The Real Estate Consequences of Immigration Shocks: Evidence from the United States' Mexican Repatriation*

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February 10, 2020

Abstract

How do extreme immigration shocks affect local economies? We analyze the United States' Mexican repatriation of 1930–36 and its impact on housing and construction activity in US cities. Using full-count US Census and hand-collected building permits data, we show that repatriating Mexicans during the Great Depression significantly slowed down city growth. Employing an instrumental variable approach that accounts for the endogenous business cycle effects of the Depression, we show that cities with higher Mexican outflow experienced lower growth in commercial and residential real estate activity. Specifically, we find negative and significant effects of the Mexican repatriation on the number and value of building permits, as well as median house value. Critically, our results suggest that repatriations have a long-lasting impact beyond cultural and social dimensions, leaving a footprint on local economic growth.

KEYWORDS: City Growth, Real Estate, Housing, Immigration, Great Depression
JEL CLASSIFICATION: R31, G01, N12, J15, J61

*We are grateful to Dan Bernhardt and Greg Howard for their continued support. We also thank Torben Andersen, Esteban Quiñones, Patrick Turner, and seminar participants at the University of Illinois, the University of Michigan's H2D2 seminar series, the Midwest Economics Association's 2019 Meeting, and the AERUS 2019 meeting for helpful comments. Gabriel Mathy, Miguel Morin, and Kenneth Snowden kindly shared data with us. We acknowledge financial support from the Department of Economics at the University of Illinois. All errors are ours.

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"The Mexican immigrant is not good material for citizenship, and in some places Mexican colonies are decidedly objectionable." — THE WASHINGTON POST, Jan 25, 1930.

"Between 40 and 50 unemployed American laborers threatened a united disturbance this morning when they tried to prevent Mexican workmen to continue their work (...) demanding that the contractors employ white labor." — THE LOS ANGELES TIMES, Oct 17, 1931.

1 Introduction

Immigration has consistently been at the center of political and economic controversies in history. In recent years, influential leaders across the globe have held strong views against immigration in election campaigns or throughout their elected mandates.[1] While most immigration policies are designed to curb the inflow of immigrants (e.g., limiting the entrance of immigrants from specific countries), more extreme actions involving the mass expelling of immigrants through raids and deportations have also become frequent in politicians' speeches.[2]

Quantifying the impact of immigration on local economic growth to inform policy-makers is challenging. Economic conditions in different localities influence a migrant's decision to move. This endogenous choice makes it difficult to distinguish whether the migration flow is causing the economic conditions of a city, or if the economic conditions are pushing people to move. For identification purposes, an "ideal" migration shock should be at least partially orthogonal to economic conditions. For instance, ethnically-motivated policies like mass deportations or repatriations are unique opportunities to evaluate the costs and benefits of migration flows. Such extreme, large-scale shocks are less common in modern advanced economies. However, the historical record shows many episodes that meet the desired properties to disentangle the impact of immigration from business cycles.[3]

In this paper, we exploit an ethnically-motivated migration shock in US history to study the impact of mass deportations on local economic growth. Specifically, we study the United States' Mexican repatriation of the 1930s — a negative, large-scale shock to the Mexican workforce in the US — to quantify its effects on real estate outcomes of US cities. Between 1930 and 1936, Mexicans

[1] See, e.g., Donald Trump (US), Matteo Salvini (Italy), Mette Frederiksen (Denmark), and Viktor Orbán (Hungary). Despite losing France's presidential election in 2017, Marine Le Pen had more than one third (33.9%) of the votes in a campaign mostly centered on anti-immigration views.

[2] For example, Donald Trump said on Twitter during his presidential campaign: *"I have never liked the media term 'mass deportation' — but we must enforce the laws of the land!"* He also wrote on Twitter: *"Because of the pressure put on by me, ICE to launch large scale deportation raids. It's about time!"* Finally, during Marine Le Pen's presidential campaign, she told in an interview when asked about undocumented immigrants: *"Expulsion. It's the French law."*

[3] For a literature review on forced migration comprising historical and recent events, see Becker and Ferrara (2019).

suffered considerable harassment and pressure from organized labor movements, press, and local governments to leave the US (Hoffman (1972); Balderrama and Rodríguez (2006); Lee et al. (2017, 2019)).[4] We use data from the full-count US Censuses of 1920, 1930, and 1940 to assess whether housing market conditions in local economies were affected by the intensity of the repatriation. The broad presence of Mexicans in the US labor force and their geographical distribution across the US territory allows us to exploit the substantial variation in the repatriation of Mexicans relative to the local population of 890 US cities. In addition to median house values from the Census, we use novel hand-collected data on commercial and residential building permits filed in more than 215 cities to examine a rich set of real estate outcomes.

The main empirical challenge is to disentangle the real estate effects from Mexican-immigrants outflows from the adverse business cycle conditions of the Great Depression. To overcome this, we use an instrumental variable (IV) approach. We consider three instruments based on the presence of Mexican-immigrants in each city before the repatriation. The first instrument is a modified version of the standard Card (2009) instrument. The second IV accounts for the outflow of *non-targeted* ethnic migrant groups. The instrument exploits the idea that the Great Depression was a negative shock common to all ethnic groups, whereas the Mexican repatriation targeted a particular group of immigrants.[5] While some groups of immigrants had mostly economic reasons to return to their home countries, Mexicans suffered from an additional, ethnic-based pressure. Using this insight, we then construct an IV that subtracts the effect of the economic fundamentals of the Great Depression. We then use the Mexican workers' outflow corrected for business-cycle endogeneity to evaluate how a city's exposure to the Mexican repatriation event affects housing market outcomes. Our third instrumental variable explores the road infrastructure in 1930, combined with the historical presence of Mexican-immigrants in the US. The idea is to combine a measure of exposure to the shock using the share of Mexican workers in 1900 with a measure of the cost of repatriating workers based on the road infrastructure in 1930. This instrument is an alternative to the commonly used "shift-share" design. We find that cities with (1 p.p.) larger repatriation of Mexican workers faced reduced growth rates for both the number (–13 p.p.)

[4]The State of California passed in 2005 the "Apology Act for the 1930s Mexican Repatriation Program," officially recognizing the *"unconstitutional removal and coerced emigration of US citizens and legal residents of Mexican descent"* and apologized to residents of California for violations of civil liberties and constitutional rights. The illegal expulsion of US citizens of Mexican descent has attracted the attention of legal scholars to this episode (see, e.g., Johnson (2005)).

[5]We show historical newspaper evidence that documents cases of anti-Mexican harassment fueled by organized labor against Mexican workers, along with indications of an extremely unfavorable climate of the press and local authorities about Mexican immigrants.

and the value (–3 p.p.) of building permits between 1930 and 1940. Slower growth in these outcomes suggests that the repatriation impacted different types of real estate activity, such as single-family homes and commercial construction. Finally, we find that a (1 p.p.) larger repatriation also depressed the median house price growth rate (by –1 p.p.).

We then look for the channels through which cities suffer from the repatriation effects. We find that the Mexican repatriation had more pronounced effects to houses with lower values. This result indicates that the value of the more modest type of house units were more penalized by the repatriation than the high-end units. This result is also consistent with the idea that the typical Mexican immigrant working in low-skill occupations were more likely to live in less valuable house units. We also find larger effects for cities with a relatively older Mexican labor force. This result reduces concerns that the effects we find are driven by the outflow of young and less attached workers. We also find greater effects in cities with more law enforcement personnel. This result is in line with historical evidence that law enforcement officers participated actively from the Mexican repatriation efforts (Balderrama and Rodríguez (2006)). Finally, we find some evidence that the repatriation was particularly strong in more populated cities, suggesting that the repatriation spanned a wider range of the US territory and was not singularly concentrated on the Mexican-border.

To illustrate these findings, we conduct a "quasi-counterfactual" empirical exercise in which we calculate the predicted growth rates of the housing market outcomes for US cities in the hypothetical scenario where the Mexican repatriation never existed. We predict that the growth rates would have increased substantially. For example, in El Paso the growth rate of the number of building permits between 1930 and 1940 was virtually zero. In the absence of the repatriation, we predict that El Paso's number of building permits would have grown by more than 2 percent.

The negative effect of the Mexican repatriation on the growth rates of these housing market outcomes might be interpreted merely as a demand-driven effect. However, these effects on values might be masking potential effects on the supply side of the housing markets. In 1930, approximately 12.7% of the Mexican-immigrants were working on the construction sector or construction-related durable goods manufacturing sectors. We find that the Mexican repatriation reduced the employment of Mexicans in construction and that Natives increased their employment in construction proportionally. However, we do not find a statistically significant effect of the repatriation on the overall employment in the construction sector. This result is in line with previous findings of the effects of the Mexican repatriation on labor market outcomes by Lee et al. (2017).

Our results are maintained after performing several robustness checks and tests for the validation of the instrumental variable. First, we check the validity of the instrumental variables and test for the association between the instruments and the Great Depression adverse economic conditions. We use an event study specification to test for the existence of pre-trends on the housing market outcomes. In addition, we test for the correlation between the instrumental variables and the outflow of immigrants from other nations. The results corroborate our empirical strategy. We examine the sensitivity of the results for the inclusion of additional control variables in our estimations. We do not find evidence of such a confounding factor, and our results remain economically and statistically significant.

Our paper contributes to several branches of an extensive literature on the economic consequences of immigration. A significant share of the literature has been dedicated to the impact of immigration on labor market outcomes (e.g., Card (1990); Ottaviano and Peri (2006, 2012); Lee, Peri and Yasenov (2019); Abramitzky, Ager, Boustan, Cohen and Hansen (2019); Monras (forthcoming)), prices (e.g., Lach (2007); Cortes (2008)), foreign direct investment (Burchardi, Chaney and Hassan (2018)), local economic growth (e.g., Fulford et al. (2018)), and innovation (e.g., Hunt and Gauthier-Loiselle (2010); Burchardi et al. (2019); Moser and San (2019)). Our paper is particularly relevant for shedding light on the costs of pursuing repatriation and deportation policies. We use real estate conditions to gauge the costs to local economic growth because housing has been shown to be one of the most important channels through which immigration affects economic activity (see, e.g., Howard (forthcoming)). Moreover, the recent Great Recession has drawn fresh attention from scholars to the housing sector and its responsiveness to immigration shocks. An increasing strand of the immigration literature looks specifically at housing, primarily because a rise in housing costs suggests that immigrants do not completely displace natives. For instance, Saiz (2003, 2007), Ottaviano and Peri (2006), and Sharpe (2019) find positive effects of immigration on house prices. While most of the literature focuses on shocks that increase the inflow of immigrants, our focus on repatriation sheds light on an understudied type of immigration shock: a "negative" migration shock to housing markets. This distinction is especially relevant, considering the putty-clay nature of the housing sector. As argued by Howard (forthcoming), positive migration shocks to a city are likely to increase the demand for housing, inducing the construction of new house units. However, the case of an ethnically-motivated negative shock of migration is unlikely to induce the destruction of house units. Because housing is durable, Glaeser and Gyourko (2005) argues that asymmetric effects on prices may arise. Potentially larger effects on prices are expected in the short-run, given this inelastic downward nature of housing.

The paper proceeds as follows. Section 2 describes the historical context of immigration to the US and provide an institutional background of the Mexican repatriation program. Section 3 describes the data used to measure Mexican repatriations, housing market outcomes, and outlines our empirical strategy. Section 4 presents and discuss the results. Section 5 discusses robustness checks and sensitivity analyses. Section 6 concludes.

2 Immigration in the 1920s and the Mexican Repatriation

The US experienced a massive inflow of immigrants in the late 19$^{\text{th}}$ and early 20$^{\text{th}}$ century, especially from Europeans escaping adverse conditions in their home countries.[6] Mexican immigration grew steadily throughout most of the 1920s, favored by the 1924 Immigration Act, which imposed quotas on European immigration Abramitzky et al. (2019). This robust inflow was mainly driven by US employers recruiting Mexican workers for jobs in agriculture, railroad, meatpacking, and steel mill sectors. Armed conflicts in Mexico, such as the Mexican Revolution (1910–1920), or the Cristero War (1926–29), also contributed to this inflow.

As the US economy entered the Great Depression, starting with the 1929 Crash, organized groups such as labor unions, local authorities, and local media pressed for immigration quotas and repatriation of Mexicans.[7] The historiography argues that Mexican immigrants were easier targets because the number of Mexican immigrants in the US had increased dramatically in the recent years. Moreover, their ethnic and cultural differences from the native population played an important role (Balderrama and Rodríguez (2006)).

The local and decentralized nature of the Mexican repatriation makes it challenging to determine the exact number of repatriated individuals. This uncertainty explains the variation of historians' estimations of the total Mexican outflow in the 1930s. Hoffman (1972) estimates that over 400,000 Mexicans left the US between 1929 and 1937, while Balderrama and Rodríguez (2006) claim a much larger number — from one to two million — if one considers an estimate of undocumented immigrants omitted from official calculations. Using the Census, we reli-

[6] This period is also known as the Age of Mass Migration from Europe Abramitzky and Boustan (2017).

[7] Specifically, the *Washington Post* reports in January 20, 1930, an intense pressure from labor unions and *"influential organizations opposed to adulteration of the 'American blood stream' (...)"* in discussing an immigration quota for Mexicans.

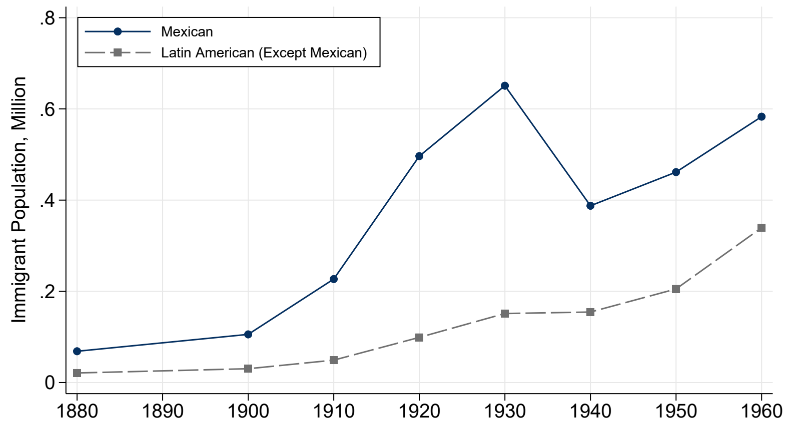


Figure 1. Total Latin American Immigrant Population in the United States by Origin (1880–1960). This figure shows the total number of Mexican and other Latin American immigrants in the United States from 1880 to 1960. Immigrants are defined according to the country of birth reported on each Census. Latin American countries include Central America (Belize/British Honduras, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, and Panama), the Caribbean (Cuba, Dominican Republic, Haiti, Jamaica, Antigua-Barbuda, Bahamas, Barbados, Dominica, Grenada, Montserrat, St. Kitts-Nevis, St. Lucia, St. Vincent, Trinidad and Tobago, Turks and Caicos, British Virgin Islands, Netherlands Antilles, Curacao, Guadeloupe, and St. Barthelemy), and South America (Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Guyana/British Guiana, Paraguay, Peru, Suriname, Uruguay, and Venezuela).

ably calculate that there were 263,900 fewer Mexican immigrants in the US between 1930 and 1940. If we include their US-born children, approximately 30% of the Mexican-American population present in the country as of 1930 — accounting for 400,000 people — was repatriated by the end of 1940 (Lee, Peri and Yasenov (2019)).[8] Figure 1 depicts the surge of Mexican-born immigrants between 1900 and 1920, followed by a sharp decline between 1930 and 1940. Another interesting fact from Figure 1 is that non-Mexican Latin American immigrants did not experience a decline. This distinction between the outflow of Mexicans and non-Mexican Latin American immigrants despite their ethnic similarity in this period plays an essential role in our identification strategy, as we detail in the next section.

The historiography of this period documents that the repatriation effort was enforced or at least encouraged, primarily by local authorities, despite being officially categorized as voluntary migration (Valdés (1988); Balderrama and Rodríguez (2006)). There were cases where immigration officers and local police assisted welfare agencies and even staged raids to convince Mexicans to depart. They harassed Mexicans, provided free transportation in trains, and — at least partially — coerced them to leave their US homes. In Internet Appendix Figure A.1, we present historical newspaper evidence of anti-Mexican sentiment and hostile acts specifically targeted at Mexican immigrants. These acts involved the government (e.g., immigration officers), orga-

[8]The most intense period of Mexican deportations and repatriations was 1929-34. Historical evidence shows that they continued until at least 1937 (see, e.g., Hoffman (1972)).

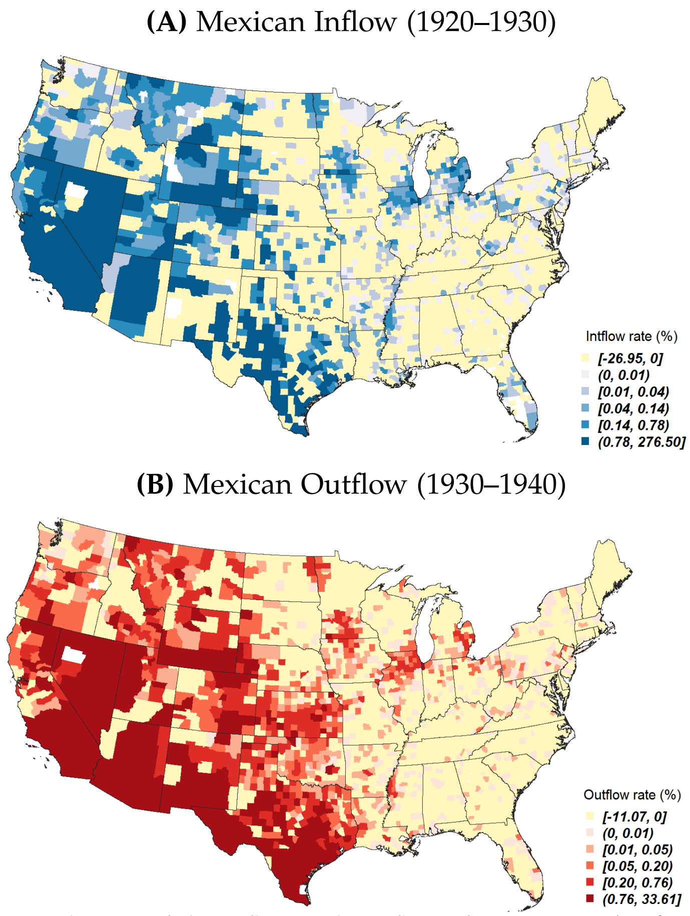


Figure 2. Geographical Distribution of the Inflow and Outflow of Mexicans. This figure shows, for each county, the 1920-30 inflow (Panel A) and the 1930–40 outflow (Panel B) of Mexicans as calculated from the full-count US Censuses of 1920, 1930, and 1940. The nationalities are defined based on the person's place of birth from the US Census. The numbers are in percentage points. For instance, an inflow of 10% means that 10% of the 1920-based Mexican population of that county increased in 1930 as a share of total working-age population. Counties are defined according to 1930 limits by IPUMS-NHGIS (Manson et al. (2018)).

nized labor (e.g., unionized workers), and the press (e.g., local and national-scale newspapers). In Panel A, the *New York Times* reports in 1931 that 35,000 Mexican immigrants in California are *"pressed by economic diversity, fearful over recently renewed activities of immigration authorities, and perplexed by what they regard as anti-Mexican sentiment."* This shows that not only economic distress (*"iddleness"*), but also tighter enforcement from government immigration officials played an essential role in Mexicans' decision to leave the country. In Panel B, the *Los Angeles Times* reports a near-riot in 1930 where some 50 unemployed American laborers *"tried to prevent Mexican workmen (...) to continue their work by guarding their toolboxes and demanding that the contractors employ white labor."* The national and local press also contributed to the negative climate by publishing articles and opinions demeaning to Mexican immigrants. For example, in Panel C, the *Washington Post* argues that *"the Mexican immigrant is not good material for citizenship, and in some places*

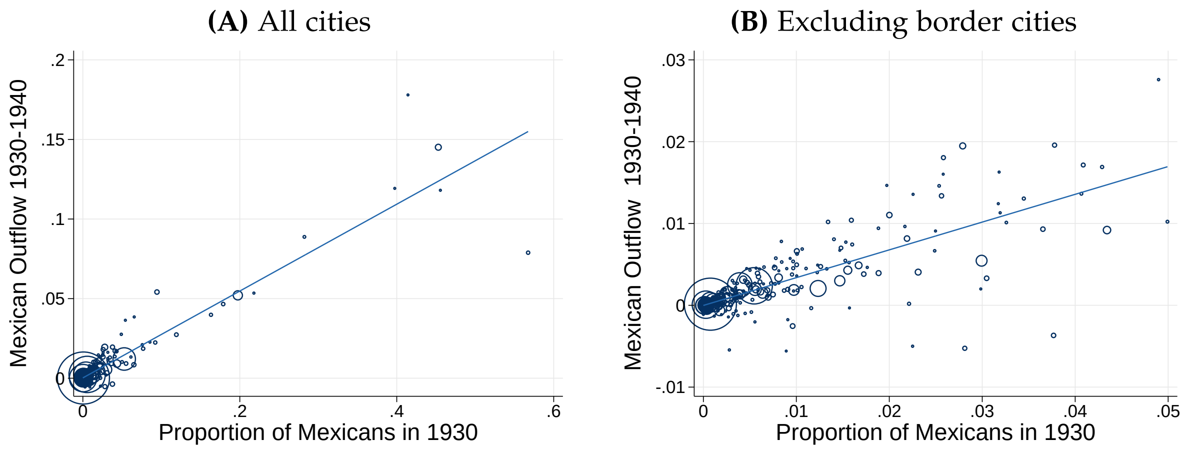


Figure 3. Positive Correlation: Repatriation Intensity *vs.* Mexican Population Shares from 1930. This figure shows the positive correlation between *Mexican Outflow* (defined in Equation (1)) and the share of Mexican population in 1930, i.e., before the repatriation shock. Panel A presents the scatter plot for all cities in our sample. Panel B repeats the scatter plot after excluding cities that are located close to the US border with Mexico.

Mexican colonies are decidedly objectionable," despite admitting their economic importance and that *"a sudden reversal of [immigration] policy would work great hardship to employers in the Southwest."*

We now document how Mexican immigration was geographically distributed across US counties before and after the repatriation. Panel A of Figure 2 presents the inflow as measured by the change in the total number of Mexicans between 1920-30 as a share of the total working-age population in each county. Darker blue shades represent higher inflows. Conversely, Panel B of Figure 2 portraits counties with greater outflow of Mexicans between 1930–40 with darker shades of red. Overall, counties with a higher inflow of Mexicans between 1920-30 also experienced higher repatriation in the following decade. We present this correlation more clearly in Panel A of Figure 3, which shows a strong linear relationship between the Mexican population share in 1930 and the 1930–40 outflow of Mexicans as a share of 1930 population. Although inflows and outflows were more substantial in counties near the border with Mexico, they were not limited to those. We observe counties with considerable migration flows in western states (e.g., Oregon, Nevada, Washington), the Midwest (e.g., Illinois, Indiana, Michigan, Ohio), and East (e.g., Pennsylvania). If we exclude border cities and re-do the scatter plot in Panel B of Figure 3, we see that the strong relationship remains for cities throughout the entire US territory, as documented by Balderrama and Rodríguez (2006).

An interesting way to put the Mexican repatriation in perspective is to compare the outflow of Mexicans to the outflow of immigrants from other ethnicities. Figure 4 examines the change in

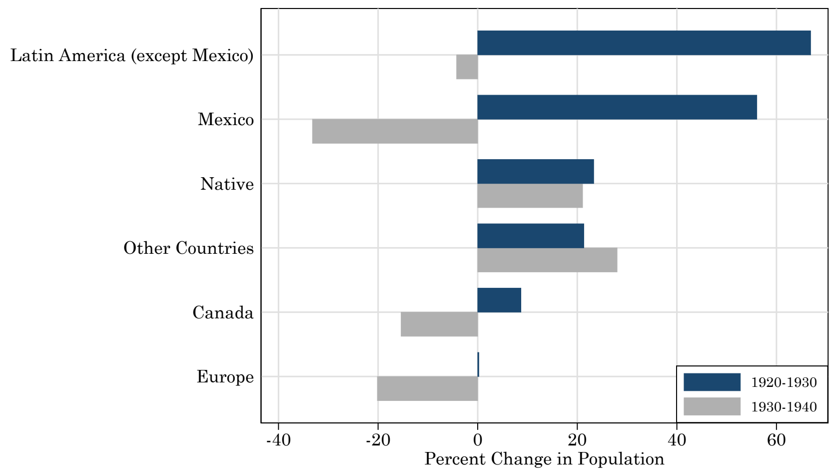


Figure 4. Percent Changes in Working-Age Population by Origin: 1920-30 *versus* 1930–40. This figure shows the inflow (1920–30) and outflow (1930–40) of immigrants. The nationalities are defined based on the person's place of birth from the US Census. For example, around 60% Mexicans or US citizens of Mexican descent have entered the US between 1920 and 1930, whereas about 30% left the US in the following decade (1930–40). See notes on Figure 1 for a list of countries included under *Latin America*.

the US working-age population before (in dark blue) and after the repatriation (in grey) period for different ethnic groups. It shows that the massive Mexican outflow of almost 40% during 1930–40 is unparalleled by other groups. Their outflow is nearly twice that of the Europeans, and even Canadians — who also share a border with the US and could return more easily than other nationals — do not experience such high outflow. A final takeaway from Figure 4 is that non-Mexican Latin American immigrants experienced a substantially smaller outflow, despite its inflow having grown dramatically as the Mexican inflow one decade before.

3 Empirical Strategy

In this section, we present the data sets used in our analysis, followed by descriptive statistics and the geographical representations of the data. We then describe how we measure a city's exposure to the Mexican repatriation and discuss the formal empirical design used to examine whether housing market outcomes were affected by the Mexican repatriation.

3.1 Data Sources and Descriptive Statistics

City Demographics, Immigration, and Economic Activity. We use data from 890 US cities that we can consistently identify in the 1920, 1930, and 1940 full-count US Censuses (Ruggles et al. (2015)). The Censuses provide the information used to construct our main variables to measure immigration flows. They also provide information on economic and demographic characteristics used as controls in our estimations. In robustness checks, we also use geographical and economic variables from the county-level data set assembled by Fishback, Horrace and Kantor (2005). Specifically, we use the months of severe drought interacted with the share of farming land to measure how affected a county was to the 1930s natural disaster known as Dust Bowl that caused hardship in rural American states (see, e.g., Hornbeck (2012)). We also use their county-level retail sales growth between 1929 and 1935 as a proxy for consumption and economic activity. Finally, we also use their measure of government expenditure in each county between 1933 and 1935 due to the New Deal program.

House Values. The US Census contains the self-reported value of housing units in nominal US dollars. To reduce outlier influence when averaging out self-reported variables, we calculate the median house value for each city. In some of our specifications, we also consider alternative percentiles of the within-city house value distribution. We convert nominal values to real 1940 US dollars using the consumer price index from the Federal Reserve Bank of St. Louis' FRED database.

Building Permits. We use the number and value of building permits as an indicator of city-level housing and construction activity. Building permits must be filed with local authorities before any construction can take place. There are two types of building permits that we exploit. The first is the total value of building permits, taken from issues of *Dun & Bradstreet's Review*, a well-known business and financial publication in the 1920s and 1930s.[9] The value of building permits represents the cost of new commercial and residential buildings for 215 cities across the US. The building permit figures represent estimated building costs under permits issued to prospective builders within the corporate limits of the cities. They include new residential and non-residential buildings, as well as additions, alterations, and repairs, excluding land costs. The data is compiled from reports furnished monthly to *Dun & Bradstreet, Inc.*, by the building departments of the various cities. The second series on building permits that we use is the number of building permits, collected by Snowden (2006) from issues of the *Bulletin of the Bureau of Labor Statistics*. These permits refer to single-family houses authorized for construction in 250 cities. The building permit *number* series thus reflects more closely housing activity, whereas

[9] A detailed description of the building permit value data is in Cortes and Weidenmier (2019).

the building permits *values* are likely dominated by commercial and business construction. This fundamental difference in the construction of these series allows us to exploit both types of construction activity. However, it comes at the cost of not letting us calculate a building permit-based price index (e.g., dividing the value by the number of building permits). We, therefore, rely on the Census' median house value as our primary variable proxying house prices.

Descriptive Statistics. Table 1 presents our sample summary statistics. All growth rates and share variables are presented in percentages. We can see that the average city experienced an outflow of 0.21% of the initial Mexican population as a share of the city's total population. There is substantial heterogeneity, with San Benito and El Paso in Texas experiencing the two greatest outflows: 17.8% and 14.5%, respectively, of their total Mexican population as a share of the total population had left by 1940. Other states featuring on the list of top 10 in the ranking of affected cities were California, Indiana, and Arizona. The city of East Chicago, Indiana — part of Chicago's commuting zone — was the 7^{th} among the most affected cities by the Mexican outflow. East Chicago is one of the examples showing that cities distant from the Mexican border also felt a measurable effect of the Mexican repatriation.[10] Finally, Figures B.1, B.2, and B.3 in the Internet Appendix map the series of building permits (number and value) and median house values for US cities to visualize the geographic span of our housing variables. Despite the smaller number of cities shown in the building permits maps, our sample of 244 and 198 cities respectively, spans a significant share of the US territory, accounting for the most populated and economically-relevant cities in that period.

— PLACE TABLE 1 ABOUT HERE —

Taking a closer look at the descriptive statistics for industries and occupations, Panel A of Table 2 shows that most Mexican immigrants in 1930 were employed in agriculture (34.8%), transportation (12.8%), and construction or construction-related manufacturing durables (12.7%). In terms of occupations, Panel B of Table 2 shows that most Mexican immigrants in 1930 worked as laborers (42%), farm laborers (23%), and operatives (9.6%). Table 2 also presents the occupational and sectoral distributions of US natives, which were more evenly distributed across these dimensions.

— PLACE TABLE 2 ABOUT HERE —

[10] Table B.1 in the Appendix shows the top 10 cities in terms of Mexican outflow between 1930 and 1940.

3.2 Construction of Variables and Identification Strategy

Our empirical strategy follows an instrumental variable approach. The main reason for using the IV approach is the concern that local economic conditions such as the intensity of the Great Depression could be correlated with both the Mexican outflow intensity and the housing market outcomes. To solve the potential endogeneity between the Mexican outflow and the housing market outcomes, we consider three instrumental variables. In this section, we start by defining the city-level measure of exposure to the Mexican repatriation. Next, we present and discuss the three instrumental variables used in the paper, followed by the description of the tests performed for their validation.

3.2.1 Measuring Cities' Exposure to the Mexican Repatriation

We follow Lee, Peri and Yasenov (2017, 2019) in defining our city-level measure of exposure to the Mexican repatriation. The outflow of Mexicans from city c between 1930 and 1940, denoted by $O^{MEX}_{c,1930:40}$, is given by:

$$O^{MEX}_{c,1930:40} = -\left(\frac{Pop^{MEX}_{c,1940} - Pop^{MEX}_{c,1930}}{Pop_{c,1930}}\right), \tag{1}$$

where $Pop^{MEX}_{c,t}$ is the Mexican working-age population in city c in year t (i.e., 1930 or 1940), and $Pop_{c,1930}$ is the total working-age population in city c in 1930.[11] Because our event study comprises a decline in the population of Mexican workers, we multiply the growth rate by minus one for an easier interpretation.[12]

3.2.2 Instrumental Variable Approach

A naïve attempt to assess the relation between the repatriation and housing market outcomes across cities would be to estimate the following regression:

$$\Delta Y_{c,1930:40} = \alpha + \beta \cdot O^{MEX}_{c,1930:40} + \epsilon_{c,t}, \tag{2}$$

[11] As in Lee, Peri and Yasenov (2017), working-age population is defined by individuals aged between 18 and 65 years-old who do not live in group quarters.

[12] This is done so that higher values of the Mexican outflow variable are associated with greater declines of the Mexican working-age population in city c between 1930 and 1940.

where $\Delta Y_{t:t+1,c}$ is the growth rate of a housing market outcome (e.g., the value of building permits) in city c between decades t and $t+1$. The main drawback of Equation (2) is that, even after controlling for observable city characteristics, the driving force of migration outflow is likely endogenous to the local determinants of housing market supply and demand, and economic performance between 1930 and 1940.

Following Lee, Peri and Yasenov (2017, 2019), we consider three instrumental variables. The first instrumental variable, $IV^{(1)}$, is the standard Card (2009) instrument with immigrants from one country of origin. It combines the US national Mexican outflow ("National Shift") and the share of Mexicans in the total working-age population in each city ("City-Level Share"):

$$IV_c^{(1)} = -\underbrace{\left(\frac{Pop_{1940}^{MEX} - Pop_{1930}^{MEX}}{Pop_{1930}^{MEX}}\right)}_{\textit{National Shift}} \cdot \underbrace{\left(\frac{Pop_{c,1930}^{MEX}}{Pop_{c,1930}}\right)}_{\textit{City-Level Share}}. \tag{3}$$

Although the Card (2009) instrument interacts the national-level Mexican outflow with the city-level Mexican population share, identifying the repatriation's effect relying exclusively on it is challenging. The instrument with one country of origin uses only the share of Mexican workers as the source of identifying variation across cities. Moreover, part of the national-level outflow is likely to be explained by factors other than the repatriation.

We improve identification by relying on historical evidence that the repatriation efforts specifically targeted Mexicans. This characteristic of the Mexican repatriation entails that (1) migrants from other nationalities were plausibly "immune" to the ethnic pressure to leave; but (2) both Mexican and non-Mexican immigrants were affected by the Great Depression that hit the American economy. We use this dual pressure to leave faced by Mexican immigrants to construct a refined instrument that mitigates endogeneity concerns related to economic shocks correlated with the Great Depression. We follow Lee, Peri and Yasenov (2017) and hypothesize that, if poor economic conditions mainly drove the migrant outflow of other ethnic groups, then excess proportional outflows of Mexicans are likely due to the repatriation. Accordingly, we subtract the outflow of non-Mexican Latin Americans from the outflow of Mexican workers.[13] To capture

[13]Our instrument differs from Lee, Peri and Yasenov (2017) in one dimension: the authors compare Mexican immigrants with European immigrants. We use non-Mexican Latin Americans because this ethnic group has the most similar characteristics to Mexicans in terms of culture, language, human capital, and geographical location. Table B.2 in the Internet Appendix presents the results using the European-immigrants for this instrumental variable. In addition, we use the Canadians as an alternative because of their similarity to Mexicans in terms of the geographical location of their country of origin, but remaining immune to the repatriation efforts.

the age heterogeneity of the labor force in each city, we sum the Mexican labor force shares over each one of nine age groups.[14] Therefore, our second instrument, $IV^{(2)}$, is given by:

$$IV_c^{(2)} = -\sum_g \underbrace{\left[\underset{1930:40}{\Delta} Pop^{MEX}(g) - \underset{1930:40}{\Delta} Pop^{LATAM}(g) \right]}_{\textit{National Share}} \cdot \underbrace{\left[\frac{Pop^{MEX}_{c,1930}(g)}{Pop_{c,1930}} \right]}_{\textit{City-Level Share}}, \tag{4}$$

where $\Delta_{1930:40}Pop^{MEX}(g)$ is the 1930–40 growth rate of the Mexican labor force in age group g; $\Delta_{1930:40}Pop^{LATAM}(g)$ is the analogous measure for the (non-Mexican) Latin American labor force; and $Pop^{MEX}_{c,1930}(g)$ is the 1930 Mexican work force in age group g and city c.

Despite these efforts, there might still be concerns that these instruments are correlated with unobservables that are themselves correlated with housing market outcomes. We, therefore, consider an alternative instrumental variable that exploits the infrastructure of roads and the historical presence of Mexican immigrants in a county. We start from the fact that the repatriation was likely to be more pronounced in counties with larger pre-existing Mexican communities. Mexican communities in 1900 were driven by early conditions, less likely to be correlated with the economic circumstances of a county in 1930, but still affecting the size of the Mexican workforce in 1930. The second idea is grounded on the historical evidence that the existing highways and railroad trackage governed the pathways of repatriation in the US. As documented by Hoffman (1972), this infrastructure constraint funneled travelers to the chief border-crossing stations in Texas (El Paso; Brownsville; Laredo), Arizona (Nogales; Douglas), and California (Calexico). We use novel data on county-to-county travel times in 1930, constructed by Morin and Swisher (2016) using the United States' road network. Specifically, we define $\textit{Proximity to Mexico}_{cty,1930} = {}^{1}/_{\textit{Travel Time}_{1930}(\textit{County},\textit{Station})}$, where $\textit{Travel Time}_{1930}(\textit{County}, \textit{Station})$ is the travel time by roads between the County and the closest chief border-crossing stations. The third instrumental variable is defined as:

$$IV_{cty}^{(3)} = \textit{Proximity to Mexico}_{cty,1930} \times \left(\frac{Pop^{MEX}_{cty,1900}}{Pop_{cty,1900}} \right). \tag{5}$$

The first term, $\textit{Proximity to Mexico}_{cty,1930}$, is negatively related to the cost of repatriation to Mexico, since it was easier and cheaper to encourage (or force) repatriation if people could reach one of the crossing stations quicker. The second term captures the share of Mexicans workers in

[14] Following Lee, Peri and Yasenov (2017), we use nine age groups defined by the intervals: 18-25, 26-30, 31-35, 36-40, 41-45, 46-50, 51-55, 56-60, and 61-65.

a county in 1900. It is positively related to the share of Mexican population in 1930, given the persistence of migrant networks, and hence correlated with the size of population "at risk" of repatriation. A distinction of $IV^{(3)}$ is that it can only be calculated at the county level because travel time data are available only at the county-to-county dimension.[15]

It is important to notice that $IV^{(2)}$ is a Bartik (1991)-type instrument with a small number of groups. This instrument uses variation in each city's exposure to national outflow of Mexicans net of outflow of Latin Americans by age group.[16] Instruments $IV^{(1)}$ and $IV^{(3)}$, on the other hand, are not Bartik (1991)-type instruments.[17]

With the instruments available, we estimate the following baseline specification using 2SLS:

$$\underset{1930:40}{\Delta} Y_c = \alpha + \gamma \cdot IV_c^{(1)|(2)|(3)} + \lambda_s + \mathbf{X}_{c,1930} + \epsilon_c \tag{6}$$

where $\Delta_{1930:40} Y_c$ is a city's 1930–40 growth rate in one of its housing market outcomes: median reported *House Value*; *Number of Building Permits*; and *Value of Building Permits*; $IV_c^{(1)|(2)|(3)}$ is either one of the instruments defined in Equations (3), (4), and (5) for the Mexican outflow measure; λ_s represents state fixed effects to capture state-specific, unobservable heterogeneity; and $\mathbf{X}_{c,1930}$ is a set of 1930 city-level controls, which include the average *Population Age*, average *School Attendance*, average *Unemployment Rate*, and average *Employment Sector Shares*. All regressions are weighted by the city's working-age population in 1930. Standard errors are clustered by state.

3.2.3 Instrument Validity

We now present standard tests to validate our constructed instruments. Table 3 presents the results of estimating the following first-stage regressions:

$$O^{MEX}_{1930:40,c} = \alpha + \xi \cdot IV_c^{(1)|(2)|(3)} + \epsilon_c. \tag{7}$$

In Columns 1 and 3, we estimate Equation (7) with no controls, fixed effects, and unweighted by city population for $IV^{(1)}$, $IV^{(2)}$, and $IV^{(3)}$, respectively. Columns 2 and 4 add our afore-

[15] In the description of the empirical specifications that follows, we refer to the unit of observation as *city* for simplicity, but we highlight whenever appropriate that regressions using $IV^{(3)}$ are estimated at the county level.

[16] A recent literature explores the properties of shift-share instruments and potential issues with the analysis. Goldsmith-Pinkham et al. (2019) and Borusyak et al. (2018) discuss approaches to identification, while Adão et al. (2019) discuss inference procedures.

[17] When using them, the identification comes mainly from the distribution of the location's share of Mexican workers in 1930 ($IV^{(1)}$) and in 1900 ($IV^{(3)}$). Thus, the discussion on inference and identification from Borusyak et al. (2018) and Adão et al. (2019) are not applicable in the context of these two instruments.

mentioned controls, state-level fixed effects, sector shares, and city population weights to the previous specifications. The results show that the F-statistics are large and significant in all specifications, alleviating concerns that the instruments are weak.

— Place Table 3 About Here —

Another concern regarding our instrumental variable approach is that our IVs do not satisfy the exclusion restriction, being mechanically correlated with the intensity of the Great Depression. Our motivation to use $IV^{(2)}$ and $IV^{(3)}$ is precisely that they mitigate this mechanical relationship with the economic impact of the Great Depression. We therefore run a series of tests to analyze the correlation between our IVs and the intensity of the Great Depression in each city. The first test uses state-level data from the BLS, collected by Wallis (1989), on non-agricultural employment (split into manufacturing and non-manufacturing) from 1929 to 1938. The data are shown in Figure B.4 in the Internet Appendix. We use the state's change in employment in the manufacturing and non-manufacturing sectors between 1930 and 1940 as proxies of the Great Depression's intensity. We run the following specification:

$$\underset{1929:38}{\Delta} Emp_s^{M|NM|Tot} = \alpha + \beta \cdot IV_s^{(1)|(2)|(3)} + \epsilon_s, \tag{8}$$

where $\underset{1929:38}{\Delta} Emp_s^{M|NM|Tot}$ represents the changes in employment in either one of the following: manufacturing (M), non-manufacturing (NM), and total (Tot) non-agricultural employment in state s. One advantage of using the BLS data is its higher frequency, so we can select a sample period that reflects the Great Depression more accurately. This way, we avoid including 1939-40 which helps not confounding the economic conditions with the start of World War II. Table 4 presents the estimates, confirming that our instruments are not significantly correlated with the state-level economic conditions of the Great Depression. As expected, $IV^{(2)}$ and $IV^{(3)}$ perform better than $IV^{(1)}$.

— Place Table 4 About Here —

Despite the high-frequency advantage of state employment data, a limitation in these tests is the low number of observations (i.e., 48 states). To gain statistical power, we run a second set of estimations using Census data on each city's change in manufacturing, agriculture, and total unemployment between 1930–40 as a measure of the economic conditions from the Great

Depression. Using city-level data allows us to significantly increase the power of our tests, reaching almost 900 cities in some specifications. Formally, we estimate:

$$\underset{1930:40}{\Delta} Unemp_c^{M|A|Tot} = \alpha + \beta \cdot IV_c^{(1)|(2)|(3)} + \lambda_s + \mathbf{X}_{c,1930} + \epsilon_c, \tag{9}$$

where $\underset{1930:40}{\Delta} Unemp_c^{M|A|Tot}$ is a city's 1930–40 growth in unemployment in either manufacturing (*M*), agriculture (*A*), and total (*Tot*) unemployment. Other variables are defined as before. Table 5 presents the estimates.

— PLACE TABLE 5 ABOUT HERE —

The results show that the Mexican outflow has a positive correlation with the adverse economic conditions of cities or states, confirming the suspicions of endogeneity in the naïve specifications. We also obtain that $IV^{(1)}$ has a statistically significant negative correlation with the change in non-manufacturing employment (Table 4, first row, and second column). This result confirms the concern that $IV^{(1)}$ may still be correlated with economic conditions, violating the exclusion restriction for the IV analysis.

We consider a third measure of economic activity to test for the linear correlation between our instruments and the Great Depression. In this test, we use the growth rate of retail sales collected by Fishback, Horrace and Kantor (2005) for each US county. We estimate the following model at the county level:

$$\underset{1929:35}{\Delta} Retail\ Sales_{cty} = \alpha + \beta \cdot IV_{cty}^{(1)|(2)|(3)} + \epsilon_{cty}, \tag{10}$$

where *Retail Sales* is the 1929-35 growth rate of retail sales in county *cty*. Results are shown in Table 6. We can see from the table that the point estimate of *Mexican Outflow* in column 1 is negative as expected, despite being statistically non-significant at conventional levels. Columns 2 to 4 show that our instruments are not significantly correlated with an important measure of consumption — and thus of aggregate economic activity — during the Great Depression.

— PLACE TABLE 6 ABOUT HERE —

Finally, we examine whether our constructed instrumental variables capture variation in the 1930–40 outflow of migrants from other nationalities. If we reject the null hypothesis that the instruments are not linearly associated with the outflow of immigrants from other nationalities, then this could raise concerns about the validity of the exclusion restrictions. Table 7 presents the result of estimating a first-stage regression specification, but using the outflow of different nationalities as the dependent variable instead of the outflow of Mexicans:

$$O^{n}_{1930:40,c} = \alpha + \beta \cdot IV_c^{(1)|(2)|(3)} + \epsilon_c, \tag{11}$$

where $O^{n}_{1930:40,c}$ represents the 1930–40 population outflow of nationality n — which can be *Mexican*, *Latin American*, *Canadian*, or *Asian* — in each city. In Columns 1, 4, and 7, we estimate Equation (11) for $IV_c^{(1)}$, $IV_c^{(2)}$, and $IV_c^{(3)}$, respectively. Columns 2, 5, and 8 add city-level controls (1930 Census city-level averages of *Population Age*, *School Attendance*, and *Unemployment Rate*), state fixed effects, sector shares, and city population weights (i.e., weighted least squares estimation) to the previous specifications. Columns 3, 6, and 9 include additional controls by Fishback et al. (2005): (i) the interaction on the number of severe drought months faced by a county and the county's share of farming land; (ii) the retail sales growth rate between 1929 and 1935; (iv) the log of government expenditures in a county due to the New Deal program; (v) the log of the city-level median house value in 1930.

— PLACE TABLE 7 ABOUT HERE —

In all the validation tests, we do not find a statistically significant coefficient between our instruments and various measures of the Great Depression's intensity or the outflow of immigrants from other nationalities. Results are particularly supportive of $IV^{(2)}$ and $IV^{(3)}$. For these reasons, we consider both $IV^{(2)}$ and $IV^{(3)}$ as our preferred specifications in the empirical analysis that follows.

3.3 Heterogeneous Effects

We also investigate if the repatriation had heterogeneous effects within and across cities. First, we examine the existence of heterogeneous effects within cities by estimating the repatriation effect at different percentiles of the house value distribution. Specifically, we consider the inter-quartile range (i.e., from the 25$^{\text{th}}$ to the 75$^{\text{th}}$ percentile). Second, we investigate heterogeneous effects across cities. To do this, we interact the coefficient of interest in our baseline regressions with city-level characteristics in 1930 that capture its sensitivity to the repatriation shock. For brevity, we focus on heterogeneous effects using only $IV_c^{(3)}$, i.e., the instrumental variable corrected for business cycle-related endogeneity.[18] Specifically, we run the following regressions:

$$\underset{1930:40}{\Delta} Y_c = \alpha + \beta \cdot \left[IV_c^{(3)} \times \mathbb{1}(Above\ Median)_{c,1930} \right] + \lambda_s + \mathbf{X}_{c,1930} + \epsilon_c, \tag{12}$$

where all terms are defined as before, and $\mathbb{1}(Above\ Median)$ is a dummy variable the assigns value one if the city has a characteristic above the median city with respect to this characteristic's distribution. We consider the following characteristics: (i) *Population channel:* working-age population; (ii) *Law enforcement channel:* total number of workers at the law enforcement occupations;[19] and (iii) *Attachment channel:* city's average age of the Mexican labor force.

4 Results

4.1 The Impact of the Mexican Repatriation on the Housing Market

In this section, we present the results for the estimations of Equation (6). Table 8 presents, in columns 1 to 4, the estimates of the effect of repatriation on the growth rate of the number of building permits; in columns 5 to 8, the effect on the growth rate of the value of building permits; and, on columns 9 to 12, the effect on the growth rate of cities' median house value. Within each real estate outcome in Table 8, the first-ordered columns (i.e., columns 1, 5, and 9) show the weighted least squares (WLS) estimates. The second-ordered columns (i.e., columns 2, 6, and 10) present 2SLS results using $IV^{(1)}$ as the instrument for *Mexican Outflow*. Similarly, third-ordered columns (i.e., columns 3, 7, and 11) present the 2SLS results with the $IV^{(2)}$ as the instrumental variable, and fourth-ordered columns (4, 8, and 12) show the equivalent using $IV^{(3)}$ as the instrument.

— Place Table 8 About Here —

The results reveal a negative and statistically-significant relationship between the Mexican outflow and all the housing market outcomes. Specifically, an increase in the Mexican outflow by one percentage point leads to a 13 percentage point decrease in the growth rate of the number of building permits between 1930 and 1940. The same increase of 1 percentage point in the Mexican outflow is similarly associated with lower growth rates for values of permits (decrease of 3 percentage points) and the median house value (decrease of 1 percentage point).

[18] In unreported tests, we find similar results using $IV^{(1)}$ and $IV^{(2)}$.

[19] Law enforcement occupations include marshals, constables, policemen, detectives, sheriffs, and bailiffs.

4.1.1 Heterogeneous Effects

We now consider how the impact of repatriation varied across the distribution of house values.[20] We obtain, for each city, the house value at several points of the house value distribution. Specifically, we consider the inter-quartile range (i.e., from the 25$^{\text{th}}$ to the 75$^{\text{th}}$ percentile), breaking it down into 10 percent intervals. Results are shown in Table 9. The median (50$^{\text{th}}$ percentile) effect — already shown in Table 8 — is highlighted in Column 6. Columns 1 to 5 (i.e., the bottom quantiles) display coefficients in greater magnitude than Columns 7 to 11 (top quantiles). This means that repatriation affects disproportionately more the house values at the bottom of the house value distribution. This result is in line with the idea Mexican immigrants at that time were more likely to demand more modest (i.e., less valuable) houses. The Internet Appendix contains Table B.3 and Table B.4 with the results using instruments $IV^{(1)}$ and $IV^{(2)}$, respectively.

— PLACE TABLE 9 ABOUT HERE —

We now show that repatriation had heterogeneous effects across cities. We interact the coefficient of interest in our baseline regressions with a dummy variable for cities above the median in terms of city-level characteristics in 1930. This strategy allows us to capture the sensitivity of these cities to the repatriation shock.

Table 10 present the estimates. In the first set of regressions (columns 1–3) we estimate the difference in the effect of repatriation based on the working-age population size of each city. The coefficients are not statistically significant for number or value of permits. However, the effect on the median house value growth is particularly high in more populated cities. The second set of regressions (columns 4–6) focuses on the role of law enforcement. We divide the cities according to the total number of workers in the occupations of law enforcement. We find higher effects in cities with more law enforcement personnel. This result is in line with historical evidence that law enforcement officers participated actively in Mexican repatriation efforts (Balderrama and Rodríguez (2006)). The last three columns of Table 10 use the ages of Mexican workers. We find that the repatriation had more pronounced effects in cities with a relatively older Mexican labor force. This is evidence that the Mexican outflow effect is not explained by the natural outflow of younger workers returning to Mexico because of their mobility and because they had

[20]Unfortunately, we cannot do a similar quantile analysis for building permits since these variables are not from the US Censuses are thus not available at the level of individuals.

less attachment to the US cities. The Internet Appendix contains Table B.5 and Table B.6 with the results using instruments $IV^{(1)}$ and $IV^{(2)}$, respectively.

— PLACE TABLE 10 ABOUT HERE —

4.2 Disentangling Supply and Demand

Our findings indicate that the repatriation had a significant negative effect on the growth rates of the number and value of building permits and the value of existing houses. In this section, we further investigate the supply side of the housing market of the period.

In 1930, a significant share of the Mexican-immigrant workers were employed in the construction and related manufacturing sectors industries.Table 2 shows that approximately 12.7% of the Mexican workers were employed in the construction and related sectors. Therefore, the repatriation might had also affected the supply of housing through employment in these sectors.

Table 11 presents estimates of how the repatriation affected changes in employment in the construction sectors to Mexicans (columns 1–3), Natives (columns 4–6) and total employment (columns 7–9), all relative to the total working age population in each city. The first set of results (columns 1-3) is not surprising. It shows a negative effect of the repatriation on the share of employment of Mexicans in the construction sector. The second set of regressions (columns 4-6) shows that cities more affected by repatriation had an increase in the employment of natives in construction. This result suggests that these cities have experienced some substitution from Mexican workers to Natives in the construction sector over the decade. However, once we consider the total employment in the construction sector (last three columns), we find a small, not statistically significant effect. These set of results are robust to the inclusion of the additional set of controls from Fishback et al. (2005). The findings indicate that the Mexican repatriation induced substitution of Mexican workers by Native worker in the construction industry.

— PLACE TABLE 11 ABOUT HERE —

4.3 Quantifying the Effect of the Mexican Repatriation

In this section, we use a "quasi-counterfactual" exercise to illustrate the quantitative implications of our findings. Similarly to Burchardi, Chaney and Hassan (2018), this empirical exercise is not meant as a formal counterfactual, but rather as a different perspective to visualize the effects of the Mexican repatriation on housing market outcomes. In this quasi-counterfactual, we ask the question: How different would the growth rates of the housing market outcomes of the cities in the US be between 1930 and 1940 had the Mexican repatriation not happened?

To answer this question, we require an estimate of the outflow of Mexican-immigrants in the absence of the Mexican repatriation. We use the data and the estimated coefficients from the first-stage to derive a rough estimate. We start by using the assumption that the repatriation effect is completely captured by our instrumental variables, conditional on the control variables. The underlying assumption is that, if the repatriation had not happened, we would not have observed any effect of the instrumental variables on the Mexican outflow. The results in Table 7 support this idea. The results show that the instrumental variables are relevant to explain the outflow of Mexican immigrants, and do not have a statistically significant association with the outflow of immigrants from other nationalities. We use our estimates from Table 3 of the first stage regressions to obtain the hypothetical Mexican outflow in the absence of the repatriation. We calculate the hypothetical Mexican outflow in the case of no repatriation as $\tilde{O}^{MEX}_{1930:40,c} \equiv O^{MEX}_{1930:40,c} - \hat{\xi} \cdot IV^{(3)}_c$, where $O^{MEX}_{1930:40,c}$ is the observed Mexican outflow and $\hat{\xi}$ is the estimated coefficient of the instrumental variable $IV^{(3)}_c$ in the first-stage, i.e., Equation (7).[21] We rearrange this expression to represent the predicted change in Mexican outflow as $dO^{MEX}_{1930:40,c} \equiv \hat{\xi} \cdot IV^{(3)}_c$.

Given this predicted change in the Mexican outflow, we use the estimates from Table 8 to calculate the hypothetical change in the growth rates of our housing market outcome variables. The predicted change in the outcomes is specified by $d\left[\underset{1930:40}{\Delta} Y_c\right] \equiv \hat{\gamma} \cdot dO^{MEX}_{1930:40,c}$.

These calculations suggest that the decrease in the Mexican outflow would have been highly heterogeneous among US cities, translating into heterogeneous changes in the growth rates of housing market outcomes. The Figure 5 illustrates the predicted change in the growth rates in percentage points of the cities with the highest Mexican outflow between 1930 and 1940. We find that the growth rates of the number and value of building permits, and house values would have been larger in the hypothetical scenario of no repatriation.

5 Robustness

5.1 Event Study Specification

One concern with our identification strategy is the possibility that the share of Mexican workers in 1930 is associated with socio-economic changes that occurred in the previous years that could

[21] The results are similar to the use of the other instrumental variables.

also be associated with the housing market outcomes. The presence of "pre-trends" would be taken as evidence against our identification assumption. To take this into account, we estimate an additional set of event-study specifications for the 1921-40 period:

$$\underset{t-1:t}{\Delta} Y_c = \alpha + \beta_t \cdot \left(\frac{Pop^{MEX}_{c,1930}}{Pop_{c,1930}} \right) + \lambda_s + \epsilon_c, \tag{13}$$

where $\Delta_{t-1:t} Y_c$ is a city's annual growth rate in either the number or the value of building permits; ${}^{Pop^{MEX}_{c,1930}}/{}_{Pop_{c,1930}}$ is a city's share of Mexican workers in 1930; λ_s represents state fixed effects, and t are the available years.[22] Unfortunately, we cannot estimate a similar specification for the median house value because this information was not collected before the 1930's Census. Figure 6 shows the estimated coefficients β_t with 95% confidence intervals. In addition to showing how the Mexican repatriation effect evolves, the coefficients for years before 1929 provide a direct test for pre-existing effects, supporting our identification strategy.

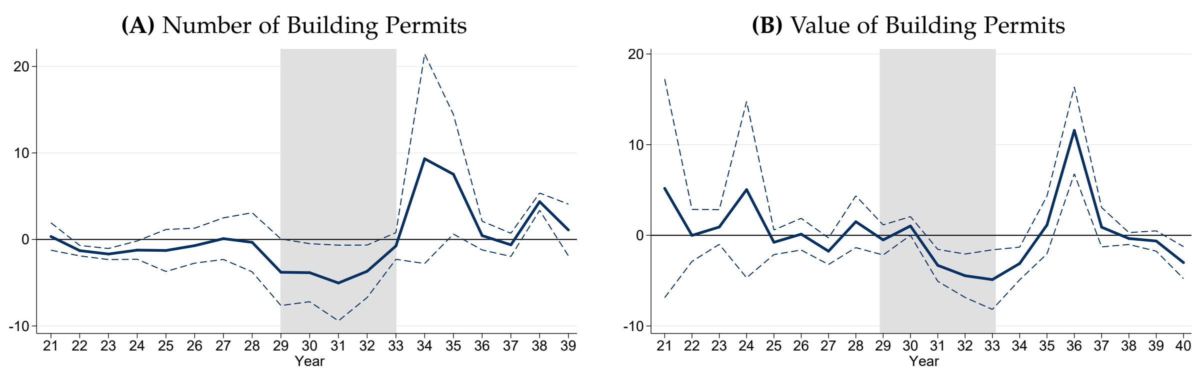


Figure 6. Share of Mexicans in 1930 and Annual Building Permit Growth, 1921–1940. This figure shows coefficients of the share of Mexican workers in 1930 using the event study specification on the annual growth rate of the number of building permits (Panel A) and the growth rate of the value of building permits (Panel B). The lines are the point estimates from the event study specification with 95% confidence intervals. The shaded areas represent the Great Depression period dated by the NBER, which coincides with the years that the Mexican repatriation happened with highest intensity. Standard errors are clustered by state.

5.2 Additional Controls

Our baseline specifications adopt a parsimonious set of controls that have been commonly used in the literature. We now show that our results remain after controlling for additional factors that may affect housing market outcomes during the repatriation period. Our additional set of controls include: (i) the interaction on the number of severe drought months faced by a county and the county's share of farming land, which controls for the severity of the 1930s Dust Bowl

[22] Data on the number of building permits end in 1939 while data on the value of building permits end in 1940.

natural disaster that affected rural American states; (ii) retail sales 1929-35 growth rate, which controls for the slump in consumption and economic activity in each county from the peak (1929) to the trough (1935) of the Great Depression; (iii) the log of government expenditures in a county due to the New Deal program; and (iv) the log of the city-level median house value in 1930 to help mitigate the concern that pre-existing housing conditions in 1930 are driving our results. Results in Table 12 show that our results remain economically and statistically significant, with coefficients similar to our baseline results in Table 8.

— PLACE TABLE 12 ABOUT HERE —

5.3 Alternative Instrumental Variables

We examine our results in the spirit of Lee, Peri and Yasenov (2017), who use Central and Eastern European immigrants instead of non-Mexican Latin Americans as the contrasting ethnic group for the outflow of Mexicans. We re-run our baseline tests using their strategy. In addition, we use Canadian immigrants as an alternative contrasting group in the construction of the IV. The motivation is the fact that Canadians also share a border with the US and are ethnically more similar to the US domestic population in the period of study. Table B.2 in the Internet Appendix shows that the tenor of our results remains unchanged.

5.4 Exclusion of cities with small number of Mexicans

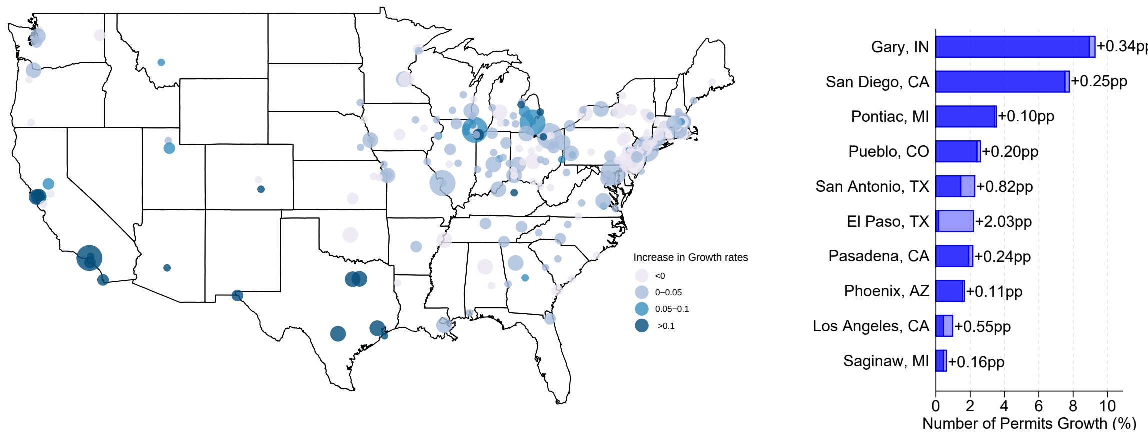
In this section, we re-estimate our baseline specifications, excluding the cities with few $(n \leq 5)$ Mexican workers in 1930. This exercise is important to determine whether the outflows from these cities drive our results. Results are presented in Internet Appendix Table B.7. The results are qualitatively similar to the baseline Table 8.

6 Concluding Remarks

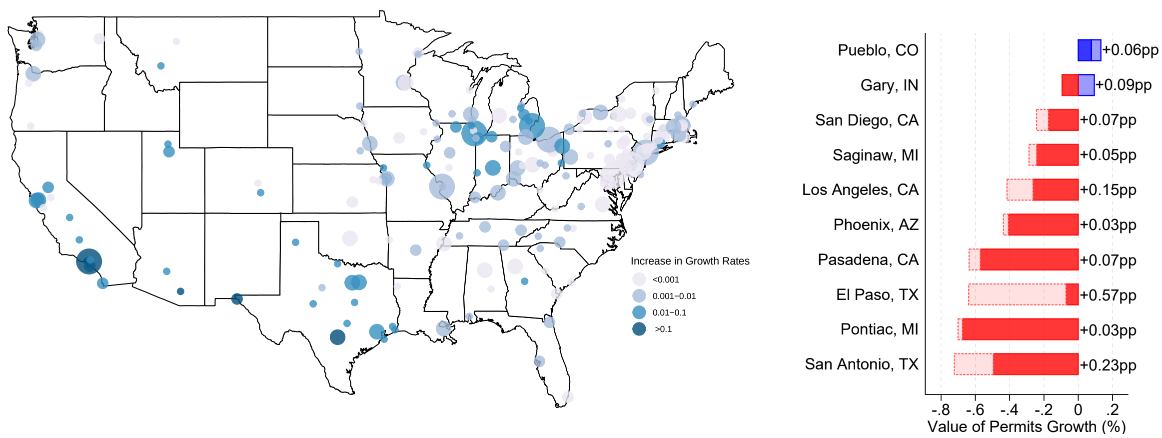
In this paper, we evaluated the effects of an important episode that led to the repatriation of one of the most representative groups of immigrants in the US economy. The United States' Mexican repatriation of the 1930s was a negative, large-scale shock to the Mexican workforce in the US and had measurable effects on local housing market outcomes. We documented that Mexicans suffered considerable harassment and pressure to leave the US, providing historical newspaper evidence. This paper is one of the very few studies that assess the impact of a negative shock of migration on housing markets. Employing an instrumental variable approach that accounts for the endogenous business cycle effects of the Depression, we showed that cities with higher Mexican outflow experienced lower growth in commercial and residential real estate activity. We found that the repatriation of Mexican workers reduced the growth rate of both the number and the value of building permits.

Slower growth in these outcomes suggests that the repatriation impacted different types of real estate activity, such as single-family homes and commercial construction. Finally, we found that the repatriation depressed the median house price growth rate. The repatriation's effects on real estate were particularly pronounced in more populated cities, those with a relatively older Mexican labor force, and those with more law enforcement personnel. Our results serve as a cautionary tale for policymakers in advanced and emerging economies engaged in pursuing repatriation policies. Repatriations are episodes with long-lasting impacts on the cultural and social dimensions, but also seem to leave footprints on economic activity.

(A) Number of Building Permits



(B) Value of Building Permits



(C) House Value

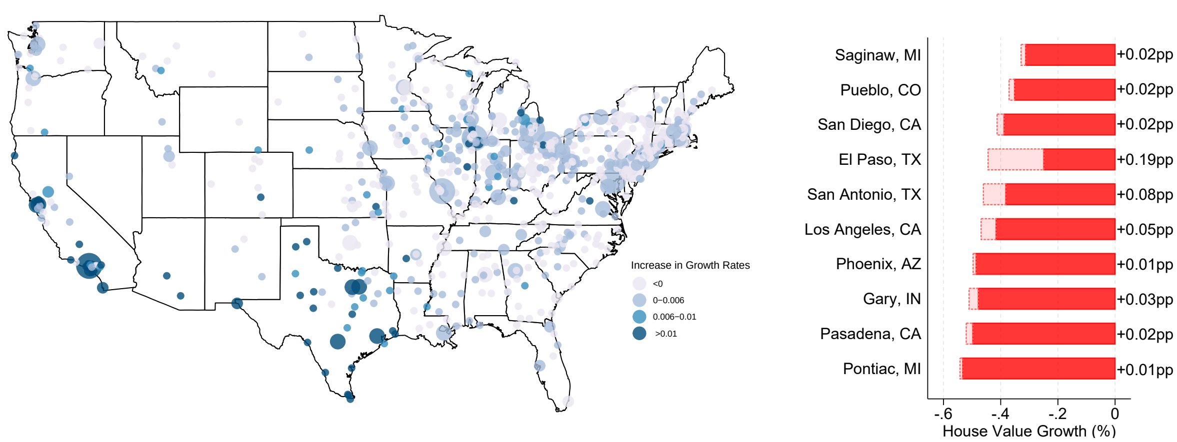


Figure 5. Quasi-Counterfactual: Real Estate Outcomes without the Mexican repatriation. This figure summarizes the quasi-counterfactual for the outcomes of interest: number of building permits (Panel A), value of building permits (Panel B), and house value (Panel C). The maps on the left depict, for each US city in the sample, the predicted increase in the growth rates of the respective real estate outcome as estimated in Section 4.3. The size of each bubble is proportional to the city's working age population. Darker shades mean greater increases. The bar graph on the right show the top 10 cities in *Mexican Outflow* between 1930 and 1940.

References

Abramitzky, Ran and Leah Boustan, "Immigration in American economic history," *Journal of economic literature*, 2017, *55* (4), 1311–45.

— , **Philipp Ager, Leah Platt Boustan, Elior Cohen, and Casper W. Hansen**, "The Effects of Immigration on the Economy: Lessons from the 1920s Border Closure," *NBER Working Paper n.26536*, 2019.

Adão, Rodrigo, Michal Kolesár, and Eduardo Morales, "Shift-Share Designs: Theory and Inference," *Quarterly Journal of Economics*, 2019, *134* (4), 1949–2010.

Balderrama, Francisco E. and Raymond Rodríguez, *Decade of betrayal: Mexican repatriation in the 1930s*, The University of New Mexico Press, 2006.

Bartik, Timothy J., *Who benefits from state and local economic development policies?*, W.E. Upjohn Institute for Employment Research, 1991.

Becker, Sascha O. and Andreas Ferrara, "Consequences of Forced Migration: A Survey of Recent Findings," *Labour Economics*, 2019.

Borusyak, Kirill, Peter Hull, and Xavier Jaravel, "Quasi-Experimental Shift-Share Research Designs," *NBER Working Paper n.24997*, 2018.

Burchardi, Konrad B., Thomas Chaney, and Tarek A. Hassan, "Migrants, ancestors, and foreign investments," *Review of Economic Studies*, 2018, *86* (4), 1448–1486.

— , — , — , **Lisa Tarquinio, and Stephen J. Terry**, "Immigration, Innovation, and Growth," *Working Paper*, 2019.

Card, David, "The impact of the Mariel boatlift on the Miami labor market," *Industrial and Labor Relations Review*, 1990, *43* (2), 245–257.

— , "Immigration and inequality," *American Economic Review*, 2009, *99* (2), 1–21.

Cortes, Gustavo S. and Marc D. Weidenmier, "Stock Volatility and the Great Depression," *Review of Financial Studies*, 2019, *32* (9), 3544–3570.

Cortes, Patricia, "The effect of low-skilled immigration on US prices: evidence from CPI data," *Journal of Political Economy*, 2008, *116* (3), 381–422.

Fishback, Price V., William C. Horrace, and Shawn Kantor, "Did New Deal Grant Programs Stimulate Local Economies? A Study of Federal Grants And Retail Sales During The Great Depression," *Journal of Economic History*, 2005, *65* (3), 36–71.

Fulford, Scott L., Ivan Petkov, and Fabio Schiantarelli, "Does It Matter Where You Came From? Ancestry Composition and Economic Performance of US Counties, 1850–2010," *Working Paper*, 2018.

Glaeser, Edward L. and Joseph Gyourko, "Urban decline and durable housing," *Journal of Political Economy*, 2005, *113* (2), 345–375.

Goldsmith-Pinkham, Paul, Isaac Sorkin, and Henry Swift, "Bartik Instruments: What, When, Why, and How," *NBER Working Paper n.24408*, 2019.

Hoffman, Abraham, "Mexican Repatriation Statistics: Some Suggested Alternatives to Carey McWilliams," *The Western Historical Quarterly*, 1972, *3* (4), 391–404.

Hornbeck, Richard, "The enduring impact of the American Dust Bowl: Short-and long-run adjustments to environmental catastrophe," *American Economic Review*, 2012, *102* (4), 1477–1507.

Howard, Greg, "The Migration Accelerator: Labor Mobility, Housing, and Aggregate Demand," *American Economic Journal: Macroeconomics*, forthcoming.

Hunt, Jennifer and Marjolaine Gauthier-Loiselle, "How much does immigration boost innovation?," *American Economic Journal: Macroeconomics*, 2010, *2* (2), 31–56.

Johnson, Kevin R., "The forgotten repatriation of persons of Mexican ancestry and lessons for the war on terror," *Pace Law Review*, 2005, *26*, 1.

Lach, Saul, "Immigration and prices," *Journal of Political Economy*, 2007, *115* (4), 548–587.

Lee, Jongkwan, Giovanni Peri, and Vasil Yasenov, "The Employment Effects of Mexican Repatriations: Evidence from the 1930s," *National Bureau of Economic Research, Working Paper n.23885*, 2017.

_, _, and _, "The Labor Market Effects of Mexican Repatriations: Longitudinal Evidence from the 1930s," *National Bureau of Economic Research, Working Paper n.26399*, 2019.

Manson, Steven, Jonathan Schroeder, David Van Riper, and Steven Ruggles, "IPUMS National Historical Geographic Information System: Version 13.0 [Database]. Minneapolis: University of Minnesota. 2018," 2018.

Monras, Joan, "Immigration and wage dynamics: Evidence from the Mexican peso crisis," *Journal of Political Economy*, forthcoming.

Morin, Miguel and Scott N. Swisher, "The Effect of Infrastructure Investment in a Low-Growth Environment: Evidence from the Great Depression," *Working Paper, University of Cambridge*, 2016.

Moser, Petra and Shmuel San, "Immigration, Science, and Invention: Evidence from the 1920s Quota Acts," 2019.

Ottaviano, Gianmarco I.P. and Giovanni Peri, "Wages, rents and prices: The effects of immigration on US natives," *Center for Research and Analysis of Migration, Discussion Paper*, 2006, *13* (07).

_ and _, "Rethinking the effect of immigration on wages," *Journal of the European Economic Association*, 2012, *10* (1), 152–197.

Ruggles, Steven, Katie Genadek, Ronald Goeken, Josiah Grover, and Matthew Sobek, "Integrated Public Use Microdata Series: Version 6.0 Dataset," *Minneapolis: University of Minnesota*, 2015.

Saiz, Albert, "Room in the kitchen for the melting pot: Immigration and rental prices," *Review of Economics and Statistics*, 2003, *85* (3), 502–521.

_, "Immigration and housing rents in American cities," *Journal of Urban Economics*, 2007, *61* (2), 345–371.

Sharpe, Jamie, "Re-Evaluating the impact of immigration on the US rental housing market," *Journal of Urban Economics*, 2019, *111*, 14–34.

Snowden, Kenneth A., "Construction, housing, and mortgages," in Susan B. Carter, Scott S. Gartner, Michael R. Haines, Alan L. Olmstead, Richard Sutch, and Gavin Wright, eds., *Historical Statistics of the United States: Millennial Edition*, Cambridge: Cambridge University Press, 2006, chapter Dc, pp. 395–572.

Valdés, Dennis Nodín, "Mexican revolutionary nationalism and repatriation during the Great Depression," *Mexican Studies/Estudios Mexicanos*, 1988, *4* (1), 1–23.

Wallis, John Joseph, "Employment in the Great Depression: New data and hypotheses," *Explorations in Economic History*, 1989, *26* (1), 45–72.

Table 1. Descriptive Statistics. This table presents summary statistics for variables used in our empirical analysis. *Mexican Outflow* is constructed in Equation (1) and is the city-level change in the Mexican labor force between 1930 and 1940 divided by the city's total population in 1930. The dependent variables (growth in the number of building permits, growth in the value of building permits, and house values are the main city-level real estate market outcomes analyzed in our regressions and are described in detail in Section 3.1. Instrumental variables follow the standard shift-share research design and are "corrected" versions of the *Mexican Outflow* described above. The construction of each instrumental variable, $IV^{(1)}$ (see Equation (3)), $IV^{(2)}$ (Equation (4)), and $IV^{(3)}$ (Equation (5)), is shown in Section 3.2.2. In short, $IV^{(1)}$ is the standard Card (2009) shift-share instrumental variable that combines the national-level change in the number of Mexican workers between 1930 and 1940 with the city-level share of Mexicans in 1930, before the repatriation. $IV^{(2)}$ is a modified version of $IV^{(1)}$, which corrects for the endogeneity of Mexican outflows by subtracting the outflow of another ethnic group that was not targeted by the repatriation (i.e., non-Mexican Latin Americans). $IV^{(3)}$ is a county's proximity to the Mexican border (calculated using travel times in 1930 throughout the US railroad network) interacted with the share of the Mexican population in the year of 1900. Control variables are from the 1930 Census and consist of the city-level averages of the worker's age, school attendance, and unemployment rate. Sector employment shares are also from the 1930 US Census and measure the city-level sector composition.

City-Level Variables	**N**	**Mean**	**SD**	**Min**	**Median**	**Max**
Mexican Outflow, 1930-40	890	0.214	1.143	-0.559	0	17.797
Dependent Variables						
Building Permit Growth (Number), 1930-40	244	179.419	341.31	-100	86.507	2780
Building Permit Growth (Value), 1930-40	198	-42.753	42.324	-97.681	-50.715	176.786
House Value Growth, 1930-40	890	-43.337	11	-83.217	-44.058	4.892
Instrumental Variables						
$IV^{(1)}$ (Card (2009) 1930-40 shift-share)	890	0.236	1.297	0	0.005	18.827
$IV^{(2)}$ (LATAM-adjusted 1930-40 shift-share)	890	0.210	1.248	-0.001	0.003	19.550
$IV^{(3)}$ (Proximity to Mexico $\times$ 1900 share)	866	0.093	0.746	0	0	11.284
Baseline controls (1930)						
Avg. Age	890	37.133	1.417	32.485	37.269	41.494
School Attendance	890	3.958	1.662	1.413	3.548	13.083
Unemployment	890	9.523	3.666	1.343	9.087	36.179
Additional controls (1930)						
Months drought x Farm Share (1930)	890	12.996	11.988	0	9.646	72.737
Retail sales growth (1929-35)	890	-0.218	0.129	-0.801	-0.214	0.203
Log New Deal expenditure (1933-35)	890	4.435	0.434	3.121	4.463	6.755

Table 2. Mexican and Native Workers distribution by Sector and Occupation in 1930. This table shows the distribution of Mexican and Native workers in the US according to the full-count 1930 US Census. We report the number of workers in each category and their respective share relative to the total number of workers from each nationality. Occupations and sectors are as defined by the US Census Bureau. We break down the *Manufacturing of Durable Goods* category defined by the Census into "construction related" and "non-construction-related". We consider as "construction-related" the following sectors: Logging; Miscellaneous wood products; Furniture and fixtures; Glass and glass products; Cement, concrete, gypsum and plaster products; Structural clay products; Pottery and related products; Miscellaneous nonmetallic mineral and stone products; Blast furnaces, steel works, and rolling mills; Other primary iron and steel industries; Fabricated steel products; Fabricated nonferrous metal products; Not specified metal industries. We consider as Mexicans those who declare Mexico as their birthplace. Similarly, natives are individuals who report the United States as their birthplace.

	Mexican Workers		Native Workers	
Panel A. Sectors	Number	Share (%)	Number	Share (%)
Agriculture, Forestry, and Fishing	96,718	34.8	7,796,223	25.5
Transportation	35,662	12.8	1,653,261	5.4
Personal services	21,910	7.9	2,471,938	8.1
Retail Trade	19,661	7.1	3,099,550	10.1
Public Administration	19,465	7.0	3,732,724	12.2
Manufacturing (durables, construction-related)	18,163	6.5	972,667	3.2
Construction	17,113	6.2	1,733,481	5.7
Manufacturing (nondurables)	17,062	6.1	2,369,389	7.8
Mining	10,884	3.9	694,259	2.3
Manufacturing (durables, non-construction-related)	6,890	2.5	1,284,730	4.2
Business and Repair Services	3,490	1.3	848,087	2.8
Professional and Related Services	2,667	1.0	1,753,088	5.7
Utilities and Sanitary Services	2,297	0.8	244,492	0.8
Wholesale Trade	2,261	0.8	418,342	1.4
Finance, Insurance, and Real Estate	1,698	0.6	987,011	3.2
Entertainment and Recreation Services	1,567	0.6	169,687	0.6
Telecommunications	508	0.2	342,375	1.1
Not declared	231,022		29,207,522	
	Mexican Workers		Native Workers	
Panel B. Occupations	Number	Share (%)	Number	Share (%)
Laborers	131,523	42.0	8,791,265	24.3
Farm Laborers	72,106	23.0	2,686,644	7.4
Operatives	29,889	9.6	3,963,995	11.0
Farmers	19,908	6.4	4,878,106	13.5
Craftsmen	17,232	5.5	3,761,467	10.4
Service Workers (private household)	11,522	3.7	1,395,806	3.9
Service Workers (not household)	10,380	3.3	1,461,419	4.0
Managers, Officials, and Proprietors	10,210	3.3	4,917,715	13.6
Sales workers	6,736	2.2	2,195,253	6.1
Professional, Technical	3,394	1.1	2,105,494	5.8
Non-occupational response	196,138		23,621,662	

Table 3. Instrument Validation: First Stage Regressions. This table present results for the first-stage regression of each instrumental variable and is one of the IV validation tests that we discuss in Section 3.2.3. The construction of each IV is described in Section 3.2.2. Specifically, the first-stage regressions are: $\textit{Mexican Outflow}_c = \alpha + \hat{\xi} \cdot IV_c^{(1)|(2)|(3)} + \epsilon_c$. In Columns 1, 4, and 7, we estimate Equation (7) for $IV_c^{(1)}$, $IV_c^{(2)}$, and $IV_c^{(3)}$, respectively. Columns 2, 5, and 8 add city-level controls (1930 Census city-level averages of *Population Age*, *School Attendance*, and *Unemployment Rate*), state fixed effects, sector employment shares, and city population weights (i.e., weighted least squares estimation) to the previous specifications. Columns 3, 6, and 9 include the additional controls: (i) the interaction on the number of severe drought months faced by a county and the county's share of farming land; (ii) the retail sales growth rate between 1929 and 1935; (iv) the log of government expenditures in a county due to the New Deal program; (v) the log of the city-level median house value in 1930. Controls are described in more details in Table 1. The table also shows F-statistics to test for weak instruments. Statistical significance: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

	Dependent Variable: *Mexican Outflow*								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
$IV_c^{(1)}$	0.822***	0.846***	0.844***						
	(0.020)	(0.016)	(0.017)						
$IV_c^{(2)}$				0.831***	0.845***	0.843***			
				(0.033)	(0.015)	(0.015)			
$IV_c^{(3)}$							1.194***	1.336***	1.333***
							(0.014)	(0.084)	(0.078)
Weighted		✓	✓		✓	✓		✓	✓
Baseline Controls		✓	✓		✓	✓		✓	✓
Additional controls			✓			✓			✓
State FE		✓	✓		✓	✓		✓	✓
Sector Shares (16)		✓	✓		✓	✓		✓	✓
F-statistic (Kleibergen-Paap)	1,670.94	2,539.43	2,342.73	640.58	3,123.06	2,844.54	7,277.31	236.68	277.12
Observations	890	890	890	890	890	890	866	866	866
R-squared	0.87	0.91	0.91	0.82	0.88	0.88	0.67	0.76	0.76

Table 4. Instrument Validation: Mexican Repatriation and Instrumental Variables Correlation with US State Employment during the Great Depression. This table is one of the IV validation tests we describe in Section 3.2.3. The construction of each IV is described in Section 3.2.2. It shows the result of estimating Equation (8), which is given by:

$$\underset{1929:39}{\Delta} Emp_s^{M|NM|Tot} = \alpha + \beta \cdot IV_s^{(1)|(2)|(3)} + \epsilon_s,$$

where $\Delta_{1929:39} Emp_c^{M|NM|Tot}$ represents the decennial changes in employment between 1929 and 1939 in either one of the following: manufacturing (*M*), non-manufacturing (*NM*), and total (*Tot*) non-agricultural employment. The construction of each dependent variable is detailed in Section 3.2 and the growth rate of employment is calculated using BLS data on employment for all US states (except Alaska and Hawaii) collected by Wallis (1989). Statistical significance: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

	Panel A. Non-Manufacturing Employment (1929-39)			
	Mexican Outflow	$IV^{(1)}$	$IV^{(2)}$	$IV^{(3)}$
	(1)	(2)	(3)	(4)
Employment Growth	-2.794*	-2.733	-2.613	-4.936
	(1.536)	(1.923)	(2.133)	(4.379)
Observations	48	48	48	48
R-squared	0.067	0.042	0.032	0.027
	Panel B. Manufacturing Employment (1929-39)			
	Mexican Outflow	$IV^{(1)}$	$IV^{(2)}$	$IV^{(3)}$
	(1)	(2)	(3)	(4)
Employment Growth	-1.104	-1.580	-1.712	-2.896
	(1.906)	(2.353)	(2.595)	(5.324)
Observations	48	48	48	48
R-squared	0.007	0.010	0.009	0.006
	Panel C. Total Employment (1929-39)			
	Mexican Outflow	$IV^{(1)}$	$IV^{(2)}$	$IV^{(3)}$
	(1)	(2)	(3)	(4)
Employment Growth	-2.062	-2.044	-1.943	-3.705
	(1.393)	(1.736)	(1.922)	(3.942)
Observations	48	48	48	48
R-squared	0.045	0.029	0.022	0.019

Table 5. Instrument Validation: Mexican Outflow and IV correlation with Great Depression as measured by Unemployment Growth, 1930-40. This table is one of the IV validation tests we describe in Section 3.2.3. The construction of each IV is described in Section 3.2.2. Regressions are at the city level and weighted by cities' working age population in 1930. Growth rates are in percentages. This set of results uses Census information on the city's change in manufacturing, agriculture, and total unemployment between 1930 and 1940 as a measure of the adverse economic conditions accrued from the Great Depression. We estimate Equation (9), which is given by the following specification:

$$\underset{1930:40}{\Delta} Unemp_c^{M|A|Tot} = \alpha + \beta \cdot IV_c^{(1)|(2)|(3)} + \lambda_s + \mathbf{X}_{c,1930} + \epsilon_c,$$

where $\underset{1930:40}{\Delta} Unemp_c^{M|A|Tot}$ is a city's growth in unemployment between 1930 and 1940 in either one of: manufacturing (M), agriculture (A), and total (Tot) unemployment. The other variables are defined as before. Statistical significance: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

	Manufacturing Unemployment Growth, 1930-40				Agriculture Unemployment Growth, 1930-40				Total Unemployment Growth, 1930-40			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Mexican Outflow	0.080*				0.000				0.024			
	(0.044)				(0.010)				(0.065)			
$IV^{(1)}$		0.240				0.013				0.259*		
		(0.192)				(0.011)				(0.152)		
$IV^{(2)}$			0.247				0.011				0.261	
			(0.202)				(0.010)				(0.164)	
$IV^{(3)}$				0.192				0.016				0.269
				(0.142)				(0.015)				(0.191)
Baseline Controls	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
State FE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Sector Shares (16)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Observations	888	888	888	864	887	887	887	863	894	894	894	870
R-squared	0.353	0.433	0.420	0.401	0.351	0.426	0.412	0.386	0.351	0.430	0.416	0.401

Table 6. Instrument Validation: Mexican Outflow and IV correlation with Great Depression as measured by retail sales growth. This table is part of our battery of IV validation tests as described in Section 3.2.3. The construction of each IV is described in Section 3.2.2. It shows the result of estimating:

$$\underset{1929:35}{\Delta} \textit{Retail Sales}_c = \alpha + \beta \cdot IV_c^{(1)|(2)|(3)} + \epsilon_c,$$

where $\Delta_{1929:35}\textit{Retail Sales}_c$ represents the growth rate in retail sales between 1929 and 1935 in each county. The retail sales data are from Fishback, Horrace and Kantor (2005).

Dependent Variable:	Retail Sales Growth, 1929-35			
	(1)	(2)	(3)	(4)
Mexican Outflow	-0.049			
	(0.130)			
$IV^{(1)}$		0.028		
		(0.087)		
$IV^{(2)}$			0.062	
			(0.088)	
$IV^{(3)}$				0.008
				(0.229)
Controls	✓	✓	✓	✓
State FE	✓	✓	✓	✓
Sector Shares (16)	✓	✓	✓	✓
Observations	894	894	894	870
R-squared	0.598	0.598	0.598	0.604

Table 7. Instrument Validation: Instrumental Variables and correlation with Outflow from other nationalities. This table is one of the IV validation tests we describe in Section 3.2.3. It presents the results for the regression of the outflow of immigrants from other nationalities $O^n_{1930:40,c}$ on each instrumental variable. The construction of each IV is described in Section 3.2.2. Specifically, the regressions are:

$$O^n_{1930:40,c} = \alpha + \beta \cdot IV_c^{(1)|(2)|(3)} + \epsilon_c.$$

In Columns 1, 4, and 7, we estimate Equation (7) for $IV_c^{(1)}$, $IV_c^{(2)}$, and $IV_c^{(3)}$, respectively. Columns 2, 5, and 8 add city-level controls (1930 Census city-level averages of *Population Age*, *School Attendance*, and *Unemployment Rate*), state fixed effects, sector shares, and city population weights (i.e., weighted least squares estimation) to the previous specifications. Columns 3, 6, and 9 include the additional controls: (i) the interaction on the number of severe drought months faced by a county and the county's share of farming land; (ii) the retail sales growth rate between 1929 and 1935; (iv) the log of government expenditures in a county due to the New Deal program; (v) the log of the city-level median house value in 1930. Control variables are described in more details in Table 1. Statistical significance: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

Panel A. Instrumental Variable: $IV^{(1)}$

	Mexican Outflow			*Latin American Outflow*			*Canadian Outflow*			*Asian Outflow*		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
$IV_c^{(1)}$	0.822***	0.846***	0.844***	0.001	−0.001	−0.005	0.008	0.011	0.007	0.009	−0.001	0.000
	(0.020)	(0.016)	(0.017)	(0.000)	(0.002)	(0.005)	(0.008)	(0.010)	(0.010)	(0.010)	(0.001)	(0.002)
Observations	683	682	682	683	682	682	681	680	680	683	682	682
R-squared	0.88	0.92	0.92	0.18	0.28	0.29	0.59	0.69	0.69	0.36	0.34	0.36

Panel B. Instrumental Variable: $IV^{(2)}$

	Mexican Outflow			*Latin American Outflow*			*Canadian Outflow*			*Asian Outflow*		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
$IV_c^{(2)}$	0.831***	0.845***	0.843***	0.001*	−0.001	−0.005	0.008	0.012	0.007	0.008	−0.002	−0.000
	(0.033)	(0.015)	(0.016)	(0.000)	(0.002)	(0.005)	(0.010)	(0.011)	(0.010)	(0.010)	(0.001)	(0.002)
Observations	683	682	682	683	682	682	681	680	680	683	682	682
R-squared	0.83	0.89	0.89	0.18	0.28	0.29	0.59	0.69	0.69	0.36	0.35	0.36

Panel C. Instrumental Variable: $IV^{(3)}$

	Mexican Outflow			*Latin American Outflow*			*Canadian Outflow*			*Asian Outflow*		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
$IV_c^{(3)}$	1.194***	1.336***	1.331***	0.000	−0.001	−0.007	−0.003***	0.017	−0.000	−0.001	−0.013	−0.010
	(0.014)	(0.084)	(0.079)	(0.000)	(0.004)	(0.008)	(0.001)	(0.022)	(0.021)	(0.002)	(0.011)	(0.009)
Observations	665	664	664	665	664	664	663	662	662	665	664	664
R-squared	0.71	0.77	0.78	0.19	0.28	0.29	0.59	0.69	0.69	0.35	0.34	0.36
Weighted	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Baseline Controls		✓	✓		✓	✓		✓	✓		✓	✓
Additional controls			✓			✓			✓			✓
State FE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Sector Shares (16)		✓	✓		✓	✓		✓	✓		✓	✓

Table 8. Baseline Results: Effects on Housing Market, 1930-40. This table presents our baseline regressions from estimating Equation (6):

$$\underset{1930:40}{\Delta} Y_c = \alpha + \beta \cdot IV_c^{(1)|(2)|(3)} + \lambda_s + \mathbf{X}_{c,1930} + \epsilon_c,$$

where $\Delta_{1930:40} Y_c$ is a city's 1930-40 growth rate in one of its housing market outcomes: median reported *House Value*; *Number of Building Permits*; and *Value of Building Permits*; $IV_c^{(1)|(2)|(3)}$ is either one of the instruments defined in Equations (3), (4), and (5); λ_s represents state fixed effects to capture state-specific, unobserved heterogeneity; and $\mathbf{X}_{c,1930}$ is a set of 1930 city-level controls, which include the average *Population Age*, average *School Attendance*, average *Unemployment Rate*, and average *Employment Sector Shares*. The table presents the estimates of the effect of repatriation on the growth of building permits number (columns 1–3), on the growth of building permits value (columns 4–6) and on the growth rate of cities median house values (columns 7–9). Columns 1, 4, and 7 show *weighted least squares* estimates, columns 2, 5, and 8 present the 2SLS results with $IV^{(1)}$ as an instrument for the *Mexican Outflow*. Columns 3, 6, and 9 present the 2SLS results with the $IV^{(2)}$ as the instrumental variable. All regressions are weighted by total working age population in 1930 and include state fixed effects. Standard errors in parenthesis are clustered by state. Statistical significance: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

	Building Permit Growth (Number)				Building Permit Growth (Value)				House Value Growth			
	WLS	2SLS $IV^{(1)}$	2SLS $IV^{(2)}$	2SLS $IV^{(3)}$	WLS	2SLS $IV^{(1)}$	2SLS $IV^{(2)}$	2SLS $IV^{(3)}$	WLS	2SLS $IV^{(1)}$	2SLS $IV^{(2)}$	2SLS $IV^{(3)}$
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Mexican Outflow	–16.495**	–14.850**	–13.425*	–13.324*	–3.529***	–3.150***	–3.254***	–3.723***	–1.009**	–1.010**	–1.030***	–1.276***
	(7.636)	(7.110)	(6.746)	(7.734)	(1.114)	(1.060)	(1.073)	(1.299)	(0.438)	(0.386)	(0.362)	(0.356)
Average Age	0.569**	0.568**	0.567**	0.543**	0.001	0.001	0.001	0.000	0.021***	0.021***	0.021***	0.023***
	(0.223)	(0.224)	(0.224)	(0.223)	(0.046)	(0.047)	(0.047)	(0.048)	(0.006)	(0.006)	(0.006)	(0.006)
School Attendance	21.755	21.615	21.493	19.804	–2.095	–2.100	–2.098	–2.482	–1.216*	–1.216*	–1.216*	–1.256*
	(20.616)	(20.590)	(20.571)	(21.137)	(4.700)	(4.698)	(4.699)	(4.804)	(0.652)	(0.653)	(0.653)	(0.649)
Unemployment	1.513	1.536	1.556	0.083	0.582	0.593	0.590	0.318	–0.907***	–0.907***	–0.908***	–0.927***
	(9.025)	(9.027)	(9.023)	(9.125)	(1.202)	(1.199)	(1.199)	(1.235)	(0.217)	(0.216)	(0.216)	(0.222)
State FE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Sector Shares (16)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Observations	244	244	244	237	198	198	198	193	890	890	890	866
R-squared	0.57	0.26	0.26	0.26	0.56	0.11	0.11	0.11	0.59	0.28	0.28	0.29

Table 9. House Value Percentile Effects using Instrument $IV^{(3)}$. This table re-estimates the *House Value Growth* specification of our baseline specification in Column 9 of Table 8 but uses different percentiles of each city's *House Value* distribution as the dependent variable. The equation we estimate is analogue to Equation (6) and is given by:

$$\underset{1930:40}{\Delta} Y_c(\tau) = \alpha + \beta \cdot IV_c^{(3)} + \lambda_s + \mathbf{X}_{c,1930} + \epsilon_c,$$

where $\Delta_{1930:40} Y^{c(\tau)}$ is a city's 1930-40 growth rate in reported *House Value* at percentile τ. Specifically, we construct house value percentiles for the inter-quartile range (i.e., 25^{th} to 75^{th} percentiles), and calculate the growth rate in each house value percentile between 1930 and 1940. $IV_c^{(3)}$ is the instrument defined in Equation (5). λ_s represents state fixed effects. $\mathbf{X}_{c,1930}$ is a set of 1930 city-level controls, which include the average *Population Age*, average *School Attendance*, average *Unemployment Rate*, and *Employment Sector Shares*. Each column presents 2SLS results with a different percentile $\tau \in \{25, 35, 45, 50, 55, 65, 75\}$ of the house value distribution. The median house value percentile (i.e., 50^{th} percentile) column is highlighted in grey to serve as a benchmark reported earlier in Column 9 of Table 8. All regressions are weighted by total working age population in 1930 and include state fixed effects. Standard errors in parenthesis are clustered by state. Statistical significance: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

	House Value Growth at each percentile						
	P25 (1)	P35 (2)	P45 (3)	P50 (4)	P55 (5)	P65 (6)	P75 (7)
Mexican Outflow –0.724***	–0.587	–1.451***	–1.253***	–1.276***	–1.029**	–1.075***	-0.724***
	(0.432)	(0.403)	(0.391)	(0.356)	(0.392)	(0.325)	(0.265)
Average Age	0.029***	0.021***	0.021***	0.023***	0.019**	0.018***	0.018***
	(0.007)	(0.007)	(0.007)	(0.006)	(0.008)	(0.006)	(0.005)
School Attendance	–1.873**	–1.132	–1.045	–1.256*	–1.059*	–0.895	–0.837
	(0.802)	(0.698)	(0.711)	(0.649)	(0.579)	(0.589)	(0.567)
Unemployment	–1.003***	–0.799***	–0.793***	–0.927***	–0.681***	–0.769***	–0.645***
	(0.250)	(0.248)	(0.259)	(0.222)	(0.212)	(0.219)	(0.202)
State FE	✓	✓	✓	✓	✓	✓	✓
Sector Shares (16)	✓	✓	✓	✓	✓	✓	✓
Observations	866	866	866	866	866	866	866
R-squared	0.20	0.23	0.26	0.29	0.24	0.27	0.31

Table 10. Heterogeneous Effects using Instrument $IV^{(3)}$ This table presents the results of estimating Equation (12), which is given by:

$$\underset{1930:40}{\Delta} Y_c = \alpha + \beta \cdot \left[IV_c^{(3)} \times \mathbb{1}(\textit{Above Median})_{c,1930} \right] + \lambda_s + \mathbf{X}_{c,1930} + \epsilon_c,$$

where $\Delta_{1930:40} Y_c$ is a city's 1930-40 growth rate in one of its housing market outcomes: median *House Value*; *Number of Building Permits*; and *Value of Building Permits*; $IV_c^{(3)}$ is the instrument defined in Equation (4); λ_s represents state fixed effects; $\mathbf{X}_{c,1930}$ is a set of 1930 city-level controls, which include the average *Population Age*, average *School Attendance*, average *Unemployment Rate*, and average *Employment Sector Shares*; and $\mathbb{1}(\textit{Above Median})$ is a dummy variable the assigns value one if the city has a characteristic above the median city with respect to this characteristic's distribution. Columns 1 to 3 refer to the *Population channel*, defined by cities' working-age population distribution. Columns 4 to 6 refer to the *Law Enforcement channel*, defined by cities' total number of workers in law enforcement occupations. Law enforcement occupations include marshals, constables, policemen, detectives, sheriffs, and bailiffs. Columns 7 to 9 refer to the *Attachment channel*, given by the distribution of cities' average age of the Mexican labor force. The coefficients are estimated by an interaction term with the Mexican Outflow with $\mathbb{1}(\textit{Above Median})$, a dummy variable that equals one if the city is above the median in each of the characteristics described above. Standard errors in parenthesis are clustered by state. Statistical significance: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

	Population			Law Enforcement			Age of Mexican Workers		
	Building Permits (Number) (1)	Building Permits (Value) (2)	Median House Value (3)	Building Permits (Number) (4)	Building Permits (Value) (5)	Median House Value (6)	Building Permits (Number) (7)	Building Permits (Value) (8)	Median House Value (9)
$IV_c^{(3)} \times \mathbb{1}(\textit{Above Median})$	–12.108	–3.395***	–0.772***	–11.704	–3.392***	–0.333	–13.351*	–3.743***	–1.256***
	(9.120)	(1.071)	(0.257)	(9.429)	(1.081)	(0.215)	(7.684)	(1.300)	(0.350)
State FE	✓	✓	✓	✓	✓	✓	✓	✓	✓
Controls	✓	✓	✓	✓	✓	✓	✓	✓	✓
Sector Shares (16)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Observations	237	193	866	237	193	866	237	193	866
R-squared	0.261	0.108	0.288	0.261	0.110	0.285	0.262	0.113	0.291

Table 11. Effects on Employment in the Construction Sector, 1930-40. This table presents the regressions with the employment changes in 1930-40 to the construction industries as the dependent variable. All regressions are weighted by total working age population in 1930 and include state fixed effects. Standard errors in parenthesis are clustered by state. Statistical significance: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

	Employment Change (Mexicans)			Employment Change (Natives)			Employment Change (Total)		
	$IV^{(1)}$	$IV^{(2)}$	$IV^{(3)}$	$IV^{(1)}$	$IV^{(2)}$	$IV^{(3)}$	$IV^{(1)}$	$IV^{(2)}$	$IV^{(3)}$
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Mexican Outflow	–0.120***	–0.113***	–0.109***	0.116**	0.110***	0.142***	–0.014	–0.009	0.035
	(0.017)	(0.010)	(0.005)	(0.044)	(0.035)	(0.031)	(0.040)	(0.037)	(0.033)
Average Age	0.000	0.000	0.000	–0.002**	–0.002**	–0.003**	–0.002**	–0.002**	–0.003**
	(0.000)	(0.000)	(0.000)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
School Attendance	–0.008	–0.008	–0.008	0.171*	0.171*	0.175*	0.199*	0.199*	0.202*
	(0.009)	(0.009)	(0.010)	(0.090)	(0.090)	(0.091)	(0.101)	(0.101)	(0.103)
Unemployment	0.004	0.004	0.004	0.124***	0.124***	0.123***	0.145***	0.145***	0.146***
	(0.003)	(0.003)	(0.003)	(0.031)	(0.031)	(0.031)	(0.031)	(0.031)	(0.031)
State FE	✓	✓	✓	✓	✓	✓	✓	✓	✓
Sector Shares (16)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Observations	890	890	866	890	890	866	890	890	866
R-squared	0.57	0.57	0.57	0.14	0.14	0.14	0.11	0.11	0.11

Table 12. Additional Controls: Effects on Housing Market, 1930-40. This table presents our regressions from estimating Equation (6) with the inclusion of additional control variables. The additional controls include: (i) the interaction on the number of severe drought months faced by a county and the county's share of farming land; (ii) the retail sales growth rate between 1929 and 1935; (iv) the log of government expenditures in a county due to the New Deal program; (v) the log of the city-level median house value in 1930. All regressions are weighted by total working age population in 1930 and include state fixed effects. Standard errors in parenthesis are clustered by state. Statistical significance: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

	Building Permit Growth (Number)			Building Permit Growth (Value)			House Value Growth		
	$IV^{(1)}$ (1)	$IV^{(2)}$ (2)	$IV^{(3)}$ (3)	$IV^{(1)}$ (4)	$IV^{(2)}$ (5)	$IV^{(3)}$ (6)	$IV^{(1)}$ (7)	$IV^{(2)}$ (8)	$IV^{(3)}$ (9)
Mexican Outflow	–15.982**	–14.511*	–14.087*	–3.176***	–3.305***	–3.728***	–0.968***	–1.034***	–1.431***
	(7.493)	(7.147)	(8.126)	(0.883)	(0.893)	(1.027)	(0.339)	(0.333)	(0.387)
Average Age	0.553**	0.552**	0.528**	–0.019	–0.019	–0.020	0.002	0.002	0.003
	(0.237)	(0.238)	(0.240)	(0.049)	(0.049)	(0.049)	(0.005)	(0.005)	(0.005)
School Attendance	23.434	23.341	22.542	–1.390	–1.391	–1.744	–0.350	–0.349	–0.376
	(19.240)	(19.215)	(19.966)	(4.618)	(4.618)	(4.703)	(0.479)	(0.479)	(0.471)
Unemployment	0.681	0.709	–0.296	0.787	0.781	0.560	–0.852***	–0.853***	–0.882***
	(9.017)	(9.008)	(9.169)	(1.234)	(1.235)	(1.246)	(0.200)	(0.199)	(0.201)
$\textit{Extreme Drought}_{cty} \times \textit{Farmland Share}_{cty,1930}$	–0.029	–0.029	–0.025	–0.001	–0.001	–0.001	0.001**	0.001**	0.001***
	(0.023)	(0.023)	(0.024)	(0.004)	(0.004)	(0.003)	(0.000)	(0.000)	(0.000)
$\textit{Retail Sales Growth}_{cty,1929:35}$	0.602	0.592	0.313	0.499	0.499	0.448	0.104**	0.104**	0.096**
	(3.018)	(3.022)	(3.015)	(0.430)	(0.430)	(0.433)	(0.044)	(0.044)	(0.044)
$\ln(\textit{New Deal Expenditure})_{cty,1933:35}$	0.430	0.425	0.375	–0.023	–0.023	–0.022	–0.011	–0.011	–0.010
	(0.712)	(0.714)	(0.707)	(0.186)	(0.186)	(0.184)	(0.010)	(0.010)	(0.010)
$\ln(\textit{House Value})_{c,1930}$	–0.712	–0.715	–0.754	–0.205	–0.205	–0.217	–0.191***	–0.191***	–0.198***
	(0.888)	(0.889)	(0.883)	(0.187)	(0.187)	(0.194)	(0.023)	(0.023)	(0.022)
State FE	✓	✓	✓	✓	✓	✓	✓	✓	✓
Sector Shares (16)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Observations	244	244	237	198	198	193	890	890	866
R-squared	0.27	0.27	0.27	0.13	0.13	0.13	0.46	0.46	0.48

Internet Appendix
(not for publication)

Appendix A Historical Newspaper Evidence of Harassment and Anti-Mexican Sentiment

(A) The New York Times (1931)

35,000 MEXICANS LEAVE CALIFORNIA

Migration, Expected to Reach 75,000, Due to Idleness and Sense of Unwelcome.

FEAR SPREAD BY ARRESTS

Deportation Campaign of Government Alarms Many—Sacrifices Made of Homes.

Special to The New York Times.

LOS ANGELES, April 11.—Moving southward by rail and automobile in families of from two to ten, more than 10,000 Mexicans, men, women and children, have been leaving Southern California monthly for more than three months and returning to Mexico. This was revealed today by Rafael de la Colina, local Mexican Consul. They are pressed by economic adversity, fearful over recently renewed activities of immigration authorities and perplexed by what they regard as anti-Mexican sentiment.

(B) The Los Angeles Times (1930)

NEAR-RIOT OVER JOBS SETTLED

Inglewood Men Harass Mexican Laborers but Won't Work at Same Pay

INGLEWOOD, Oct. 16.- Between forty and fifty unemployed American laborers threatened a united disturbance this morning when they tried to prevent Mexican workmen engaged in laying a conduit under Redondo Boulevard to continue their work by guarding the toolboxes and demanding that the contractors employ white labor.

Although local police were called to the scene of the discussion, no violence was reported, the agitators dispersing after refusing to accept work for the wages paid to the Mexicans.

(C) The Washington Post (1930)

MEXICAN IMMIGRANTS.

There is a prospect that the House will pass a bill imposing the quota restriction upon Mexican immigrants. Pressure from labor organizations is very strong, and it is supported by influential organizations opposed to adulteration of the "American blood stream." There are about 2,000,000 Mexicans in the United States.

In several Southwestern States the economic system is based upon Mexican labor. Americans will not do the work that is performed by the Mexicans. In beet fields and on truck farms the Mexicans are good workers. They furnish most of the unskilled railroad labor. Good wages here and starvation conditions at home drive them across the border, and gradually they have displaced other classes of labor.

A sudden reversal of policy would work great hardship to employers throughout the Southwest. Nevertheless, some restrictive measure seems to be necessary in order to check the alien stream that flows northward. The Mexican immigrant is not good material for citizenship, and in some places Mexican colonies are decidedly objectionable.

One of the arguments used by employers is that Mexico would deeply resent the partial exclusion of its citizens from this country. There does not seem to be much basis for this argument, in view of the repeated statements of Mexican governmental spokesmen, who claim that their people would prefer to remain at home if they could make a livelihood. Stable conditions below the border might help to solve the problem of Mexican migration, but with high wages and

Figure A.1. Historical Newspapers on the Mexican Repatriation. This figure shows examples of newspaper articles from historical newspapers discussing the anti-Mexican sentiment after the Great Depression and during the period of the Mexican repatriation. Panel A shows a news piece from *The New York Times* from April 12, 1931. Panel B depicts a news piece from *The Los Angeles Times* dated from October 17, 1931. Panel C depicts a news piece from *The Washington Post* dated from January 20, 1930.

Appendix B Additional Data Description and Empirical Results

B.1 Additional Data Description and Visualization

Table B.1. Top 10 Cities in terms of Mexican Outflow. This table shows the top 10 cities in terms of their *Mexican Outflow* as defined by Equation (1).

City	Mexican Outflow Intensity, 1930–40
San Benito, TX	17.8%
El Paso, TX	14.5%
Brawley, CA	11.9%
Del Rio, TX	11.8%
Brownsville, TX	8.9%
Laredo, TX	7.9%
East Chicago, IN	5.4%
Harlingen, TX	5.3%
San Antonio, TX	5.2%
Tucson, AZ	4.7%

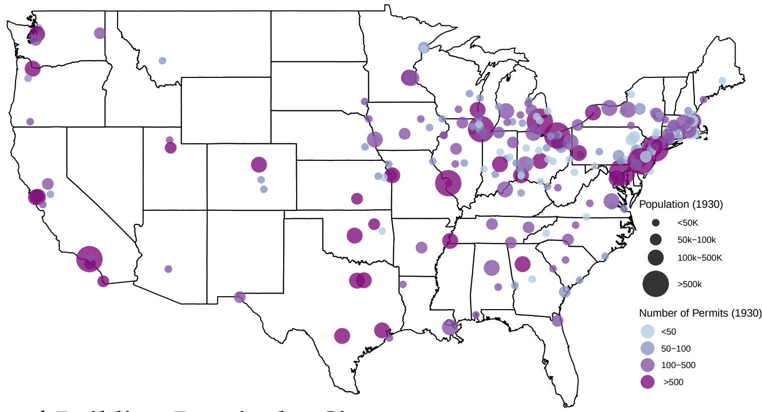


Figure B.1. Number of Building Permits by City. This figure shows the number of permits by city in our sample. The colors distinguish the cities by their number of building permits in 1930. The size of each bubble is proportional to the city's working age population. The data is collected by Snowden (2006) from several issues of the *Bulletin of the Bureau of Labor Statistics*.

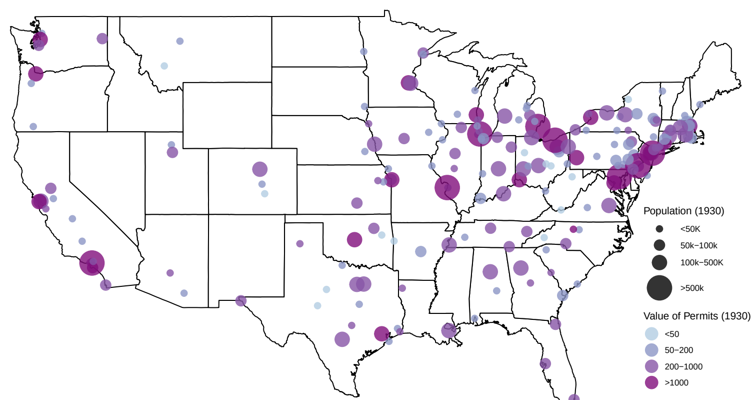


Figure B.2. Value of Building Permits by City. This figure shows the total value of permits in Millions of dollars by city. The colors distinguish the cities by their value of building permits in 1930. The size of each bubble is proportional to the city's working age population. The data is collected from several issues of the *Dun & Bradstreet's Review*, a business and financial publication from the 1920s and 1930s.

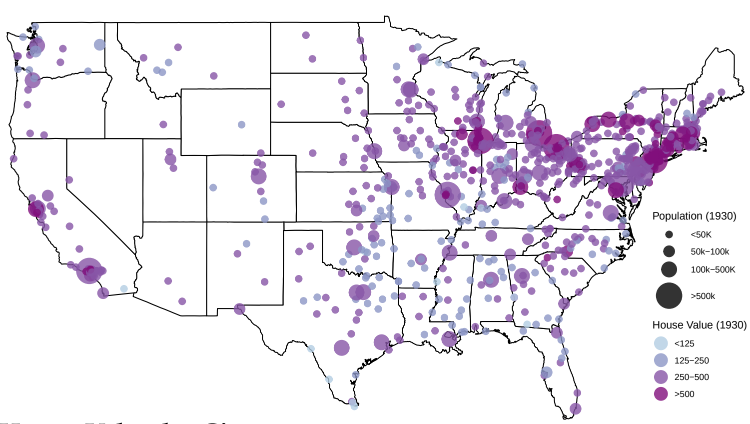


Figure B.3. Median House Value by City. This figure shows the median house value in thousands of dollars by city. The colors distinguish the cities by their median house value in 1930. The size of each bubble is proportional to the city's working age population. The data is collected from the 1930 full-count US Census (Ruggles et al., 2015).

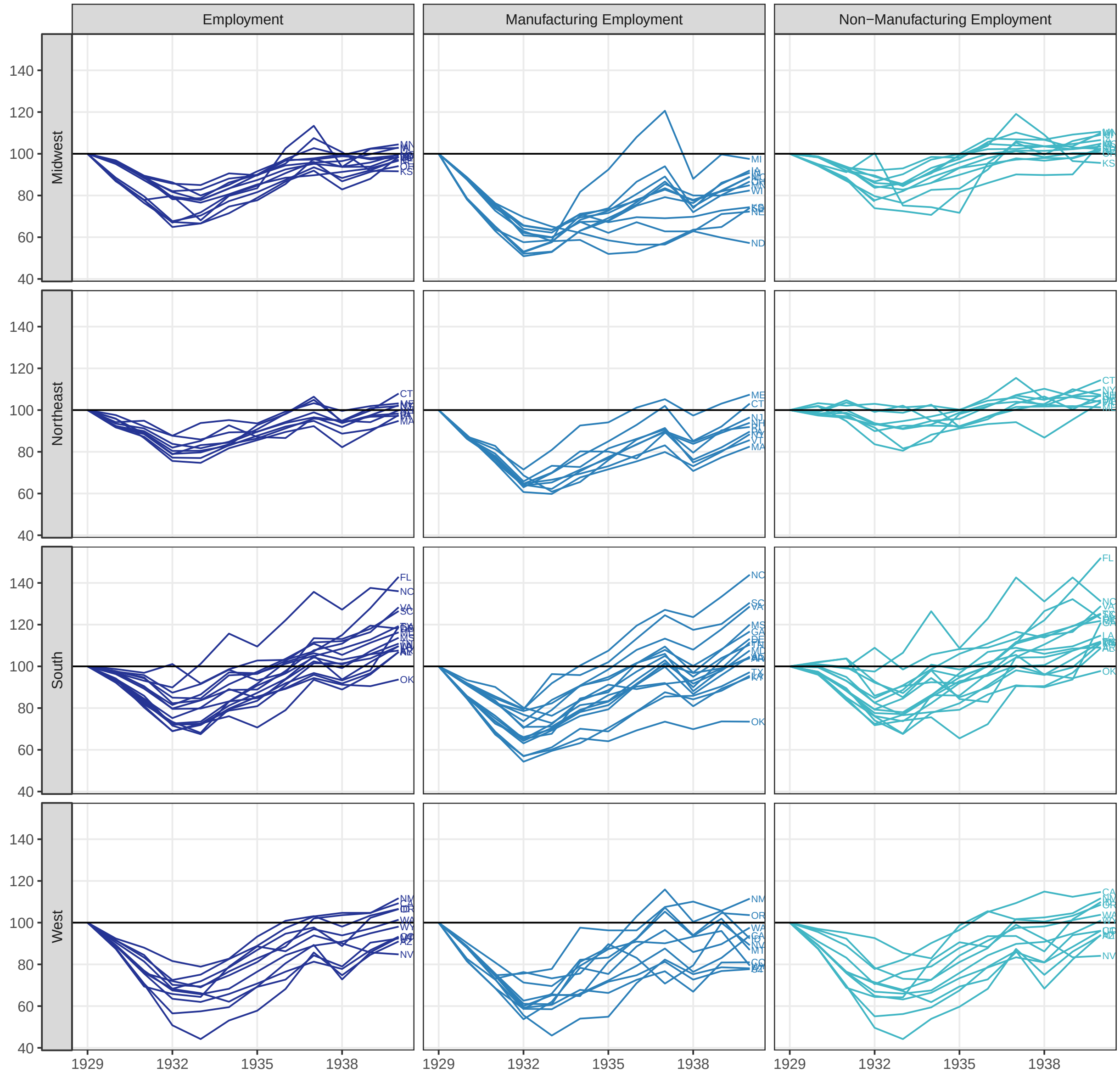


Figure B.4. Employment Conditions during the Great Depression by State, 1930–40. This figure shows the time series of total employment, manufacturing employment, and non-manufacturing employment in each US state, grouped by regions, between 1930 and 1940. The data are from the *Bureau for Labor Statistics*, collected by Wallis (1989).

B.2 Additional Empirical Results

This section presents additional empirical results in order of appearance in the main text.

B.2.1 House Value Percentiles: Additional Specifications

For brevity, in the main text we opted to show the results of our baseline regression for different quantiles of the house value distribution only for $IV^{(3)}$, which is one of our preferred specifications (see Table 9). Now we present in Table B.3 the same estimation from Table 9, except that we use $IV^{(1)}$ instead of our preferred instrument ($IV^{(3)}$). Similarly, Table B.4 shows the equivalent table when using $IV^{(1)}$ instead of $IV^{(3)}$. We can see from both Table B.3 and Table B.4 that the main conclusions discussed in Table 9 remain valid.

Table B.2. Robustness to Alternative Definitions of Instrumental Variables. This table presents the regressions as given by Equation (6) by 2-stage least squares using the instrumental variables $IV^{(1)}$ and $IV^{(2)}$ and comparing them with alternative IVs that use different groups of nationalities for the construction of $IV^{(2)}$. The construction of the original instrumental variables, $IV^{(1)}$ and $IV^{(2)}$, is described in Section 3.2.2. Standard errors are clustered by State. Statistical significance: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

	Building Permit Growth (Number)				Building Permit Growth (Value)				House Value Growth			
	$IV^{(1)}$	$IV^{(2)}_{LATAM}$	$IV^{(2)}_{CAN}$	$IV^{(2)}_{EUR}$	$IV^{(1)}$	$IV^{(2)}_{LATAM}$	$IV^{(2)}_{CAN}$	$IV^{(2)}_{EUR}$	$IV^{(1)}$	$IV^{(2)}_{LATAM}$	$IV^{(2)}_{CAN}$	$IV^{(2)}_{EUR}$
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Mexican Outflow	–14.850**	–13.425*	–17.751**	–17.042*	–3.150***	–3.254***	–2.842***	–3.083**	–1.010**	–1.030***	–0.962**	–0.875*
	(7.110)	(6.746)	(8.043)	(9.677)	(1.060)	(1.073)	(1.017)	(1.233)	(0.386)	(0.362)	(0.437)	(0.468)
Average Age	0.568**	0.567**	0.569**	0.569**	0.001	0.001	0.000	0.001	0.021***	0.021***	0.021***	0.021***
	(0.224)	(0.224)	(0.223)	(0.223)	(0.047)	(0.047)	(0.047)	(0.047)	(0.006)	(0.006)	(0.006)	(0.006)
School Attendance	21.615	21.493	21.861	21.801	–2.100	–2.098	-2.104	–2.101	–1.216*	–1.216*	-1.217*	–1.218*
	(20.590)	(20.571)	(20.606)	(20.677)	(4.698)	(4.699)	(4.696)	(4.696)	(0.653)	(0.653)	(0.653)	(0.653)
Unemployment	1.536	1.556	1.495	1.505	0.593	0.590	0.602	0.595	–0.907***	–0.908***	-0.907***	–0.905***
	(9.027)	(9.023)	(9.032)	(9.048)	(1.199)	(1.199)	(1.199)	(1.200)	(0.216)	(0.216)	(0.217)	(0.218)
State FE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Sector Shares (16)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Observations	244	244	244	244	198	198	198	198	890	890	890	890
R-squared	0.57	0.26	0.26	0.26	0.56	0.11	0.11	0.11	0.59	0.28	0.28	0.28

Table B.3. House Value Percentile Effects using Instrument $IV^{(1)}$. This table re-estimates the *House Value Growth* specification of our baseline specification in Column 9 of Table 8 but uses different percentiles of each city's *House Value* distribution as the dependent variable. The equation we estimate is analogue to Equation (6) and is given by:

$$\underset{1930:40}{\Delta} Y_c(\tau) = \alpha + \beta \cdot IV_c^{(1)} + \lambda_s + \mathbf{X}_{c,1930} + \epsilon_c,$$

where $\Delta_{1930:40} Y^{c(\tau)}$ is a city's 1930-40 growth rate in reported *House Value* at percentile τ. Specifically, we construct house value percentiles for the inter-quartile range (i.e., 25^{th} to 75^{th} percentiles), and calculate the growth rate in each house value percentile between 1930 and 1940. $IV_c^{(1)}$ is the instrument defined in Equation (3). λ_s represents state fixed effects. $\mathbf{X}_{c,1930}$ is a set of 1930 city-level controls, which include the average *Population Age*, average *School Attendance*, average *Unemployment Rate*, and average *Employment Sector Shares*. Each column presents 2SLS results with a different percentile $\tau \in \{25, 35, 45, 50, 55, 65, 75\}$ of the house value distribution. The median house value percentile (i.e., 50^{th} percentile) column is highlighted in grey to serve as a benchmark reported earlier in Column 9 of Table 8. All regressions are weighted by total working age population in 1930 and include State fixed effects. Standard errors in parenthesis are clustered by State. Statistical significance: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

	House Value Growth at each percentile τ						
	P25 (1)	P35 (2)	P45 (3)	P50 (4)	P55 (5)	P65 (6)	P75 (7)
Mexican Outflow	-0.431 (0.552)	-1.055** (0.483)	-0.886* (0.457)	-1.010** (0.386)	-0.692* (0.409)	-0.731** (0.338)	-0.557 (0.385)
Average Age	0.028*** (0.007)	0.020*** (0.006)	0.020*** (0.007)	0.021*** (0.006)	0.018** (0.008)	0.016** (0.007)	0.017*** (0.005)
School Attendance	-1.871** (0.794)	-1.116 (0.702)	-1.020 (0.712)	-1.216* (0.653)	-1.034* (0.578)	-0.865 (0.587)	-0.803 (0.567)
Unemployment	-0.980*** (0.240)	-0.779*** (0.243)	-0.783*** (0.256)	-0.907*** (0.216)	-0.669*** (0.205)	-0.747*** (0.212)	-0.647*** (0.193)
State FE	✓	✓	✓	✓	✓	✓	✓
Sector Shares (16)	✓	✓	✓	✓	✓	✓	✓
Observations	890	890	890	890	890	890	890
R-squared	0.20	0.22	0.25	0.28	0.23	0.26	0.30

Table B.4. House Value Percentile Effects using Instrument $IV^{(2)}$. This table re-estimates the *House Value Growth* specification of our baseline specification in Column 9 of Table 8 but uses different percentiles of each city's *House Value* distribution as the dependent variable. The equation we estimate is analogue to Equation (6) and is given by:

$$\underset{1930:40}{\Delta} Y_c(\tau) = \alpha + \beta \cdot IV_c^{(2)} + \lambda_s + \mathbf{X}_{c,1930} + \epsilon_c,$$

where $\Delta_{1930:40} Y^{c(\tau)}$ is a city's 1930-40 growth rate in reported *House Value* at percentile τ. Specifically, we construct house value percentiles for the inter-quartile range (i.e., 25th to 75th percentiles), and calculate the growth rate in each house value percentile between 1930 and 1940. $IV_c^{(2)}$ is the instrument defined in Equation (4). λ_s represents state fixed effects. $\mathbf{X}_{c,1930}$ is a set of 1930 city-level controls, which include the average *Population Age*, average *School Attendance*, average *Unemployment Rate*, and average *Employment Sector Shares*. Each column presents 2SLS results with a different percentile $\tau \in \{25, 35, 45, 50, 55, 65, 75\}$ of the house value distribution. The median house value percentile (i.e., 50th percentile) column is highlighted in grey to serve as a benchmark reported earlier in Column 9 of Table 8. All regressions are weighted by total working age population in 1930 and include State fixed effects. Standard errors in parenthesis are clustered by State. Statistical significance: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

	House Value Growth at each percentile						
	P25	P35	P45	P50	P55	P65	P75
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Mexican Outflow	-0.414	-1.067**	-0.896**	-1.030***	-0.718*	-0.737**	-0.563
	(0.537)	(0.466)	(0.438)	(0.362)	(0.391)	(0.319)	(0.357)
Average Age	0.028***	0.020***	0.020***	0.021***	0.018**	0.016**	0.017***
	(0.007)	(0.006)	(0.007)	(0.006)	(0.008)	(0.007)	(0.005)
School Attendance	-1.871**	-1.115	-1.020	-1.216*	-1.033*	-0.865	-0.803
	(0.794)	(0.703)	(0.712)	(0.653)	(0.578)	(0.587)	(0.567)
Unemployment	-0.980***	-0.779***	-0.783***	-0.908***	-0.670***	-0.747***	-0.648***
	(0.240)	(0.242)	(0.255)	(0.216)	(0.205)	(0.211)	(0.193)
State FE	✓	✓	✓	✓	✓	✓	✓
Sector Shares (16)	✓	✓	✓	✓	✓	✓	✓
Observations	890	890	890	890	890	890	890
R-squared	0.20	0.22	0.25	0.28	0.23	0.26	0.30

Table B.5. Heterogeneous Effects using Instrument $IV^{(1)}$ This table presents the results of estimating Equation (12), which is given by:

$$\underset{1930:40}{\Delta} Y_c = \alpha + \beta \cdot \left[IV_c^{(1)} \times \mathbb{1}(\textit{Above Median})_{c,1930} \right] + \lambda_s + \mathbf{X}_{c,1930} + \epsilon_c,$$

where $\Delta_{1930:40} Y_c$ is a city's 1930-40 growth rate in one of its housing market outcomes: median *House Value*; *Number of Building Permits*; and *Value of Building Permits*; $IV_c^{(2)}$ is the instrument defined in Equation (4); λ_s represents state fixed effects; $\mathbf{X}_{c,1930}$ is a set of 1930 city-level controls, which include the average *Population Age*, average *School Attendance*, average *Unemployment Rate*, and average *Employment Sector Shares*; and $\mathbb{1}(\textit{Above Median})$ is a dummy variable the assigns value one if the city has a characteristic above the median city with respect to this characteristic's distribution. Columns 1 to 3 refer to the *Population channel*, defined by cities' working-age population distribution. Columns 4 to 6 refer to the *Law Enforcement channel*, defined by cities' total number of workers in law enforcement occupations. Law enforcement occupations include marshals, constables, policemen, detectives, sheriffs, and bailiffs. Columns 7 to 9 refer to the *Attachment channel*, given by the distribution of cities' average age of the Mexican labor force. The coefficients are estimated by an interaction term with the Mexican Outflow with $\mathbb{1}(\textit{Above Median})$, a dummy variable that equals one if the city is above the median in each of the characteristics described above. Standard errors in parenthesis are clustered by State. Statistical significance: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

	Population			Law Enforcement			Age of Mexican Workers		
	Building Permits (Number) (1)	Building Permits (Value) (2)	Median House Value (3)	Building Permits (Number) (4)	Building Permits (Value) (5)	Median House Value (6)	Building Permits (Number) (7)	Building Permits (Value) (8)	Median House Value (9)
$IV_c^{(1)} \times \mathbb{1}(\textit{Above Median})$	–8.347	–2.674***	–0.764**	–7.847	–2.967***	–0.511	–12.663*	–3.251***	–0.931***
	(7.996)	(0.966)	(0.364)	(8.278)	(0.886)	(0.348)	(6.769)	(1.071)	(0.316)
State FE	✓	✓	✓	✓	✓	✓	✓	✓	✓
Controls	✓	✓	✓	✓	✓	✓	✓	✓	✓
Sector Shares (16)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Observations	244	198	890	244	198	890	244	198	890
R-squared	0.255	0.108	0.277	0.255	0.109	0.275	0.256	0.113	0.279

Table B.6. Heterogeneous Effects using Instrument $IV^{(2)}$ This table presents the results of estimating Equation (12), which is given by:

$$\underset{1930:40}{\Delta} Y_c = \alpha + \beta \cdot \left[IV_c^{(2)} \times \mathbb{1}(\textit{Above Median})_{c,1930} \right] + \lambda_s + \mathbf{X}_{c,1930} + \epsilon_c,$$

where $\Delta_{1930:40} Y_c$ is a city's 1930-40 growth rate in one of its housing market outcomes: median *House Value*; *Number of Building Permits*; and *Value of Building Permits*; $IV_c^{(2)}$ is the instrument defined in Equation (4); λ_s represents state fixed effects; $\mathbf{X}_{c,1930}$ is a set of 1930 city-level controls, which include the average *Population Age*, average *School Attendance*, average *Unemployment Rate*, and average *Employment Sector Shares*; and $\mathbb{1}(\textit{Above Median})$ is a dummy variable the assigns value one if the city has a characteristic above the median city with respect to this characteristic's distribution. Columns 1 to 3 refer to the *Population channel*, defined by cities' working-age population distribution. Columns 4 to 6 refer to the *Law Enforcement channel*, defined by cities' total number of workers in law enforcement occupations. Law enforcement occupations include marshals, constables, policemen, detectives, sheriffs, and bailiffs. Columns 7 to 9 refer to the *Attachment channel*, given by the distribution of cities' average age of the Mexican labor force. The coefficients are estimated by an interaction term with the Mexican Outflow with $\mathbb{1}(\textit{Above Median})$, a dummy variable that equals one if the city is above the median in each of the characteristics described above. Standard errors in parenthesis are clustered by State. Statistical significance: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

	Population			Law Enforcement			Age of Mexican Workers		
	Building Permits (Number) (1)	Building Permits (Value) (2)	Median House Value (3)	Building Permits (Number) (4)	Building Permits (Value) (5)	Median House Value (6)	Building Permits (Number) (7)	Building Permits (Value) (8)	Median House Value (9)
$IV_c^{(2)} \times \mathbb{1}(\textit{Above Median})$	–9.065	–2.86	–0.787**	–8.652	–3.096***	–0.523*	–12.264*	–3.320***	–0.983***
	(7.542)	(0.943)	(0.324)	(7.756)	(0.903)	(0.302)	(6.750)	(1.079)	(0.322)
State FE	✓	✓	✓	✓	✓	✓	✓	✓	✓
Controls	✓	✓	✓	✓	✓	✓	✓	✓	✓
Sector Shares (16)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Observations	244	198	890	244	198	890	244	198	890
R-squared	0.255	0.108	0.277	0.255	0.109	0.275	0.256	0.113	0.279

Table B.7. Robustness to the exclusion of cities with small number of Mexicans in 1930: Effects on Housing Market, 1930–40. This table presents the regressions as given by Equation (6), but with the inclusion of descendants of immigrants to the Mexican outflow measure, and the instrumental variables. All regressions are weighted by total working age population in 1930 and include State fixed effects. Standard errors in parenthesis are clustered by State. Statistical significance: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

	Building Permit Growth (Number)			Building Permit Growth (Value)			House Value Growth		
	$IV^{(1)}$ (1)	$IV^{(2)}$ (2)	$IV^{(3)}$ (3)	$IV^{(1)}$ (4)	$IV^{(2)}$ (5)	$IV^{(3)}$ (6)	$IV^{(1)}$ (7)	$IV^{(2)}$ (8)	$IV^{(3)}$ (9)
Mexican Outflow	–14.584*	–13.776*	–14.932*	–3.133**	–3.211***	–3.720**	–0.805*	–0.811**	–0.912**
	(7.295)	(7.047)	(8.208)	(1.146)	(1.160)	(1.424)	(0.417)	(0.396)	(0.337)
Average Age	0.298	0.297	0.260	–0.026	–0.026	–0.027	0.015**	0.015**	0.019**
	(0.276)	(0.277)	(0.266)	(0.056)	(0.056)	(0.058)	(0.007)	(0.007)	(0.008)
School Attendance	8.462	8.399	7.455	–1.521	–1.522	–2.008	–1.217	–1.217	–1.326*
	(28.243)	(28.208)	(29.122)	(5.033)	(5.034)	(5.213)	(0.732)	(0.732)	(0.727)
Unemployment	–1.067	–1.054	–3.457	1.193	1.191	0.906	–1.178***	–1.178***	–1.210***
	(11.255)	(11.245)	(11.481)	(1.467)	(1.467)	(1.521)	(0.318)	(0.317)	(0.323)
State FE	✓	✓	✓	✓	✓	✓	✓	✓	✓
Sector Shares (16)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Observations	185	185	180	165	165	160	491	491	474
R-squared	0.27	0.27	0.29	0.13	0.13	0.13	0.30	0.30	0.32