# Resident Networks and Corporate Connections: Evidence from World War II Internment Camps

LAUREN COHEN, UMIT G. GURUN, and CHRISTOPHER MALLOY*

## ABSTRACT

Using customs and port authority data, we show that firms are significantly more likely to trade with countries that have a large resident population near their firm headquarters, and that these connected trades are their most valuable international trades. Using the formation of World War II Japanese internment camps to isolate exogenous shocks to local ethnic populations, we identify a causal link between local networks and firm trade. Firms are also more likely to acquire target firms, and report increased segment sales, in connected countries. Our results point to a surprisingly large role of immigrants as economic conduits for firms.

FIRMS BUY AND SELL GOODS in a global marketplace. Nearly half of all S&P 500 firms' sales, for instance, come from abroad. Understanding how firms differentially navigate this marketplace is critical to identifying which firms will ultimately succeed, and hence how investors should allocate capital among these firms. Success in a global setting depends not only on the goods or services that firms provide, but also on the various networks that firms can exploit to access foreign markets.

In this paper we investigate one type of network that firms can employ in accessing foreign markets, namely, local resident networks. Specifically, we exploit variation in ethnic population breakdowns across metropolitan statistical areas (MSAs) in the U.S. to investigate whether local residents' ties to their home countries play a role in creating important bilateral country linkages for firms headquartered in these areas. We show that local resident networks have a first-order impact on each of the primary ways in which corporations operate

globally: import and export behavior, international M&A activity, and segment sales abroad, as well as on the value implications of such trade decisions.

We begin by using micro-level import and export data collected from customs and port authorities. Combined with census-tract demographic data, these micro-level trade data allow us to link individual firms' trade decisions to their local resident populations. For the universe of publicly traded U.S. firms over our 20-year sample period, we find that firms export more to—and import more from—countries with which they have stronger local resident network connections.

Because residents' location decisions are themselves influenced by firm-level trade activity and the factors that drive this trade activity, the effect of resident location is endogenously related to the factors that cause these locations to change. To address this endogeneity concern, we identify a set of plausibly exogenous shocks to population residence—the forced relocation of Japanese and Japanese-Americans into Japanese internment camps during World War II—and show that these shocks have a large and significant impact on firm-level trade decisions. The Japanese internment camps, established throughout the country to house Japanese and Japanese-Americans from the West Coast following the bombing of Pearl Harbor in 1941, represented a sizable shock to the Japanese populations surrounding them. For example, in the 1940 census (pre-internment camps), the Japanese population of Arkansas was three people. Arkansas was later a site of two internment camps—a shock of over 17,000 Japanese residents into the state. Such shocks have had an enduring impact on the affected areas as many internees ultimately settled around these camps, having no home or work to return to after the war ended. Indeed, MSAs surrounding World War II Japanese internment camps have roughly three times ($t = 9.19$) higher Japanese populations *today* than MSAs that did not house internment camps. In addition, we show that the MSAs surrounding World War II Japanese internment camps have over three times ($t = 4.34$) as many sister cities to Japan as similar cities throughout the rest of the U.S. Further, as a placebo test, we examine the growth of other Asian ethnicities in the same locations surrounding internment camps. We find no evidence that they grew, nor is there any significant Asian population (besides Japanese) in these surrounding areas today. Taken as a whole, our evidence suggests that the Japanese internment camps of World War II represent significant exogenous shocks to Japanese populations that persist to the present day.

Having established their exogeneity, we examine the effect of new Japanese populations on firms' trade decisions. Firms in MSAs surrounding internment camps import and export significantly more to Japan today than other firms. In terms of magnitude, a one-standard-deviation increase in exogenous Japanese population increases exports by 67% ($t = 2.81$) and imports by 101% ($t = 4.51$).

We next show that our findings extend across the entire universe of U.S. firms and firm-country trade destinations over a nearly 20-year sample period. To do so, we exploit novel import and export data collected through public records that must be reported by shippers and are subsequently made publicly available by customs and port authorities. We use these data to ask whether immigration

patterns that result in concentrated ethnic populations close to certain firms give rise to strategic trade decisions for these firms. We measure firm-country networks as the share of residents in the MSA in which a firm's headquarters is located (hereafter, a firm's MSA) that have the same ethnicity as the country to/from which the firm is exporting/importing (a variable we call *Connected Population*). We find evidence that firms export more to and import more from countries with which they have stronger information links. Specifically, we show that a one-standard-deviation increase in *Connected Population* increases the amount the firm exports to (imports from) a country by 63%, $t = 4.93$ (60%, $t = 5.59$).

The increased exports (and imports) associated with resident networks leads to increased sales and profitability. For instance, when we compare the profitability of "strategic exporters," that is, firms that export to a country with which they have a large connected population, and "nonstrategic exporters," firms that export the same amount to the same country but do not have a large connected population, we find that strategic exporters experience a statistically significant 11% increase in their future profitability (EBITDA/Assets) relative to nonstrategic exporters.

We next show that the effect of local resident networks in international transactions is not confined to imports and exports. Local resident networks also have large and significant effects on M&A activity and segment sales in connected countries. For example, firms are significantly more likely to purchase target firms in countries they are connected to through their local resident networks. Moreover, using information disclosed in segment filings, we show that firms are more likely to have an international presence in countries that they are connected to through their resident networks.

We further explore how information is transferred across resident networks. While we cannot obtain the ethnic makeup of the firms' entire employee base, we are able to collect the ethnic makeup of sample firms' board of directors (including top management). These data allow us to identify a specific channel through which resident populations can influence firm decisions—connected boards of directors. We find that local ethnic population is a strong predictor of a board's ethnic makeup (e.g., if there is a larger Chinese population in a given firm's MSA, the firm's board is significantly more likely to have Chinese board members). More importantly for our purposes, we show that when a strategic importer (exporter) has a connected board member on its board, it trades significantly more with the connected country. For instance, firms export 68% more than the median firm ($t = 4.03$) to countries that they are connected to with a connected board member.

Finally, to shed further light on the mechanism behind our findings, we test whether strategic trading using local resident networks is more pronounced when these networks are more valuable. To do so, we first examine the role of tariff controls between the U.S. and a given connected country for a given product. Consistent with lower (higher) tariffs increasing (decreasing) the value of local resident networks, we find significantly more strategic trading (i.e., imports from connected countries) when U.S. import

tariffs are lower. Next, we examine the role of differentiated products, that is, products that are not traded over organized exchanges. Again consistent with variation in the value of resident networks leading to variation in strategic trading, we find that the benefits of networks are more pronounced for imports of differentiated products. Lastly, using micro-level data on the estimated values of the shipments in our trade data, we find that firms charge higher prices on their exports to connected countries (and face lower prices on imports from connected countries), which helps explain why connected trading increases firm profitability.

The remainder of the paper is organized as follows. Section I provides background and a literature review, while Section II describes the data. Section III documents the impact of local resident networks on firm-level import and export decisions. Section IV establishes a causal link using the formation of Japanese internment camps in World War II as plausibly exogenous population shocks. Section V examines the returns to strategic importers and exporters that use local resident networks, while Section VI examines other transactions with connected countries. Section VII explores additional channels at work through resident networks, while Section VIII concludes.

## I. Background and Literature Review

Our paper contributes to the literature investigating the determinants and implications of international trade for firm operations and valuation. Bernard et al. (2007) argue that while this literature emphasizes the role of comparative advantage, increasing returns to scale, and consumer preference for variety, it focuses less on the firms that actually drive trade flows. They show that firms that export differ substantially from firms that solely serve the domestic market, along several dimensions: across a wide range of countries and industries, exporters have been shown to be larger, more productive, and more skill and capital intensive, and they pay higher wages than nontrading firms.

We add to the above literature by providing evidence on the role that networks and informational barriers play in impacting international trade. For example, Rauch (1999) argues that informational barriers play a key role in hampering trade, and shows that geographic proximity is more important for trade in nonhomogeneous (i.e., differentiated) goods.[1] Chaney (2012) develops a theoretical model where firms only export to countries in which they have a contact and shows that this model is consistent with the dynamics of trade in France.[2] Within-country evidence using measures of social networks and trade includes Combes, Lafourcade, and Mayer (2005), who explore networks

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[1] See also Gould (1994), Rauch (2001), Rauch and Trindade (2002), and Casella and Rauch (2002) for theory and evidence on information-sharing networks among internationally dispersed ethnic minorities.

[2] For broader evidence on the impact of firm-level networks, see Hidalgo et al. (2007) for evidence on how the network connectedness of products impacts country-level development, and Acemoglu et al. (2012) for evidence that microeconomic idiosyncratic shocks can be transmitted through supplier-customer links and impact aggregate volatility in the economy.

and trade between regions within France; Garmendia et al. (2012), who examine social and business networks and the extensive margin of trade in Spain; and Burchardi and Hassan (2013), who find that West German regions that have closer social links with East Germany grew faster and invested more in East Germany after German reunification.[3] Our main contribution to this literature is through our unique identification of exogenous residents surrounding firms, thus firmly establishing the causal mechanism missing from prior literature.

More importantly, our research adds to the literature analyzing the strategic entry mode choices of firms seeking to expand their operations to overseas markets. According to Agarwal and Ramaswami (1992), these choices include exporting, joint venture, licensing, and direct investment. The underlying theme in this literature is that, because few companies can afford to do business in all countries at the same time, firms should weigh the relative advantages of these entry modes in different regions of the world. Early marketing literature, including Cavusgil and Nevin (1981) and Green and Allaway (1985), among others, provides normative guidelines on the internationalization process. More recent research on the topic focuses on the consequences of entry mode for firm operations. For example, Pan, Li, and Tse (1999) show that early entrants have significantly higher market shares and profitability than late followers. Several papers investigate whether cultural proximity of foreign markets to local markets affects entry timing and mode, and find conflicting results. For example, the findings in Mitra and Golder (2002) suggest that cultural distance to the domestic market is not a significant factor in entry timing, whereas Loree and Guisinger (1995) argue that it is. Dinc and Erel (2013), Ahern, Daminelli, and Fracassi (2012), and Erel, Liao, and Weisbach (2012) focus specifically on cross-border M&A activity and find that variables such as country-wide geographic and cultural distance play a role. Our paper demonstrates that local resident populations around a firm's headquarters significantly impact bilateral trade to connected countries, in addition to international M&A decisions and international segment sales. We also show that board members who are connected to trade partners through their nationalities provide information advantages that generate value.[4]

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[3] See also Falck et al. (2013), who analyze the movement of the machine tool industry from the Soviet zone of post-war Germany to western regions in the wake of World War II.

[4] Our paper is also related to a large literature on limited attention, as evidence in Internet Appendix Tables IA.XIII to IA.XVI shows that market participants respond to resident network-related value creation with a delayed reaction. The Internet Appendix may be found in the online version of this article. In economies populated by investors subject to binding attention and resource constraints, delayed information flows may lead to expected returns that are not explained by traditional asset pricing models (e.g., Merton (1987), Hong and Stein (1999), and Hirshleifer, Lim, and Teoh (2009)). Subsequent empirical studies find evidence consistent with predictions of these models (see Huberman and Regev (2001), DellaVigna and Pollet (2006), Hou (2007), Hong, Torous, and Valkanov (2007), Cohen and Frazzini (2008), Barber and Odean (2008), Huang (2012), Cohen and Lou (2012), Cohen, Diether, and Malloy (2013), Da, Gurun, and Warachka (2014), and Nguyen (2012)).

## II. Data

We obtain data from several sources. Our international trade data come from the *Journal of Commerce's* Port Import Export Reporting Service (PIERS), a subsidiary of UBM Global Trade. PIERS collects import and export data at the "bill of lading" level, where a bill of lading is a legal document between the shipper and the carrier that outlines the type, quantity, and destination of the good being carried. PIERS obtain its data from three major sources: U.S. Customs and Border Protection Automated Manifest System, PIERS's own reporters located in 88 major U.S. ports, and foreign partners whose national customs authorities provide comparable information. Our data include standard information provided on the bill of lading and value added fields such as the content (six-digit Harmonized System Code)[5] and value of the cargo, both of which are estimated by PIERS. We match PIERS data to public firm names by shipper (for exports) and receiver (for imports) using hand-matching as well as name-matching algorithms. PIERS data start in 1994 and go through 2010, and hence our main sample period is 1994 to 2010. Panels A and B of Table I report summary statistics for exporters and importers, respectively, while Panel C provides the distribution of industries by exporters and importers. Internet Appendix Table IA.I provides analogous summary statistics for nonimporters and nonexporters. Table II reports the top five destination and target ports for imports and exports.[6]

To obtain local ethnicity data, we use MSA-level population data from the American Communities Project (ACP) of Brown University's Spatial Structures in the Social Sciences program.[7] The Census Bureau uses a standard set of definitions in delineating MSAs. In most cases an MSA includes both a central city (or sometimes two or more central cities) and the surrounding suburbs. The ACP data contain data for 331 MSAs. To match MSAs to the zip codes of firm headquarters, we use the Census Bureau's 1990 and 2000 U.S. Gazetteer files.[8]

Unlike Census data, ACP data can be used to identify the national origins of Hispanic and Asian ethnicities. In particular, ACP data allow us to disaggregate Hispanic ethnicities into 19 nations of origin and Asian ethnicities into seven nations of origin. In cases in which we cannot map a nation in the export/imports files to ACP data, we use ethnicity to identify the nation that is most likely to proxy for the population of that nation's presence in the U.S. For example, we use Filipino population figures to proxy for the

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[5] Harmonized System (HS) is a standard classification system for internationally traded products. It is developed and maintained by the World Customs Organization (WCO).

[6] According to U.S. Customs and Border Protection rules, importers may request that their company name not be disclosed on vessel manifests, and on occasion these requests are granted for a period of two years (http://www.gpo.gov/fdsys/pkg/CFR-2009-title19-vol1/pdf/CFR-2009-title19-vol1-sec103-31.pdf). Our sample would not contain these firms. Inspection of our sample indicates that almost all large firms exist in our sample without a two-consecutive-year break, which suggests that firms that constitute the majority of import activity have not applied for (and been granted) privacy protection over the sample period.

[7] See http://www.s4.brown.edu/cen2000/data.html.

[8] See http://www.census.gov/geo/www/gazetteer/gazette.html.

**Table I**

**Summary Statistics for Importers and Exporters**

This table presents summary statistics for the sample firms. *MVE* is the market value of equity calculated as the price at the end of the calendar year prior to the fiscal year-end multiplied by the number of shares outstanding. *B/M* is the book-to-market ratio, where the book value of equity is calculated as the sum of stockholders equity (SEQ), Deferred Tax (TXDB), and Investment Tax Credit (ITCB) minus Preferred Stock (PREF). *Leverage* is long-term debt (DLTT) plus debt in current liabilities (DLC), divided by the numerator plus market equity. *Past Return* is the 12-month return prior to the fiscal year-end. *ROA* (return on assets) is earnings before tax and depreciation (EBITDA) scaled by total assets (*TA*). *PPE/TA* is plant, property, and equipment (PPENT) scaled by total assets. The unit of observation is the firm-year. Panel A (B) reports summary statistics for public firms that exported (imported) at least once in a given year. The sample period is 1994 to 2010. Panel C reports the breakdown of importers and exporters by industry (two-digit NAICS code).

| Panel A. Firm-Level Data for Exporters | | | | | |
| --- | --- | --- | --- | --- | --- |
| | *MVE* | *B/M* | *Leverage* | *Past Return* | *ROA* | *PPE/TA* |
| Mean | 4,929 | 0.723 | 0.223 | 0.175 | 0.119 | 0.284 |
| *SD* | 20,899 | 1.591 | 0.174 | 0.714 | 0.146 | 0.201 |
| p5 | 9 | 0.125 | 0.000 | −0.558 | −0.066 | 0.029 |
| p10 | 19 | 0.185 | 0.000 | −0.419 | 0.015 | 0.059 |
| p25 | 74 | 0.314 | 0.071 | −0.177 | 0.078 | 0.132 |
| p50 | 404 | 0.527 | 0.209 | 0.081 | 0.129 | 0.241 |
| p75 | 2,044 | 0.858 | 0.339 | 0.365 | 0.182 | 0.392 |
| p90 | 8,598 | 1.345 | 0.455 | 0.754 | 0.239 | 0.579 |
| p95 | 20,142 | 1.822 | 0.534 | 1.158 | 0.279 | 0.692 |
| *N* | 20,073 | 20,073 | 20,122 | 19,713 | 20,021 | 20,046 |

| Panel B. Firm-Level Data for Importers | | | | | |
| --- | --- | --- | --- | --- | --- |
| | *MVE* | *B/M* | *Leverage* | *Past Return* | *ROA* | *PPE/TA* |
| Mean | 4,889 | 0.711 | 0.211 | 0.182 | 0.107 | 0.265 |
| *SD* | 20,595 | 0.934 | 0.175 | 0.783 | 0.160 | 0.201 |
| p5 | 11 | 0.127 | 0.000 | −0.583 | −0.104 | 0.020 |
| p10 | 23 | 0.185 | 0.000 | −0.434 | −0.003 | 0.043 |
| p25 | 87 | 0.313 | 0.051 | −0.187 | 0.068 | 0.109 |
| p50 | 455 | 0.523 | 0.195 | 0.078 | 0.122 | 0.220 |
| p75 | 2,110 | 0.847 | 0.328 | 0.371 | 0.175 | 0.372 |
| p90 | 8,626 | 1.320 | 0.448 | 0.789 | 0.232 | 0.564 |
| p95 | 19,450 | 1.800 | 0.528 | 1.208 | 0.273 | 0.676 |
| *N* | 23,743 | 23,743 | 23,787 | 23,298 | 23,687 | 23,722 |

| Panel C. Industry Breakdown of Exporters and Importers | | | |
| --- | --- | --- | --- |
| NAICS 2 | Importers | Exporters | Definition |
| 11 | 17 | 16 | Agriculture, forestry, fishing, and hunting |
| 21 | 114 | 112 | Mining, quarrying, and oil and gas extraction |
| 22 | 78 | 52 | Utilities |
| 23 | 43 | 39 | Construction |
| 31–33 | 2,358 | 1,994 | Manufacturing |
| 42 | 194 | 184 | Wholesale trade |
| 44–45 | 340 | 274 | Retail trade |

*(Continued)*

**Table I**—*Continued*

| | | | Panel C. Industry Breakdown of Exporters and Importers |
|---|---|---|---|
| NAICS 2 | Importers | Exporters | Definition |
| 48–49 | 93 | 80 | Transportation and warehousing |
| 51 | 290 | 163 | Information |
| 52 | 245 | 169 | Finance and insurance |
| 53–54 | 221 | 159 | Professional, scientific, and technical services |
| 56 | 77 | 58 | Admin/support/waste management and remediation services |
| 61 | 8 | 4 | Educational services |
| 62 | 36 | 32 | Health care and social assistance |
| 71 | 19 | 13 | Arts, entertainment, and recreation |
| 72 | 59 | 43 | Accommodation and food services |
| 81 | 49 | 39 | Other services (except Public Administration) |
| Total | 4,241 | 3,431 | |

Philippines, Thailand, Indonesia, Cambodia, and Malaysia. Internet Appendix Table IA.II presents our country-to-MSA population mappings; we map countries to global geographic regions in this table as well.

In robustness tests, we use coarser definitions of ethnicity drawn directly from the 1990 and 2000 U.S. Censuses that are available at the state level. The ethnicity information in these Censuses is based on self-identification questions in which residents choose their origin(s) or descent(s). Internet Appendix Table IA.III presents these country-to-state-level Census ethnicity mappings.

In some tests we also use the nationality of corporate board members (and top management), which we obtain from biographical information provided by BoardEx of Management Diagnostics Limited, a private research company that specializes in social network data on officials of U.S. and European public and private companies.

Finally, we obtain Harmonized System (HS) code-level tariff information from the TRAINS data set provided by the United Nations Conference on Trade and Development (UNCTAD). A typical entry in this data set is as follows: "In the year 2003, U.S. applied a 4% tariff rate for Brazil nuts (HS Code 080120) to Brazil." Tariff information contains not only most favored nation (MFN) tariff rates, but also rates agreed upon under various preferential regimes including regional trade agreements, preferential trade agreements, and bilateral agreements. If tariff data are missing for a particular importing country-year for a given HS code, we use the most recent values, as major tariff changes are infrequent.

## III. The Impact of Local Resident Networks on Firm-Level Trade

### A. Import and Export Decisions

We first test the hypothesis that firms export more to and import more from countries with which they have stronger local resident networks. We measure local resident networks as the share of residents in the MSA in which a firm's

**Table II**
## Major U.S. and Foreign Ports

This table reports the top five ports used by the sample firms for imports and exports in the U.S. and foreign countries. The figures reported are the annual dollar value of imports and exports (in billions) over the sample period (1994 to 2010).

| Panel A. Top Five Importing U.S. Ports | |
|---|---|
| Los Angeles | 185 |
| Long Beach | 159 |
| New York | 95 |
| Seattle | 62 |
| Norfolk | 61 |

| Panel B. Top Five Exporting U.S. Ports | |
|---|---|
| Houston | 110 |
| Los Angeles | 85 |
| New York | 75 |
| Norfolk | 66 |
| Charleston | 61 |

| Panel C. Top Five Origination Ports for U.S. Imports | |
|---|---|
| Hong Kong | 125 |
| Richards Bay | 105 |
| Yantian | 76 |
| Kaohsiung | 63 |
| Shanghai | 61 |

| Panel D. Top Five Destination Ports for U.S. Exports | |
|---|---|
| Antwerp | 66 |
| Rotterdam | 57 |
| Vancouver | 50 |
| Hong Kong | 43 |
| Singapore | 37 |

headquarters is located that have the same ethnicity as the country to (from) which the firm is exporting (importing); we denote this variable *Connected Population*. Results using an analogously defined state-level measure are reported in Internet Appendix Table IA.IV.

The dependent variable in our tests is a firm's import/export behavior in a given year. Specifically, for each firm-year we compute its *Export Ratio* as the total amount that the firm exports to destination country $c$ in the year scaled by the total amount of exports by the firm in that year ($E_{ict}/\text{Sum}_c[E_{ict}]$).[9] We define *Import Ratio* equivalently for imports. All export and import figures

[9] If we instead scale by the total amount of exports of all U.S. public firms to the given country in the same year, we continue to find strong and significant results. The magnitudes are actually quite similar, on average roughly 4% to 7% larger than in Table III, with each specification highly statistically significant ($p < 0.01$).

are converted to U.S. dollars and hence represent the dollar value of a firm's exports and imports.

In Table III, we present results from a panel regression of firm-level export and import behavior on local resident networks, a host of fixed effects (e.g., year, region, MSA, MSA * year, MSA * region, country, and firm * year), and other control variables (e.g., literacy rate, unemployment rate, the number of manufacturing establishments per 1,000 people, full-time and part-time payroll per person for retail establishments, and MSA-level population density). The unit of observation in these regressions is the firm-country year. All standard errors are clustered at the year level to broadly account for any correlations that impact all firms over a given year (e.g., tariff changes, conflicts, shipping blockages), and all regressions control for the (log) distance in miles between the state in which a firm's headquarters is located and the destination country.[10] Panel A presents results with *Export Ratio* as the dependent variable. In each specification we find that *Connected Population* ($CP_{ct}$) is a positive and significant predictor of a firm's country-level export share. In terms of magnitude, the coefficient of 0.037 ($t = 4.93$) on $CP_{ct}$ in our baseline specification in Column 1 implies that, for a one-standard-deviation increase in $CP_{ct}$, a firm's *Export Ratio* increases by 1.30%; relative to the median *Export Ratio* of 2.06%, this implies a 63% increase.[11] Our preferred specification (Column 3) includes state-year, region, and MSA fixed effects, as well as a host of MSA-level control variables, and thereby ensures that our results are not induced by differences in openness/trade concentration across MSAs. In Column 5, we investigate the extensive margin of exporting and find that a connected population around a firm's headquarters is a significant predictor of the firm's likelihood of exporting to a given country.[12] In particular, a one-standard-deviation increase in $CP_{ct}$ increases the likelihood of exporting to a given country by 2.19%. Compared to the mean export extensive margin of 0.38%, this implies a sizable impact of a more than five times larger likelihood of exporting to a given country.

Panel B presents analogous tests using *Import Ratio* as the dependent variable. As in the export tests, we find that ethnic resident links are strong positive

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[10] We have also run these analyses clustering standard errors at the firm level, MSA level, and state level, which give comparable standard errors, and all results remain significant. Internet Appendix Table IA.V presents additional specifications, and we find that the results are robust to the inclusion of various other fixed effects (e.g., firm * region fixed effects). Internet Appendix Table IA.VI also presents results for alternate definitions of *Connected Population*, for example, (1) using information on European nationalities to further refine the "white" category, (2) excluding the white ethnicity category entirely, and (3) including ethnicity information on African nations. All of these specifications produce similar results.

[11] These results are even stronger if we separate sample firms into highly concentrated firms (i.e., those that operate primarily in their state of headquarters, using the data from Garcia and Norli (2012) to classify firms in this way) versus geographically dispersed firms. In particular, *Connected Population* is a significantly stronger predictor of exports for concentrated firms than for dispersed firms.

[12] These tests are constructed similarly to those in the other columns of Table III, except that here we include all possible trade partners in the world (whether or not the firm traded with these nations); if the firm traded with this country, the left-hand-side variable is set equal to one, while if it did not, the left-hand-side variable is set to zero.

**Table III**

**The Impact of Ethnic Connections on Firm-Level Trade across All MSAs and All Countries**

Panel A presents coefficient estimates of fixed effects regressions of *Export Ratio* (*ER*) on *Connected Population* (*CP*) and control variables: $ER_{ict} = b_1 + b_2* CP_{ct} + b_3* Connected\ Board\ Member + b_4* Distance + Fixed\ Effects$. *Export Ratio* (*ER*) is the total amount a firm exports to a destination country in a given year scaled by the total amount of exports of the same firm in the same year ($E_{ict}$/Sum[$E_{it}$]). *CP* is the number of residents in a firm's MSA connected to the export country scaled by the total population of that MSA in the most recent Census ($CP_{ct}$). *Connected Board Member* is a binary variable that takes a value of one if the firm has a board member with an ethnic background the same as the export destination or import origin. Panel B presents coefficient estimates of the following specification: $IR_{ict} = b_1 + b_2* CP_{ct} + b_3* Connected\ Board\ Member + b_4* Distance + Fixed\ Effects$, where *Import Ratio* (*IR*) is total amount a firm imports from a country in a given year scaled by the total amount of imports of the same firm in the same year ($I_{ict}$/Sum[$I_{it}$]). *Distance* is the (log) distance between the state in which the firm's headquarters is located and the import/export country (in miles). *Population Density* is the population of an MSA scaled by the area of the MSA (*10^6). *Literacy* is an MSA's population 7 to 20 years of age attending school scaled by its total population. *Unemployed* is the percent of an MSA's population that is out of a job, able to work, and looking for a job. *Manufacturing Establishment* is the number of manufacturing establishments in an MSA (*10^3). *Payroll* (per person) is the total full-time and part-time payroll of retail establishments in the MSA. *t*-statistics, clustered by year, are reported below coefficient estimates. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Panel A: Exports

| | Export Ratio | Export Ratio | Export Ratio | Export Ratio | Export Ratio (extensive margin) | Export Ratio | Export Ratio |
|---|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
| Connected Population | 0.037*** | 0.047*** | 0.048*** | 0.062*** | 0.0018*** | 0.032*** | 0.032*** |
| | (4.93) | (8.43) | (8.71) | (9.51) | (10.06) | (8.38) | (8.11) |
| Distance | −0.038*** | −0.038*** | −0.043*** | −0.035*** | −0.0010*** | −0.003 | −0.003 |
| | (4.84) | (6.76) | (7.57) | (2.86) | (3.26) | (0.73) | (0.64) |
| Connected Board Member | | | | | | | 0.016*** |
| | | | | | | | (4.03) |
| Population Density | | | −0.332 | | | | |
| | | | (1.08) | | | | |
| Literacy | | | −0.453 | | | | |
| | | | (1.06) | | | | |

*(Continued)*

**Table III**—*Continued*

Panel A: Exports

| | Export Ratio | Export Ratio | Export Ratio | Export Ratio | Export Ratio (extensive margin) | Export Ratio | Export Ratio |
|---|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
| *Unemployment* | | | -0.357** | | | | |
| | | | (2.57) | | | | |
| *Manufacturing Establishment* | | | -0.212 | | | | |
| | | | (1.51) | | | | |
| *Payroll* | | | -0.001 | | | | |
| | | | (1.24) | | | | |
| Year FE | Yes | Subsumed | Subsumed | Yes | Yes | Subsumed | Subsumed |
| Region FE | Yes | Yes | Yes | Subsumed | Subsumed | Yes | Yes |
| MSA * Year FE | No | Yes | No | No | No | No | No |
| State * Year FE | No | No | Yes | No | No | No | No |
| MSA FE | No | Subsumed | Yes | Subsumed | Subsumed | Subsumed | Subsumed |
| MSA * Region FE | No | No | No | Yes | Yes | No | No |
| Firm * Year FE | No | No | No | No | No | Yes | Yes |
| Adj. $R^2$ | 0.02 | 0.13 | 0.09 | 0.11 | 0.02 | 0.57 | 0.57 |
| Number of observations | 80,529 | 80,529 | 80,529 | 80,529 | 2,966,539 | 80,529 | 80,529 |

Panel B: Imports

| | Import Ratio | Import Ratio | Import Ratio | Import Ratio | Import Ratio (extensive margin) | Import Ratio | Import Ratio |
|---|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
| *Connected population* | 0.056*** | 0.057*** | 0.058*** | 0.086*** | 0.0028*** | 0.031*** | 0.031*** |
| | (5.59) | (6.87) | (7.01) | (10.11) | (9.20) | (3.89) | (3.86) |
| *Distance* | -0.038*** | -0.051*** | -0.049*** | -0.043*** | -0.0012*** | -0.030*** | 0.029*** |
| | (10.37) | (10.79) | (10.38) | (3.84) | (3.45) | (6.60) | (6.54) |

*(Continued)*

**Table III**—*Continued*

Panel B: Imports

| | Import Ratio | Import Ratio | Import Ratio | Import Ratio | Import Ratio (extensive margin) | Import Ratio | Import Ratio |
|---|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
| *Connected Board Member* | | | | | | | 0.014*** |
| | | | | | | | (5.10) |
| *Population Density* | | | −0.017*** | | | | |
| | | | (7.28) | | | | |
| *Literacy* | | | 0.997 | | | | |
| | | | (1.91) | | | | |
| *Unemployment* | | | 0.261* | | | | |
| | | | (2.08) | | | | |
| *Manufacturing Establishment* | | | 0.852*** | | | | |
| | | | (4.70) | | | | |
| *Payroll* | | | −0.0003 | | | | |
| | | | (3.14) | | | | |
| Year FE | Yes | Subsumed | Subsumed | Yes | Yes | Subsumed | Subsumed |
| Region FE | Yes | Yes | Yes | Subsumed | Subsumed | Yes | Yes |
| MSA * Year FE | No | Yes | No | No | No | No | No |
| State * Year FE | No | No | Yes | No | No | No | No |
| MSA FE | No | Yes | Yes | Subsumed | Subsumed | Subsumed | Subsumed |
| MSA * Region FE | No | No | No | Yes | Yes | No | No |
| Firm * Year FE | No | No | No | No | No | Yes | Yes |
| Adj. $R^2$ | 0.05 | 0.11 | 0.11 | 0.11 | 0.02 | 0.46 | 0.47 |
| Number of observations | 84,926 | 84,926 | 84,926 | 84,926 | 2,634,115 | 84,926 | 84,926 |

predictors of firm-level import behavior. The magnitude of this effect is again large: the coefficient of 0.056 ($t = 5.59$) on $CP_{ct}$ in Column 1 implies that a one-standard-deviation increase in $CP_{ct}$ increases a firm's *Import Ratio* by 1.05%, which translates into a 60% increase when compared to the median *Import Ratio*. Furthermore, Column 5 implies that a one-standard-deviation increase in $CP_{ct}$ increases the likelihood of importing from a given country by 1.73%. Compared to the mean import probability of 3.22%, this again implies a sizable impact.

Of course, a potentially confounding factor when examining imports (as opposed to exports) relates to local demand-driven import activity: the mere presence of a connected population might drive firms to cater to local preferences for goods from the country of ethnic origin. To rule out a possible local demand channel, we rerun our analysis limiting attention to imports of products in industries that are unlikely to be affected by local demand, such as utilities and mining. Specifically, in Internet Appendix Table IA.VII we focus on the sample of imports from firms whose first two digits of the NAICS code are 21 or 22 (i.e., Utilities and Mining industries); Column 2 of the table shows that the impact of *Connected Population* on imports for these sectors is large and significant (coefficient = 0.116, $t = 3.28$), which suggests that local demand is unlikely to be driving our results. Note, however, that local demand may affect exports if firms learn about a foreign country through their import activities and then use this information in making decisions about export activities. We examine this possibility by rerunning the regressions in Table III on the subset of firms that never import. We find identical results (coefficient = 0.15, $t$-stat. = 3.36), which suggests that exporting firms are not simply "learning by importing."

## B. Connected Board Members

We next explore the manner in which resident populations impact firm decisions. While it is impossible to obtain the ethnic makeup of the entire employee base of all firms, we are able to collect the ethnic makeup of all sample firms' boards of directors (including top management—CEO, CFO, and Board Chairperson). These data allow us to identify a specific channel through which resident populations can influence firm behavior, namely, connected boards of directors. Local ethnic population is a strong predictor of a board's ethnic makeup (e.g., if there is a larger Chinese population in a given MSA, the exporting/importing firm's board is significantly more likely to have Chinese board members). Specifically, the correlation between the percentage population from a certain country and representation of that country on the board of a firm in the same MSA is highly significant ($\rho = 0.20$, $p < 0.01$).

To capture the impact of this ethnic link through the board of directors, we construct the dummy variable *Connected Board Member*, which is equal to one if the firm has a board member whose nationality is the same as that from (to) which the firm is importing (exporting), and zero otherwise. Panels A and B of Table III show that this measure is a large and significant predictor of firms' trading decisions. For instance, in Column 7 of Panel A, the coefficient

estimate of 0.016 ($t = 4.03$) implies that a firm exports 68% more to countries with which it has a connected board member.

### IV. Japanese Internment Camps of World War II

In the tests above we find evidence of a strong, positive correlation between local resident networks and trade activity. However, such evidence does not establish a causal impact of ethnic population on import/export activity. This relationship could be driven by a number of factors and not necessarily by a direct causal channel from ethnic population to trade. It could be the case, for instance, that groups of firms are simply bringing in the foreign population when they plan to import/export to the corresponding country. Alternatively, some external factor may cause both people of a certain ethnicity and firms planning to trade with their home country to locate in the same area, with the ethnic population themselves having no direct impact on trade. Consider, for example, the role of geographic distance: not only is it easier for, say, Vietnamese immigrants to reach California (as opposed to New York), but it is also cheaper for firms in California to ship goods to and from Vietnam (relative to a firm in New York). Although we control for the geographic distance channel in Table III, other types of common attributes could drive both ethnic population and trade, with no causal link between the two.

In order to establish causality, we need exogenous variation, such as exogenously "dropping" firms in random locations or exogenously dropping ethnic populations in random locations, to see if the exogenously matched firm-surrounding ethnicities produce the same impact. We run this latter experiment using the Japanese internment camps of World War II.

### A. Natural Experiment

Our empirical strategy is to exploit a natural experiment involving the Japanese internment camps of World War II in order to isolate the causal impact of local resident networks on firm-level trade. The Japanese internment camps were part of a program by the U.S. government to relocate and intern Japanese and Japanese-Americans following the attack on Pearl Harbor in Hawaii. The forced relocations stemmed from a concern that if there were an invasion by Japan, these citizens might not act in the interests of the U.S.[13]

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[13] The order authorizing the creation of the camps and the relocations themselves was Executive Order 9066, signed into law on February 19, 1942. According to the Institute for Research of Expelled Germans, "After the bombing of Pearl Harbor in 1941, the U.S. government evicted nearly 120,000 residents of Japanese descent from the Pacific coast (Toye, 2008). Almost seventy percent were American citizens who were either naturalized or born in the country (DiStasi, 2001). Simultaneously, the FBI orchestrated the transfer of 2,264 ethnic Japanese from Colombia, Peru, Chile, and Panama to camps in the U.S. (Friedman, 2003). At the same time, the U.S. government surveilled, arrested, and interned at least 10,905 ethnic Germans and 288 Italians alongside the Japanese (Kramer, 1989). Almost the entire Japanese population was evacuated, including citizens and noncitizens. Although many German and Italian internees had U.S. citi-
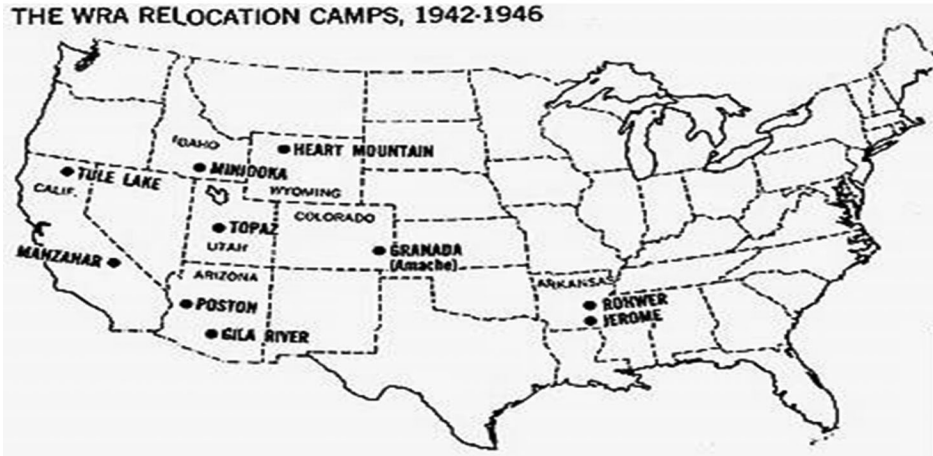
**Figure 1. Map of Japanese internment camps during World War II.** This figure shows a map of the U.S., indicating where the 10 internment camps were located (Daniel (1993)).

The camps were established based on criteria laid out by the War Relocation Authority (WRA), which was established on March 18, 1942. In particular, the camp locations had to be (1) limited to federally owned lands, (2) suitable enough to house from five to eight thousand people, and (3) located, as the War Department required, "a safe distance from strategic works." The camps were constructed in 1942 and ultimately held nearly 120,000 Japanese and Japanese-Americans.[14]

The internment camps were distributed unevenly throughout the U.S., as shown in Figure 1, with peak populations as reported in Panel A of Table IV. An additional important aspect of the relocations is that they represented substantial increases in terms of Japanese-origin population for states housing the relocation camps. To help see this, Panel B of Table IV reports the Japanese population in the states that had internment camps, according to the 1940 U.S. Census. The data show that Arkansas, for instance, had only three people of Japanese descent listed in the 1940 Census. In comparison, Panel A of Table IV shows that roughly 17,000 Japanese and Japanese-Americans were relocated to the internment camps in Arkansas. Accordingly,

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zenship, the internment of European enemy nationalities focused on illegal aliens." (See: Institute for Research of Expelled Germans, "Comparing the American Internment of Japanese-, German-, and Italian-Americans during World War II." http://expelledgermans.org/germaninternment.htm (accessed 1-1-2014) and William Kramer, 1989, A Sordid Time in Our History (Internment of Japanese Americans after Pearl Harbor), *L.A. Daily*, p. 7, April 12.)

[14] There were three types of camps: (1) Civilian Assembly Centers, which were temporary camps where the detainees were sent as they were removed from their communities, (2) Relocation Centers, which were internment camps where detainees were sent following their temporary imprisonment at the Civilian Assembly Centers (we use these Relocation Centers as our instrument), and (3) Justice Department detention camps, which mainly housed German-American and Italian-American detainees in addition to Japanese-Americans.

**Table IV**
**Internment Camp Statistics**

Panel A lists the location of the 10 Japanese internment camps, along with their peak populations (CLPEF (1998)). Panel B shows the Japanese population in 1940 in each of the seven states in which internment camps were later located, based on the U.S. Census of 1940.

| | State | Date of first arrival | Peak population | Date of peak | Date last prisoner left |
|---|---|---|---|---|---|
| Panel A. Internment Camp Populations | | | | | |
| Gila River | AZ | 7/20/42 | 13,348 | 12/30/42 | 11/10/45 |
| Granada | CO | 8/27/42 | 7,318 | 2/1/43 | 10/15/45 |
| Heart Mountain | WY | 8/12/42 | 10,767 | 1/1/43 | 11/10/45 |
| Jerome | AR | 10/6/42 | 8,497 | 2/11/43 | 6/30/44 |
| Manzanar | CA | 3/21/42 | 10,046 | 9/22/42 | 11/21/45 |
| Minidoka | ID | 8/10/42 | 9,397 | 3/1/43 | 10/28/45 |
| Poston | AZ | 5/8/42 | 17,814 | 9/2/42 | 11/28/45 |
| Rohwer | AR | 9/18/42 | 8,475 | 3/11/43 | 11/30/45 |
| Topaz | UT | 9/11/42 | 8,130 | 3/17/43 | 10/31/45 |
| Tule Lake | CA | 5/27/42 | 18,789 | 12/25/44 | 3/20/46 |

| State | State | Total population | Japanese population |
|---|---|---|---|
| Panel B. Pre-Internment Camp Populations (from 1940 Census) | | | |
| Arizona | AZ | 499,261 | 632 |
| Arkansas | AR | 1,949,387 | 3 |
| California | CA | 6,907,367 | 93,717 |
| Colorado | CO | 123,296 | 2,734 |
| Idaho | ID | 524,873 | 1,191 |
| Utah | UT | 550,310 | 2,210 |
| Wyoming | WY | 250,742 | 643 |

the number of Japanese that were interned in these camps represented a substantive shock to the total Japanese population in these states.

The internment camps were fully evacuated by March of 1946 (Burton et al. (2000)). However, prior to internment, many internees had to quickly sell their homes and other assets before leaving, as they were not sure what would happen to them or how long they would be interned (Okamoto (2011)). In addition, internees that did try to return to their former West Coast home cities faced acts of violence and discrimination (Ina et al. (1999)). Both of these factors resulted in many internees resettling in the regions surrounding their internment camps (Ina et al. (1999)). Our identification comes from those internees who decided to settle and form communities in the areas around the internment camps.

We begin our analysis by formally establishing that the internees who decided to stay materially impacted the Japanese-origin population over the following decades particularly during our sample period. First-stage regression

results are reported in Panel A of Table V.[15] This panel tests whether the areas surrounding internment camps are those with large Japanese resident networks today. Specifically, we measure local resident networks (*Connected Population*) as a share of the local population that is of Japanese origin. We define the relevant local population at the MSA level. The independent variable, *Japanese Internment*, is a dummy variable indicating whether an MSA is within a 250-mile radius of an internment camp.[16] Note that, throughout the paper, any references to "treated MSAs," or MSAs that had an internment camp, refer to the specific categorical variable construction described above. We include various MSA-level control variables in these tests. These controls are motivated by the discussion above regarding the placement of the camps as well as other impacts documented in the literature. Specifically, we include the (log) distance in miles between the MSA in which a firm's headquarters is located and Japan, as well as a West Coast dummy, to account for the role of geographic distance; the Japanese population in 1940 in each MSA (prior to the construction of the camps); the population of the MSA in 2000; the population of other non-Japanese Asian ethnicities (Korean, Chinese, Hindu, and Filipino) in an MSA scaled by the MSA's population; the immigration growth from all non-Japanese Asian ethnicities listed in the U.S. Census from 1940 to 1990 (which starts before the internment camps were constructed and ends at the beginning of our sample period); and population density measured as the MSA's population (in thousands) in 1940 scaled by the area of the MSA in square miles. We include these variables in both the first and second stages of the Table V regressions.[17] The distance variable is a standard control variable in the international trade literature (see Rauch (1999) and Chaney (2012)). The idea behind controlling for the immigration from Asia is that immigration may have been growing in general in all states over the period of interest, and for some reason the internment states may have been the recipients of an immigration shock.

The first-stage results in Panel A of Table V consistently show that MSAs in which Japanese internment camps were located during World War II have a significantly higher fraction of Japanese-origin connected populations today.[18] All six columns in Panel A deliver this message. Columns 1 and 2 run the test

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[15] These results are robust to a variety of different specifications. For example, if we define the relevant population at the (coarser) state level (as in Internet Appendix Table IA.IV), as opposed to the MSA level, we find very similar results. Table IA.VIII provides additional specifications for these IV regressions, including clustering by MSA, and Table IA.IX reports results for simple OLS specifications as opposed to the instrumental variable (IV) approach. The implied magnitudes in the OLS tests are somewhat smaller than the IV results, however (24% for exports, as opposed to 67% from Table III, and 52% for imports, as opposed to 101% from Table III).

[16] Results are similar if we use a 125-mile radius (which reduces the total treatment area by 75%), as shown in Internet Appendix Table IA.X. When we use a continuous measure (Japanese internment population as a share of total MSA population) instead of this dummy variable (see Table IA.XI), the results are very similar in magnitude and significance.

[17] For a copy of the full 1940 Census instructions, see http://1940census.archives.gov/downloads/instructions-to-enumerators.pdf.

[18] We run these tests at the trading firm level (importing or exporting), that is, on the same sample on which we run the second-stage tests on trade decisions. In Table VI, Panel A below we

**Table V**
## Japanese Internment Camps: Main Analysis

Panel A (B) of this table presents the first (second) stage of the instrumental variable estimation results. In Columns 1 to 3 (4 to 6), our sample includes only exports to Japan (imports from Japan). *Export Ratio* (*ER*) is the total amount a firm exports to a destination country in a year scaled by the total amount of exports of the same firm in the same year ($E_{ict}$ /Sum[$E_{it}$]). *Import Ratio* (*IR*) is the total amount a firm imports from a country in a year scaled by the total imports of the same firm in the same year ($I_{ict}$ /Sum[$I_{it}$]). *Connected Population* is the number of Japanese people in a firm's MSA scaled by the total population of the MSA in the most recent Census ($CP_{ct}$). *Immigration from Asia* is the growth rate of Asian-Pacific Islander ethnicities except Japanese (e.g., Korean, Chinese, Hindu, and Filipino) over the 1930 to 1990 period. *Population Density* is the 1940 population (in thousands) scaled by the area of the MSA in square miles. *West Coast Dummy* takes a value of one if the internment camp is located in one of the West Coast states (California, Oregon, and Washington). *Distance* is the (log) distance between the MSA in which a firm's headquarters is located and Japan (in miles). *Japanese Population in 1940* and *MSA Population in 2000* are the population in the corresponding years. *Other Asian Ethnicities Population in 2000* is the Korean, Chinese, Hindu, and Filipino population in an MSA in 2000. Distance and population figures are logged. The instrument, *Japanese Internment*, is a dummy variable that takes a value of one if a firm's headquarter' is located within 250 miles of an internment camp. All standard errors are adjusted for clustering at the year level, and *t*-statistics using these clustered standard errors are included in parentheses below the coefficient estimates. $^*$, $^{**}$, and $^{***}$ indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

| | | | **Panel A: First Stage** | | | |
|---|---|---|---|---|---|---|
| Sample Trade Firms: | Exporters | Exporters | Exporters (extensive margin) | Importers | Importers | Importers (extensive margin) |
| Dependent Variable: | *Connected Population* | *Connected Population* | *Connected Population* | *Connected Population* | *Connected Population* | *Connected Population* |
| *Japanese Internment* | 0.0037$^{***}$ | 0.0016$^{***}$ | 0.0018$^{***}$ | 0.0052$^{***}$ | 0.0021$^{***}$ | 0.0022$^{***}$ |
| | (14.96) | (13.04) | (9.95) | (28.93) | (24.56) | (21.16) |
| *Distance* | −0.0240$^{***}$ | −0.0042$^{***}$ | −0.0043$^{***}$ | −0.0256$^{***}$ | −0.0038$^{***}$ | −0.0041$^{***}$ |
| | (21.88) | (6.14) | (5.99) | (25.54) | (9.95) | (6.40) |
| *Immigration from Asia* | | −0.0001$^{***}$ | −0.0001$^{***}$ | | −0.0001$^{***}$ | −0.0001$^{***}$ |
| | | (3.09) | (3.37) | | (5.75) | (5.46) |
| *Population Density* | | −0.0622$^{***}$ | −0.0206$^{*}$ | | −0.1410$^{***}$ | −0.0841$^{***}$ |
| | | (3.63) | (1.76) | | (8.30) | (7.79) |
| *West Coast Dummy* | | 0.0054$^{***}$ | 0.0063$^{***}$ | | 0.0058$^{***}$ | 0.0063$^{***}$ |
| | | (32.19) | (37.07) | | (32.17) | (62.47) |
| *Japanese Population in 1940* | | 0.0000$^{*}$ | 0.0001$^{***}$ | | −0.0001$^{***}$ | 0.0001$^{***}$ |
| | | (1.84) | (12.50) | | (5.86) | (11.47) |
| *MSA Population in 2000* | | −0.0022$^{***}$ | −0.0017$^{***}$ | | −0.0030$^{***}$ | −0.0023$^{***}$ |
| | | (25.18) | (18.89) | | (15.02) | (11.27) |
| *Other Asian Ethnicities' Population in 2000* | | 0.0019$^{***}$ | 0.0015$^{***}$ | | 0.0025$^{***}$ | 0.0019$^{***}$ |
| | | (29.20) | (30.75) | | (18.96) | (16.21) |
| Year FE | Yes | Yes | Yes | Yes | Yes | Yes |
| $R^2$ | 0.63 | 0.88 | 0.92 | 0.70 | 0.91 | 0.93 |
| Number of observations | 3,165 | 3,165 | 112,366 | 4,799 | 4,799 | 161,159 |

(*Continued*)

**Table V**—*Continued*

| | | | Panel B: Second Stage | | | |
|---|---|---|---|---|---|---|
| Sample Trade Firms: | Exporters | Exporters | Exporters (extensive margin) | Importers | Importers | Importers (extensive margin) |
| Dependent Variable: | *Export Ratio* | *Export Ratio* | *Export Ratio* | *Import Ratio* | *Import Ratio* | *Import Ratio* |
| Instrumented | 13.190*** | 22.756*** | 1.787*** | 10.630*** | 13.526* | 0.523* |
| *Connected Population* | (2.81) | (2.85) | (8.260) | (4.51) | (1.81) | (1.83) |
| *Distance* | 0.007 | −0.224* | 0.002 | 0.1050 | −0.087 | 0.000 |
| | (0.06) | (1.89) | (0.47) | (0.97) | (0.59) | (0.10) |
| *Immigration from Asia* | | 0.0050 | 0.000*** | | −0.017*** | −0.0007*** |
| | | (0.96) | (2.51) | | (2.90) | (4.78) |
| *Population Density* | | −5.260 | 0.143 | | −27.400*** | −0.7370*** |
| | | (1.44) | (0.91) | | (6.09) | (5.72) |
| *West Coast Dummy* | | −0.145*** | −0.010*** | | −0.2495*** | −0.0078*** |
| | | (2.72) | (3.98) | | (3.92) | (3.39) |
| *Japanese Population in 1940* | | −0.002 | −0.000 | | 0.0115*** | 0.0002** |
| | | (0.46) | (0.68) | | (6.07) | (2.42) |
| *MSA Population in 2000* | | 0.002 | 0.002* | | −0.0550** | −0.0021* |
| | | (0.08) | (1.88) | | (2.10) | (1.94) |
| *Other Asian Ethnicities in 2000* | | −0.014 | −0.003*** | | 0.0286 | 0.0008 |
| | | (0.79) | (5.61) | | (1.35) | (0.97) |
| Year FE | Yes | Yes | Yes | Yes | Yes | Yes |
| $R^2$ | 0.03 | 0.03 | 0.03 | 0.03 | 0.05 | 0.05 |
| Underidentification test | | | | | | |
| *F*-stat (Kleibergen-Paap) | 10.41 | 11.09 | 10.338 | 14.8 | 13.71 | 13.92 |
| Weak identification test | | | | | | |
| *F*-stat (Kleibergen-Paap) | 223.73 | 169.97 | 99.04 | 836.83 | 603 | 447.93 |
| Number of observations | 3,165 | 3,165 | 112,366 | 4,799 | 4,799 | 161,159 |

on the sample of firms that export to Japan (Column 3 explores the extensive margin for exports), while Columns 4 and 5 run the test on the sample of firms that import from Japan (Column 6 explores the extensive margin for imports). Columns 2 and 5 include a set of additional control variables.[19]

In terms of magnitude, in Column 2 we find that the coefficient of 0.0016 ($t$ = 13.04) on *Japanese Internment* implies an 82% larger Japanese population today in areas surrounding Japanese internment camps of World War II relative to areas in which there were no internment camps. One caveat to point out, however, is that, although this result is strong and statistically significant even after the inclusion of additional controls, the coefficient on *Connected Population* is cut by more than half in Column 2 compared to Column 1. Turning to imports, the Column 5 coefficient of 0.0021 ($t$ = 24.56) on *Japanese Internment*

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run the same regression on the pure cross-section of MSAs and find similarly strong results in terms of magnitude and significance.

[19] We also run these tests after removing *all* observations from any state along the West Coast and continue to find economically large and statistically significant results.

in Column 5 implies a difference of over 96%. Taken together, these findings provide strong evidence for the first stage of the instrumental variable test.

In the second stage, we the regress firm-level trade activity today on the instrumented value of connected population to assess its impact. In other words, we examine the effect on trade activity *solely* attributable to the part of the Japanese connected population today that was determined by having (versus not having) a Japanese internment camp in World War II in the firm's MSA. The dependent variable in these second-stage regressions is a firm's import/export behavior in a given year. Specifically, for each firm-year we compute the firm's *Export Ratio* as the total amount that the firm exports to Japan in that year scaled by the total amount of exports by the firm in that year ($E_{ict}/\text{Sum}_c[E_{ict}]$). We define *Import Ratio* analogously. All export and import figures are converted to U.S. dollars and represent the dollar value of a firm's exports and imports.

These second-stage regression results are reported in Panel B of Table V. The table shows that the instrumented connected population has a large and significant impact on firm-level trade activity today. The coefficient on *Connected Population* is large and significant across all specifications, including at the extensive margin, for both imports and exports, with or without controls.

The implied magnitudes in Table V are comparable to the baseline regressions presented in Table III, for the entire sample. Column 1 of Table III (in both Panels A and B), which includes year and destination region fixed effects, is the closest specification to the baseline specification in Columns 1 and 4 of Table V, Panel B. For example, for a one-standard-deviation increase in *Connected Population*, the implied increase in Column 1 of Table III, Panel A for exports is 63%; and in Column 1 of Table III, Panel B for imports is 60%. Meanwhile, the implied increase in the instrumented *Connected Population* effect here in Column 1 of Table V, Panel B is 67% for exports and in Column 4 of Table V, Panel B is 101% for imports. These results suggest that the relative magnitudes are comparable across the two sets of tests. In terms of the extensive margin magnitudes, the coefficient of 1.784 ($t = 8.260$) on $CP_{ct}$ in Column 3 of Table V, Panel B implies that, for a one-standard-deviation increase in instrumented $CP_{ct}$, a firm's *Export Ratio* increases by 0.67%. Compared to the mean export extensive margin of 0.63%, this implies a sizable impact of more than a 100% larger likelihood. The coefficient of 0.5236 ($t = 1.830$) on $CP_{ct}$ in Column 6 implies that for a one-standard-deviation increase in instrumented $CP_{ct}$, a firm's *Import Ratio* increases by 0.49%, which corresponds to a 24.2% increase relative to the mean *Import Ratio* of 0.54%.

## B. Placebo Tests and Additional Evidence on the Instrument

In this section, we run additional tests to verify the validity of our instrumental variables approach. We present these results in Table VI. First, in Column 1 of Panel A, we collapse our analysis at the MSA level and run a pure cross-sectional regression. We continue to see a strong and significant relationship between Japanese internment camps and Japanese-origin populations decades

**Table VI**

**Japanese Internment Camps: Placebo Tests and Supporting Evidence**

This table presents supporting evidence for the IV estimation in Table V. In Panel A, *West Coast Dummy* takes a value of one if the internment camp is located in one of the West Coast states (California, Oregon, and Washington). *Distance to Japan* is the distance between the state in which the MSA is located and Japan in miles. *Japanese Population in 1940* and *MSA Population in 2000* refer to the population in the corresponding years. *Other Asian Ethnicities Population in 2000* is the Korean, Chinese, Hindu, and Filipino population in an MSA in 2000. Distance and population figures are logged. Sister cities are a form of cooperative agreement between towns, cities, provinces, or regions in geographically and politically distinct areas to promote cultural and commercial ties. *Japanese Sister Cities* refers to the number of ties to Japanese cities formed by cities in a given MSA. *Connected Population to Japan* and *CP to Other Asian Ethnicities* are scaled by the population in the corresponding MSA. Panel A includes MSAs in the U.S. for which we have population data in 1940 and immigration data in 2000. In Panel B, we test whether the MSAs in which Japanese internment camps were located were different from comparable MSAs across three measures of urbanization prior to World War II (1930 and 1940 Censuses) and at the beginning of our analysis (1990 Census). To find comparable MSAs, we use a nearest-neighbor matching procedure: we match every Japanese internment camp MSA with three MSAs with the closest population density per square mile in 1940 (total population scaled by area of MSA). The metrics we use to compare MSAs are literacy (population 7 to 20 years of age attending school scaled by total population), unemployed (percentage of population out of job, able to work, and looking for a job), number of manufacturing establishments per one million people, and payroll per person (full-time and part-time payroll of retail establishments). In Panel C, we test whether the future population densities are different between MSAs in which Japanese internment camps were located and comparable MSAs, when the MSAs are matched by 1940 population densities. Panel D reports summary statistics for two sets of firms trading with Japan: those surrounding versus not surrounding the internment camps. Panel E reports summary statistics for two sets of firms within MSAs that had camps: those trading with Japan versus those not trading with Japan. Panel F reports summary statistics for firms in MSAs that had the internment camps versus firms within the closest three 1940-population-density-matched MSAs. Panel G shows the largest trading partners of the U.S. publicly traded firms over the sample period. In Panels B and C, we report Abedie-Imbens standard-error-based z-statistics in parentheses. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Panel A: Cross-Sectional Regressions, Placebo Test, and Sister Cities

| Dependent Variable: | Connected Population to Japan | Connected Population to Japan | Connected Population to Other Asian Countries | # of Japanese Sister Cities | # of Japanese Sister Cities | # of Japanese Sister Cities | # of Japanese Sister Cities | # of Japanese Sister Cities |
|---|---|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| *Japanese Internment* | 1.785*** | 0.246** | −0.078 | 0.900*** | 0.426** | 0.416** | 0.416** | 0.360* |
| | (6.98) | (2.04) | (0.68) | (4.34) | (2.19) | (2.14) | (1.98) | (1.65) |
| *Other Asian Ethnicities' Population in 2000* | | | | | 0.345*** | 0.407*** | 0.274** | 0.128 |
| | | | | | (8.60) | (4.33) | (2.46) | (0.71) |

*(Continued)*

**Table VI**—*Continued*

Panel A: Cross-Sectional Regressions, Placebo Test, and Sister Cities

| Dependent Variable: | Connected Population to Japan | Connected Population to Japan | Connected Population to Other Asian Countries | # of Japanese Sister Cities | # of Japanese Sister Cities | # of Japanese Sister Cities | # of Japanese Sister Cities | # of Japanese Sister Cities |
|---|---|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| MSA Population in 2000 | | 1.204*** (29.43) | 1.337*** (34.38) | | | −0.104 (0.73) | −0.006 (0.04) | −0.025 (0.15) |
| Japanese Population in 1940 | | 0.035 (1.49) | 0.060*** (2.68) | | | | −0.036 (0.85) | 0.149 (0.40) |
| Distance to Japan | | −3.919*** (5.03) | −0.609 (0.82) | | | | −3.726*** (2.73) | −3.115** (2.09) |
| West Coast Dummy | | 0.574*** (2.77) | 0.772*** (3.91) | | | | 0.138 (0.37) | −0.033 (0.78) |
| Population Density | | −0.061 (1.47) | −0.009 (0.23) | | | | 0.208*** (2.85) | 0.217*** (2.97) |
| Immigration from Asia | | 0.001** (2.75) | 0.001 (1.25) | | | | 0.001* (1.63) | 0.001 (1.00) |
| Connected Population to Japan | | | | 0.365*** (4.76) | | | | 0.179 (1.05) |
| Constant | 6.005*** (63.95) | 24.981*** (3.68) | −3.889 (0.60) | | −2.440*** (7.32) | −1.626 (1.40) | 29.962** (2.52) | 24.929* (1.94) |
| Adj. $R^2$ | 0.15 | 0.86 | 0.89 | 0.06 | 0.26 | 0.26 | 0.30 | 0.31 |
| Number of observations | 282 | 282 | 282 | 282 | 282 | 282 | 282 | 282 |

**Table VI**—*Continued*

**Panel B: Differences in Urbanization Measures between Japanese Internment MSAs and Census Year * Population Density Matched MSAs**

| Census | Literate (1) | Unemployment (2) | Manufacturing Establishment (3) | Payroll (4) |
|---|---|---|---|---|
| 1930 | −0.48% | 0.12% | −5.32 | 0.47% |
| z-stat | (0.35) | (0.61) | (0.05) | (1.42) |
| 1940 | 0.31% | −0.23% | −40.6 | 0.37% |
| z-stat | (0.20) | (0.84) | (0.46) | (1.47) |
| 1990 | −0.99% | 0.97% | 4.13 | 0.08% |
| z-stat | (0.78) | (1.52) | (1.28) | (0.40) |

**Panel C: Differences in *Future* Population Densities between Japanese Internment MSAs and 1940-Population-Density-Matched MSAs**

| | 1990 Census (1) | 2000 Census (2) |
|---|---|---|
| Population Density | 67.53 | 82.65 |
| z-stat | (1.16) | (1.23) |

**Panel D: Firm Characteristics of Japanese Trade Partner**

| | Firms outside of camp area with Japanese trade (N = 1,148) | | | Firms around camps with Japanese trade (N = 348) | | | t-stat |
|---|---|---|---|---|---|---|---|
| | Mean | Median | SD | Mean | Median | SD | |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
| MVE | 3,725.21 | 436.14 | 14,039.88 | 4,286.92 | 369.84 | 20,010.46 | −0.49 |
| Assets | 5,629.08 | 505.8 | 31,698.63 | 5,030.09 | 298.94 | 34,881.36 | 0.29 |
| Employees | 12.8 | 2.94 | 31.7 | 11.23 | 1.33 | 68.06 | 0.42 |
| Tobin's Q | 1.69 | 1.42 | 0.84 | 2.02 | 1.74 | 1.05 | −5.37 |
| Sales growth | 0.09 | 0.08 | 0.11 | 0.10 | 0.11 | 0.16 | −1.47 |
| CAPX/Sales | 0.07 | 0.04 | 0.11 | 0.09 | 0.04 | 0.17 | −2.38 |

*(Continued)*

**Table VI—Continued**

**Panel E: Firm Characteristics within Treated MSAs (Trading with Japan vs. Not Trading with Japan)**

| | Firms with total trade with Japan <10% of international trade volume (N = 711) | | | Firms with total trade with Japan >10% of international trade volume (N = 128) | | | |
| | Mean | Median | SD | Mean | Median | SD | t-stat |
| --- | --- | --- | --- | --- | --- | --- | --- |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
| MVE | 2664.9 | 277.96 | 14,379.81 | 2,199.73 | 340.33 | 6,868.73 | 0.57 |
| Assets | 2,711.85 | 187.78 | 24,427.91 | 2247.66 | 239.68 | 7,076.4 | 0.42 |
| Employees | 6.54 | 0.65 | 48.27 | 5.96 | 1.13 | 18.42 | 0.24 |
| Tobin's Q | 2.23 | 1.93 | 1.14 | 2.13 | 1.71 | 1.22 | 0.84 |
| Sales growth | 0.11 | 0.11 | 0.19 | 0.1 | 0.1 | 0.15 | 0.71 |
| CAPX/Sales | 0.10 | 0.05 | 0.17 | 0.11 | 0.05 | 0.23 | −0.63 |

**Panel F. Firm Characteristics within MSAs that Had Internment Camps versus Firms within Closest Three 1940-Population-Density-Matched MSAs**

| | Firm in treated MSAs (N = 839) | | | Firms in matched MSAs (N = 668) | | | |
| | Mean | Median | SD | Mean | Median | SD | t-stat |
| --- | --- | --- | --- | --- | --- | --- | --- |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
| MVE | 2,593.93 | 296.82 | 13,504.54 | 2,302.70 | 229.94 | 11,541.60 | 0.12 |
| Assets | 2,641.04 | 194.16 | 22,653.77 | 3,884.04 | 231.97 | 25,878.70 | 1.18 |
| Employees | 6.46 | 0.68 | 45.02 | 7.07 | 1.31 | 21.04 | 0.75 |
| Tobin's Q | 2.21 | 1.89 | 1.16 | 2.04 | 1.99 | 1.02 | −1.39 |
| Sales growth | 0.10 | 0.11 | 0.18 | 0.09 | 0.08 | 0.16 | −1.34 |
| CAPX/Sales | 0.10 | 0.05 | 0.18 | 0.08 | 0.04 | 0.12 | −2.6 |

**Panel G: Top U.S. Trading Partners**

Public firms

| | Percentage imports (1) | Percentage exports (2) |
| --- | --- | --- |
| Japan | 11.38% | 6.19% |
| China | 5.30% | 13.63% |
| Germany | 3.13% | 1.96% |
| Canada | 6.37% | 6.98% |
| Mexico | 2.70% | 4.22% |

later.[20] In Column 2, we include the same control variables as in Table V and find that our estimates remain large in magnitude and significant after the inclusion of these additional controls.

We next run a placebo test for our main analysis. If the areas in which the camps were located were also centers of attraction for immigration that happened after World War II, then it is possible that our instrument is essentially capturing variation in immigration growth across MSAs, rather than the presence of the Japanese population caused by internment camps. However, if our *Japanese Internment* variable truly captures a lasting connection with Japan, then it should have predictive power only for Japanese population concentration. To run this test, we compare the ability of *Japanese Internment* to predict Japanese-origin population connections versus those of all other Asian ethnicities reported in the Census other than Japanese (specifically, Korean, Chinese, Hindu, and Filipino). We run this placebo test examining the same link (Japanese internment camps) for other Asian ethnicities in Column 3 of Panel A. In contrast to the Japanese population impact, we find that the impact of Japanese internment camps on the non-Japanese Asian population today is nearly zero and statistically insignificant.

To test whether the Japanese population surrounding the camps increased immediately following the dissolution of the camps, in Internet Appendix Table IA.XII, Panels B and C we regress the change in Japanese population from 1930 to 1940 and the change from 1950 to 1960, along with the change from 1940 to 1950 for comparison purposes, on the same variables as in Table VI, Panel A. The results show that the Japanese internment camp population variable (scaled by the Japanese population in 1940 in Panel B or unscaled in Panel C) is a positive and significant predictor of the change in MSA-level Japanese population *only* in the 1940 to 1950 period, not in early (1930 to 1940) or later (1950 to 1960) periods.

To further confirm that the location of internment camps is orthogonal to factors other than the settlement of the Japanese population that could plausibly affect trade with Japan, we test whether the MSAs in which Japanese internment camps were located are different (or grew differently) from comparable MSAs across a variety of measures (e.g., urbanization) that might be related to trade with Japan. We identify comparable MSAs by employing a nearest-neighbor matching procedure: we match every Japanese internment camp MSA with three MSAs with the closest population density per square mile (total population scaled by the area of the MSA) in 1940. The metrics we use to compare MSAs are literacy (population 7 to 20 years of age attending school scaled by total population), unemployment (percentage of the population out of a job, able to work, and looking for a job), number of manufacturing establishments per one million people, and payroll per person (full-time and part-time payroll of retail establishments). Panel B of Table VI shows that,

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[20] In Panel A of Internet Appendix Table IA.XII, we show that the second-stage results using the instrumented values from this pure cross-sectional test are very similar in magnitude and significance to those reported in Table III.

across all of these measures, Japanese internment camp MSAs are not significantly different from population-density-matched MSAs, either in the pre-war period (using the 1930 or the 1940 Census) or as of 1990.[21] In Panel C, we test whether the *future* population densities are different between the Japanese internment camp MSAs and comparable MSAs, where the MSAs are matched by 1940 (pre-internment camp) population densities. We again find no statistically significant differences. Similarly, in Panel D we compare firms that trade with Japan and are treated by the instrument to firms making identical trade decisions that are untreated (the firm sample used in Table V), and find that the firms that are treated are roughly similar across a variety of firm-level characteristics to firms that are untreated by the instrument, although treated firms do have higher Tobin's Q and investment (CAPX/sales) values.

Next, in Panel E of Table VI we compare characteristics of firms in internment MSAs that trade a significant amount with Japan (i.e., firms with total trade with Japan >10% of their international trade volume) to the characteristics of firms in the same MSAs that do not trade a significant amount with Japan. The problem with looking at firms that do not trade at all with Japan is that these firms tend not to trade with any country and tend to be substantially smaller than firms that do trade with any country. The results show that, even within treated MSAs, the firms that trade significantly with Japan are not noticeably different from firms that do not. In Panel F of Table VI, we compare the characteristics of all firms (without conditioning on trade with Japan) in internment MSAs to all firms (again without conditioning on trade with Japan) in noninternment MSAs. We find that these two sets of firms are not significantly different on any dimension except for Capex, where we see that treated firms invest more than nontreated firms.

In Panel G of Table VI, we examine the importance of Japan as a trading partner more generally. We find that, of all U.S. international shipping partners, Japan is the largest source of imported goods for publicly traded firms over the sample period, averaging 11.38% of all imports per year. On the export side, it is the third most important for exports, averaging 6.19% of exports over the sample period.

In sum, for any unobservables story to be the true driver of changes in Japanese population growth, the unobservable would had to have attracted only the Asian population from Japan (i.e., not China, Korea, etc.), only around the time of the internment camps (as we find a significant shock to Japanese populations from 1940 to 1950), and in internment MSAs only with respect to the Japanese population (i.e., not on any of the other observables we measure

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[21] We also examine whether the MSAs in Washington state (located on the West Coast, but with no "treated" areas) look more like those on the East Coast on the dimensions we evaluate in Table VI, Panel B (e.g., literacy rate, unemployment rate, manufacturing presence, and payroll per person) or like other West Coast cities. We find no statistically significant differences between MSAs in Washington and population density–matched MSAs along the rest of the West Coast (constructed as in Table V, Panel B). We also find no statistically significant differences between Washington MSAs and those on the East Coast, lending credence to our matching procedure adjusting for many of the cross-sectionally observable differences across MSAs.

such as manufacturing establishments, wages, or population density, which grow identically across internment MSAs and matched MSAs). Taken together, our tests involving the Japanese internment camps strongly indicate that the large Japanese population shocks caused by the camps were indeed exogenous shocks, rather than explained by a plausible time-, ethnicity-, or location-specific unobservable.

### C. Corroborating Evidence

The Japanese internment camps of World War II appear to have had long-lasting impacts on the areas in which they were located. In Table VI we explore these impacts further. Ina et al. (1999) show that many cities in which the internment camps were located continue to have organizations that serve former internees and their children. Here, as another proxy for long-lasting ties to Japan, we employ sister cities to U.S. cities.[22] In Columns 4 to 8 of Table VI, Panel A we run a simple regression of the number of sister cities an MSA has with Japan on *Japanese Internment* (whether or not the MSA had an internment camp during World War II). We collapse this analysis at the MSA level and use the 282 MSAs that have reported Census data on ethnicity going back to 1940. We find that, while the average MSA without an internment camp had 0.36 sister cities in Japan, those with an internment camp had 3.5 times as many, with 1.26 sister cities in Japan. Despite the small sample size, this large difference of 0.90 cities is significant ($t = 4.34$). In Columns 5 to 7 of Panel A, we show that this sister city result is robust to the inclusion of controls for the local population of other Asian ethnicities (Korean, Chinese, Hindu, and Filipino populations in an MSA, scaled by the MSA's population), as well as the total population of the MSA as of 2000, plus the other control variables employed in Table III. Importantly, Table VI shows that the MSA-level *Japanese Internment* indicator predicts the number of Japanese sister cities, even after controlling for the physical distance to Japan or after including the *West Coast Dummy* variable. These tests show that, even within the West Coast, and even comparing MSAs that are similarly far from Japan, we find a positive relation between Japanese internment and the formation of Japanese sister cities.

In Column 8 of Table VI, Panel A we include the Japanese population today as an additional control variable. The idea behind this test is that if the positive and significant coefficient on *Japanese Internment* survives inclusion of this control, then even after controlling for the Japanese population today, the MSAs affected by the instrument have an especially strong bond with Japan (perhaps due to the experience they went through in the camps). If, however, the effect of internment camps disappears, then this would suggest that internment camps affected the Japanese population but did not have an independent effect on the strength of the bond with Japan. In this case, Japanese populations across the U.S. might be similar regardless of whether they went through internment camps. Column 8 shows that the sister city

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[22] These data come from http://www.sister-cities.org/.

coefficient is weakened somewhat (coefficient $= 0.360$, $t = 1.65$) but is still positive and marginally significant, indicating that the internment camp MSAs appear to have especially strong connections with Japan.

## D. Firms Founded before World War II

A remaining concern is that firms' location choices may continue to be impacted by the population ethnicities they observe. So, although Japanese-origin citizens were exogenously assigned, firms that plan to trade with Japan may respond by establishing themselves around Japanese population centers. In a sense, this argument is in line with our explanation, as firms' trade decisions are still impacted by population ethnicity—given that part of the ethnic profile is exogenously determined, even firm establishment locations are impacted by the same population ethnicities.

However, to more cleanly measure the impact of exogenous population ethnicity on firm decisions, we examine only firms founded before the Japanese internment camp populations existed.[23] We thus restrict attention to firms founded before 1946, the year in which the Japanese internment camps dissolved and released all internees. Although this selection obviously reduces the sample size considerably, we obtain similar results in this subsample of firms. For example, in Internet Appendix Table IA.XVIII we show that the first-stage regressions continue to have large and significant coefficients on the impact of Japanese internment camps on the Japanese population today for these firms; the second-stage coefficients on instrumented *Connected Population* are positive and significant on the extensive margin for exports, and positive but insignificant for imports. In addition, the implied magnitudes from these tests are similar to those for the full sample, suggesting that our results are not driven by the potential relocation of firms that want to trade with Japan to MSAs with significant Japanese populations.

In summary, our main Japanese internment camp tests, the corroborating evidence, and the placebo tests consistently deliver the message that Japanese internment camps were exogenous population shocks that have had a *causal* impact on firms' trade decisions.

## V. The Real Effects of Strategic Trading Activity

Building on the results above, in this section we examine the extent to which firms benefit from using local resident networks in their import and export decisions. For example, one could imagine firms overweighting certain countries in their import and export decisions due to a form of familiarity bias. Alternatively, firms may tilt their trading focus as a result of the benefits they receive (e.g., private information about local demand) from local resident networks.

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[23] We obtain firm founding date data from the Field-Ritter Founding Date Dataset available at http://bear.warrington.ufl.edu/ritter/FoundingDates.htm, as used in Field and Karpoff (2002) and Loughran and Ritter (2004).

We try to disentangle these possibilities by examining the future outcomes of firms that exploit local resident networks in their trading decisions. We refer to firms that exhibit strong links between their ethnic environment and their major trading partners as strategic traders. The essence of our approach is to isolate firms that export primarily to countries where there is a match between the destination country's ethnicity and the ethnic composition of the firm's MSA. Since each firm can have an export/import relationship with several different countries over a given period, our approach aims to identify firms that choose their export countries in line with their resident connections. Because some firms trade with only one country over a given period, while others trade with many, the number of possible connected shipments each month will vary by firm. As a result, we distinguish connected and nonconnected shipments by creating buy/sell signals that are based on the amount of a firm's exports in a given month, the destination country, and the match between the destination country's ethnicity and the ethnicity of the firm's MSA. To do so, we employ MSA-level ethnicity shares and match these to destination countries as shown in Internet Appendix Table IA.II. For each MSA-year, we compute the share of each ethnicity that resides in the MSA. We then rank the share of each ethnicity across all MSAs in the U.S. The buy signal equals one if (i) a firm's share of total industry exports to a given country in a given month is ranked in the top 3[24] and (ii) the firm is located in an MSA in which the MSA's ethnicity share across all MSAs in the U.S. is ranked in the top 3. The sell signal equals one if (i) a firm's share of total industry exports to a given country is ranked in the top 3 but (ii) the firm is *not* located in an MSA in which the MSA's ethnicity share across all MSAs in the U.S. is ranked in the top 3. For the real outcomes tests below, we define a firm as a strategic exporter if the firm has at least one buy signal for any of its exports in a given year, and a nonstrategic exporter if it has zero buy signals in a given year and at least one sell signal.

A simple example helps clarify our approach. Consider two firms, A and B. Firm A is located in an MSA (e.g., Jersey City, New Jersey) in which the share of Indian residents is in the top 3 across all MSAs. Firm A exports a significant amount (relative to its industry) in a given month to India. By contrast, Firm B is located in an MSA (e.g., Bangor, Maine) in which the share of Indians is not in the top 3 across all MSAs (Bangor is ranked 156th in the population share of Indians across all MSAs) but it also exports a significant amount (again relative to its industry) in a given month to India. Thus, although Firm A and Firm B engage in identical behavior (export a significant amount to India in

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[24] Our results are similar if we measure export intensity on a within-firm basis (e.g., using the "top 3" export amounts within a given firm in a given month), or if we use industry export decile breakpoints (top decile) rather than the top 3 ranking. Additionally, our results are virtually identical if we use firm-level export shares to a given industry rather than absolute amounts. For example, if Firm A exports $100 worth of materials to Italy and $100 to Germany while Firm B exports $10 worth to Italy and $5 to Germany, in absolute terms Firm A exports more but its within-firm share (50%) would be smaller than that of Firm B (66%). Finally, Internet Appendix Table IA.XIII shows that, if we expand the export intensity threshold to include all firms with above-median export intensity, rather than just the top 3, we again find similar results.

a given month), Firm A is classified as a strategic exporter while Firm B is classified as a nonstrategic exporter.

Using this classification scheme, we examine whether strategic traders on average achieve superior real outcomes in the future, relative to their nonstrategic counterparts. We view such trade links as improving the trade prospects of connected firms. This could work through a sales channel (e.g., through links to new foreign trade partners that an unlinked competitor does not receive introductions to) or perhaps through a profitability channel (e.g., through access to lower cost inputs in the connected country for its existing production processes). To test this conjecture we run panel regressions of future sales and future profitability on lagged strategic trading activity for all firms across all MSAs. The dependent variables we examine are (1) *Sales* in year $t + 1$ divided by assets in year $t$ and (2) *ROA*, defined as EBITDA in year $t + 1$ divided by assets in year $t$. We include a series of control variables in these tests, including *Size* (log of market capitalization), *B/M* (log of the book-to-market ratio), *Leverage* (long-term debt in year $t$ divided by assets in year $t$), and *Cash* (future cash in year $t + 1$ divided by assets in year $t$). We also include year and firm fixed effects in all of these regressions.

Table VII presents the results of these real outcome tests. Column 1 shows that strategic exporters achieve higher future sales. Specifically, the coefficient of 0.026 ($t = 2.89$) implies that, relative to a median sales-to-lagged assets figure of 0.56, strategic exporters achieve almost 5% higher future sales. Meanwhile, the coefficient for nonstrategic exporters is close to zero and insignificant. In terms of future profitability (*EBITDA/Assets*), Column 3 indicates that strategic exporters achieve significantly higher profitability (coefficient = 0.009, $t = 2.05$); relative to a median profitability of 0.083, strategic exporters experience approximately 11% higher profitability. At the same time, nonstrategic exporters observe a statistically significant decline in profitability (coefficient = −0.006, $t = 2.95$) in the year after their nonstrategic export decisions that is on the order of −7%. Columns 5 to 8 repeat these tests for imports and reveal that strategic importers earn significantly higher sales (coefficient = 0.019, $t = 3.24$) but do not observe significantly higher profitability, while nonstrategic importers show no increase in future sales or profitability.

Taken together, the evidence in Table VII indicates that it is precisely those firms that exploit local resident networks that achieve higher sales growth and profitability. Firms that exhibit the same import and export behavior as these firms but that do not have local resident networks available to them (i.e., nonstrategic importers and exporters) do not experience such favorable outcomes. We also find in Internet Appendix Table IA.XIV that the market does not fully understand or incorporate this advantage of ethnic links into the stock prices of strategic firms, which leads to predictably large future abnormal returns (which also obtain for firms that exploit connected boards); similarly, equity analysts do not appear to take into account the advantages of strategic

**Table VII**
**Real Effects of Strategic Trading Activity**

This table reports panel regressions of different measures of future firm-level real outcomes on lagged strategic trading activity. For exports, we first create buy/sell signals based on a firm's export amount in a given month, its destination country, and the match between the destination country's ethnicity and the ethnic composition of the MSA in which the firm's headquarters is located. We use the American Communities Project (ACP) ethnicity classifications, and match these to destination countries as shown in Internet Appendix Table IA.II. In every year for each MSA, we compute the share of each ethnicity that resides in each MSA. We then rank the share of each ethnicity across all MSAs in the U.S. The buy signal equals one if (i) a firm's share of total industry exports to a given country in a given month is ranked in the top 3, and (ii) the firm is located in an MSA where the MSA's ethnicity share across all MSAs in the U.S. is ranked in the top 3. The sell signal equals one if (i) a firm's share of total industry exports to a given country is ranked in the top 3, but (ii) the firm is not located in an MSA where the MSA's ethnicity share across all MSAs in the U.S. is ranked in the top 3. We define a firm as a *Strategic Exporter* if the firm has at least one buy signal for any of its exports in a given year. A firm is defined as a *Nonstrategic Exporter* if it has zero buy signals in a given year and has at least one sell signal. The dependent variables are 1) future sales (in year $t + 1$) divided by lagged assets (in year $t$) and 2) *ROA* (EBITDA in year $t + 1$ divided by assets in year $t$). Control variables include *Size* (log of market capitalization), *B/M* (log of the book-to-market ratio), *Leverage* (long-term debt in year $t$ divided by lagged assets in year $t$), and *Cash* (cash in year $t + 1$ divided by assets in year $t$). Fixed effects for time (year) and firm are included in all regressions. *t*-statistics, clustered by year, are reported below the coefficient estimates. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

| | $Sales_{t+1}/$ $Assets_t$ | | $EBITDA_{t+1}/$ $Assets_t$ | | $Sales_{t+1}/$ $Assets_t$ | | $EBITDA_{t+1}/$ $Assets_t$ | |
|---|---|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| *Strategic* | 0.026*** | 0.021** | 0.009** | 0.010** | | | | |
| *Exporter* | (2.89) | (2.16) | (2.05) | (2.47) | | | | |
| *Nonstrategic* | −0.000 | 0.001 | −0.006*** | −0.006*** | | | | |
| *Exporter* | (0.01) | (0.15) | (2.95) | (3.14) | | | | |
| *Strategic* | | | | | 0.019*** | 0.021*** | 0.005 | 0.001 |
| *Importer* | | | | | (3.24) | (3.86) | (0.64) | (0.015) |
| *Nonstrategic* | | | | | 0.002 | 0.004 | 0.001 | 0.001 |
| *Importer* | | | | | (0.72) | (1.14) | (0.36) | (0.24) |
| *Size* | | −0.048*** | | 0.011** | | −0.054*** | | 0.011** |
| | | (13.47) | | (2.32) | | (14.48) | | (3.13) |
| *B/M* | | −0.122*** | | −0.063*** | | −0.134*** | | −0.070*** |
| | | (7.99) | | (4.82) | | (8.53) | | (6.03) |
| *Leverage* | | −0.478 | | −0.014 | | −0.003 | | −0.419 |
| | | (1.72) | | (0.05) | | (0.01) | | (1.02) |
| $Cash_{t+1}/A_t$ | | −1.448** | | −0.270 | | −1.686*** | | −1.508 |
| | | (2.52) | | (0.40) | | (3.33) | | (1.43) |
| Time FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Firm FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Adj. $R^2$ | 0.88 | 0.89 | 0.68 | 0.69 | 0.89 | 0.90 | 0.66 | 0.68 |
| Number of observations | 14,260 | 14,203 | 14,205 | 14,152 | 17,412 | 17,345 | 17,343 | 17,279 |

importing and exporting, and so are significantly less accurate in their earnings forecasts for these strategic trading firms.[25]

## VI. The Impact of Resident Networks on Other Firm-Level Decisions: M&A Activity and Segment Sales

In this section, we examine whether the impact of local resident networks on international transactions is confined to trade behavior, or if it extends to the other ways in which firms operate and interact globally. In particular, we examine the effect of local resident networks on international M&A activity, as well as on segment sales in connected countries.

### A. Cross-Border Mergers and Acquisitions

What are the determinants of cross-border acquisitions? Erel, Liao, and Weisbach ([2012](#)) provide evidence that acquisitions between two countries are more likely when the countries are closer together. Further, firms in high corporate income tax regimes acquire firms in low tax regimes, and cross-border acquisitions are higher between countries that have higher synergies, such as a common cultural background. While these results are consistent with proxies for country-level information frictions helping to explain country-level M&A activity, we have limited firm-level evidence of the factors that influence a given firm's acquisition decision.

In this section, we investigate whether firms that are linked to foreign countries through a connected population (or a connected board member) engage in more M&A transactions in those countries. To do so, we use the SDC database to identify all mergers that involve a U.S. firm as an acquirer and a foreign firm as a target. Then, for each merger that involves firm $i$ and a target in country $j$, we create a merger opportunity set that involves potential mergers that could have happened between firm $i$ and firms in all countries except $j$.[26] Our dependent variable is *M&A Target*, a dummy variable that takes a value of one for the actual merger, and zero for the potential deals that did not occur. The independent variables include *Number of Firms in Country*, which is the total number of M&A targets involving a U.S. acquirer in that country-year, and *Number of Mergers*, which is the total number of M&A deals that a given firm had in that year. Our main variables of interest in this test are *Connected Population* and *Connected Board Member*, which are defined as in Table [III](#). We include both firm and country fixed effects in the first two specifications to

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[25] These results can be found in Internet Appendix Table IA.XIV (which reports calendar-time portfolio returns to strategic importers/exporters), Table IA.XV (which reports results of Fama-MacBeth ([1973](#)) cross-sectional return regressions including the *Connected Board* dummy variable), and Table IA.XVI (which presents analyst forecast errors and earnings surprises associated with strategic trading behavior).

[26] Our results are not sensitive to whether we define the merger opportunity set: (1) excluding countries that have never attracted a U.S. acquirer for one of its firms over the past five years, or (2) including only those counties that have attracted a U.S. acquirer in that particular year.

**Table VIII**

**The Impact of Resident Networks on Mergers and Acquisitions (M&A)**

This table presents coefficient estimates of fixed effects regressions of *M&A Target* on *Connected Population* (CP) and control variables: *M&A Target* $_{ict} = b_1 + b_2{}^* CP_{ct} + b_3{}^* Connected\ Board\ Member + Year\ Fixed\ Effects + Country\ Fixed\ Effect$. For a given firm in a given year, the sample contains all foreign countries, some of which may have an M&A target. The left-hand-side variable, *M&A Target*, takes a value of one for observations in which the M&A target is in a given country in that year. *Number of Firms in Country* is the total number of M&A targets in a given country. *Number of Mergers* is the total number of M&A deals a firm had in a given year. *CP* is the number of residents in the firm's MSA that are connected to a foreign country scaled by the total population in that MSA ($CP_{ct}$), and *Connected Board Member* takes the value of one if the firm has a board member who has an ethnicity tie to that country. *t*-statistics, adjusted for clustering at the year level, are reported in parentheses. \*, \*\*, and \*\*\* indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

| | *M&A Target* | *M&A Target* | *M&A Target* |
|---|---|---|---|
| | (1) | (2) | (3) |
| *Connected Population* | 0.0362\*\*\* | 0.0369\*\*\* | 0.0362\*\*\* |
| | (7.57) | (7.48) | (6.37) |
| *Connected Board Member* | | 0.0290\*\*\* | 0.0275\*\*\* |
| | | (2.08) | (3.30) |
| *Number of Firms in Country* | 0.0024\*\*\* | 0.0024\*\*\* | Subsumed |
| | (7.41) | (7.44) | |
| *Number of Mergers* | 0.0239\*\*\* | 0.0239\*\*\* | 0.0239\*\*\* |
| | (18.54) | (18.72) | (50.90) |
| Year FE | Yes | Yes | Subsumed |
| Country FE | Yes | Yes | Subsumed |
| Country * Year | No | No | Yes |
| Adj. $R^2$ | 0.115 | 0.060 | 0.112 |
| Number of observations | 102,584 | 102,584 | 102,584 |

capture the level of M&A activity in a particular year or country. In the final specification, we include country-year fixed effects to control for any country-year factors that could be related to *M&A Target*, such as the exchange rate or political environment shocks (Erel, Liao, and Weisbach (2012)).

Table VIII presents the results. We find that both *Connected Population* and *Connected Board Member* are strong positive predictors of the country in which a given firm acquires a foreign target. Specifically, for a one-standard-deviation increase in *Connected Population* in the area around a U.S. firm, the coefficient in Column 3 of 0.0362 ($t = 6.37$) implies that the probability of acquiring a firm in the connected country goes up by 1.44%, a doubling from the unconditional probability. Similarly, if the firm has a board member that is connected to a given foreign country, the probability of the firm conducting M&A in that country increases by 2.75%, nearly a 200% increase ($t = 3.30$). In sum, these findings suggest that firms are significantly more likely to purchase target firms in countries with which they are linked through their local resident networks.

*B. Segment Sales*

In this section, we investigate whether firms that have connections to foreign countries through their resident populations (and board members) have a generally broader presence in those countries. Specifically, using geographic segment information filed by corporations to determine the volume of sales originating from a certain country or region, we test whether this sales measure is impacted by firms' surrounding ethnic populations (and connected boards). The sales measure represents all sales conducted in a given country, and thus could be due to joint ventures, physical segments in the country, or direct sales to the foreign country.

Our dependent variable in this analysis is *Segment Sales Ratio*, which equals the sales of a foreign segment scaled by the total sales reported across all foreign segments in that year. Data on geographic segment sales come from the Compustat geographic segment files. In these files, a geographic segment may refer to a country (e.g., China) or a region (e.g., Asia). Because the segment reporting is not standardized, we created concordance files to map regions to companies using United Nations Cartographic maps. We exclude observations that do not contain any geographic reference to a region or country. While *Segment Sales Ratio* is thus more noisily measured, it captures variation resulting from firms' various types of relationships with foreign partners. Our main independent variables of interest (as in Table VIII) are *Connected Population* and *Connected Board Member*. We also include a number of control variables. The variable *Number of Countries* is the total number of unique countries that a firm reports in its segment files. The variable *Number of Firms in Country* equals the total number of firms reporting segment sales in that country. By including this variable, we intend to capture the effect of any clustering of U.S. corporations doing business in certain countries. We additionally include year and country fixed effects in each specification.

Table IX shows that both *Connected Population* and *Connected Board Member* are statistically significant predictors of *Segment Sales Ratio*. In terms of magnitude, a one-standard-deviation increase in *Connected Population* (*Connected Board Member*) increases segment sales in that country by 1.8% (0.7%). These results support our earlier evidence in Tables IV to VI. In particular, the results here suggest that not only do local resident networks impact firms' importing and exporting decisions, but they also impact firms' global sales and expansion decisions more broadly.

Taken together, the results in Tables VIII and IX, combined with our earlier findings on trade behavior, indicate that local resident networks have a first-order impact on an array of ways in which corporations operate globally—importing and exporting decisions, international M&A activity, and sales in foreign markets.

## VII. Additional Tests of the Mechanism

In this section, we run additional tests to better establish the mechanism behind our findings above.

**Table IX**
**The Impact of Resident Networks on Segment Sales**

This table presents coefficient estimates of fixed effects regressions of *Segment Sales Ratio* on *Connected Population* (CP) and control variables: *Segment Sales Ratio* $_{ict}$ = $b_1$+ $b_2$*$CP_{ct}$ + $b_3$* *Connected Board Member* + *Year Fixed Effects* + *Country Fixed Effects*. *Segment Sales Ratio* is the sales of a foreign segment scaled by the total sales reported in all foreign segments in that year. *Number of Firms in Country* is the total number of firms reporting a segment sale in that country. *Number of Countries* is the total number of countries a firm reported in its segment files. If the reported segment is a country, *CP* is the number of residents in a firm's MSA connected to the export country scaled by the total population of that MSA in the most recent Census ($CP_{ct}$), and *Connected Board Member* takes the value of one if the firm has a board member who has an ethnicity tie to that country. If the reported segment is a region, *CP* is the average of individual counties' connected population in a firm's headquarter MSA scaled by the total population in that MSA, and *Connected Board Member* is the sum of connected board member values attached to each country in that region. *t*-statistics, adjusted for clustering at the year level, are reported in parentheses. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

| | Segment Sale Ratio | Segment Sale Ratio | Segment Sale Ratio |
|---|---|---|---|
| | (1) | (2) | (3) |
| *Connected Population* | 0.08722*** | 0.05267*** | 0.0562*** |
| | (5.83) | (3.60) | (3.97) |
| *Connected Board Member* | | | 0.0040*** |
| | | | (7.37) |
| *Number of Firms in Country* | | 0.0001 | 0.00003 |
| | | (0.50) | (0.60) |
| *Number of Countries* | | −0.0054*** | −0.0054*** |
| | | (17.53) | (17.91) |
| Year FE | Yes | Yes | Yes |
| Country/Region FE | Yes | Yes | Yes |
| Adj. $R^2$ | 0.192 | 0.328 | 0.334 |
| Number of observations | 39,140 | 39,140 | 39,140 |

## A. Tariffs and Differentiated Products

We expect that, when network connections are more valuable, we should see these connections used to a greater extent. To test this idea, we examine tariff controls between the U.S. and a given connected country for a product, as such controls represent shocks to the value of firm-country links. In particular, we use product-level data on sample firms' imports to identify situations in which country-specific tariffs set by the U.S. on a given type of good are higher or lower. These tests are therefore similar to those in Table III, except that they are now run at the product level, with the unit of observation the firm-product-country-year. In addition, we include a variable designed to measure the impact of tariffs, *Tariff*, which is equal to the U.S. import tariff on the given product imported from the given country in the given year. We also include the interaction term between tariff cuts and firm-country links (*Connected Population*Tariff*), along with various fixed effects including destination country

<div align="center">

**Table X**

**Mechanism: Tariffs and Differentiated Product Analysis**
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This table presents coefficient estimates of fixed effects regressions of the *Product Import Ratio* (*PIR*) on *Connected Population* (*CP*), *Tariffs*, and control variables: $PIR_{icpt} = b_1 + b_2{*}CP_{ct} + b_3{*} Tariff + b_4{*}CP_{ct} {*} Tariff + Fixed\ Effects$. *Product Import Ratio* (*PIR*) is the total amount of a given product a firm imports from a foreign country in a given year scaled by the total amount of imports of the same firm in the same year ($I_{icpt}$ /Sum[$I_{it}$]). *CP* is the number of residents in a firm's headquarter MSA connected to the export country scaled by the total population of that MSA in the most recent Census ($CP_{ct}$). *Tariff* is the value of the U.S. tariff on the product to the given country, taken from the TRAINS data set maintained by the United Nations Conference on Trade and Development (UNCTAD). In the last two columns, we introduce a variable that indicates whether the product is a differentiated product as defined by Rauch (1999). Fixed effects for firm, year, and product are included where indicated. *t*-statistics, clustered by year, are reported below coefficient estimates. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

|  | *Product Import Ratio* | *Product Import Ratio* | *Product Export Ratio* |
|---|---|---|---|
|  | (1) | (2) | (3) |
| *Connected Population* | 0.0105 | 0.00434** | 0.0079*** |
|  | (0.98) | (2.48) | (5.23) |
| *Tariff* | 0.0001 |  |  |
|  | (0.75) |  |  |
| *Connected Population * Tariff* | −0.0018*** |  |  |
|  | (3.19) |  |  |
| *Differentiated Product* |  | 0.0020*** | 0.0050*** |
|  |  | (8.89) | (9.85) |
| *Connected Population * Differentiated Product* |  | 0.0027*** | −0.0010 |
|  |  | (3.95) | (1.67) |
| MSA FE | Absorbed | Absorbed | Absorbed |
| Firm * Year FE | Yes | Yes | Yes |
| Country FE | Yes | Yes | Yes |
| Adj. $R^2$ | 0.40 | 0.63 | 0.64 |
| Number of observations | 34,062 | 563,563 | 422,237 |

and firm-year fixed effects.[27] As U.S. tariffs only bind for imports, we run these tests using *Import Ratio* as the dependent variable.

Table X presents the results. In Column 1, the coefficient on the interaction term (*Connected Population*Tariff*), which is negative and significant (= −0.0018, *t* = 3.19), implies that a one-standard-deviation increase in tariffs to a country decreases the impact of local resident networks on imports by roughly 35%. In other words, when it is more costly to benefit from local resident networks, *Connected Population* has a significantly smaller effect on a firm's import decisions. Note, however, that it is possible that only connected firms choose to import under high tariff regimes (because of their informational advantages), while all firms find it affordable to import under low tariff regimes. Hence, we view our tariff results as merely suggestive.

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[27] Internet Appendix Table IA.XVII presents additional specifications for these tests.

In the last two columns, we investigate whether the effects of resident networks are more pronounced for certain types of products. For this purpose, we use the differentiated versus homogeneous product classification of Rauch (1999). Homogeneous products are those that trade on organized exchanges.[28] Rauch (1999) suggests that the impact of information links on trade should be greatest for differentiated products and smallest for homogeneous products. Column 2 of Table X shows that the network effects we identify are indeed significantly more pronounced when firms import differentiated products as opposed to homogeneous products. We find no significant differential effect across product types for exports. We cannot rule out the possibility, of course, that connected firms are simply exporting higher quality products or more differentiated varieties of the same products.

## B. *Shipment-Level Prices*

We next use micro-level data on the estimated values of the shipments in our trade data to investigate whether the benefits of resident networks manifest themselves in shipment prices.

Our data provider supplies a shipment's total estimated value as well as its quantity (such as weight in metric tons). Using these two pieces of information, we calculate unit prices by dividing the total estimated value by the quantity.[29] We then collapse our data to the MSA level for each product exported to (or imported from) a given country in a given year. The unit of observation that we analyze is thus the median price paid for a given product exported to a given country from a given MSA. We include the triple interaction term Product * Year * Country to capture variation between *Connected Population* and prices within a product, year, and country cluster. We also include MSA fixed effects to control for price levels specific to a given location.

We present the results in Table XI. We find that export prices are positively correlated with *Connected Population* ($t = 3.98$), which indicates that exports to connected countries command higher prices. Import prices, however, are not correlated with *Connected Population*.

We also replicate this analysis without collapsing the data to the MSA level. This specification allows us to include the *Connected Board Member* dummy, which varies across firms within a given MSA. We obtain similar results for *Connected Population* in both the exports and imports samples, that is, we find higher export prices but no difference in import prices. However, we find a weak relation between import prices and the *Connected Board Member* dummy,

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[28] We thank James Rauch for providing product classifications (http://weber.ucsd.edu/~jrauch/research_international_trade.html). We use the conversion tables maintained by the United Nations to map these Standard International Trade Classification (SITC Rev. 2) codes to HS Codes used in vessel manifests (http://unstats.un.org/unsd/trade/conversions/HS%20Correlation%20and%20Conversion%20tables.htm).

[29] Our data provider, PIERS, estimates waterborne values using information on product type, U.S. port cluster, direction, and country. In our e-mail exchanges with the company, they disclosed that export and import transactions use separate inputs in the estimation of the waterborne value.

**Table XI**

**Mechanism: The Impact of Resident Networks on Shipment Prices**

In the first (second) column, the left-hand side is the median price (logged) of a product that firms located in a given MSA export to (import from) a given country. In the third (fourth) column, the left-hand side is the price (logged) of a product a given firm exports to (imports from) a given country. Regressors include *Connected Population*, the number of residents in a firm's headquarter MSA connected to the export country scaled by the total population of that MSA in the most recent Census, and *Connected Board Member*, a binary variable that takes a value of one if the firm has a board member with an ethnic background that is the same as the export destination or import origin. We include triple interaction fixed effects (Product * Year * Country) to capture variation coming from a given product exported to a given country in a given year. We also include MSA fixed effects to capture price variation due to a firm's location. In the second column, we use price (logged) of a product (HS Code) in a given MSA imported from a given country. $t$-statistics, clustered by year, are reported below the coefficient estimates. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

|  | Log (Price) | Log (Price) | Log (Price) | Log (Price) |
|---|---|---|---|---|
|  | (1) | (2) | (3) | (4) |
|  | Exports | Imports | Exports | Imports |
| *Connected Population* | 0.075*** | −0.001 | 0.0875*** | 0.0061 |
|  | (3.98) | (0.13) | (4.73) | (0.46) |
| *Connected Board Member* |  |  | 0.0009 | −0.0095** |
|  |  |  | (0.16) | (2.10) |
| Product * Year * Country FE | Yes | Yes | Yes | Yes |
| MSA FE | Yes | Yes | Yes | Yes |
| Adj. $R^2$ | 0.82 | 0.84 | 0.83 | 0.85 |
| Number of observations | 402,738 | 498,920 | 451,859 | 563,058 |

which suggests that firms with a connected board member pay less for their connected imports. Taken together, the results in Table XI indicate that firms are able to extract higher prices on exports to connected countries (and suggestive evidence that firms face lower import prices through connected board members), which helps explain why connected trading increases firm profitability.

## VIII. Conclusion

In this paper, we exploit variation in ethnic populations across the U.S. to provide evidence on how local residents' ties to their home countries influence firms' international trade decisions. We show that resident network effects are wide-ranging and impact each of the primary ways that firms interact globally, from trade decisions with other firms, to international mergers and acquisition (M&A) activity, to selling products in foreign markets through segments established abroad. Using novel customs and port authority data detailing the international shipments of all publicly traded U.S. firms, we show that firms import and export significantly more with countries that have a strong resident population near their firm headquarters.

We use the formation of Japanese internment camps during World War II to isolate exogenous shocks to local ethnic populations and identify a causal link between local resident networks and firm trade. Specifically, we first show that the Japanese internment camps have had a large and long-lasting impact on the Japanese population in MSAs surrounding the internment camps. These internment camps have zero impact on immigration patterns for other Asian populations. Notably, the MSAs surrounding the internment camps appear identical to other MSAs in terms of growth, employment, industries, etc., apart from the exogenous shocks to the Japanese population that persist today. These MSAs surrounding the internment camps also have an abnormally large number of Japanese sister cities relative to other MSAs, providing additional evidence in support of the persistent nature of these shocks. We show that this exogenously relocated Japanese population impacts firm trade: firms surrounding former internment camp locations export significantly more to and import significantly more from Japan than other firms.

Firms that exploit local resident networks (i.e., strategic traders) experience significant increases in future sales growth and profitability. Resident networks also have effects beyond simply influencing trade behavior: firms are more likely to acquire target firms and to report increased segment sales in countries with which they are connected. Finally, we find that connected board members represent a possible mechanism through which information is transferred along the local resident network.

While we focus on immigration and how demographic factors affect firm behavior, we believe that our approach can be readily adapted to study other local advantage factors. Immigrants' role as conduits in economic transactions stretch far beyond those that we document in this paper, such as in the growing bilateral remittance channel, which represents a nontrivial portion of total GDP for many developing nations. Our research could thus be extended to provide further novel evidence on the economic impact of immigration and ethnic diversity.

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## Supporting Information

Additional Supporting Information may be found in the online version of this article at the publisher's website:

**Appendix S1:** Internet Appendix.