of trade effects. Expressed as the change in the foreign currency units per US dollar, an increase in the variable is expected to correspond with decreased exports. Controlling for each home country's relative lack of trading opportunities, we follow Wagner et al. (2002) and include a measure of economic remoteness, given as $REM_{jt} = 1/\sum_{k=1}^{K}[(Y_{kt}/Y_{wt})/GD_{jk}]$ where Y_{wt} represents gross global product and k identifies availability of potential trading partners for country j other than the US.[3] Capturing the effects of trade agreements, FTA_{ij} is equal to one if country j is party to an agreement with the US during 2000. To represent a potentially important geographic impediment to trade, we include a dummy variable which is equal to one if country j is landlocked. Finally, as common language has been identified as an important determinant of trade flows (Dunlevy, 2006; Hutchinson, 2002), we include a dummy variable which is equal to one if English is commonly used in country j (CIA, 2006).

To calculate the cultural distance between the US and each home country, we employ data from the World Values Surveys (WVS) and the European Values Surveys (EVS) (Inglehart et al., 2004; Hagenaars et al., 2003).[4] The surveys provide data from representative national samples that permit construction of standardized measures of culture based on answers to a broad set of questions relating to economics, politics, religion, sexual behavior, gender roles, family values, communal identities, civic engagement, scientific and technological progress, environmental protection, and ethical concerns. Application of factor analysis results in classification of survey responses along two broad dimensions of culture: (1) Traditional authority vs. Secular-Rational authority (TSR), and (2) Survival values vs. Self-Expression values (SSE) (Inglehart et al., 2004). While the TSR dimension reflects a contrast between societies in which deference to the authority of a God, the nation or to the family is considered important or an expectation (Traditional authority) and societies in which individualism is stressed (Secular-Rational authority), the SSE dimension reflects differences between societies that emphasize hard work and self-denial (Survival values) and those that place greater emphasis on quality of life issues, such as women's emancipation and equal status for racial and sexual minorities (Self-Expression values). We calculate the cultural distance (CD_{ij}) between each home country j in our data and the US (country i) as a composite index of differences in mean values of the TSR and SSE dimensions of culture: $CD_{ij} = \sqrt{(\overline{TSR}_j - TSR_i)^2 + (\overline{SSE}_j - SSE_i)^2}$.

Table 1 presents descriptive statistics. Comparing across states, we see that in most instances the average number of immigrants from the home countries included in our sample is below the overall mean value. In fact, only five states (California, Florida, New Jersey, New York and Texas) have average immigrant stock values significantly higher than the overall mean value. Comparing across aggregate exports and across exports of cultural and non-cultural goods, separately, we observe a similar pattern. Only three states (California, New York and Washington) have average values that exceed the overall mean value for aggregate exports. Likewise, for cultural goods exports, California, New York and Massachusetts are the only states with average values greater than the overall mean. Finally, for non-cultural products, only California, New York, Texas and Washington have average values in excess of the mean. These states not only have high export levels but, along with six other states, they have Gross State Product values that are significantly higher than the overall mean value. Generally, states are heterogeneous in terms of the sizes of their immigrant populations, the magnitudes of exports within the product classifications considered, and their economic characteristics. Given such variation, we explore if the observed effects of immigrants and cultural distance on trade also vary across states. Such examination is important as it helps to identify the extent to which immigrants offset the trade-inhibiting effects of cultural distance while taking into account the difference in the relative volume of exports originating from each state.

4. Empirical results

We estimate the model in Eq. (3) as in Eaton and Tamura (1994) and Head and Ries (1998) using a Tobit specification.[5] Table 2 presents coefficient estimates (marginal effects as well as decomposed marginal effects) for the immigrant stock, cultural distance and all other variables included in our estimation equation. Confirming the findings of earlier studies, a positive and significant relationship between immigrants and state-level exports to immigrants' home countries is reported for all estimations. While greater cultural distance between the US and the immigrants' home countries appears to reduce state-level exports of cultural goods, when exports of non-cultural goods are employed as the dependent variable the coefficient estimate of the cultural distance variable is insignificant. This suggests that exports of non-cultural goods are not as sensitive, relative to cultural goods, to cultural dissimilarities between potential trading partners in the home countries and host states. We also observe that the effect of cultural distance is not as pronounced on aggregate exports, as it is for cultural goods exports, following the relatively larger share of the non-cultural goods in the total state-level exports.

[3] Internal distance, when $k = j$, is calculated as 0.4 times the square root of the nation's land mass (Head and Mayer, 2000).

[4] While it would be ideal to employ measures of state-specific cultural distance from each home country, data limitations prohibit us from doing so.

[5] As a robustness check, we also employ the OLS technique. Corresponding results are consistent with the findings of our Tobit analysis. Due to space limitations, we forego presentation of the results here; however, the full set of results is available upon request.

Table 1
Descriptive Statistics, by State

State	Immigrants	Aggregate exports	Cultural goods exports	Non-cultural goods exports	Gross state product (GSP)	GSP per capita	Geodesic distance
All States	6,301 (74,743)	1,486 (10,204)	36 (294)	1,450 (9,910)	1,910 (2,280)	34,388 (11,357)	8,886 (3,019)
Alabama	921*** (2,909)	804** (2,076)	27 (126)	777** (1,950)	1,150*** (0)	25,764*** (0)	9,034 (3,177)
Alaska	406*** (1,208)	286*** (1,442)	1*** (2)	285*** (1,440)	270*** (0)	43,121*** (0)	8,803 (2,293)
Arizona	8,060 (50,274)	1,388 (5,153)	8*** (23)	1,380 (5,130)	1,590*** (0)	30,899*** (0)	9,987*** (2,710)
Arkansas	838*** (3,934)	274*** (947)	42 (133)	232*** (814)	668*** (0)	24,987*** (0)	9,147 (3,021)
California	101,394* (461,180)	12,149*** (30,504)	349*** (904)	11,800*** (29,600)	12,900*** (0)	38,001*** (0)	9,956*** (2,479)
Colorado	4,365 (21,021)	700*** (1,758)	62 (208)	638*** (1,550)	1,720*** (0)	39,956*** (0)	9,366 (2,725)
Connecticut	3,550** (5,781)	874* (2,434)	22 (84)	852* (2,350)	1,600*** (0)	47,110*** (0)	8,009** (3,196)
DC	652*** (1,880)	71*** (174)	8*** (30)	62*** (144)	587*** (0)	102,610*** (0)	8,323 (3,186)
Delaware	451*** (1,091)	244*** (1,000)	0*** (0)	244*** (1,000)	415*** (0)	52,925*** (0)	8,257* (3,195)
Florida	16,653** (32,778)	2,441 (4,991)	51 (121)	2,390* (4,870)	4,710*** (0)	29,490*** (0)	9,034 (3,236)
Georgia	5,929 (22,439)	1,572 (4,292)	22* (62)	1,550 (4,230)	2,910*** (0)	35,533*** (0)	8,881 (3,175)
Hawaii	2,425** (12,177)	43*** (227)	3*** (24)	40*** (203)	402*** (0)	33,183*** (0)	11,776*** (2,500)
Idaho	785*** (4,108)	367*** (1,329)	3*** (9)	364*** (1,320)	350*** (0)	27,040*** (0)	9,486** (2,495)
Illinois	17,707 (73,305)	3,539 (13,236)	69 (336)	3,470 (12,900)	4,640*** (0)	37,377*** (0)	8,791 (2,986)
Indiana	2,073*** (7,360)	1,777 (7,697)	37 (167)	1,740 (7,530)	1,940 (0)	31,974*** (0)	8,655 (3,042)
Iowa	981*** (3,128)	506*** (1,777)	4*** (27)	502*** (1,750)	902*** (0)	30,819*** (0)	8,853 (2,891)
Kansas	1,551*** (7,385)	576*** (1,718)	6*** (28)	570*** (1,690)	828*** (0)	30,803*** (0)	9,083 (2,890)
Kentucky	860*** (2,130)	1,104 (3,859)	24 (169)	1,080 (3,690)	1,120*** (0)	27,686*** (0)	8,698 (3,076)
Louisiana	990*** (2,384)	1,670 (3,182)	0*** (2)	1,670 (3,180)	1,320*** (0)	29,430*** (0)	9,330 (3,139)
Maine	418*** (1,787)	183*** (876)	2*** (4)	181*** (872)	355*** (0)	27,878*** (0)	7,799*** (3,208)
Maryland	4,719 (8,201)	484*** (1,096)	8*** (26)	476*** (1,070)	1,800*** (0)	34,054* (0)	8,280 (3,180)
Massachusetts	7,496 (12,997)	2,177 (5,197)	77* (207)	2,100 (4,990)	27,50*** (0)	43,305*** (0)	7,924** (3,219)
Michigan	5,036 (10,396)	3,929 (21,089)	19 (89)	3,910 (21,000)	3,370*** (0)	33,932** (0)	8,438 (3,013)
Minnesota	2,181*** (5,574)	1,065 (3,002)	25 (92)	1,040 (2,910)	1,850 (0)	37,625*** (0)	8,633(2,845)
Mississippi	446*** (1,252)	283*** (729)	2*** (9)	281*** (720)	643*** (0)	22,592*** (0)	9,200 (3,119)
Missouri	1,595*** (3,558)	718** (2,911)	11*** (51)	707** (2,860)	1,770*** (0)	31,582*** (0)	8,940 (2,957)
Montana	192*** (583)	62*** (302)	0*** (1)	62*** (301)	214*** (0)	23,682*** (0)	9,183 (2,530)
Nebraska	815*** (3,571)	276*** (948)	2*** (10)	274*** (938)	555*** (0)	32,419*** (0)	9,006 (2,851)
Nevada	2,641 (18,078)	163*** (629)	3*** (9)	160*** (620)	737*** (0)	36,892*** (0)	9,850*** (2,491)
New Hampshire	603*** (1,567)	259*** (850)	6*** (15)	253*** (835)	435*** (0)	35,215*** (0)	7,914*** (3,200)
New Jersey	14,289*** (23,849)	2,029 (5,178)	79 (248)	1,950 (4,930)	3,450*** (0)	40,980*** (0)	8,183* (3,191)
New Mexico	1,861** (12,369)	208*** (692)	1*** (3)	207*** (689)	507*** (0)	27,886*** (0)	9,637** (2,778)
New York	33,261*** (62,221)	4,673** (13,750)	543*** (1,550)	4,130* (12,200)	7,770*** (0)	40,954*** (0)	8,017** (3,185)
North Carolina	4,595 (20,014)	1,896 (5,791)	16*** (51)	1,880 (5,740)	2,740*** (0)	34,003** (0)	8,537 (3,213)
North Dakota	128*** (384)	73*** (356)	1*** (6)	72*** (350)	178*** (0)	27,642*** (0)	8,826 (2,705)
Ohio	3,448** (5,661)	3,004 (14,791)	24 (91)	2,980 (14,700)	3,720*** (0)	32,767*** (0)	8,516 (3,087)
Oklahoma	1,494*** (6,583)	334*** (1,326)	2*** (6)	332*** (1,320)	898*** (0)	26,012*** (0)	9,330 (2,934)
Oregon	3,337 (13,330)	1,130 (2,957)	10*** (37)	1,120 (2,920)	1,120*** (0)	32,863*** (0)	9,530** (2,391)
Pennsylvania	5,271 (8,630)	2,034 (7,673)	54 (233)	1,980 (7,440)	3,900*** (0)	31,725*** (0)	8,196* (3,196)
Rhode Island	1,102*** (3,166)	128*** (413)	1*** (2)	127*** (411)	336*** (0)	32,060*** (0)	7,959** (3,221)
South Carolina	1,269*** (3,919)	927 (2,839)	17* (79)	910 (2,760)	1,130*** (0)	28,044*** (0)	8,725 (3,214)
South Dakota	131*** (260)	77*** (314)	0*** (1)	77*** (313)	231*** (0)	30,601*** (0)	8,945 (2,740)
Tennessee	1,658*** (5,389)	1,287 (4,607)	27 (157)	1,260 (4,450)	1,750*** (0)	30,733*** (0)	8,860 (3,093)
Texas	35,063*** (216,843)	11,105 (50,668)	105 (568)	11,000* (50,100)	7,270*** (0)	34,876*** (0)	9,626** (3,041)
Utah	1,771*** (7,712)	352*** (927)	8*** (22)	344*** (905)	676*** (0)	30,257*** (0)	9,534** (2,595)
Vermont	271*** (957)	443*** (2,330)	2*** (10)	441*** (2,320)	178*** (0)	29,207*** (0)	7,901*** (3,185)
Virginia	5,518 (10,604)	1,232 (3,096)	12*** (46)	1,220 (3,050)	2,610*** (0)	36,836*** (0)	8,404 (3,199)
Washington	6,846 (19,638)	3,335** (7,280)	25 (100)	3,310** (7,180)	2,220*** (0)	37,658*** (0)	9,384* (2,383)
West Virginia	216*** (415)	247*** (765)	0*** (1)	247*** (764)	415*** (0)	22,936*** (0)	8,539 (3,132)
Wisconsin	1,922*** (6,466)	1,153 (4,409)	23 (119)	1,130 (4,290)	1,760*** (0)	32,764*** (0)	8,621 (2,936)
Wyoming	133*** (480)	50*** (139)	0*** (2)	50*** (137)	173*** (0)	35,098*** (0)	9,281 (2,707)

N = 3825 for "All States", 75 for individual "States", and 68 for home countries. Aggregate exports, exports of cultural and non-cultural goods, and gross state product (GSP) are in $100,000s). Several explanatory variables relate to the home countries in our sample and/or to the US as a whole. For both groups, mean values and standard deviations are constant across states. Due to space limitations, we present the mean values and standard deviations (in parentheses) here. Cultural distance: 1.3477 (0.5112); *D* change in exchange rate: 0.113 (0.1554); ln open: −0.3122 (0.5391); English: 0.3733 (0.4838); FTA: 0.04 (0.196); Landlocked: 0.2 (0.4001); GDP (in millions $): 271,000 (633,000); GDP per capita: 13,028 (11,155); economic remoteness: 33,527.12 (60,104.89). Standard errors in parentheses. ***, ** and * indicate significance from zero at the 1%, 5% and 10%, respectively.

Table 2
Marginal effects, actual and decomposed coefficients of Tobit estimations

	Aggregate exports			Cultural goods exports			Non-cultural goods exports		
	Marginal effects (a)	Decomposed marginal effects		Marginal effects (a)	Decomposed marginal effects		Marginal effects (a)	Decomposed marginal effects	
		Initiation (b)	Intensification (c)		Initiation (b)	Intensification (c)		Initiation (b)	Intensification (c)
ln Immigrants	0.1083*** (0.0315)	0.0003*** (0.0001)	0.1071*** (0.0311)	0.0816*** (0.0264)	0.0304*** (0.0098)	0.037*** (0.012)	0.1066*** (0.032)	0.0004*** (0.0001)	0.1051*** (0.0315)
ln cultural distance	0.1351 (0.3095)	0.0004 (0.0009)	0.1336 (0.306)	−0.9278*** (0.307)	−0.3453*** (0.1142)	−0.4203*** (0.1391)	0.1582 (0.314)	0.0006 (0.0011)	0.156 (0.3097)
Δ ln exchange rate	−1.546*** (0.1512)	−0.0045*** (0.0004)	−1.5286*** (0.1495)	−1.3279*** (0.1944)	−0.4942*** (0.0723)	−0.6016*** (0.0881)	−1.5305*** (0.1534)	−0.0054*** (0.0005)	−1.5099*** (0.1513)
ln geodesic distance	−0.844*** (0.0648)	−0.0025*** (0.0002)	−0.8345*** (0.0641)	−0.4487*** (0.0557)	−0.167*** (0.0207)	−0.2033*** (0.0252)	−0.8512*** (0.0658)	−0.003*** (0.0002)	−0.8397*** (0.0649)
ln gross domestic product (GDP)	1.231*** (0.0435)	0.0036*** (0.0001)	1.2172*** (0.043)	0.8116*** (0.038)	0.302*** (0.0141)	0.3677*** (0.0172)	1.2318*** (0.0441)	0.0044*** (0.0002)	1.2151*** (0.0436)
ln GDP per capita	0.1676*** (0.0394)	0.0005*** (0.0001)	0.1657*** (0.0389)	0.1664*** (0.0359)	0.0619*** (0.0134)	0.0754*** (0.0163)	0.1599*** (0.04)	0.0006*** (0.0001)	0.1578*** (0.0394)
ln gross state product (GSP)	1.3205*** (0.0359)	0.0039*** (0.0001)	1.3057*** (0.0355)	0.873*** (0.035)	0.3249*** (0.013)	0.3955*** (0.0159)	1.3273*** (0.0365)	0.0047*** (0.0001)	1.3094*** (0.036)
ln GSP per capita	−0.3498** (0.157)	−0.001** (0.0005)	−0.3459** (0.1553)	0.4876*** (0.1516)	0.1815*** (0.0564)	0.2209*** (0.0687)	−0.3686** (0.1594)	−0.0013** (0.0006)	−0.3637** (0.1573)
ln open	0.6364*** (0.0543)	0.0019*** (0.0002)	0.6293*** (0.0537)	0.31*** (0.048)	0.1154*** (0.0179)	0.1404*** (0.0218)	0.6378*** (0.0551)	0.0023*** (0.0002)	0.6292*** (0.0543)
ln remote	0.2621*** (0.0394)	0.0008*** (0.0001)	0.2592*** (0.039)	0.1238*** (0.034)	0.0461*** (0.0127)	0.0561*** (0.0154)	0.2593*** (0.04)	0.0009*** (0.0001)	0.2558*** (0.0394)
English	0.6239*** (0.0548)	0.0016*** (0.0002)	0.6176*** (0.0542)	0.3111*** (0.0494)	0.1136*** (0.0184)	0.1443*** (0.0224)	0.6311*** (0.0557)	0.002*** (0.0002)	0.6234*** (0.0549)
Free trade agreement	0.4192*** (0.1257)	0.0008** (0.0004)	0.416*** (0.1243)	0.4811*** (0.1059)	0.1598*** (0.0394)	0.247*** (0.048)	0.4276*** (0.1276)	0.001** (0.0005)	0.4237*** (0.1258)
Landlocked	−0.234*** (0.0585)	−0.0008*** (0.0002)	−0.2309*** (0.0578)	−0.0993* (0.0568)	−0.0373* (0.0212)	−0.0442* (0.0258)	−0.2375*** (0.0594)	−0.001*** (0.0002)	−0.2338*** (0.0586)
Constant	−52.9836*** (2.3511)	−0.1551*** (0.0069)	−52.3885*** (2.3247)	−45.3334** (2.199)*	−16.871*** (0.8184)	−20.5385*** (0.9963)	−52.8529*** (2.3866)	−0.1872*** (0.0085)	−52.14*** (2.3544)
S.E.	1.2497 (0.015)	–	–	0.9992 (0.0145)	–	–	1.2677 (0.0152)	–	–
N	3,825	–	–	3,825	–	–	3,825	–	–
Pseudo-R^2	0.35	–	–	0.40	–	–	0.34	–	–
Log likelihood	−5,999	–	–	−3,844	–	–	−6,041	–	–
LR statistic	6,407***	–	–	5,073***	–	–	6,310***	–	–

Standard errors in parentheses. "***", "**", and "*" indicate significance from zero at the 1%, 5% and 10% levels, respectively. Variables that represent the interacting of the ln immigrants variable with state dummy variables and the interacting of the ln cultural distance with state dummy variables are included in each estimation presented in this table; however, due to space constraints we do not report corresponding coefficients here. Instead, Tables 3 and 4 report the proportional effects for each state of immigrants and cultural distance on export values.

Depreciation of a home country's currency vis-à-vis the US dollar and increased geodesic distance correspond to lower levels of state-level exports for each of the product categories considered. Higher values for GDP in the importing country and for GSP in the exporting state correspond to increased exports. This is intuitive as higher GDP indicates an increased capacity to import while higher GSP signals a greater ability to export. Higher average incomes in the importing country are found to correspond with higher state-level exports, with estimated coefficients similar to those reported in previous studies. A similar relationship is reported between higher GSP per capita and state-level exports of cultural goods; however, when aggregate exports and exports of non-cultural goods are employed as dependent variables, the estimated coefficients are negative and significant. Similarly, we find higher state-level exports to countries that are generally more open to trade and to those that are more economically remote; this latter finding indicating that such home countries face relatively fewer opportunities to import from other countries and, thus, tend to import more from the US. We observe greater state-level exports to home countries where English is commonly used. This is expected as common language would be expected to facilitate transactions. Similarly, being party to a free trade agreement with the US corresponds with a higher level of exports to such home countries. An indication of the impact of natural infrastructure, we also observe that state-level exports to home countries that are landlocked are significantly lower than those that have coastal access.

4.1. Immigrants, cultural distance, and exports

Returning to our variables of interest, the signs and estimated coefficients of the immigrant stock and cultural distance variables indicate that differences in shared norms and values between the US and immigrants' home countries – a proxy for the extent to which the trust and commitments necessary to complete trade deals are lacking – inhibit state-level exports of cultural goods, while immigrants exert pro-export effects. The effect, however, varies across aggregate, cultural and non-cultural product exports. Given that we employ the Tobit technique in our estimations, our coefficient estimates are not true elasticities. Nevertheless, as the corresponding proportionality coefficient estimates (κ) are small relative to median state-level exports, following Head and Ries (1998) we heuristically interpret the coefficients as elasticity estimates. Accordingly, while a 1% increase in the stock of immigrants residing in each state will increase aggregate exports of the respective states to the immigrants' home countries by an average of 0.1083%, the corresponding influences of a like increase in immigrants on exports of cultural and non-cultural products are estimated to be 0.0816% and 0.1066%, respectively.

To gain a better understanding of the effect of changes in the immigrant stock and of cultural distance, we employ the method of McDonald and Moffit (1980) and decompose the marginal effects into the changes in the probability of having positive export values (an export-initiation effect) and the changes in the existing level of exports (an export-intensification effect). These effects are reported in the columns labeled (b) and (c), respectively, in Table 2. Accordingly, in response to a 1% increase in the cultural distance between the US and the typical home country, while we observe no apparent effect on the initiation trade in aggregate and non-cultural goods exports, the likelihood of observing positive exports of cultural goods falls by 0.35% and the existing level of cultural goods exports decrease by 0.42%. The estimated effect of immigrants on the likelihood that exporting will occur, on the other hand, varies from small, but significant, values of 0.0003 and 0.0004 for aggregate and non-cultural goods exports, respectively, to 0.0304 for cultural goods exports. The latter value implies that a 1% increase in the stock of immigrants in a given state increases the likelihood of cultural goods exports from the typical state by 0.03%. For a similar 1% immigrant stock increase, we observe positive but not marginally different from zero export-initiation effects on aggregate and non-cultural goods.

The significant differences in the effects of both immigrants and cultural distance on the initiation of cultural and non-cultural goods exports result from export values for cultural goods taking zero values (non-existent) more often than do export values for non-cultural goods. This indicates that the export-initiation effects of immigrants and US-home country cultural distance are muted when exports are already taking place. Consequently, a 1% increase in the immigrant stock variable has a more pronounced effect on the intensification of non-cultural goods exports (0.1066%) and aggregate exports (0.1088%), where we tend to observe fewer zero values of trade than for cultural goods exports. We know that both in absolute and percentage terms, immigrant populations and exports vary greatly across states. Without controlling for such differences, our inference of immigrants' effects on state's exports would be limited. Thus, we employ an estimation strategy that allows us to account for the variation in immigrant population across states and highlight the effects of both cultural distance and immigrant stock by estimating proportional effects.

4.2. Proportional effects across states

To examine the potential cross-state variation in the effects that immigrants and US-home country cultural distance have on state-level exports, we derive state-specific sensitivities (elasticities) of exports with respect to changes in immigrant populations by using the sums of the coefficients on the immigrant stock variable (IM_{ij}) and the terms which interact the immigrant stock variable with state-specific dummy variables ($STATE_i$). The interpretation of the resulting coefficients is straightforward: coefficients on the immigrant stock variables ($\hat{\alpha}_1$) capture what may be considered as "base effects" of immigrants that apply generally to state-level exports (i.e., a base effect that is common across states). The coefficient esti-

Table 3
Estimated state-level proportional effects immigrants on exports

State	Aggregate exports			Cultural goods			Non-cultural goods		
	(a)	(b)	(c)	(a)	(b)	(c)	(a)	(b)	(c)
Alabama	0.1083***	0.0003	0.1071***	0.0816***	0.0304	0.0370	0.1066***	0.0004	0.1051***
Alaska	0.1375***	0.0001	0.0421	0.0235	−0.0212	−0.0258	0.1423***	0.0002	0.0455
Arizona	0.1252***	0.0001	0.0496*	0.0565***	−0.0019	−0.0023	0.1272***	0.0002	0.0503*
Arkansas	0.1086***	0.0001	0.0232	0.3758***	0.1141***	0.1389***	0.0498	−0.0001	−0.0362
California	0.1049***	0.0001	0.0342	0.1451***	0.0321	0.0391*	0.1049***	0.0001	0.0330
Colorado	0.0655**	−0.0001	−0.0116	0.147***	0.0309	0.0376	0.0615**	0.0000	−0.0167
Connecticut	0.1143***	0.0001	0.0370	0.0622***	−0.0008	−0.0010	0.114***	0.0002	0.0355
DC	0.0499	−0.0002	−0.0525	0.0473	−0.0163	−0.0199	0.0144	−0.0003	−0.089**
Delaware	0.1694***	0.0002	0.0752*	−0.3854***	−0.1926***	−0.2345***	0.177***	0.0003	0.0813*
Florida	0.1116***	0.0001	0.0406	0.1066***	0.0181	0.0220	0.1122***	0.0002	0.0402
Georgia	0.1337***	0.0002	0.0583**	0.0418**	−0.0074	−0.0090	0.1351***	0.0002	0.0585**
Hawaii	−0.1408***	−0.0007	−0.224***	−0.0353	−0.0408	−0.0497	−0.141***	−0.0008	−0.225***
Idaho	0.2028***	0.0003	0.1142***	0.1524***	0.0297	0.0361	0.2057***	0.0004	0.1155***
Illinois	0.123***	0.0001	0.0497*	0.0678***	0.0028	0.0034	0.1243***	0.0002	0.0499*
Indiana	0.1299***	0.0001	0.0516	0.1244***	0.0227	0.0276	0.131***	0.0002	0.0514*
Iowa	0.1633***	0.0002	0.0803**	−0.0369	−0.0391	−0.0477	0.1673***	0.0003	0.0828**
Kansas	0.1855***	0.0003	0.103***	0.0457*	−0.0080	−0.0098	0.1887***	0.0004	0.1047***
Kentucky	0.1989***	0.0003	0.1163***	0.0371	−0.0110	−0.0134	0.2018***	0.0004	0.1177***
Louisiana	0.2993***	0.0006	0.2169***	−0.1801***	−0.0929***	−0.1131***	0.3044***	0.0008	0.2202***
Maine	0.142***	0.0001	0.0514	0.1279***	0.0199	0.0242	0.1438***	0.0002	0.0517
Maryland	0.0556**	−0.0001	−0.0179	0.028	−0.0122	−0.0149	0.0532**	−0.0001	−0.0213
Massachusetts	0.1356***	0.0002	0.0608**	0.1447***	0.0310	0.0377*	0.1362***	0.0002	0.0602**
Michigan	0.0987***	0.0001	0.0243	−0.0111	−0.0269	−0.0328	0.1007***	0.0001	0.0252
Minnesota	0.1249***	0.0001	0.0464***	0.0775***	0.0049	0.0060	0.1267***	0.0002	0.047***
Mississippi	0.1663***	0.0002	0.0778**	−0.0225	−0.0364	−0.0443	0.1697***	0.0003	0.0797**
Missouri	0.0757***	0.0000	−0.0022	0.0021	−0.0230	−0.0280	0.0782***	0.0000	−0.0008
Montana	−0.0045	−0.0003	−0.1028**	−0.0276	−0.0453	−0.0552	0.002	−0.0003	−0.0977**
Nebraska	0.1641***	0.0002	0.0779**	−0.0295	−0.0385	−0.0469	0.1699***	0.0003	0.0822**
Nevada	0.0473*	−0.0001	−0.0310	0.0199	−0.0171	−0.0208	0.0452	−0.0001	−0.0341
New Hampshire	0.1907***	0.0003	0.1048***	0.1614***	0.0339	0.0412	0.1925***	0.0004	0.1051***
New Jersey	0.119***	0.0001	0.0464*	0.1251***	0.0243	0.0296	0.1191***	0.0002	0.0453*
New Mexico	0.0411	−0.0001	−0.0424	−0.0028	−0.0275	−0.0334	0.0431	−0.0001	−0.0416
New York	0.0791***	0.0000	0.0083	0.1809***	0.0454**	0.0552***	0.0737***	0.0000	0.0018
North Carolina	0.1449***	0.0002	0.0686**	0.0095	−0.0197	−0.0240	0.1474***	0.0003	0.0698**
North Dakota	0.1535***	0.0001	0.0485	−0.1671**	−0.1144**	−0.1393**	0.1612***	0.0002	0.0545
Ohio	0.0913***	0.0000	0.0164	0.0193	−0.0157	−0.0192	0.093***	0.0001	0.0170
Oklahoma	0.0949***	0.0000	0.0138	−0.0078	−0.0281	−0.0343	0.0977***	0.0001	0.0153
Oregon	0.2105***	0.0004	0.1319***	0.0744***	0.0041	0.0049	0.2131***	0.0005	0.133***
Pennsylvania	0.0833***	0.0000	0.0100	0.0646***	0.0015	0.0019	0.0841***	0.0001	0.0097
Rhode Island	0.1527***	0.0002	0.0693**	−0.0078	−0.0304	−0.0370	0.1578***	0.0003	0.0729**
South Carolina	0.2189***	0.0004	0.1379***	0.0651***	−0.0002	−0.0003	0.2217***	0.0005	0.1391***
South Dakota	0.0714	−0.0001	−0.0307	−0.129**	−0.0881*	−0.1073**	0.0792*	−0.0001	−0.0244
Tennessee	0.1601***	0.0002	0.0808***	0.0728***	0.0031	0.0038	0.1625***	0.0003	0.0818***
Texas	0.1636***	0.0002	0.0901***	0.0618***	0.0007	0.0008	0.1652***	0.0003	0.0904***
Utah	0.1512***	0.0002	0.0712**	0.1927***	0.0476*	0.0579**	0.1495***	0.0003	0.0681**
Vermont	0.3031***	0.0006	0.2055***	0.1613***	0.0295	0.0359	0.3081***	0.0008	0.2085***
Virginia	0.1083***	0.0001	0.0338	0.0024	−0.0219	−0.0266	0.1106***	0.0001	0.0349
Washington	0.208***	0.0004	0.1316***	0.079***	0.0064	0.0078	0.2104***	0.0005	0.1326***
West Virginia	0.1693***	0.0002	0.0757*	−0.1314***	−0.0811*	−0.0988**	0.1748***	0.0003	0.0796*
Wisconsin	0.157***	0.0002	0.0782**	0.0333	−0.0114	−0.0139	0.1598***	0.0003	0.0796**
Wyoming	0.1374***	0.0001	0.0282	−0.0968*	−0.0773	−0.0941*	0.1457***	0.0001	0.0348

"***", "**", and "*" indicate significance from zero at the 1%, 5% and 10% levels, respectively. The columns labeled "(a)" contains proportional marginal effects, while columns labeled "(b)" and "(c)", respectively, contain proportional export-initiation and export-intensification effects.

mates of the terms that interact the immigrant stock variables with each state-specific dummy variable ($\hat{\alpha}_3$) capture variation from the base effect produced by the stock of immigrants in specific states. Thus, the sums of the estimated base effect and the coefficients on each interaction terms represent state-specific proportional immigrant influences on the respective levels of state exports. We follow the same procedure to derive the proportional effects of cultural differences between the US and immigrants' home countries on state-level exports. Ideally, such effects would be best-gauged by using state-specific measures of cultural distance. However, data limitations preclude calculation of state-specific cultural distances. We assume that all immigrants from any particular home country who reside in different host states face the same level of cultural dissimilarity from the US. Their effects in offsetting cultural dissimilarity and, thus, in promoting exports may vary due to differences in their own traits (e.g., in levels of educational attainment, immigrants' entry classifications, and/or occupational backgrounds).

Table 4
Estimated state-level proportional effects of cultural distance on exports

State	Aggregate exports			Cultural goods			Non-cultural goods		
	(a)	(b)	(c)	(a)	(b)	(c)	(a)	(b)	(c)
Alabama	0.1351	−0.0011	0.1336	−0.9278***	−0.3453	−0.4203	0.1582	0.0006	0.1560
Alaska	−0.3713	−0.0022	−0.3671	0.9646***	0.3589	0.4370	−0.3285	−0.0011	−0.3241
Arizona	−0.7608**	0.0007	−0.7522	−0.3144	−0.1171	−0.1424	−0.7581**	−0.0026	−0.7479
Arkansas	0.2317	−0.0016	0.2291	−0.3347	−0.1246	−0.1516	0.3634	0.0013	0.3584
California	−0.5447*	−0.0036	−0.5385	−1.0642***	−0.3961	−0.4821	−0.54*	−0.0019	−0.5327
Colorado	−1.2201***	−0.0016	−1.2063	−0.9602***	−0.3574	−0.4350	−1.1878***	−0.0042	−1.1718
Connecticut	−0.565*	0.0025	−0.5586	−0.7583***	−0.2822	−0.3435	−0.5241*	−0.0018	−0.5170
DC	0.8523***	−0.0008	0.8427	−0.2243	−0.0835	−0.1016	1.0389***	0.0037	1.0248
Delaware	−0.2868	−0.0002	−0.2835	0.0946	0.0352	0.0429	−0.2624	−0.0009	−0.2589
Florida	−0.0808	0.0006	−0.0798	−0.416	−0.1548	−0.1884	−0.0772	−0.0002	−0.0762
Georgia	0.218	−0.0015	0.2156	−0.732***	−0.2724	−0.3316	0.2374	0.0009	0.2342
Hawaii	−0.5026	−0.0004	−0.4969	0.0851	0.0317	0.0386	−0.4583	−0.0016	−0.4522
Idaho	−0.128	−0.0017	−0.1266	0.1041	0.0387	0.0472	−0.1377	−0.0004	−0.1359
Illinois	−0.5971*	−0.0028	−0.5903	−0.8842***	−0.3291	−0.4006	−0.6119*	−0.0021	−0.6036
Indiana	−0.9441***	−0.0004	−0.9334	−0.5795**	−0.2157	−0.2625	−0.9762***	−0.0034	−0.9630
Iowa	−0.1382	0.0002	−0.1366	−0.2278	−0.0848	−0.1032	−0.1294	−0.0004	−0.1277
Kansas	0.0526	−0.0025	0.0521	−0.5206*	−0.1938	−0.2358	0.0722	0.0003	0.0712
Kentucky	−0.8447***	0.0031	−0.8352	−0.7397**	−0.2753	−0.3351	−0.8258***	−0.0029	−0.8147
Louisiana	1.0646***	−0.0005	1.0527	−0.3209	−0.1195	−0.1454	1.0317***	0.0037	1.0178
Maine	−0.1757	0.0024	−0.1737	0.4243	0.1579	0.1922	−0.1535	−0.0005	−0.1514
Maryland	0.8134***	−0.0018	0.8043	−0.1223	−0.0456	−0.0554	0.8005**	0.0029	0.7897
Massachusetts	−0.6256**	−0.0046	−0.6185	−0.6717**	−0.2500	−0.3043	−0.6142*	−0.0021	−0.6060
Michigan	−1.5603***	−0.0013	−1.5427	−0.805***	−0.2996	−0.3647	−1.5524***	−0.0055	−1.5315
Minnesota	−0.4325	0.0001	−0.4276	−0.5078*	−0.1890	−0.2300	−0.4106	−0.0014	−0.4051
Mississippi	0.0201	−0.0032	0.0200	−1.0602***	−0.3946	−0.4803	0.0424	0.0002	0.0418
Missouri	−1.095***	−0.0028	−1.0826	−0.8011***	−0.2982	−0.3629	−1.0761***	−0.0038	−1.0616
Montana	−0.9576***	−0.0001	−0.9468	−0.4618	−0.1719	−0.2092	−0.9456***	−0.0033	−0.9329
Nebraska	−0.0488	−0.0019	−0.0482	0.1059	0.0394	0.0480	−0.0717	−0.0002	−0.0708
Nevada	−0.6588**	−0.0009	−0.6514	−0.3875	−0.1442	−0.1755	−0.6218*	−0.0022	−0.6134
New Hampshire	−0.2971	−0.0019	−0.2937	−0.3785	−0.1409	−0.1715	−0.2701	−0.0009	−0.2665
New Jersey	−0.6368**	−0.0016	−0.6296	−0.5167**	−0.1923	−0.2341	−0.6262**	−0.0022	−0.6178
New Mexico	−0.5542*	−0.0008	−0.5479	−0.1534	−0.0571	−0.0695	−0.5175	−0.0018	−0.5106
New York	−0.2914	−0.0003	−0.2881	−1.05***	−0.3908	−0.4757	−0.2414	−0.0008	−0.2382
North Carolina	−0.107	0.0002	−0.1058	−0.9122***	−0.3395	−0.4133	−0.0833	−0.0003	−0.0822
North Dakota	0.0528	−0.0026	0.0523	−1.565***	−0.5825	−0.7090	0.0986	0.0004	0.0972
Ohio	−0.8836***	0.0005	−0.8736	−0.7694***	−0.2864	−0.3485	−0.8725***	−0.0031	−0.8607
Oklahoma	0.1531	−0.0003	0.1514	−0.6182**	−0.2301	−0.2800	0.181	0.0007	0.1786
Oregon	−0.0947	−0.0011	−0.0936	−0.4013	−0.1494	−0.1818	−0.0782	−0.0002	−0.0772
Pennsylvania	−0.3856	−0.0002	−0.3812	−1.0883***	−0.4051	−0.4931	−0.3707	−0.0013	−0.3657
Rhode Island	−0.0681	0.0005	−0.0673	−0.2105	−0.0784	−0.0953	−0.046	−0.0001	−0.0454
South Carolina	0.1812	−0.0034	0.1792	−0.8922***	−0.3321	−0.4042	0.2037	0.0008	0.2009
South Dakota	−1.1484***	−0.0008	−1.1355	−1.0435**	−0.3884	−0.4727	−1.1334***	−0.0040	−1.1182
Tennessee	−0.2705	0.0015	−0.2674	−0.8047***	−0.2995	−0.3645	−0.2486	−0.0008	−0.2452
Texas	0.512	0.0010	0.5063	−0.9131***	−0.3399	−0.4137	0.5242*	0.0019	0.5171
Utah	0.3447	−0.0015	0.3409	−0.0167	−0.0063	−0.0076	0.2941	0.0011	0.2901
Vermont	−0.521	0.0020	−0.5151	−0.3786	−0.1409	−0.1715	−0.5052	−0.0017	−0.4984
Virginia	0.6827**	0.0007	0.6751	−0.4357	−0.1622	−0.1974	0.7057**	0.0025	0.6962
Washington	0.2353	−0.0001	0.2327	−0.7219***	−0.2687	−0.3270	0.2491	0.0009	0.2457
West Virginia	−0.0443	−0.0005	−0.0437	0.0841	0.0313	0.0381	−0.0302	−0.0001	−0.0298
Wisconsin	−0.1862	−0.0014	−0.1841	−0.7129**	−0.2653	−0.3230	−0.1656	−0.0005	−0.1634
Wyoming	−0.484	−0.0005	−0.4786	−0.5335	−0.1986	−0.2417	−0.4763	−0.0016	−0.4699

See Table 3 legend.

Table 3 presents estimated state-specific proportional effects (aggregate and decomposed components) of immigrants for aggregate, cultural and non-cultural goods exports.[6] For each export category considered, column (a) presents the proportional effects of immigrants on state-specific exports; the next two columns ((b) and (c)) present the proportional elasticity estimates decomposed into state-specific export-initiation and intensification effects, respectively. We also indicate whether the proportional effects are significantly different from zero, at the usual significance levels.[7] Table 4 presents the corresponding state-specific proportional effects of cultural distance on exports from each state to the home countries in our data set.

[6] The full set of estimation results is available upon request from the authors.

[7] As the immigrant or cultural distance effects are estimated by the summation of coefficients on the immigrant stock or cultural distance and their respective interaction variables, determination of statistical significance is based on a modified z-statistic that accounts for the value of each coefficient, its variance and the covariance of the variable pairs (Hardy, 1993).

The values presented in Tables 3 and 4 provide an interesting contrast in the effects of immigrants and cultural distance on state-level exports. From Table 3, with the exception of immigrants residing in Hawaii (that have an unexpected negative effect on state-level exports), and those in Montana, New Mexico, South Dakota, and the District of Columbia (where immigrant effects are not significantly different from zero), we generally observe that immigrants have pro-export effect. Accordingly a 1% increase in the stock of immigrants in each state would lead to proportional increases in state-level aggregate exports varying from less than 0.1% (in Nevada, Maryland, Colorado and Missouri) to approximately 0.2% (in Washington, Idaho, Oregon, and South Carolina) and to roughly 0.3% (in Louisiana and Vermont). Comparing the effects across the different goods categories, the proportional effects of a 1% increase in immigrant population are more pronounced for cultural goods (varying from no significant effects for 19 states to as high as 0.2% in Utah and nearly 0.4% in Arkansas and Delaware) than for non-cultural or for aggregate exports.

Similar derivation of the proportional effects of US-home country cultural distance on state-level exports reveals interesting variation. Greater cultural distance between the US and immigrants' home countries significantly reduces state-level exports of cultural goods, as well as aggregate exports and exports of non-cultural goods. Contrary to the limited effects of cultural distance implied by estimated base effects, the coefficient estimates of the variables that interact the cultural distance variable with state-specific dummy variables reveal that the negative effects of cultural distance on state-level aggregate exports vary from as low as 0.5447 in California and New Mexico to as high as 1.22 for Colorado and 1.56 for Michigan. Across states where cultural goods exports are negatively affected by higher US-home country cultural distances, the least sensitivity is observed for Minnesota (with a marginal effect value of 0.5078) while exports from North Dakota are the most sensitive (with a marginal effect value of 1.565).

In summary, the estimated state-specific proportional effects presented in Tables 3 and 4, indicate that immigrants contribute both to an increased likelihood of exports and the intensification of existing export levels originating from their host states. They also show that greater cultural distance between the US and each respective home country, representing differences in shared norms and values, acts to reduce state-level exports. Where significant effects are found, we observe considerable variation in the effects across states and regions. For example, with respect to aggregate exports, immigrants in the northwestern states of Idaho, Oregon and Washington all have proportional effects in excess of 0.2%, while the proportional effects of immigrants in states throughout the south vary from 0.1083% (Arkansas) to 0.2189% (South Carolina). To the contrary, immigrants in states in and around the Great Lakes/Rust Belt and Middle Atlantic regions (DC, Maryland, Michigan, New York, Ohio, Pennsylvania and Virginia) all have proportional effects less than 0.1083%. Finally, no clear pattern emerges for proportional effects of immigrants in states in the west/plains and southwest regions. Given our data, empirical determination of the cause of the observed variation in the effects is not possible; however, differences in the demographic composition of immigrants in each state/region, the timing of immigrant arrivals in each state, geographic enclaves or dispersion of immigrant populations, and the previous and current occupational backgrounds of immigrants may potentially explain such variation.

4.3. Economic significance of observed effects of immigrants and cultural distance

It is evident that immigrants generally exert positive influences on state-level exports and that these effects vary greatly across states. Additionally, cultural differences between the US and immigrants' home countries inhibit state-level exports. Assessing whether the pro-export effects of immigrants offset the trade-inhibiting effects of cultural distance is of merit as it has important policy implications; especially so when one considers the ongoing, and often heated, debate regarding immigration policy. To evaluate this possibility, we compute the dollar values of the export-initiation and intensification effects implied by the respective coefficient estimates for the immigrant stock and cultural distance variables and the corresponding interaction terms. Table 5 presents the estimated dollar values (in $1000s) of the effect of a hypothetical 1% increase in cultural distance on state-level exports. Table 6 presents the per-immigrant effects (in dollar units) of a proportional 1% increase in the stock of immigrant population in each state, constructed using state-level immigrant population shares as weights. These values permit a better understanding of the economic significance of the coefficients reported earlier. The dollar values reported in Table 5 reveal that a hypothetical 1% increase in the US-home country cultural distance reduces aggregate state-level exports from as much as $200 million for California to as little as $4.5 million for New Hampshire. For exports of cultural goods, the effects range from just over $42 million for Arizona to $76,000 for Ohio.

Converting the total pro-export effects of a hypothetical 1% increase in the immigrant population residing in each state into per-immigrant dollar values, we observe that, *ceteris paribus*, a typical immigrant would increase aggregate state-level exports to her home country by an average of $2975. The effect of immigrants, however, varies from $202 in Nevada to $18,000 in West Virginia. Estimated effects for Kentucky, Vermont and Louisiana appear to be outliers. For cultural goods, the results indicate that an immigrant residing in Alabama contributes to the generation of cultural goods exports worth $232, while an immigrant residing in Arizona generates exports valued at only $5.30 (the lowest amount compared to immigrants in other states). The variation in the effect of a typical immigrant across states could be the result of several factors; for example, differences in the composition of the immigrant population in terms of country of origin, skill endowment, and length of stay in the host states, etc. all may potentially generate variation in immigrant effects.

Based on our estimates of the influences of immigrants and cultural distance, we find that an additional 772,664 immigrants to the US (a 3.21% increase in the immigrant population from each of the 75 home countries in our sample) would

Table 5
Estimated effect of a 1% increase in cultural distance on state-level exports (in'000s US dollars)

State	Aggregate exports			Cultural goods			Non-cultural goods		
	(a)	(b)	(c)	(a)	(b)	(c)	(a)	(b)	(c)
Alabama	**8,146.70**	24.12	8,056.25	−1,897.99	−706.38	−859.80	**9,216.04**	34.95	9,087.87
Alaska	**−7,956.67**	−23.57	−7,866.67	38.78	14.43	17.57	**−7,026.30**	−23.53	−6,932.18
Arizona	−79,381.44	−229.55	−78,484.12	**−188.00**	−70.02	−85.15	−78,646.42	−269.73	−77,588.25
Arkansas	**4,750.21**	14.35	4,696.91	**−1,045.13**	−389.08	−473.39	**6,315.52**	22.59	6,228.62
California	−495,792.34	−1,456.34	−490,149.03	−27,829.46	−10,358.25	−12,607.20	−477,393.02	−1,679.72	−470,939.38
Colorado	−64,074.93	−189.06	−63,350.21	−4,500.56	−1,675.17	−2,038.89	−56,811.31	−200.88	−56,046.05
Connecticut	−37,039.41	−104.89	−36,619.84	−1,265.57	−470.98	−573.29	−33,483.45	−115.00	−33,029.85
DC	4,409.86	12.94	4,360.19	**−141.82**	−52.79	−64.24	4,718.48	16.80	4,654.44
Delaware	**−5,246.09**	−14.63	−5,185.73	**0.01**	0.00	0.01	**−4,799.74**	−16.46	−4,735.72
Florida	**−14,817.44**	−36.68	−14,634.06	**−1,598.82**	−594.95	−724.08	**−13,860.55**	−35.91	−13,681.01
Georgia	**25,758.46**	70.89	25,474.88	−1,181.53	−439.68	−535.24	**27,667.54**	104.89	27,294.60
Hawaii	**−1,612.27**	−4.81	−1,593.99	**19.21**	7.15	8.71	**−1,366.73**	−4.77	−1,348.54
Idaho	**−3,523.68**	−11.01	−3,485.14	**25.26**	9.39	11.45	**−3,757.30**	−10.91	−3,708.19
Illinois	−158,465.53	−451.17	−156,660.87	−4,561.89	−1,697.94	−2,066.83	−159,236.33	−546.49	−157,076.40
Indiana	−125,621.80	−372.57	−124,198.06	−1,627.12	−605.64	−737.05	−127,152.04	−442.86	−125,432.71
Iowa	**−5,247.06**	−15.19	−5,186.31	**−68.83**	−25.62	−31.18	**−4,873.85**	−15.07	−4,809.82
Kansas	**2,270.60**	8.63	2,249.02	−223.37	−83.15	−101.17	**3,085.70**	12.82	3,042.96
Kentucky	−69,683.20	−206.24	−68,899.50	−1,309.68	−487.43	−593.31	−66,661.93	−234.10	−65,765.89
Louisiana	133,028.88	387.37	131,541.89	**−12.02**	−4.48	−5.45	128,879.15	462.20	127,142.77
Maine	**−2,407.85**	−6.85	−2,380.44	**61.09**	22.73	27.67	−2,081.51	−6.78	−2,053.03
Maryland	29,559.82	87.22	29,229.12	**−77.27**	−28.81	−35.00	28,585.25	103.56	28,199.59
Massachusetts	−102,343.34	−294.47	−101,181.83	−3,883.09	−1,445.25	−1,759.15	−96,927.70	−331.40	−95,633.65
Michigan	−459,250.04	−1,353.94	−454,069.76	−1,156.25	−430.33	−523.83	−454,695.03	−1,610.94	−448,573.46
Minnesota	**−34,660.40**	−104.18	−34,267.71	−958.04	−356.58	−433.93	**−32,130.68**	−109.55	−31,700.29
Mississippi	**426.68**	2.12	424.55	−180.22	−67.08	−81.64	**892.85**	4.21	880.21
Missouri	−58,912.13	−172.16	−58,245.00	−648.68	−241.46	−293.85	−57,023.93	−201.37	−56,255.56
Montana	−4,463.41	−13.05	−4,413.07	**−10.37**	−3.86	−4.70	−4,386.24	−15.31	−4,327.33
Nebraska	**−1,011.68**	−2.07	−999.24	**17.26**	6.42	7.82	**−1,474.74**	−4.11	−1,456.23
Nevada	−8,058.56	−23.24	−7,968.04	**−78.36**	−29.16	−35.49	−7,480.22	−26.47	−7,379.17
New Hampshire	**−5,755.67**	−17.44	−5,689.81	**−163.41**	−60.83	−74.04	**−5,116.00**	−17.05	−5,047.81
New Jersey	−96,969.05	−289.32	−95,872.67	−3,068.92	−1,142.16	−1,390.43	−91,635.64	−321.94	−90,406.42
New Mexico	−8,638.47	−24.94	−8,540.27	**−11.29**	−4.20	−5.11	**−8,028.33**	−27.92	−7,921.29
New York	**−102,151.41**	−280.44	−100,994.58	−42,749.42	−15,910.93	−19,367.52	**−74,795.42**	−247.87	−73,803.93
North Carolina	**−15,192.31**	−42.60	−15,021.93	−1,091.21	−406.12	−494.41	**−11,727.64**	−42.24	−11,572.77
North Dakota	**289.49**	1.10	286.75	−76.77	−28.58	−34.78	**535.76**	2.17	528.16
Ohio	−199,231.03	−586.24	−196,976.27	−1,384.15	−515.23	−626.95	−195,158.62	−693.40	−192,519.23
Oklahoma	**3,835.43**	12.53	3,792.84	−96.85	−36.05	−43.87	**4,506.02**	17.43	4,446.27
Oregon	**−8,043.07**	−25.48	−7,949.64	**−303.13**	−112.85	−137.33	**−6,582.62**	−16.84	−6,498.44
Pennsylvania	**−58,877.14**	−167.96	−58,205.30	−4,375.44	−1,628.68	−1,982.47	**−55,111.69**	−193.27	−54,368.34
Rhode Island	**−654.40**	−1.92	−646.72	**−11.39**	−4.24	−5.16	**−439.55**	−0.96	−433.81
South Carolina	**12,608.03**	34.79	12,468.87	−1,159.01	−431.41	−525.08	**13,908.98**	54.63	13,717.79
South Dakota	−6,618.63	−19.60	−6,544.28	−18.33	−6.82	−8.30	−6,512.27	−22.98	−6,424.93
Tennessee	**−26,113.62**	−77.23	−25,814.36	−1,654.67	−615.85	−749.51	**−23,488.25**	−75.59	−23,167.01
Texas	**426,106.71**	1,248.36	421,362.94	−7,185.16	−2,674.67	−3,255.40	432,135.12	1,566.30	426,282.08
Utah	**9,111.12**	26.43	9,010.68	**−10.55**	−3.98	−4.80	**7,587.87**	28.38	7,484.67
Vermont	**−17,315.76**	−49.85	−17,119.67	**−69.65**	−25.92	−31.55	**−16,697.70**	−56.19	−16,472.94
Virginia	63,060.86	184.74	62,358.85	**−385.01**	−143.33	−174.43	64,561.77	228.72	63,692.65
Washington	**58,944.78**	175.36	58,293.46	−1,361.74	−506.86	−616.83	**61,931.92**	223.76	61,086.61
West Virginia	**−820.58**	−1.85	−809.46	**1.38**	0.51	0.62	**−558.90**	−1.85	−551.50
Wisconsin	**−16,055.82**	−43.11	−15,874.74	−1,240.15	−461.51	−561.89	**−13,991.43**	−42.24	−13,805.55
Wyoming	**−1,816.97**	−5.26	−1,796.70	**−12.62**	−4.70	−5.72	**−1,776.79**	−5.97	−1,752.92
Average (non-weighted)	−29,833.64	−86.82	−29,491.92	−2,366.86	−880.95	−1,072.27	−27,614.94	−93.81	−27,244.12
Average (non-weighted), excl. insignificant effects	−87,224.19	–	–	−4,165.95	–	–	−62,716.22	–	–

Bold type indicates corresponding proportional cultural distance effects, given jointly by coefficients on ln Cultural Distance variable and the terms interacting cultural distance and state dummy variables, are not significantly different from zero. Columns labeled "(a)" present total (i.e. non-decomposed) effects, while columns labeled "(b)" and "(c)", respectively, contain proportional export-initiation and export-intensification effects.

Table 6
Estimated effect of a 1% increase in immigrant stock on state-level exports (in'000s US dollars)

State	Aggregate exports			Cultural goods			Non-cultural goods		
	(a)	(b)	(c)	(a)	(b)	(c)	(a)	(b)	(c)
Alabama	8,988.04	24.90	8,888.45	232.07	86.46	105.23	8,543.77	32.06	8,423.55
Alaska	9,457.65	6.88	2,895.76	**2.59**	−2.34	−2.84	9,772.13	13.73	3,124.61
Arizona	2,003.05	1.60	793.54	5.30	−0.18	−0.22	2,023.11	3.18	800.02
Arkansas	3,388.92	3.12	723.97	1,778.69	540.04	657.42	**1,318.33**	−2.65	−958.30
California	1,162.63	1.11	379.05	39.74	8.79	10.71	1,133.90	1.08	356.71
Colorado	967.75	−1.48	−171.39	199.50	41.94	51.03	825.18	0.00	−224.07
Connecticut	2,627.87	2.30	850.67	37.58	−0.48	−0.60	2,552.09	4.48	794.73
DC	**492.46**	−1.97	−518.12	**59.46**	−20.49	−25.02	**124.01**	−2.58	−766.44
Delaware	8,864.35	10.47	3,935.06	−0.13	−0.07	−0.08	9,261.98	15.70	4,254.23
Florida	1,560.47	1.40	567.70	31.29	5.31	6.46	1,535.93	2.74	550.31
Georgia	3,388.83	5.07	1,477.70	13.78	−2.44	−2.97	3,379.77	5.00	1,463.48
Hawaii	−226.12	−1.12	−359.74	**−4.37**	−5.05	−6.15	−208.99	−1.19	−333.50
Idaho	6,220.79	9.20	3,503.03	57.00	11.11	13.50	6,232.81	12.12	3,499.70
Illinois	2,365.37	1.92	955.77	25.16	1.04	1.26	2,344.25	3.77	941.09
Indiana	10,801.35	8.32	4,290.61	217.82	39.75	48.33	10,663.44	16.28	4,183.98
Iowa	8,095.19	9.91	3,980.67	**−14.90**	−15.79	−19.27	8,225.91	14.75	4,071.16
Kansas	6,498.58	10.51	3,608.38	16.75	−2.93	−3.59	6,541.54	13.87	3,629.57
Kentucky	24,531.40	37.00	14,343.90	**100.14**	−29.69	−36.17	24,344.36	48.25	14,198.87
Louisiana	48,380.27	96.99	35,060.74	−6.56	−3.38	−4.12	49,193.57	129.29	35,586.15
Maine	5,976.26	4.21	2,163.24	55.25	8.60	10.45	5,989.90	8.33	2,153.53
Maryland	519.64	−0.93	−167.30	**4.77**	−2.08	−2.54	488.15	−0.92	−195.44
Massachusetts	3,712.65	5.48	1,664.67	141.59	30.33	36.89	3,595.80	5.28	1,589.33
Michigan	7,616.36	7.72	1,875.15	−3.95	−9.57	−11.67	7,734.86	7.68	1,935.63
Minnesota	5,705.60	4.57	2,119.61	81.43	5.15	6.30	5,654.69	8.93	2,097.64
Mississippi	10,348.93	12.45	4,841.53	**−11.07**	−17.91	−21.80	10,477.00	18.52	4,920.55
Missouri	3,305.24	0.00	−96.06	**1.38**	−15.12	−18.41	3,362.97	0.00	−34.40
Montana	**−141.71**	−9.45	−3,237.31	**−4.19**	−6.88	−8.39	**62.68**	−9.40	−3,061.86
Nebraska	5,370.19	6.55	2,549.29	**−7.68**	−10.02	−12.20	5,515.79	9.74	2,668.62
Nevada	202.21	−0.43	−132.53	**1.34**	−1.15	−1.40	190.18	−0.42	−143.48
New Hampshire	7,816.08	12.30	4,295.36	144.04	30.25	36.77	7,718.06	16.04	4,213.86
New Jersey	1,599.76	1.34	623.77	65.28	12.68	15.45	1,538.96	2.58	585.35
New Mexico	**455.09**	−1.11	−469.49	**−0.14**	−1.35	−1.64	**475.13**	−1.10	−458.59
New York	971.47	0.00	101.94	243.00	60.99	74.15	806.15	0.00	19.69
North Carolina	5,740.24	7.92	2,717.60	**3.01**	−6.24	−7.60	5,792.60	11.79	2,743.04
North Dakota	8,649.38	5.63	2,732.87	−85.30	−58.40	−71.11	9,000.97	11.17	3,043.13
Ohio	7,741.89	0.00	1,390.66	**12.49**	−10.16	−12.42	7,825.86	8.41	1,430.53
Oklahoma	2,016.96	0.00	293.30	**−1.03**	−3.73	−4.55	2,063.51	2.11	323.15
Oregon	6,714.84	12.76	4,207.54	21.36	1.18	1.41	6,736.59	15.81	4,204.44
Pennsylvania	3,092.85	0.00	371.29	64.35	1.49	1.89	3,038.78	3.61	350.49
Rhode Island	1,665.07	2.18	755.66	**−0.49**	−1.91	−2.33	1,710.76	3.25	790.33
South Carolina	15,436.03	28.21	9,724.20	88.62	−0.27	−0.41	15,331.69	34.58	9,619.48
South Dakota	**4,114.20**	−5.76	−1,768.99	−23.02	−15.72	−19.15	4,549.52	−5.74	−1,401.62
Tennessee	12,047.60	15.05	6,080.24	119.21	5.08	6.22	11,962.12	22.08	6,021.55
Texas	4,973.83	6.08	2,739.26	18.08	0.20	0.23	4,974.14	9.03	2,721.93
Utah	2,448.47	3.24	1,152.98	86.23	21.30	25.91	2,354.04	4.72	1,072.31
Vermont	48,027.72	95.07	32,562.51	142.57	26.07	31.73	48,547.67	126.06	32,853.58
Virginia	2,298.96	2.12	717.50	**0.49**	−4.48	−5.44	2,325.18	2.10	733.72
Washington	9,352.55	17.99	5,917.28	27.28	2.21	2.69	9,387.80	22.31	5,916.45
West Virginia	18,371.19	21.70	8,214.41	−13.30	−8.21	−10.00	18,950.32	32.52	8,629.55
Wisconsin	8,982.20	11.44	4,473.93	**39.49**	−13.52	−16.49	8,952.87	16.81	4,459.63
Wyoming	5,001.96	3.64	1,026.60	−22.46	−17.94	−21.84	5,270.30	3.62	1,258.79
Average (non-weighted)	7,249.07	9.73	3,620.52	78.03	12.79	15.56	7,258.67	13.71	3,620.72
Average (weighted by immigrant population share)	2,975.13	3.39	1,318.19	64.28	12.53	15.24	2,938.18	4.79	1,291.32

Bold type indicates corresponding proportional immigrant effects, given jointly by coefficients on ln Immigrants variable and the terms interacting the immigrant stock and state dummy variables, are not significant from zero. Columns labeled "(a)" present total (i.e. non-decomposed) effects, while columns labeled "(b)" and "(c)", respectively, contain proportional export-initiation and export-intensification effects.

be required to completely offset the influence of a 1% increase in US-home country cultural distance.[8] While a proportional increase in cultural distance is an arbitrary metric, we offer this comparison as an illustration of the extent to which the influences of immigrants may be able to offset the effect of cultural distance on exports. It is important to note that this estimate applies only to aggregate exports and is derived under the assumption of constant returns to immigration. If, as

[8] We derive this value by dividing the estimated effects of a one percent increase in cultural distance on aggregate exports, at the state-level, by the estimated state-level per immigrant effects. Summation of resulting values yields the estimated number of immigrants necessary to offset the influence of cultural distance. Note that estimated immigrant and cultural distance effects that are insignificant from zero are treated as zero values.

suggested in Gould (1994) and Helliwell (1997), there are decreasing returns to immigration then our estimate can be considered conservative. As exports of cultural goods account for a small share of aggregate exports, the estimated number of immigrants necessary to offset the effects of cultural distance on exports of cultural goods would be very low while the number estimated for exports of non-cultural goods is near the value generated using aggregate state-level exports.

5. Conclusion

Employing US state-level data on aggregate, cultural and non-cultural goods exports to 75 immigrant home countries, we utilize a new measure of cultural distance as a proxy for the lack of the trust and commitment necessary to complete trade deals. Additionally, we examine the role that immigrants play in generating exports from their host states to their home countries, and the extent to which they may offset the effects of differences in shared norms and values. We find that greater cultural differences between the US and immigrants' home countries, in general, reduce the likelihood that exporting from a given state to a given home country occurs; thereby, reducing the magnitude of exports. We also observe that immigrants increase not only the likelihood that exporting from their host states to their home countries occurs but also the intensity of existing state-level exports to their respective home countries; thus, partially offsetting the trade-inhibiting effects of cultural distance. Comparing the influences of immigrants and cultural distance on exports of aggregate, cultural and non-cultural goods in terms of the corresponding dollar values of the export-initiation and intensification effects, we report that the while the effects of both cultural distance and immigrants are larger with respect to trade-intensification than trade-initiation, there exist significant variation across states in the effects of both immigrants and cultural distance.

Given the heated and frequently contentious debate regarding US immigration policy, our findings have important implications. That immigrants enhance state-specific exports to their respective home countries and, in doing so, partially offset the trade-inhibiting effects of cultural differences between the US and immigrants' home countries may evoke calls for a national immigration policy that favors increased immigration. More specifically, the observed variation in the proportional effects of immigrants on state-level exports (i.e., the sensitivity of state-level exports to proportional increase in immigrant population) suggests the need for a policy that considers immigrants' abilities to increase trade flows. This underscores the importance and necessity of further research to disentangle the observed state-specific variation in the export-initiation and export-intensification effects of immigrants by their anthropogenic characteristics, such as skill endowment and country of origin, or by strategic products of interest.

Appendix A. Supplementary data

Supplementary data associated with this article can be found, in the online version, at doi:10.1016/j.socec.2008.04.013.

Appendix C

According to UNESCO (2005), cultural goods include products broadly classified as Audio and Audiovisual Media, Cinema and Photography, Cultural Heritage, Printed Matter, Music, Music and the Performing Arts, New Media, Television and Radio, and Visual Arts. A listing of product categories and HS96 Codes (in parentheses) is presented below.

C.1. Audio and audiovisual media

Photographic plates and film, exposed and developed, other than cinematographic film, other than for offset reproduction and microfilms (370,590); cinematograph film, exposed and developed without incorporated sound track (3706); videogames used with a television receiver (940,510).

C.2. Cinema and photography

Photographic cameras, accessories (9006); cinematographic cameras and projectors (9007); image projectors, photographic enlargers and reducers (9008); equipment for photographic laboratories, not elsewhere specified (9010); photographic plate, film, not rolls, exposed, paper (3701); photographic film, rolls, unexposed, not paper (3702); photographic paper, board, etc., sensitized, unexposed (3703); photographic plate, film, paper, exposed, undeveloped (3704); photographic plates and film, exposed and developed, other than cinematographic film for offset reproduction (370,510); microfilms (370,520).

C.3. Cultural heritage

Collections and collectors pieces (9705); antiques of an age exceeding 100 years (9706).

C.4. Printed matter

Printed reading books, brochures, leaflets, etc (4901); Children's picture, drawing and coloring books (4903); Newspapers, journals and periodicals, whether or not illustrated or containing advertising material (4902); music, printed or in manuscript, whether or not bound or illustrated (4904); maps and hydrographic or similar charts, including atlases, wall maps (4905); postcards, printed or illustrated, and printed greeting cards (4909); calendars of any kind, printed, including calendar blocks

(4910); pictures, designs and photographs (491,191); used postage/revenue stamps and the like/unused not of current/new issue (9704).

C.5. Music

Musical instruments, parts and access of such articles (92); electronic sound reproducing equipment, non-recording (8519); electronic sound recording equipment (8520); video recording and reproducing apparatus (8521); prepared unrecorded sound recording media (8523).

C.6. Music and the performing arts

Gramophone records (852,410); discs for laser reading systems for reproducing sound only (852,432); magnetic tape recorded (excluding 852,440) of a width not greater than 4 mm (852,451); magnetic tape recorded (excluding 852,440) of widths of 4–6.5 mm (852,452); magnetic tape recorded (excluding 852,440) of a width greater than 6.5 mm (852,453); Other recorded media for sound (852,499).

C.7. New media

Magnetic tapes for reproducing phenomena other than sound or image (852,440); recorded discs for laser reading systems for reproducing phenomena other than sound or image (852,431); other recorded discs for laser reading systems (852,439); other recorded media for reproducing phenomena other than sound or image, not elsewhere specified (852,491).

C.8. Television and radio

Television receivers, video monitors, projectors (8528); radio, radio-telephony receivers (8527).

C.9. Visual arts

Paintings, drawings, pastels, collages, etc. (hand-made) (9701); original engravings, prints and lithographs (9702); original sculptures and statuary, in any material (9703); statuettes and other ornamental articles (392,640); statuettes and other ornaments, of wood (442,010); statuettes and other ornamental ceramic articles (6913); statuettes and other ornaments, of base metal plated with precious metal (830,621); other statuettes and other ornaments, of base metal (830,629); worked ivory, bone, tortoiseshell, horn, antlers, coral, mother-of-pearly and other animal carving material, and articles of these materials (including articles obtained by moulding) (9601).

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