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## ABSTRACT

During the period 1929-34 a campaign forcing the repatriation of Mexicans and Mexican Americans was carried out in the U.S. by states and local authorities. The claim of politicians at the time was that repatriations would reduce local unemployment and give jobs to Americans, alleviating the local effects of the Great Depression. This paper uses this episode to examine the consequences of Mexican repatriations on labor market outcomes of natives. Analyzing 893 cities using full count decennial Census data in the period 1930-40, we find that repatriation of Mexicans was associated with small decreases in native employment and increases in native unemployment. These results are robust to the inclusion of many controls. We then apply an instrumental variable strategy based on the differential size of Mexican communities in 1930, as well as a matching method, to estimate a causal "average treatment effect." Confirming the OLS regressions, the causal estimates do not support the claim that repatriations had any expansionary effects on native employment, but suggest instead that they had no effect on, or possibly depressed, their employment and wages.

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# 1 Introduction

At several points in U.S. history, especially at times when the median worker experienced economic hardship, some political candidates and policy makers have proposed the idea that repatriating (undocumented) immigrants could solve or alleviate the problems of unemployment and low wages.[1] In the period 1929-34, when the Great Depression was producing its effects, this idea was proposed and pursued on a large scale at the expenses of first and second generation Mexican immigrants. The repatriation and deportation programs, mostly run by local and state governments with the approval of the U.S. Federal government and with help from local charities and from the Mexican government, resulted in the repatriation of between 400,000 and 500,000 Mexicans in the period 1930-40.[2] This figure corresponds to about one third of the total Mexican population in the U.S. at the time (Gratton and Merchant 2013). Between one fourth and one third of these repatriates were U.S.-born, second-generation immigrants and hence U.S. citizens. The distinction between "legal" and "illegal" immigrant was overlooked in favor of explicitly targeting people of Mexican descent, even when they were U.S. citizens. For this reason the episode has more recently been considered a grave violation of civil rights (see Johnson 2005 and the book "*Decade of Betrayal*" by Balderrama and Rodriguez 2006).

The explicit goal of the program was to reduce the local economic burden represented by Mexicans who were poor, and to create jobs for the local population of natives by removing Mexicans who were employed and "taking away" labor opportunities. The justification of the repatriations as a way of improving the local economic- and job market conditions was very clearly stated by the politicians of the time. The Commissioner General of Immigration, Harry E Hull, wrote in his immigration report of 1931 "*"It is the purpose of the Department of Labor...to foster, promote, and develop the welfare of the wage earners of the United States, ... and to advance their opportunities for profitable employment; and it is a mere corollary of this duty and purpose to spare no reasonable effort to remove the menace of unfair competition which actually exists in the vast number of aliens who have in one way or another, principally by surreptitious entries, violated our immigration laws."* Similarly, Congressman Martin Dies of Texas, wrote in the Chicago Herald-Examiner in 1930: "*The large alien population is the basic cause of unemployment.*"(Betten and Mohl 1973).

In this paper we analyze, using decennial Census data from 1930, 1940 and 1950, whether there is any support to the claim that communities which repatriated relatively more Mexicans experienced improved labor market conditions for either natives or other immigrants. We exploit

[1] As recently as September 4th, 2017, Attorney General Jeff Sessions, referring to Deferred Action for Childhood Arrivals (DACA), a program protecting undocumented who arrived as children from deportation, said "*[It] denied jobs to hundreds of thousands of Americans by allowing those same illegal aliens to take those jobs.*"

[2] Some estimates (e.g., Balderrama and Rodriguez 2006,) indicate a number of repatriation as large as 1 million. The more reasonable and better documented ones, however, suggest the numbers we reported in the text.

the substantial variation in the incidence of deportation of Mexicans relative to the local population across cities. It was due to both large differences in the local Mexican population relative to the total population in 1930 and differences in the intensity of repatriation across communities. The most intensive period of Mexican deportations and repatriations was 1929-34, but they continued until 1936-7 (Hoffman 1972). We measure the intensity of repatriation across 893 U.S. cities by the total decline of the Mexican labor force between 1930 and 1940, relative to the total population in 1930. We then analyze as outcomes the percentage changes in employment and in unemployment of natives during the same period, 1930-40. Our first goal is to examine the correlation between Mexican Deportation and each of native employment and wage growth across cities.

The simple correlation obtained from cross-sectional regressions, even with a vast array of controls, shows that larger repatriation of Mexicans was associated with *lower* employment of natives and *higher* unemployment of natives. These correlations, which are usually not statistically significant, may not capture causation. Cities that were most negatively affected by the Great Depression could have experienced voluntary Mexican repatriation as well as native employment decline. To alleviate this concern and make progress toward identification of causality, we follow two distinct methodological strategies. First, we construct a measure of city-level imputed repatriation, based on the national excess-repatriation of Mexicans relative to other migrants, by age groups. We then use the share of Mexicans and their age distribution in 1930 across cities to predict the excess repatriation, independently of any city-specific economic conditions. Nationally, Mexicans were the only group targeted for repatriation and deportation.

We use this imputed repatriation rate as an instrument and, in addition to state fixed effects, we add a series of city-level controls shown to affect employment and wages in local economies (Boustan et al. 2010, Fishback et al. 2005). These include the generosity of New Deal policies, weather variables, Bartik index, presence of police, the local sector composition and other characteristics in 1930. The instrumental variable (IV) analysis confirms the positive correlation between Mexican labor force decline and native employment decline, usually with low or marginal statistical significance.

Second, we apply a matching method and estimate the average effect of repatriations in a non-parametric and possibly more robust way, relying on weaker assumptions than the 2SLS estimates (Imbens 2015). We define as "treated" those cities that experienced repatriation intensity greater than 2 (or 5)% of the population between 1930 and 1940, and we call "control" cities those where Mexican repatriation intensity was less than 1%. We then match each city with one in the opposite group, so as to minimize the distance of an array of pre-determined variables within the pair. Additionally, we also match cities with similar value of the estimated propensity score, or probability of being in the treatment group. We then estimate the effect of the treatment (repatriation of 2% or

more) by calculating the average difference in labor market outcomes of natives between all paired treatment and control cities. The results are in line with the 2SLS analysis. In most specifications we find that high repatriation rates produced lower native employment growth and larger unemployment growth, though most of the coefficients are not statistically significant. Interestingly, if we focus on cities with very high repatriation rates (more than 5% of the initial population) this method produces a significant *negative* effect on native employment indicating that the local labor market disruption caused by high repatriation intensity may have been significant.

The 1930-40 decade is an interesting period to analyze medium-run effects of the repatriations. While this period has some specificity, some of the lessons learned may also be applicable to the present. First, the campaign spanned six years and was expected to provide relief to native unemployment by freeing up jobs for natives to take, hence a decade is the appropriate time span to evaluate the consequences. Second, while the Great Depression occurred during this period, the years 1930 and 1940 were comparable in that GDP in each of those years was close to its long run trend, with a deep recession and a big recovery in between. Third, given the high unemployment rate of U.S. natives when Mexicans were repatriated,[3] the claim that their jobs could be taken by Americans seems at its strongest during this period. Hence our main focus is analyzing whether repatriation affected native labor market outcomes in the decade 1930-40. We can also investigate whether any impact persisted until 1950. The advantage of analyzing this episode is that we can learn the medium- and long-run effect of a large program of Mexican repatriation, obtaining a useful test of the claim that this practice is an effective way to increase native employment. We note with interest that the situation reversed after 1950. With the expansion of the Bracero program, some cities that had experienced a large repatriation began to have larger inflows of Mexicans. Hence the repatriation intensity in the 1930s is a strong predictor of positive Mexican immigrant flows in the 1950s and later. It is therefore not reasonable to analyze Mexican repatriation impacts post-1950, as the negative impact of the repatriation on the local Mexican labor force was fully reversed by that time.

We explore additional outcomes and channels that may explain the negative local effect of repatriation on natives. We find that native workers had a tendency to downgrade their jobs in response to Mexican repatriations and that net migration of natives into the city also declined. Likely, the negative multiplier effect of losing labor and local demand may explain part of the employment and wage effect. We do not find any significant effect on employment of other immigrants. Our results also show that the stronger negative employment effects were on those jobs complementary to those taken by Mexicans (e.g., on more skilled and administrative jobs and crafts) as companies likely lost workers and had to cut other positions. Finally, the effect of higher unemployment rates

[3]Especially during the peak repatriation years of 1932-4 the unemployment rate in the U.S. was higher than 20%.

seems to persist, although attenuated, as late as 1950.

Several studies try to assess the labor market impact of immigrants to the U.S. and some of them, such as Borjas and Katz (2007), Card and Lewis (2007) and Monras (2017), focus specifically on Mexican immigrants. Most papers, however, use variation in their inflow and focus on immigration post-1960. Episodes that produced sudden and localized increases of immigrants to the U.S., such as the Mariel Boatlift, have also been object of intense study (Card 1990, Borjas 2017, and Peri and Yasenov (forthcoming)). They have been considered as valuable "natural experiments" allowing scholars to isolate likely causal effects. Alternatively, other causal identification of the impact of immigrants on local labor markets has come from exploiting changes in the supply of immigrants constructed using shift-share proxies based on past immigrant location (Card 2001, Basso and Peri 2016) or on combinations of policy changes such as the H1B visa policy (Kerr and Lincoln 2010 and Peri et al. 2016) and past location of immigrants. Most studies find only small effects of immigration on native employment and wages, on average and also specifically on less skilled native workers. Several studies have provided explanations for the lack of displacement and competition effects of immigrants, ranging from complementarity of abilities (Ottaviano and Peri 2012), productivity-enhancing specialization (Peri and Sparber 2009), choice of appropriate technology (Lewis 2012) and positive local demand effects (McLaren and Hong 2015).

Rarely have researchers used repatriation of immigrants to analyze the reverse impact on natives. The importance of such analysis is multi-faceted. First, the impact of removing immigrants who are integrated into the labor force can be very different from, and not symmetric to, the impact of adding them. There are different costs of integrating and separating workers, each disrupting production, and they may work different ways.

Second, with several executive orders encouraging deportation of undocumented immigrants, the Trump administration is pursuing a repatriation policy with similar goals to those of the 1930s. Given the large economic and human costs of deportation-based policies, it is important to test whether there is any evidence suggestive of the promised labor market benefits to natives. Clemens et al. (2017) have recently analyzed the effects of the repatriations following the end of the Bracero program, when almost half a million agricultural workers from Mexico were excluded from the U.S. agricultural labor market. The authors find no significant effects on employment and wages of U.S.-born agricultural workers. They argue that capital-intensive technology and crop adjustments played a key role in absorbing the labor change, hence not significantly affecting labor market outcomes for natives. Their study has the advantage of focusing on agricultural workers with the ability of analyzing certain specific channels of adjustment. However, such a specific policy may have limited external validity for the economy as a whole. The Bracero program and the subsequent repatriations affected mostly the agricultural sector, currently a very small fraction

of U.S. labor markets. In contrast, the repatriations of the 1930s involved many urban communities with large cities, whose economies were already based on manufacturing and services.[4] Hence, we view our paper as complementary to, and extending the analysis of, Clemens et al. (2017).

The rest of the paper is organized as follows. Section 2 describes the historical context and some details about the Mexican repatriation program. Section 3 describes the data we use to measure Mexican repatriations and the labor market outcomes. Section 4 outlines the empirical specification and our identification strategy. Section 5 discusses the interpretation framework of our findings. Section 6 shows the estimates and the robustness checks, while Section 7 concludes.

## 2 Historical Background

Immigration from Mexico grew in the early 20th century, especially in the South-West of the U.S., driven largely by employers recruiting Mexican workers for jobs in railroad, meatpacking, steel mills and agriculture. Until 1924, however, immigration from Europe was much larger and quantitatively more important. With the Immigration Act of 1924 imposing quotas on Europeans but not on natives of the Western Hemisphere, immigration of Mexicans grew robustly and steadily through 1929. Mexican immigrants in this period were among the most recently arrived and ethnically different from the native population. Hence they were easily targeted once the public sentiment toward immigration turned sour. As the Great Depression hit the U.S. economy, beginning in 1929, organized labor, local media and political groups pressed for – and organized themselves to help with – repatriation of Mexicans and Mexican Americans (Balderrama and Rodriguez 2006). Hoffman (1972) estimates that over 400,000 Mexicans left the U.S. between 1929 and 1937. Other sources (Balderrama and Rodriguez 2006) claim much higher levels (up to one million, in some sources even two million), but with little support in the official statistical records (see Gratton and Merchant 2013 for a summary of aggregate figures). The more reliable estimates imply that around 30% of the Mexican population present in the U.S. as of 1930, counted by the Census at 1.3 million people, repatriated.

In most cases, these repatriations were encouraged or forced, mainly by local authorities. They pushed or harassed local Mexicans into returning, provided free transportation in trains, and coerced them (at least partially) to leave their U.S. homes (see Balderrama and Rodriguez 2006). Few cases were actual deportations by the Federal government, but this entity allowed local and state agents to act in a forceful manner in promoting repatriation. In several cases, at least in the early years, charities and the Mexican government aided with repatriations, with the idea that this would improve the economic status of Mexicans and rejoin them with their people and country.

[4]For instance, authorities in Los Angeles, CA, Gary, IN, and East Chicago, IN, were among the most active enforcers of deportations. The aggressive repatriation program in East Chicago, IN, has been noticed and described by several historians such as Simon (1974).

Progressively, however, local authorities became more aggressive in promoting repatriation, even for those cases classified as "voluntary." Only recently have some U.S. states recognized their role in violating civil liberties and coercing even citizens into repatriation.[5]

A very clear feature of the repatriation program is that it was strongly predicated on the economic cost of Mexican immigrants and their role in increasing local unemployment. Somewhat inconsistently the two main reasons adduced by Secretary of Labor William Doak (Hoffman 1972) for repatriation were that (i) "*it was essential to reduce unemployment of citizens*," and that (ii) "*many of the target individuals were jobless and on relief*" (i.e., receiving some form of public or charity assistance). The oft-repeated claim of a positive effect of repatriation on local unemployment was behind the involvement of local authorities and charities in the program. In the statements of most bureaucrats and politicians of the time, the positive effect of Mexican repatriation on native employment was simply self-evident.[6] Yet the repatriation program would eventually be criticized for violating civil liberties and personal freedom, and for having overall negative social consequences. Evaluating whether the underlying economic motivation was sound, seems therefore critical.

The main period we are considering (1930-40) includes the years of the Great Depression, and hence very deep disruption of the economic activities across many areas and sectors. Other studies (e.g., Boustan et al. 2010, Fishback et al. 2005) have analyzed this period and shown that local weather conditions, especially extreme events such as the Dust Bowl, extreme droughts and differences in the local generosity of New Deal policies beginning in 1933, have also produced large local effects including internal labor mobility. We include all these variables as controls to assuage the concern that they may be correlated with Mexican repatriation and local economic conditions. Notice that the focus of our analysis is not the effect of coerced removal, but rather the economic effect of many Mexicans and Mexican Americans leaving the U.S. economy at a rate and following a geographic pattern which, as we show below, was very different from the repatriation of other migrants who returned on a strictly voluntary basis. Moreover, as already mentioned, the fact that during the Great Depression the unemployment rate of Americans raised to more than 20% implies that this should have been the ideal case to free some jobs that plenty of Americans would take. One can argue that this episode should produce an upper bound of the beneficial effect of repatriation by reducing the very high unemployment rates experienced by natives, especially between 1934 and 1938.

[5]For instance, in 2005 the state of California issued the "*Apology Act for the 1930s Mexican Repatriation Program*".

[6]Representative of this sentiment is the quote by Commissioner General of Immigration, Harry E Hull, that we reported in the introduction.

# 3 Data

Our analysis considers 893 cities in the United States that we can identify consistently in the 1930, 1940 and 1950 Censuses (Ruggles et al. 2015). Central cities are place of residence in a metro area that counted at least 25,000 people in 1920 and 1930. The focus on cities allows us to use the largest available samples of the U.S. Census (full count for both 1930 and 1940 and 1% for 1950) and to keep the unit of analysis comparable over decades.[7] Still, to give an idea of the distribution of repatriations in 1930-40 in Figure 1, we show the map of the continental U.S., divided into SEAs. Each area is represented with different intensity of gray, depending on the intensity of Mexican repatriation. We call "repatriation intensity" the difference in the number of Mexicans between 1930 and 1940 in the area, relative to total population in 1930. Darker shades denote higher repatriation rates (i.e., larger absolute values with negative sign). Note that throughout the analysis we denote with a negative (positive) sign the net flow of Mexicans out (in). The areas with largest repatriation intensity are those near the border with Mexico and in Indiana. In California, New Mexico, Colorado and Texas there are economic areas with intermediate repatriation, and in most other states the intensity of repatriation was low, usually less than 0.02 in absolute value.

As the main goal of the paper is to analyze whether 1930-40 Mexican repatriation intensity across cities brought more advantageous labor market outcomes for natives, it is useful to have a first look at raw correlations. In Panel A of Figure 2 we plot against each other Mexican repatriation intensity and changes in native employment 1930-40, both standardized by the 1930 working age population. Each city's marker sizes is proportional to its population. The first impression is that there is no significant correlation between repatriation and labor market outcomes of natives. While there is large variation in employment growth across cities (most of it for cities with very low intensity of repatriation), the cities with large and very large repatriation rates (negative values on the horizontal axis) do not seem to perform very far from the average. Panel B of Figure 2 shows the same scatter plot, with changes in native unemployment 1930-40 as a share of working age population on the vertical axis and repatriation intensity on the horizontal. Even in this case the association is weak, but somewhat negative (see the regression line). This implies that cities with higher repatriation rates (large negative values) also had larger increases in the native unemployment rate between 1930 and 1940.

As can be seen from Figures 1 and 2, the net flow of Mexicans in most U.S. economic areas and cities was negative during the 1930-40 period. The Great Depression of 1929-35 certainly induced

[7] The 1930 and 1940 Censuses also identify State Economic Areas (SEAs), which encompass the whole U.S. territory, while cities only include the more densely populated localities. However, those units are only identified in the smaller samples (5% sample for 1930 and 1% sample for 1940) of the Census and do not allow precision of measurement of Mexican immigrant share. The measurement error on the share of Mexicans can be nontrivial also because, in some cases, the variable was missing and subsequently imputed by Ruggles et al. 2015. Hence relying on the full census count is particularly important to minimize measurement error (see Aydemir and Borjas 2011). Therefore, in the main analysis of the paper we focus on cities as geographic units.

many immigrants of all origins to return to their home countries, as employment fell dramatically in those years. However, when comparing the repatriation rate of Mexicans (as deduced by their change in population) with that of three other large and recently arrived groups of immigrants, the Italians, the Polish and the Russians, one notices a much larger repatriation rate of the first group. Panel A of Figure 2 shows the overall 1930-40 repatriation as share of 1930 population for those ethnic groups. It reveals a repatriation rate of around 33% of Mexicans versus only 10-15% of Italians and Russians and 22% of Polish migrants. Even more interestingly, Panel B shows the repatriation rate relative to initial population for people over 40 years of age. Normally, return for economic reasons is prevalent among younger generations. Older migrants who, on average, have spent more years in the U.S. are less likely to leave. In fact, even in this period of economic depression the change in population of cohorts over 40 was positive for the European groups, implying inflows larger than repatriation, while it was negative for Mexicans, implying greater returns of older working-age people. These statistics reveal a particularly large tendency of Mexicans to repatriate when compared to other immigrant groups in this period. As Mexicans were the only immigrants targeted for repatriation we consider their "excess" return relative to European immigrants as a proxy for forced/encouraged repatriation.[8]

The largest part of the variation in repatriation relative to initial population across cities was driven by the differential sizes of the Mexican communities. While there was some idiosyncratic variation, about one third of resident Mexicans were repatriated across most communities. The national average of repatriated U.S.-resident Mexicans, between 1930 and 1940, was exactly 33%. What percent this represents of the population depends largely on how large Mexican population was relative to the local population. Figure 3 shows the correlation between the Mexican population share in 1930 and the Mexican repatriation as a share of initial population. We notice a very strong and not far from linear relation in which an increase in the Mexican population as of 1930 by $x$% of total population was associated with an increase of about $x/3$% in the repatriation of Mexicans as a share of total population. Next, Table 1 lists the cities with the highest repatriation rates in 1930-40 relative to initial population. We list all cities with values larger than 2% in absolute value, which is the threshold to define a city as "treated" when we adopt a matching strategy for the analysis. A large share of "treated" areas was in Texas, but Arizona and California, New Mexico and some localities in Indiana are also well-represented.

Note that we define Mexicans as Mexican-origin, including those born in Mexico and the children of Mexican parents, because the deportation program was conducted based on ethnicity-race

[8]In Figure A1 of the the Appendix we show that, by considering finer age cohorts, for groups over 40 years of age the repatriation of Mexican was much larger. At the same time, among younger immigrants the repatriation rate was similar for Mexican and European immigrants. Hence there was an excess of repatriation of over 40 years old Mexican individuals. As they were more rooted in the local community after longer period of stay, they were likely those more reluctant to leave on their volition and hence they might have been affected by the repatriation campaign, through pressure, coercion or incentives.

rather than place of birth. This means that many of the repatriated people of Mexican-origin were U.S. citizens. [9] Accordingly, native-born workers are also defined as U.S.-born who are not children of Mexican-born parents. Other immigrants include only the first generation foreign-born without Mexican-origin.

# 4 Empirical Strategy

## 4.1 Instrumental Variable and Regression Approach

Our explanatory variable of interest is the repatriation of Mexicans between 1930 and 1940 relative to the population in 1930 for each U.S. city. We then relate this variable to the change of several labor market outcomes for native workers over the same time period. In order to achieve identification of the causal effect of repatriation, however, we need variation in repatriation that is uncorrelated with determinants of local labor market outcomes. Below we discuss our approach in this direction.

Formally, the repatriation intensity variable is defined as follows:

$$\frac{\Delta MEX_c}{P_{c,1930}} = \left[\frac{MEX_{c,1940} - MEX_{c,1930}}{MEX_{c,1930}}\right] \cdot \frac{MEX_{c,1930}}{P_{c,1930}}. \tag{1}$$

The term $\Delta MEX_c = MEX_{c,1940} - MEX_{c,1930}$ represents the change in the Mexican labor force between 1930 and 1940 in city $c$.[10] This change is taken as a proxy for the repatriation of Mexicans. The term $P_{c,1930}$ is the total working age population in city $c$ and year 1930 and we use it for standardization. Any effect of repatriation will depend on how large the decline in Mexicans was, relative to the local population. The decomposition on the right hand side of Equation (1) shows how the variation of the repatriation variable across cities depends on two terms. The first one, $\left[\frac{MEX_{c,1940} - MEX_{c,1930}}{MEX_{c,1930}}\right]$, is the repatriation intensity of the Mexican community in city $c$. In other words, it represents the percentage of Mexicans who repatriated between 1930 and 1940. The second term, $\frac{MEX_{c,1930}}{P_{c,1930}}$, is the share of Mexicans in the population of working age in city $c$.

We begin our empirical analysis by showing the correlation between the repatriation variable in (1) and several labor market outcomes of natives across cities. However, a first order concern is that of identifying a source of variation for $\frac{\Delta MEX_c}{P_{c,1930}}$ which, after controlling for some observable city features, is uncorrelated with local determinants of labor market demand and economic performance between 1930 and 1940. In the decomposition above it is clear that the first term, capturing intensity of local repatriation of the Mexican community, is highly correlated with local

[9] The fact that U.S. citizens were encouraged or coerced to repatriate was later considered as a grave civil right violation by states and local governments. In 2005, the State of California passed the "*Apology Act for the 1930s Mexican Repatriation Program*", apologizing for the state government's role in the repatriation.

[10] Throughout our analysis, we restrict our sample to individuals aged 18 to 65 who were not self-employed, living in group quarters, or enrolled in school.

economic and labor market trends. Namely, the propensity of Mexicans (and any other group) to leave will be higher in cities more severely affected by the Great Depression. Moreover, on average, the Mexican repatriation rate can be correlated with repatriation rate of all immigrant groups, and hence be a very imprecise proxy for the specific "excess repatriation" of Mexicans that we would like to capture as explanatory variable. On the other hand, the share of Mexicans in the local working age population, $\frac{MEX_{c,1930}}{P_{c,1930}}$, is at least pre-determined relative to the labor market outcomes of the 1930-40 period. While it is not purely random, and certainly correlated with other observable and unobservable city-characteristics as of 1930, it can be a good starting point to provide identifying variation since it is highly correlated with Mexican repatriation (as shown in Figure 3).

In our main instrumental variable strategy we exploit city variation of the share of Mexican individuals in the population and its age composition in 1930. We then apply a national repatriation rate of Mexicans net of the repatriation rate of Europeans, by age group, as this difference suggests an excess repatriation likely produced by the campaigns (as discussed in Section 2). At the same time we can control for several economic characteristics in 1930, that may correlate with the share of Mexicans, such as the share of employment in agriculture, in manufacturing, the non-white share of the population, the age composition of local population, and the logarithm of working age population. If those variables affect economic performance in 1930-40 their inclusion reduces the risk of spurious correlation. In addition, we control for several measures related to the intensity of the Great Depression such as New Deal incentives, weather variables, employment growth as predicted by a Bartik index, intensity of crime as predicted by police forces and state fixed effects. Finally, to have some insight on whether the share of Mexicans was correlated with other unobservable and persistent determinants of natives' employment and wages, we check whether it is correlated with the labor market trends of 1910-30.

We call this IV "imputed repatriation rate" and we construct it as follows:

$$\frac{\Delta \widehat{MEX}_c}{P_{c,1930}} = \sum_g \left[ \frac{MEX^g_{1940} - MEX^g_{1930}}{MEX^g_{1930}} - \frac{EU^g_{1940} - EU^g_{1930}}{EU^g_{1930}} \right] \cdot \frac{MEX^g_{c,1930}}{P_{c,1930}}. \tag{2}$$

In (2) we exploit the different share of Mexicans by age ($g$) in the population of city $c$ and apply to it the excess deportation intensity of Mexicans relative to Europeans in that age group.[11] This variable will be larger in cities with larger shares of Mexicans, and particularly large in cities with large shares of Mexicans among the age groups that experienced large excess repatriation. A simple alternative IV that we also use applies the national repatriation rate of Mexicans to the Mexican population share as follows:

[11] We use the following nine age groups: 18-25, 26-30, 31-35, 36-40, 41-45, 46-50, 51-55, 56-60, and 61-65.

$$\left(\frac{\Delta\widehat{MEX}_c}{P_{c,1930}}\right)_{Alt} = \left[\frac{MEX_{1940} - MEX_{1930}}{MEX_{1930}}\right] \cdot \frac{MEX_{c,1930}}{P_{c,1930}}. \quad (3)$$

This second method simply uses differences in the share of Mexicans as identifying variation across cities.

The main equation that we estimate, first by OLS and then by 2SLS with the instruments described above, is the following:

$$y_c^j = \phi_s + \beta_y^j \frac{\Delta MEX_c}{P_{c,1930}} + \gamma X_c^j + \varepsilon_c^j. \quad (4)$$

The variable $y_c^j$ is the period (1930-40) change in outcome $y$ (either employment or unemployment in our main specifications) for subgroup $j$ of workers (either natives, other foreign-born or sub-groups of those populations), standardized by local population in 1930. The term $\phi_s$ captures state-specific fixed effects. Our main explanatory variable, $\Delta MEX_c/P_c$, is the period (1930-40) change in Mexican-origin workers, standardized by total local population in 1930. The term $X_c$ includes other city-specific controls, measured in year 1930, and $\varepsilon_c^j$ is an idiosyncratic, zero-mean error term. If the exclusion restrictions are satisfied, once we control for $X_c^j$, the coefficient $\beta_y^j/100$ in the 2SLS regressions can be interpreted as the effect on outcome $y$, for subgroup $j$, of a repatriation intensity of Mexicans equal to one percent of the working age population.

## 4.2 Matching

As an alternative to the 2SLS strategy we also implement two matching methods. Their main advantages are being more flexible and robust estimators, and not depending on the fully parametric assumptions about the effect of repatriation on native labor outcomes. Hence they will strengthen the credibility of our results and provide another estimate of the average effect of repatriation, using somewhat different identification assumptions. The core idea of matching methods consists in classifying cities as either treated or control units, and pairing each one of them with one or more similar cities in the opposite group (Imbens 2015). In our setting we define "treatment" to be the experience of high Mexican repatriation intensity between 1930 and 1940, while "control" corresponds to the experience of a very low (near zero) level of Mexican repatriation. The identifying assumption is that, after conditioning on a set of covariates (or on the propensity score), the treatment assignment is random. In other words, the only systematic differences between matched cities, one in each group, is the share of Mexicans, which drives the differences in the repatriation rate. As mentioned above, we are able to condition on a rich set of labor market characteristics including pre-1930 employment and unemployment trends, a Bartik index, and demographic, industrial and human capital compositions as of 1930.

To be more specific, consider the potential outcomes framework where $Y_i^1$ denotes the outcome of city $i$ if it is the treated group and $Y_i^0$ its outcome if it was in the control group (Rubin 1974). For each city only one of these outcomes is realized and therefore observed. For instance, for cities in the treatment group we observe $Y_i^1$ but we have no information on the counter-factual outcome $Y_i^0$. Conversely, for the control group, we observe $Y_i^0$ but we have no information on the values $Y_i^1$. The missing counter-factual outcomes then need to be imputed. The matching estimator does this by averaging the outcomes for the most similar cities in the opposite group.

We implement two different estimators: nearest neighbor and propensity score matching. The first defines similarity among cities as a weighted function of a set of chosen variables. A city with the closest economic/demographic/labor market characteristics, but in the opposite group, will be matched to each treatment and each control. The method is non-parametric as it does not impose any explicit functional form for either the treatment assignment or the outcome. The second approach we use is matching the propensity score, which defines similarity based on estimated treatment probability. It requires estimating the probability of being in the treatment group in a first stage which is done parametrically, imposing a logit model. In the second step, this method matches each city with one in the opposite group but with a similar predicted value in the first stage.

The main parameter of interest when implementing this method is the average treatment effect (ATE).[12] Namely, this is the mean difference between the two potential outcomes (either observed or imputed) for all cities, $E[Y_1 - Y_0]$. It is estimated via its sample analog[13]

$$ATE = \frac{1}{N}\sum_{i=1}^{N} Y_i^1 - Y_i^0.$$

The estimates are then interpreted as the average effect of Mexican repatriation on natives' labor market outcomes. We show robust standard errors derived by Abadie and Imbens (2006, 2011, 2016).

# 5 Framework to Interpret the Estimated Coefficients

Our main empirical approach focuses on the identification of the effect of repatriations on the change in employment of natives using a reduced-form approach. The estimates of this effect (captured by the coefficient $\beta$ in the regression and the ATE in the matching method) can be interpreted within the framework of a classic labor demand and labor supply model. Their signs

[12] A related parameter potentially of interest is the average treatment effect on the treated ATET, $E[Y_1 - Y_0|treated]$. In our case, however, the number of treated cities is very small so this is a noisy and potentially unreliable parameter.

[13] For notational simplicity we ignore denoting imputed outcomes. Technically, the treatment effect for the control group should be denoted $\hat{Y}_1 - Y_0$ and for the treatment it should be $Y_1 - \hat{Y}_0$.

and magnitudes will reveal important information on the total net effect from the different channels we discuss below.

The easiest way to interpret our estimated coefficients is to think of the repatriation of Mexicans as a decrease in the supply of the specific type of labor provided by that group. Mexicans have skills, occupational distribution and task employment that characterize them. Repatriating them will cause a decrease in the supply of those. As we are considering a decade of repatriations and its consequences we should think of these as medium-long run effects. It is reasonable to believe that over the decade the change in Mexican supply is accompanied with changes in capital. This, as a complementary factor, would leave locations with declines of Mexicans implying a decline in labor demand that accompanies the lower labor supply. However, if capital is significantly slower than labor in adjusting, there may be an increase in capital per worker and hence average wages would increase more where more Mexicans are repatriated. Therefore, a negative estimate of the coefficient $\beta$ in equation (4) would be consistent with the idea that departures of Mexicans free up some capital per worker and natives' employment opportunity benefit. This is a "short run effect" emphasized in Borjas (2003) and it may still be present in the 10-year horizon only if capital is quite slow in adjusting.

A second relevant aspect in determining the sign of the $\beta$ coefficient is the complementarity of Mexican and native workers in the production process. If their jobs and tasks are rather different (e.g., Mexicans are farm workers and natives are administrators, or Mexicans are laborers and natives are white collar) and complementary, (i.e., both are needed in production), then a decrease in Mexicans will also decrease the demand for native workers, implying a positive estimate of $\beta$. To the contrary if Mexicans and natives are substitutes for each other and competing for same jobs, then a decrease in Mexican supply would create job opportunities and increase employment of natives, implying a negative value of $\beta$. Mexicans can be complementary to natives because they have different skills (Ottaviano and Peri 2012) or they specialize in different occupations (Peri and Sparber 2009, Foged and Peri 2016). More generally, their presence may trigger adjustment in technology and capital that affects productivity of natives and hence may generate complementarity in the long run (Lewis 2011, Clemens et al. 2017).

The sign of the average effect on natives (employment, unemployment and wages) coefficient will reveal the aggregate intensity of complementarity-competition-return to scale effect of Mexicans on all natives. A negative sign of $\beta$ in the employment regression (or positive in the unemployment regression) implies that more repatriations increase the employment of natives and hence that, in net, the competition/decreasing return effects prevail: decreasing Mexican supply is beneficial to the aggregate demand/productivity of natives. To the contrary, a positive $\beta$ in the employment regression (or negative in the unemployment regression) estimate implies that the complementar-

ity/increasing return effects prevail and fewer Mexicans reduce the demand for native labor. A zero effect will imply that those two forces balance each other and a decrease in Mexican labor does not affect natives' productivity.

Before presenting the estimation results we provide a description of Mexican immigrants' labor market characteristics in comparison to natives'. Table 2 shows the distribution of three groups of workers: Mexican, other foreign-born, and natives across 11 broad occupation groups. These occupations are ranked based on their average hourly wage paid in 1940, which are reported in the last column. The table provides a clear representation of the very different occupational distributions between Mexicans and natives. Relative to natives, Mexicans are heavily employed in low-wage occupations, such as laborers and farm workers. More than 70% of them are in the bottom three groups, while this proportion of natives is only a fourth. To the contrary, Mexicans are under-represented among clerical, managerial, professional, sales and Craft occupations, which pay relatively high wages. While about half of natives are employed in the top five groups, this share for Mexicans is only about 10%. Other immigrants seem to concentrate in intermediate-wage occupations such as craftsman and operatives. Such different and complementary occupational distributions between Mexican immigrants and natives, and heavy Mexican employment on the lower rungs of the wage ladder, implies that the mechanisms of complementarity (as in Ottaviano and Peri 2012), different specialization (as described in Peri and Sparber 2012) and possible "push-up" of natives on the ladder of occupations (as in Foged and Peri 2016) are likely to be at work between Mexicans and natives in this time period.

# 6 Implementation and Results

## 6.1 Instrumental Variables: Validity and First Stage

Our main identification strategy consists in implementing the 2SLS estimation outlined in Section 4.1. The main instrumental variable used is the one described in (2). In robustness checks we also use the simpler version (3). In Table 3 we show the coefficients from the first-stage regression:

$$\frac{\Delta MEX_c}{P_{c,1930}} = \alpha_s + \theta \frac{\Delta \widehat{MEX}_c}{P_{c,1930}} + \gamma X_c + e_c \tag{5}$$

The coefficient $\theta$, reported in the first row of the table, represents the effect of the imputed change in Mexicans (obtained as in Equation (2)) on the actual change in Mexicans as a share of the population in working age, which is the explanatory variable in our second-stage regression (4). The key identifying assumption when using these instruments is that the predetermined shares of Mexicans in each city by age group in 1930, after controlling for other variables and local

characteristics, are independent of other unobservable factors varying across cities and affecting the labor market outcomes of natives. We provide some tests of the identifying assumption in Table 4 below.

First, let's review Table 3 and the different specifications we considered. Standard errors are heteroskedasticity-robust.[14] The unweighted and weighted regression coefficients, without any controls, are reported in Columns 1 and 2 respectively. The weights are the working age population in the city as of 1930. The estimated coefficients are highly significant and around 0.4. Specifically, an increase in the imputed repatriation intensity by one percentage point leads to a 0.4 percentage point increase in the actual repatriation intensity between 1930 and 1940. In Column 3, we add state dummies to capture state-specific unobservables. In our context, state effects are important because Mexican repatriation was highly concentrated in certain states and hence within state variation provides a much tighter comparison of differential repatriation rates. Including the state fixed effects does not significantly alter the estimated coefficient or the explanatory power of the instrument.

In Column 4 we directly control for a set of local economic and demographic characteristics in 1930 that may be correlated with the concurrent presence of Mexican communities. They may also be correlated with the labor market performance across cities in the 1930-40 period. Specifically, we first include the share of agricultural and manufacturing workers in the local labor force. As described in Table 2, Mexicans were highly concentrated in the agricultural sector. Moreover, manufacturing was a very important sector in this period, deeply affected by the Great Depression. At the same time, we add city-level demographic variables including the share of non-whites in the population, and the share of young individuals (aged 18 to 40). As the Mexican repatriation was targeting ethnicity (sometimes defined as race) and the excess repatriation was higher for older people (Figure 3), controlling for these variables should reduce the risk of spurious correlation. We also include the logarithm of total working age population as of 1930. As this variable is included as a means of standardization in both the explanatory variable and in the IV, it may create a spurious correlation (see Clemens and Hunt 2017). Even controlling for these local characteristics, our instruments strongly explain the actual repatriation with an F-statistic around 25. We include these variables in all subsequent columns.

In Column 5 we then address two additional important concerns. The first is the differential severity of the Great Depression across cities. As this period saw a major decline in economic activity in several specific industries, the sectoral composition of cities might explain a large part of the employment performance and could be correlated with the share of Mexicans. Hence we

[14] Due to the large amount of heteroskedasticity in Mexican repatriation and in the outcomes across cities, the clustered (by state-level) standard errors are smaller than the robust standard errors. We report the robust standard errors, instead of the clustered standard errors, to make our estimates more conservative. The results using the clustered standard errors are available upon requests.

construct a Bartik index that predicts the employment growth of workers based on each city's industrial composition in 1930 and the national employment growth of that industry in the 1930-40 period. Namely the included control is:

$$Bartik_c = \sum_i \eta_{ic} \Delta E_i, \tag{6}$$

where $\eta_{ic}$ is the share of total employment of city $c$ in industry $i$ as of 1930; $\Delta E_i$ is the national-level change in the log of total employment in the same industry between 1930 and 1940.[15] The second concern is the differential intensity of local police. This may be a signal of local criminal activity. As a proxy, we include the share of policemen among the population, both measured in 1930. These two controls make a small difference for the estimated coefficient and its statistical significance.

In Column 6, we also control for the generosity of New Deal (log total grants received) and we include two variables to account for extreme weather: the Dust Bowl intensity and the sum of months with extreme wet or drought.[16] Previous studies (Fishback et al. 2010) have documented that public spending and weather conditions have affected the migration of natives during the Great Depression[17]. Nonetheless, when controlling for these factors, our instrument strongly predicts the actual repatriation of Mexicans. Lastly, in Column 7, we use the simpler instrument as shown in Equation (3), applying the national repatriation rate of Mexicans. This simplification actually increases the power of the imputed repatriation instrument, as it likely proxies closer for the repatriation intensity of Mexicans. Overall, these different specifications show that the instrument is strong (F-stat around 25 in most specifications with controls) and robust in its power to the inclusion of several controls.

Table 4 tests the correlation between the share of Mexicans in the 1930 population and the pre-trends (1910-30) of our three outcome variables: native employment, native unemployment, and growth of natives' occupational wages. This is an important test to check whether local potentially unobservable – but persistent over time – factors are correlated with the Mexican distribution in 1930. Such correlation would cast doubts on the assumption of Mexican share as a variable exogenous to labor market conditions and hence would question our exclusion restrictions. Reassuringly, Table 4 shows that there is no significant correlation between the Mexican communities in 1930 and pre-1930 trends of the outcome variables for native workers.

Table 5 tests whether our imputed IV, constructed to predict the negative change in Mexican

[15] We use sixteen broadly defined industries according to Census industrial code in 1950 (the variable "ind1950" in IPUMS).

[16] The Dust Bowl was a period of severe dust storms in the 1930's caused by severe droughts and failure to apply dryland farming to prevent wind erosion.

[17] We translate the county-level data from Fishback et al. (2010) into city-level measures using information from 1930 Census.

immigrants during the forced repatriation period, has some predictive power on the change of the Mexican population across cities in the long run, namely over the period 1930-50 and 1930-60. Assuming that our IV proxies for forced repatriations in the 1930-40 period, Table 5 checks whether that decline still had predictive power for the change in Mexicans at the local level between 1930 and 1950 (Column 2) and between 1930 and 1960 (Column 3). Interestingly, the results reveal that larger imputed repatriations still affected the change in Mexican population over the 1930-50 period: the localities with larger repatriations had larger declines of Mexicans over the whole twenty-year period. This is revealed by the positive and significant regression coefficient. However by the year 1960, when Mexicans had started returning to the U.S. through the Bracero program and other channels, the correlation changes sign and turns negative. This reveals that cities which saw high repatriation (which therefore had a large Mexican community in 1930) experienced larger positive inflows, as Mexicans were again attracted by existing networks of previous immigrants. Hence, when looking at the impact of repatriations, i.e., of an outflow of Mexicans, we need to focus on the 1930-50 period as, after that, the outflow actually reversed.

Overall, our first stage results along with the falsifications demonstrate that our constructed instruments have significant power in predicting the actual repatriation of Mexicans and are not significantly correlated with the unobservable factors that affect labor market outcomes of native workers.

## 6.2 Regressions: Employment and Unemployment Outcomes

Before we present the Instrumental Variables regression results we show, in Table 6, the OLS results obtained by estimating equation (4). These results show simply partial correlations. The top Panel A shows the results when the dependent variable is (changes in) native employment relative to the 1930 working age population. The bottom Panel B shows estimates from corresponding specifications when (changes in) native unemployment is the dependent variable. Units of observation are 893 cities in the continental U.S. In each column we consider a different model specification. In Column 1 we show a basic specification that includes only state fixed effects. In Columns 2, 3 and 4 we progressively add city characteristics as of 1930 and control for variables in the 1930-40 period. In Column 5 we control also for pre-trends in employment and unemployment during the period 1910-30. In the last two columns we consider some specific subsamples. In Column 6 we focus only on the targeted states where the policy was enforced with particular intensity, i.e., Arizona, California, Colorado, Illinois, Indiana, Michigan, New Mexico and Texas. These are the states in which most historical accounts of the repatriation campaign have identified the strongest and most organized efforts. Finally, in Column 7 we retain only the cities with a net outflow of Mexicans between 1930 and 1940, as some cities had actually a net positive inflow of

Mexicans in the decade.

Focusing on the coefficient of interest $\Delta MEX_c/P_c$ in Panel A of Table 6, when we control for predetermined characteristics (Column 2 and those following) we see that Mexican outflow is only weakly correlated with changes in natives' employment. The point estimates are mostly positive and suggest that a one percent Mexican outflow is correlated with about 0.2 percent *lower* employment of natives as share of 1930 working age population. This estimate is not significant however. The sign on the Bartik index is positive, denoting the important role of industry composition in predicting native employment growth. The sign of the "police" variable is rather unstable and usually not significant.

In Panel B, we see that Mexican repatriations were correlated with higher unemployment for natives. A Mexican outflow of one percent of the population is associated with higher native unemployment of 0.02 percent of the working age population. Some coefficients are statistically significant. These correlations in Table 6, of course, may be the affected by the fact that Mexicans were voluntarily leaving cities which were severely hit by the Great Depression. While many of the correlates with the severity of the Great Depression are included among controls, unobserved factors may be still lingering and produce spurious results. In order to estimate a coefficient which better captures the causality link from repatriation to native employment, we look at the instrumental variable results.

In Table 7 we show the 2SLS estimates of Equation (4) using $\Delta\widehat{MEX}_c/P_c$ as an instrument for $\Delta MEX_c/P_c$. Similarly to Table 6, in the top (bottom) Panel we present the results for changes in native employment (unemployment) as dependent variable. Each column considers a different specification. The first 7 columns are analogous to the ones in Table 6. In Columns 7-11 we provide four additional results. First, as a robustness check, in Column 8 we use our alternative instrumental variable $(\Delta\widehat{MEX}_C/P_C)_{Alt}$ . That variable is simpler and based only on the variation of Mexican share across cities. In Column 9 we focus on occupations with a high share of Mexicans. Among all the 3-digit occupations we choose the top 20 in terms of decline in employment due to Mexican repatriations. Those represent the subset of the labor market that should experience some reduction in competition from repatriation. Then, in Column 10, we restrict the outcome for the subgroup of natives aged 41-65. The Mexican repatriation resulted in a more intense decrease in this subgroup and hence the competition effect might be stronger and the complementarity effect weaker.

Panel A of Table 7 shows mainly positive non-significant coefficients of repatriations on native employment, confirming the OLS correlation that shows association between repatriation and native employment decline. Most of the coefficients are positive, signaling that Mexican repatriations are associated with lower natives employment growth. The point estimates in Columns 2-5

range between 0.277 and 0.468, stating that a one percent outflow of Mexicans caused between 0.27 and 0.47 lower employment rate for natives. The estimates in Columns 6-8 are small and not significant. The only borderline negative and significant coefficient is the one in Column 9. It shows that employment in the twenty 3-digit occupations with greater Mexican representation possibly experienced a higher native employment growth. We will develop further the analysis across broader occupational groups in Table 8 below, to identify whether any broad occupational group was positively affected by repatriations and which broad groups were more (negatively) affected by the complementarity effect from Mexicans.

The bottom panel of Table 7 shows the 2SLS results for (changes in) native unemployment. These results also confirm those from Table 6 in that most of the estimated coefficients are negative and some are significant. This implies that cities which experienced high Mexican repatriations also had higher native unemployment in the decade to follow. The medium-run coefficients range between -0.01 and -0.041 stating that an outflow of Mexicans equal to one percent of population was associated with an increase of native unemployment between 0.01 and 0.04 percent of the population. Notice that even in Column 9, where we consider those unemployed natives who were last employed in the top-20 Mexican occupations, the effect is negative. The evidence is that even in heavily Mexican occupations their departure was not easily replaced by native unemployed. Possibly different location, specialization and task employment made replacement quite hard.

Our instrumental variable approach confirms that the OLS results are not hiding significant spurious correlations. In fact, we find that Mexican repatriation did not cause higher employment nor lower unemployment for natives. Overall, our results in Table 7 suggest that the policy did not accomplish the stated objectives by local and federal authorities. Moreover, the point estimates suggest actually detrimental labor market effects for U.S.-born natives, although often not statistically significant.

In Table 8 we break down the employment results by occupation types. Namely, we identify low- (Column 1), intermediate- (Column 2) and high-skill (Column 3) occupations. These three groups include, respectively, the bottom three, the intermediate three and the top four broad occupational groups shown in Table 2. As shown in that table, Mexican workers specialized in the low-skill occupations, and about 70% of them were in the bottom three occupations (and mainly in Laborers and Farm Laborers). Hence, we expect the potential substitution effect to be strongest in the first column implying a null or negative coefficient while the second and third column should experience positive coefficients as complementary jobs may experience depressing effects from Mexican repatriations. The estimates in Column 1 are in fact small and not significant. Natives in low-skill occupations did not experience a reduction in employment (Column 1) as Mexicans left, but they did not benefit either from that. Considering broad occupational groups,

therefore, we do not see much evidence that it was easy for natives to substitute for Mexicans, even in the jobs where they were most concentrated and even in a period of high unemployment. It could be that the location of jobs was different from where natives were, that the specialization in detailed tasks was different. In any case, there is no clear evidence of a labor market improvement for low skilled natives. Moreover evidence of a strong complementarity effect is present for medium and high-skill occupations (Columns 2 and 3). The magnitude of the positive estimates in the last two columns reveals that the loss of Mexican jobs was associated with the loss of native jobs especially at intermediate and high levels of skills. This indicates that the employment effect on complementary occupations were much stronger than the competition effects in the "Laborer" and "Farm Laborer" occupations. The estimates of Table 8 imply that skilled natives lost jobs once Mexicans were repatriated, while less skilled natives did not necessarily replace them.

### 6.3 Other Outcomes

One possibility is that other immigrants, rather than natives, benefited from the repatriation of Mexicans in their employment outcomes. While during the 1930-40 decade there was essentially no positive immigration from other countries, immigrant communities might have moved from elsewhere in the U.S. to replace Mexicans in cities with large repatriation intensity. Table 2 shows that other immigrants were not as strongly concentrated among laborers as Mexicans, but rather were largely employed as craftsmen and operatives. One may still think that their employment was helped to a greater extent by repatriations if their skills were closer substitutes to those of Mexicans and if the local labor market conditions were improved by repatriation. In Table 9 we present the results using the change in employment of non-Mexican Foreign-born workers as a dependent variable and the six specifications of Table 6. While the point estimates of these effects are usually negative, they are very small and never significant. The point estimates are between -0.018 and -0.04 and very far from statistical significance. While one can argue that other immigrants may not have been harmed in their employment opportunities by the repatriation of Mexicans, there is no evidence that they were helped.

We then analyze, in Table 10, whether "occupational wages" of natives changed in response to the repatriation of Mexicans. Occupational wages are constructed by associating to an individual the average wage in her occupation in 1940 (there are no wage data for 1930). Hence the occupational wage in a city reflects the distribution of occupations and an increase in this wage implies that there has been a shift in the distribution toward better or worse paying occupations. By focusing on this variable for natives and on its change between 1930 and 1940, we capture whether natives had an occupational "upgrade" (positive change) or "downgrade" (negative change) during the decade. We have emphasized that the repatriation of Mexicans may have opened some

jobs for laborers and farm workers but also eliminated jobs in sales, administrative and clerical positions. This type of job replacement at the bottom of the wage ladder and job destruction at the top should have implied an occupational downgrading of natives in cities where repatriations were more intense. Table 10 shows that the impact of Mexican repatriation on native occupational wages was also negative, although mostly non-significant, as cities with greater deportation (by one percent of population) saw a decline in natives' occupational wages (by 0.1-0.2 percent) although not statistically significant. Rather than providing better labor market options to natives, the repatriations worsened the occupational wages of natives.

What we have found so far suggests that locations with high repatriation intensity experienced labor market conditions for natives similar to, or somewhat worse than, those with no repatriations. This is far from the beneficial effects promised by the authorities. A final test of whether repatriation rates affected native workers is to analyze whether those rates were correlated with net internal migration of natives and faster growth of working age population of natives. Even a positive "perceived" (if not real) effect of those repatriations may have attracted natives to those cities, looking for the jobs vacated by Mexicans and supposedly available. Table 11 shows the impact of repatriation on native population in working age (Column 1) and on net internal migration of natives (Column 4). Both dependent variables show a positive and not significant coefficient, implying smaller immigration and smaller native population growth in cities with higher repatriation of Mexicans. Columns 2 and 3 seem to imply that cities with large Mexican repatriation had also more native churning, i.e. more native immigration and emigration. However the net of the two effects is small and positive, as shown in the last column.

## 6.4 Matching Results

If the effects of repatriation of Mexicans are not linear and if other omitted variables also impact non linearly labor market outcomes, then the 2SLS method can be mis-specified. As described above, we also use a more robust and non-parametric method to identify the causal effect of interest. In our main specification of the matching method, we define a city as treated if the repatriation rate is two percent of the initial labor force or larger, and as control if it is equal to one percent or less. There is an intermediate group of cities with repatriation values between one and two percent which are dropped from the sample as they did not experience a significant shock and are difficult to classify as strictly treated or control. This yields 14 treated cities and 527 control cities. We use the following matching variables: pre-trends for employment and unemployment rates of natives in the period 1910-30, Bartik index, labor force share in manufacturing, agriculture, young (18-40), and the non-white share of the population. These variables proxy labor market conditions and industrial structure across cities in our sample. In the main specification, we match each city with

a single one in the opposite group (i.e., its nearest neighbor). The first stage in the propensity score analysis is estimated via logistic regression.

The average treatment effect estimates for changes in native employment (Panel A) and native unemployment (Panel B) as outcome variables and the robust standard errors are shown in Table 12. The outcome variable is denoted in the title of each panel. Different specifications vary in terms of matching variables and sample specification. In Column 1 we match only the pre-trend variables. In Column 2 we show our main specification where we add to pre-trends the city sector and demographic composition in 1930 as matching variables. In the rest of the table we consider various robustness checks. In Columns 3 and 4 we match each city with the two or three most similar cities in the opposite group. In the next column, (5), we focus on targeted states only (AZ, CA, CO, IL, IN, MI, NM and TX). Moving to Column 6, we change the treatment threshold to experiencing a repatriation larger than five percent of the initial labor force. Note that this lowers the number of treated cities. Lastly, in Columns 7 and 8 we implement propensity score matching, where in Column 7 we match with the single nearest neighbor and in Column 8 we use the two closest cities to form the match.

The results in these tables are consistent with the ones presented in the regression analysis and they are rather robust across specifications. We find that cities which had higher level of Mexican repatriation (treated) also experienced lower employment growth and higher unemployment change between 1930 and 1940, relative to otherwise similar cities. In Panel A we see that, on average, cities which experienced large Mexican outflow had between 1 and 15 percent lower native employment. Only two of the estimated coefficients, however, are statistically significant. Similarly, Panel B shows small, usually non-significant average treatment effects. In other words, we certainly find no robust evidence that cities with higher Mexican repatriation intensity had higher employment growth or lower unemployment levels for natives in the period 1930-40. The one significant result, which is interesting, is obtained by selecting those cities with extremely high repatriation rates (Column 5). In this case, cities experiencing repatriation larger than 4% of the initial population may have really been disrupted by it in their economic activity and labor markets. That column shows that they experienced six percent lower native employment growth, and one percent higher unemployment, when compared with control cities.

Overall the point estimates of the 2SLS estimation and the ATE from the matching model suggest a small, not always significant, depressive effect of Mexican repatriation on native employment. The additional 2SLS results also show negative effects of repatriation on occupational wages and native internal migration. In addition, unemployment increased in cities with higher repatriations, while native employment, especially in skilled and intermediate-skilled occupations decreased. Employment of other immigrants did not seem to be much affected by repatriations.

We do not find any evidence that repatriation of Mexicans significantly improved labor market outcomes of natives overall or of any broad subgroup of natives, during the 1930-40 or the 1930-50 period.

# 7 Conclusion

This paper is one of the very few studies that focuses on the economic effects of the repatriation of immigrants. We analyze a large scale repatriation campaign, enacted in the U.S. between 1929 and 1934 against people of Mexican descent. Politicians at that time argued that this would give jobs to American workers and attenuate the unemployment problems caused by the Great Depression. There would be many employed Americans, they argued, taking those jobs vacated by the repatriated Mexicans. It is hard to think of another period of U.S. history when the prevalence of unemployed American workers was larger and the repatriation effects should have been stronger. In this paper we use full count Census labor market data for 893 U.S. cities between 1930 and 1940 to analyze whether these very strong claims had any validity, ex-post.

We find that cities with larger repatriation intensity, driven by a larger initial Mexican community, performed similarly or worse in terms of native employment and wages, relative to cities which were similar in most labor market characteristics but which experienced small repatriation intensity. This finding is robust across specifications, subsamples and estimation methods. Not only did politicians' claims not hold true, but the opposite seems closer to what happened in reality. The repatriation of Mexicans, who were mostly laborers and farm workers, reduced demand for other jobs mainly held by natives, such as skilled craftsman and managerial, administrative and sales jobs. Moreover, the repatriation of Mexicans did not result in other immigrants gaining jobs. Given the large amount of pain, disruption and suffering that this campaign caused to Mexicans and their families, it is crucial to notice that it did not deliver any of the labor market benefits promised to natives. In fact, our estimates suggest that it may have further increased their levels of unemployment and depressed their wages.

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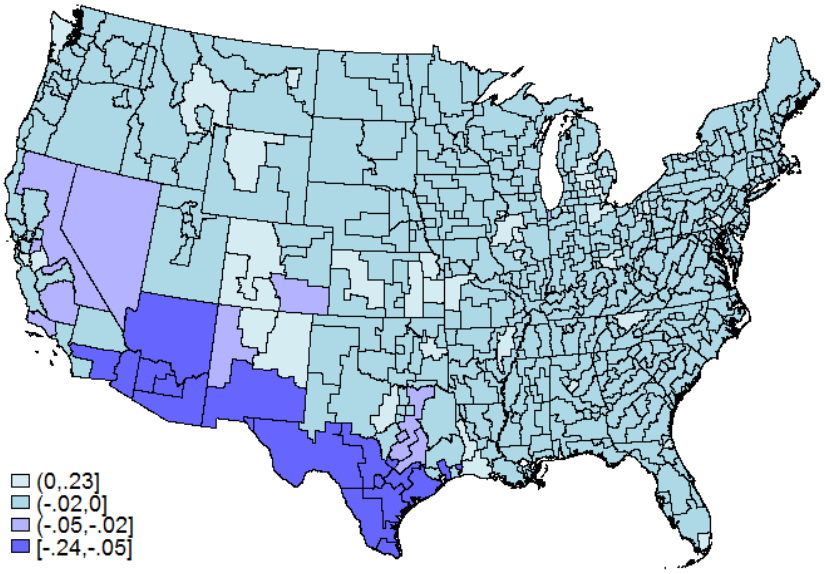
# Figures and Tables

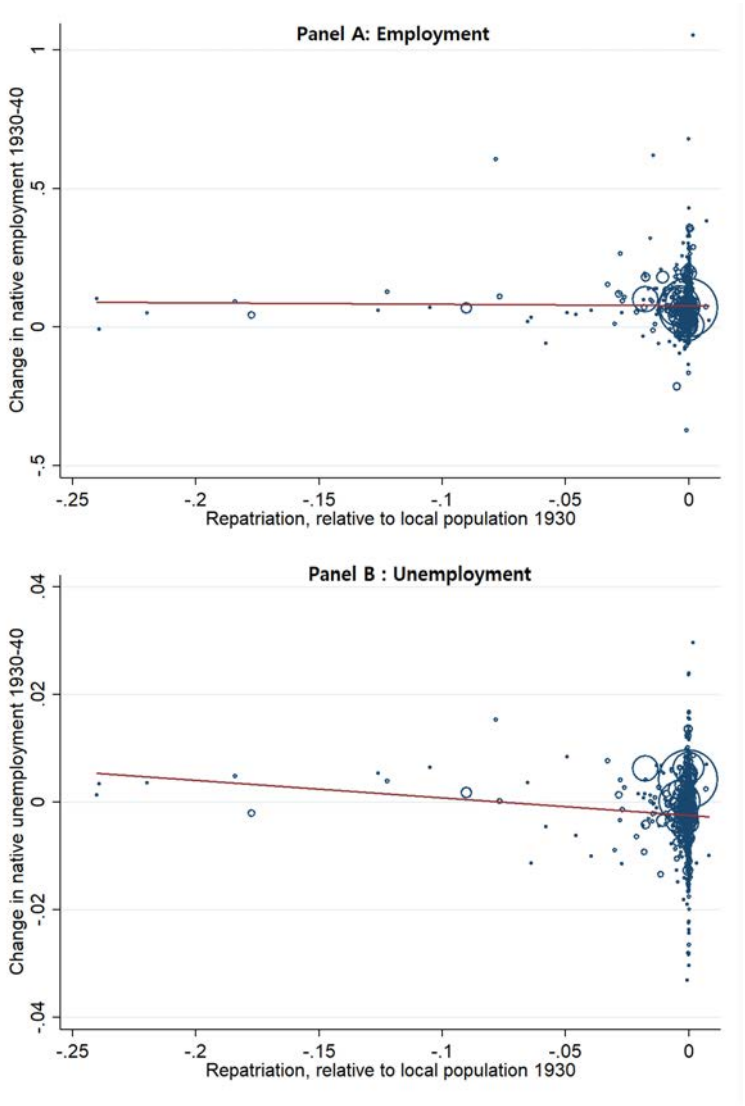
## Figures

Figure 1: Mexican Repatriation 1930-1940, as Percent of 1930 Employment



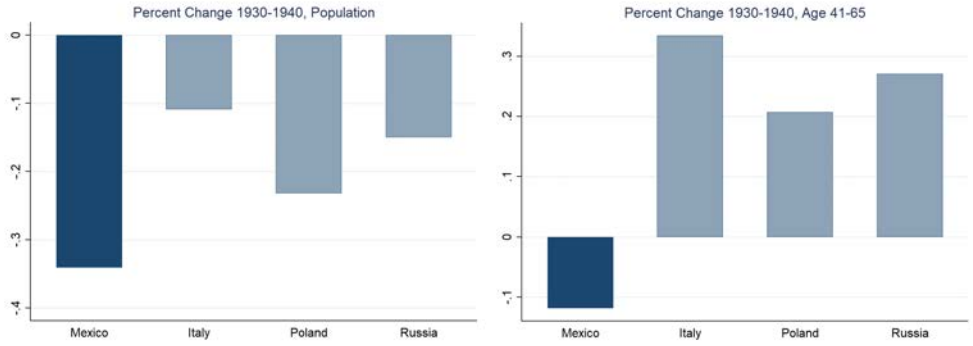

Notes: Map of changes in Mexicans between 1930 and 1940 as a share of the employment in 1930. The geographic units are State Economic Areas.

Figure 2: Mexican Repatriation and Employment and Unemployment of Natives, 1930-40



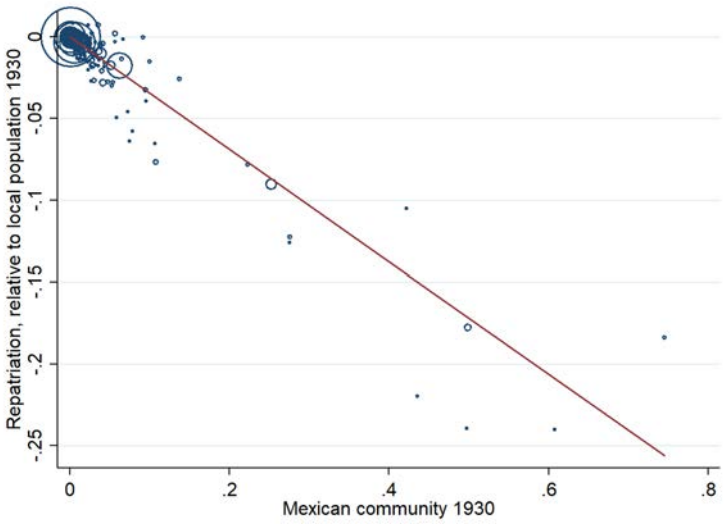

Notes: Scatter plot of the change in native employment in Panel A (unemployment in Panel B) between 1930 and 1940 (Y-axis) versus the change in Mexican labor force in the same period (X-axis), both as shares of the population in 1930. The circumference of the markers is proportional to the city's population in 1930.

Figure 3: Percent Change 1930-40, Population




Notes: Percent changes in the population by ethnic groups. The left panel shows these for the overall population, and the right panel shows the same for people aged 41-65.

Figure 4: The Relationship between Repatriation and Mexican Population Shares




Notes: Scatter plot of the change in Mexican population between 1930 and 1940 (Y-axis) versus the number of Mexicans (X-axis), both as shares of the population in 1930. The circumference of the markers is proportional to the city's population in 1930.

## Tables

Table 1: Cities with Largest Shocks

| State | City | Shock |
|---|---|---|
| TX | Del Rio | -0.24 |
| TX | San Benito | -0.24 |
| TX | Brownsville | -0.22 |
| TX | Laredo | -0.18 |
| TX | El Paso | -0.18 |
| TX | Harlingen | -0.13 |
| AZ | Tucson | -0.12 |
| CA | Brawley | -0.11 |
| TX | San Antonio | -0.09 |
| TX | Corpus Christi | -0.08 |
| IN | East Chicago | -0.08 |
| CA | Anaheim | -0.07 |
| TX | Sweetwater | -0.06 |
| TX | Big Spring | -0.06 |
| NM | Roswell | -0.05 |
| CA | Fullerton | -0.05 |
| CA | Redlands | -0.04 |
| AZ | Phoenix | -0.03 |
| TX | San Angelo | -0.03 |
| IN | Gary | -0.03 |
| CA | Bakersfield | -0.03 |
| CA | Santa Monica | -0.03 |
| CO | Fort Collins | -0.03 |
| OH | Lorain | -0.03 |
| CA | San Bernardino | -0.03 |
| CO | Pueblo | -0.02 |
| NE | North Platte | -0.02 |

Notes: List of cities ordered by largest, in absolute value, changes in Mexican labor force between 1930 and 1940 as a share of the population in 1930.

Table 2: Distribution of Workers across Occupations

| Occupation | Mexican | Native | Other Foreign-born | Mean Wage |
|---|---|---|---|---|
| Managers, Officials, and Proprietors | 0.58% | 4.26% | 3.40% | 3.89 |
| Professional, Technical | 1.10% | 7.39% | 3.33% | 3.50 |
| Craftsmen | 6.25% | 14.30% | 21.50% | 3.35 |
| Sales workers | 2.64% | 9.13% | 6.64% | 3.29 |
| Clerical and Kindred | 1.51% | 13.17% | 5.24% | 3.15 |
| Operatives | 11.72% | 15.76% | 22.63% | 3.02 |
| Service workers (non-household) | 3.90% | 5.68% | 8.51% | 2.82 |
| Laborers | 38.08% | 12.51% | 18.30% | 2.80 |
| Farm laborers | 29.50% | 11.83% | 3.73% | 2.46 |
| Service workers (household) | 4.64% | 5.79% | 6.61% | 2.05 |

Notes: Columns 2-4 show the percent workers from the specified ethnicity in various occupation categories in 1930 so that the values across columns add up to 100%. The last column shows the mean of log weekly wage for each occupation in 1940.

Table 3: First Stage Regressions, Dependent Variable: Change in Mexican Employment, 1930–1940

| | (1) Basic | (2) Weighted | (3) Weighted & State FE | (4) Control: 1930 Charact. | (5) Control: $Bartik_c$ & Police | (6) Control: New Deal & Weather | (7) Applying Constant Rate |
|---|---|---|---|---|---|---|---|
| $\Delta\widehat{MEX}_c/P_c$ | 0.414*** | 0.415*** | 0.396*** | 0.397*** | 0.396*** | 0.395*** | 1.016*** |
| | (0.060) | (0.069) | (0.073) | (0.080) | (0.080) | (0.080) | (0.079) |
| $Bartik_c$ | | | | | 0.015 | 0.018 | 0.009 |
| | | | | | (0.014) | (0.014) | (0.006) |
| Police | | | | | -0.044 | -0.046 | -0.286** |
| | | | | | (0.467) | (0.500) | (0.138) |
| 1st stage $F$ | 46.87 | 36.46 | 29.55 | 24.73 | 24.65 | 24.33 | 164.22 |
| State FE | | | X | X | X | X | X |
| Weighted | | X | X | X | X | X | X |
| Observations | 894 | 893 | 893 | 893 | 893 | 868 | 868 |
| R-squared | 0.791 | 0.720 | 0.792 | 0.798 | 0.799 | 0.800 | 0.932 |

Notes: The dependent variable is the change in Mexican labor force between 1930 and 1940, relative to total working age population in 1930. The explanatory variable is the imputed change in Mexican labor force between 1930 and 1940, relative to total working age population in 1930. The units of observations are cities. Standard errors in parenthesis are heteroskedasticity-robust. All regressions are weighted by total working age population in 1930. Local characteristics in 1930 include share of agriculture, manufacturing, nonwhite, aged 18 to 40, and log of population.
***p< 0.01, **p< 0.05, *p< 0.1

Table 4: Falsification Tests

| | (1) Native Employment Growth 1910–1930 | (2) Native Unemployment Growth 1910–1930 | (3) Native Wage Growth 1910–1930 |
|---|---|---|---|
| $MEX_{c,1930}/P_{c,1930}$ | -0.329 | -0.061 | -0.134 |
| | (0.398) | (0.045) | (0.175) |
| State FE | X | X | X |
| Observations | 580 | 580 | 580 |
| R-squared | 0.414 | 0.417 | 0.175 |

Notes: The employment and unemployment growth between 1910 and 1930 are standardized by total working age population in 1910. The explanatory variable is the share of Mexicans in the total working age population. The units of observations are cities. Standard errors in parenthesis are heteroskedasticity-robust. All regressions are weighted by total working age population in 1930.
***p< 0.01, **p< 0.05, *p< 0.1

Table 5: Long-run Impact on Mexican Employment, Dependent Variable: Change in Mexican

| | (1) 1930–1940 | (2) 1930–1950 | (3) 1930–1960 |
|---|---|---|---|
| $\Delta\widehat{MEX}_c/P_c$ | 0.396*** | 0.182*** | -0.246 |
| | (0.072) | (0.025) | (0.170) |
| State FE | X | X | X |
| Observations | 868 | 92 | 137 |
| R-squared | 0.795 | 0.718 | 0.686 |

Notes: The dependent variable is the change in Mexican labor force, relative to total working age population in 1930. The explanatory variable is the imputed change in Mexican labor force between 1930 and 1940, relative to total working age population in 1930. The units of observations are cities. Standard errors in parenthesis are heteroskedasticity-robust. All regressions are weighted by total working age population in 1930.
***p< 0.01, **p< 0.05, *p< 0.1

Table 6: Effects on Employment and Unemployment of Natives, 1930–1940 (OLS)

| | (1) State FE & Weighted | (2) Control: 1930 Charact. | (3) Control: $Bartik_c$ & Police | (4) Control: New Deal & Weather | (5) Control: Pre-trend | (6) Targeted States Only | (7) Dropping Cities with Inflow of Mexicans |
|---|---|---|---|---|---|---|---|
| **Panel A:** Change in *Employment* | | | | | | | |
| $\Delta MEX_c/P_c$ | 0.017 | 0.179 | 0.153 | 0.152 | 0.199 | -0.146 | -0.038 |
| | (0.203) | (0.179) | (0.181) | (0.197) | (0.184) | (0.194) | (0.204) |
| $Bartik_c$ | | | 0.209* | 0.311*** | 0.105 | 0.538** | 0.155 |
| | | | (0.110) | (0.099) | (0.125) | (0.253) | (0.145) |
| Police | | | -0.900 | 2.471 | -3.715 | 26.019** | 1.209 |
| | | | (3.822) | (3.369) | (3.563) | (12.788) | (4.691) |
| **Panel B:** Change in *Unemployment* | | | | | | | |
| $\Delta MEX_c/P_c$ | -0.026* | -0.025* | -0.024* | -0.020* | -0.021 | -0.023* | -0.021 |
| | (0.014) | (0.013) | (0.013) | (0.012) | (0.015) | (0.013) | (0.014) |
| $Bartik_c$ | | | -0.001 | 0.000 | 0.001 | 0.045** | -0.010 |
| | | | (0.008) | (0.008) | (0.011) | (0.020) | (0.012) |
| Police | | | 0.321 | 0.143 | -0.083 | -0.046 | 0.102 |
| | | | (0.291) | (0.319) | (0.389) | (0.860) | (0.370) |
| State FE | X | X | X | X | X | X | X |
| Weighted | X | X | X | X | X | X | X |
| Observations | 893 | 893 | 893 | 868 | 540 | 224 | 466 |

Notes: The dependent variable is either the change in employment or unemployment of natives between 1930 and 1940, relative to total working age population in 1930. The explanatory variable is the change in Mexican labor force between 1930 and 1940, relative to total working age population in 1930. The units of observations are cities. Standard errors in parenthesis are heteroskedasticity-robust. All regressions are weighted by total working age population in 1930.
***p< 0.01, **p< 0.05, *p< 0.1

Table 7: Effects on Employment and Unemployment of Natives, 1930–1940 (2SLS)

| | (1) State FE & Weighted | (2) Control: 1930 Charact. | (3) Control: $Bartik_c$ & Police | (4) Control: New Deal & Weather | (5) Control: Pre-trend | (6) Targeted States only | (7) Dropping Cities with Inflow of Mexicans | (8) Applying Constant Rate | (9) Occupations with Largest Shocks | (10) Older Natives (age 41-65) | (11) Long-run 1930–1950 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Panel A:** Changes in *Employment* | | | | | | | | | | | |
| $\Delta MEX_c/P_c$ | 0.145 | 0.306 | 0.285 | 0.277 | 0.468** | -0.132 | 0.092 | 0.074 | -0.103* | 0.101* | -0.392 |
| | (0.220) | (0.216) | (0.215) | (0.236) | (0.221) | (0.246) | (0.238) | (0.201) | (0.057) | (0.055) | (0.954) |
| $Bartik_c$ | | | 0.205* | 0.307*** | 0.100 | 0.536** | 0.150 | 0.314*** | -0.066*** | 0.052** | 0.191 |
| | | | (0.107) | (0.096) | (0.119) | (0.244) | (0.137) | (0.096) | (0.021) | (0.022) | (0.858) |
| Police | | | -0.763 | 2.575 | -3.303 | 25.991** | 1.346 | 2.405 | 1.923*** | -0.157 | 38.907 |
| | | | (3.690) | (3.242) | (3.378) | (12.290) | (4.368) | (3.254) | (0.747) | (0.892) | (44.837) |
| **Panel B:** Changes in *Unemployment* | | | | | | | | | | | |
| $\Delta MEX_c/P_c$ | -0.016 | -0.020 | -0.019 | -0.016 | -0.010 | -0.017 | -0.013 | -0.028** | -0.042*** | -0.016 | -0.210*** |
| | (0.011) | (0.013) | (0.013) | (0.013) | (0.015) | (0.014) | (0.014) | (0.014) | (0.014) | (0.013) | (0.067) |
| $Bartik_c$ | | | -0.002 | 0.000 | 0.000 | 0.044** | -0.010 | 0.001 | 0.010 | 0.000 | 0.143** |
| | | | (0.008) | (0.008) | (0.010) | (0.019) | (0.011) | (0.008) | (0.011) | (0.008) | (0.058) |
| Police | | | 0.326 | 0.147 | -0.065 | -0.056 | 0.110 | 0.136 | 0.798** | 0.147 | 6.348** |
| | | | (0.280) | (0.307) | (0.367) | (0.832) | (0.344) | (0.308) | (0.351) | (0.307) | (2.516) |
| 1st stage $F$ | 29.55 | 24.73 | 24.65 | 24.33 | 21.65 | 20.83 | 20.85 | 164.22 | 24.33 | 24.33 | 131.10 |
| State FE | X | X | X | X | X | X | X | X | X | X | X |
| Weighted | X | X | X | X | X | X | X | X | X | X | X |
| Observations | 893 | 893 | 893 | 868 | 540 | 224 | 466 | 868 | 868 | 868 | 92 |

Notes: The dependent variable is either the change in employment or unemployment of natives between 1930 and 1940, relative to total working age population in 1930. The explanatory variable is the change in Mexican labor force between 1930 and 1940, relative to total working age population in 1930. The units of observations are cities. Standard errors in parenthesis are heteroskedasticity-robust. All regressions are weighted by total working age population in 1930.
***p< 0.01, **p< 0.05, *p< 0.1

Table 8: Effects on Employment of Natives by Occupation, 1930–1940 (2SLS)

| | (1) | (2) | (3) |
|---|---|---|---|
| Dependent Variable: | Low-skilled Natives | Intermediate-skilled Natives | High-skilled Natives |
| $\Delta MEX_c/P_c$ | 0.022 | 0.170** | 0.334** |
| | (0.076) | (0.069) | (0.139) |
| $Bartik_c$ | -0.037 | 0.250*** | 0.283*** |
| | (0.023) | (0.048) | (0.047) |
| Police | 0.854 | -2.946 | -0.018 |
| | (0.914) | (1.851) | (1.663) |
| 1st stage $F$ | 24.33 | 24.33 | 24.33 |
| State FE | X | X | X |
| Weighted | X | X | X |
| Observations | 868 | 868 | 868 |
| R-squared | 0.259 | 0.470 | 0.427 |

Notes: Each dependent variable is the change in employment of natives for each occupational group, relative to total working age population in 1930. Low-skilled occupations are laborers, farm laborers and household service workers. Intermediate-skilled occupations are clerical, operatives, and non-household service workers. High-skilled occupations are professional, managers, craftsmen, and sales workers. The explanatory variable is the change in Mexican labor force between 1930 and 1940, relative to total working age population in 1930. The units of observations are cities. Standard errors in parenthesis are heteroskedasticity-robust. All regressions are weighted by total working age population in 1930.
***p< 0.01, **p< 0.05, *p< 0.1

Table 9: Effects on Employment of Other Foreign-born, 1930–1940 (2SLS)

| | (1) State FE & Weighted | (2) Control: 1930 Charact. | (3) Control: $Bartik_c$ & Police | (4) Control: New Deal & Weather | (5) Targeted States Only | (6) Dropping Cities with Inflow of Mexicans |
|---|---|---|---|---|---|---|
| $\Delta MEX_c/P_c$ | -0.020 | 0.017 | -0.012 | -0.018 | -0.036 | -0.038 |
| | (0.013) | (0.022) | (0.019) | (0.020) | (0.028) | (0.025) |
| $Bartik_c$ | | | 0.141*** | 0.140*** | 0.112*** | 0.152*** |
| | | | (0.020) | (0.020) | (0.037) | (0.029) |
| Police | | | -4.730*** | -4.326*** | -3.915* | -3.628*** |
| | | | (0.903) | (0.927) | (2.196) | (1.222) |
| 1st stage $F$ | 29.55 | 24.73 | 24.65 | 24.33 | 20.83 | 20.85 |
| State FE | X | X | X | X | X | X |
| Weighted | X | X | X | X | X | X |
| Observations | 893 | 893 | 893 | 868 | 224 | 466 |
| R-squared | 0.632 | 0.691 | 0.745 | 0.710 | 0.726 | 0.700 |

Notes: The dependent variable is the change in employment of foreign-born (other than Mexican-origin) between 1930 and 1940, relative to total working age population in 1930. The explanatory variable is the change in Mexican labor force between 1930 and 1940, relative to total working age population in 1930. The units of observations are cities. Standard errors in parenthesis are heteroskedasticity-robust. All regressions are weighted by total working age population in 1930.
***p< 0.01, **p< 0.05, *p< 0.1

Table 10: Effects on Occupational Wages of Natives, 1930–1940 (2SLS)

| | (1) State FE & Weighted | (2) Control: 1930 Charact. | (3) Control: $Bartik_c$ & Police | (4) Control: New Deal & Weather | (5) Targeted States Only | (6) Dropping Cities with Inflow of Mexicans |
|---|---|---|---|---|---|---|
| $\Delta MEX_c/P_c$ | 0.321** | 0.198* | 0.169 | 0.155 | 0.183 | 0.129 |
| | (0.125) | (0.113) | (0.112) | (0.119) | (0.129) | (0.124) |
| $Bartik_c$ | | | 0.206*** | 0.243*** | 0.350*** | 0.281*** |
| | | | (0.036) | (0.036) | (0.073) | (0.045) |
| Police | | | -3.012** | -1.280 | 2.177 | -1.073 |
| | | | (1.445) | (1.449) | (3.789) | (1.699) |
| 1st stage $F$ | 29.55 | 24.73 | 24.65 | 24.33 | 20.83 | 20.85 |
| State FE | X | X | X | X | X | X |
| Weighted | X | X | X | X | X | X |
| Observations | 893 | 893 | 893 | 868 | 224 | 466 |
| R-squared | 0.575 | 0.648 | 0.665 | 0.660 | 0.370 | 0.705 |

Notes: The dependent variable is the log change in occupational wage of natives between 1930 and 1940. Occupational wages are mean hourly wage of each occupation from 1940 Census. The explanatory variable is the change in Mexican labor force between 1930 and 1940, relative to total working age population in 1930. The units of observations are cities. Standard errors in parenthesis are heteroskedasticity-robust. All regressions are weighted by total working age population in 1930.
***p< 0.01, **p< 0.05, *p< 0.1

Table 11: Effects on Internal Migration of Natives, (2SLS)

| Dependent Variable: | (1) Working Age Population 1930–1940 | (2) Migration Inflow 1935–1940 | (3) Migration Outflow 1935–1940 | (4) Migration Net flow 1935–1940 |
|---|---|---|---|---|
| $\Delta MEX_c/P_c$ | 0.512 | 0.572*** | 0.515*** | 0.057 |
| | (0.923) | (0.178) | (0.124) | (0.189) |
| $Bartik_c$ | 1.118*** | 0.550*** | 0.234*** | 0.316*** |
| | (0.379) | (0.070) | (0.041) | (0.067) |
| Police | 20.546* | -0.008 | -1.057 | 1.048 |
| | (11.220) | (2.546) | (1.519) | (2.338) |
| 1st stage $F$ | 24.33 | 24.33 | 24.33 | 24.33 |
| State FE | X | X | X | X |
| Weighted | X | X | X | X |
| Observations | 868 | 868 | 868 | 868 |
| R-squared | 0.343 | 0.726 | 0.716 | 0.419 |

Notes: The dependent variables are standardized by total working age population in 1930. The explanatory variable is the change in Mexican labor force between 1930 and 1940, relative to total working age population in 1930. The units of observations are cities. Standard errors in parenthesis are heteroskedasticity-robust. All regressions are weighted by total working age population in 1930.
***p< 0.01, **p< 0.05, *p< 0.1

Table 12: Effects on Employment and Unemployment of Natives, 1930–1940 (Matching)

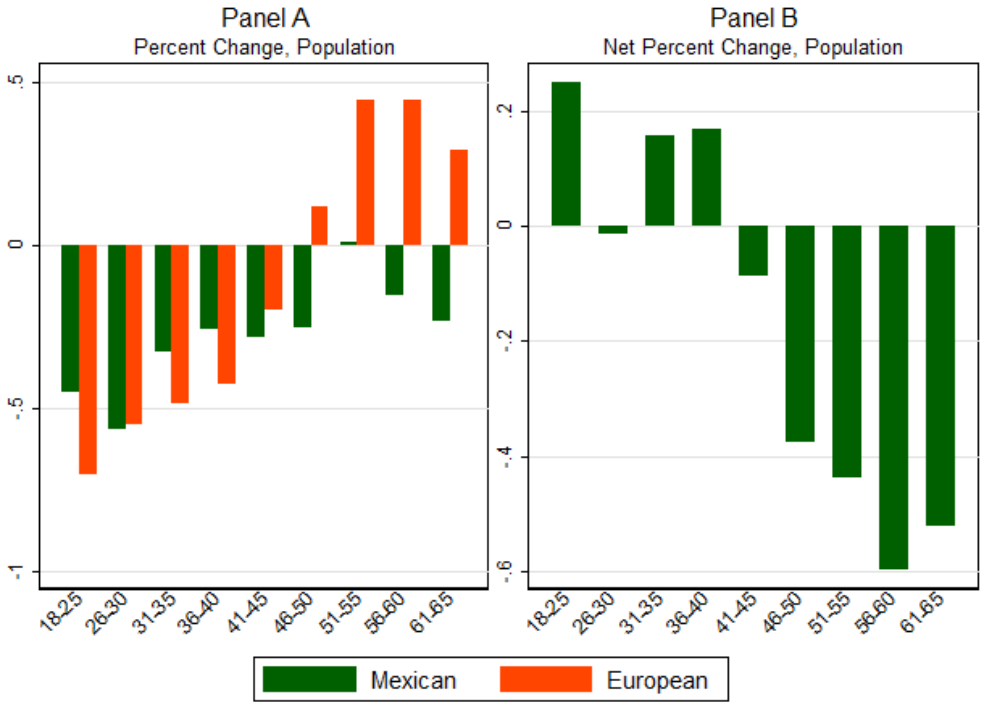
| | (1) Only Pre-Trends | (2) + City Variables | (3) 2 NN | (4) 3 NN | (5) Targeted States | (6) −5% Shock Threshold | (7) PS Match | (8) PS Match 2 NN |
|---|---|---|---|---|---|---|---|---|
| | *Panel A*: Outcome Variable: Changes in Employment | | | | | | | |
| ATE | 0.005 | -0.011 | -0.009 | -0.006 | -0.014 | -0.059* | 0.001 | 0.015 |
| | (0.010) | (0.016) | (0.014) | (0.014) | (0.022) | (0.023) | (0.020) | (0.014) |
| | *Panel B*: Outcome Variable: Changes in Unemployment | | | | | | | |
| ATE | -0.002 | 0.001 | 0.001 | 0.000 | 0.001 | 0.012*** | -0.002 | 0.000 |
| | (0.002) | (0.002) | (0.001) | (0.001) | (0.003) | (0.002) | (0.002) | (0.002) |
| N | 541 | 541 | 541 | 541 | 116 | 555 | 541 | 541 |
| N treated | 14 | 14 | 14 | 14 | 13 | 6 | 14 | 14 |

Notes: Each entry is an estimated average treatment effect (ATE) of Mexican repatriations and each column considers different specification. The outcome variable in Panel A is change in natives employment and in Panel B it is change in natives' unemployment between 1930 and 1940. Robust standard errors are shown in parenthesis. The first six columns show estimates from nearest neighbor (NN) matching, while the last two show propensity score (PS) matching results. Treatment (control) is defined as experiencing repatriation rate larger (smaller) than two (one) percent of the initial labor force. The matching variables are employment and unemployment pre-trends, $Bartik_c$, share young, nonwhite, in manufacturing and in agriculture. All estimates are bias-adjusted. Unless otherwise noted, the default number of matches is one.
***p< 0.01, **p< 0.05, *p< 0.1

# Appendix

## A Figures

Figure A1: Percent Change 1930-1940, by Age Group and Ethnicity




Notes: Percent changes in the population by ethnic and age groups. The left panel shows these separately for Mexican and Europeans. The right panel shows the difference between the two. Europeans include people who are born in Southern, Central, and Eastern Europe.