The Impact of the Chinese Exclusion Act on U.S. Economic Development *

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Abstract

This paper documents several news facts about the 1882 Chinese Exclusion Act, which banned immigration from China. The Act reduced the flow and the stock of Chinese workers, with a larger reduction for skilled workers. The decline in Chinese labor occurred in manufacturing, railroad and mining. With few exceptions, non-Chinese workers did not benefit from Chinese Exclusion. The Act reduced labor supply of other workers, including U.S.-born white workers and European immigrants, the intended beneficiaries of Chinese Exclusion. The Act also reduced manufacturing output, productivity and the number of manufacturing establishments. The adverse economic effects persisted until at least 1940.

Keywords: Immigration, Growth, Productivity
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1 Introduction

In 1882, the U.S. government introduced the Chinese Exclusion Act, which banned laborers born in China from entering the United States and Chinese-born individuals already residing in the U.S. from obtaining citizenship or re-entering the country if they were to exit. The Act was widely popular across political parties and a central motivation was economic. Proponents argued that Chinese workers, who constituted a large share of the labor force in parts of the western United States, took economic opportunities away from white workers. The main opposition came from business owners, who expressed concerns that the loss of highly productive Chinese labor could not be easily replaced. Recent studies have documented that the Chinese Exclusion Act triggered an exodus of Chinese immigrants from the United States and those that remained were adversely affected.[1] Somewhat surprisingly, little attention has been paid to the consequences of the Act on its intended beneficiaries, namely U.S. born white workers and European immigrants, or on aggregate economic development.

Our paper aims to fill this gap, providing novel evidence on the economic effects of the Chinese Exclusion Act on non-Chinese workers and aggregate economic production in the western U.S. These effects are ambiguous *ex ante*. On the one hand, reducing the number of Chinese workers can reduce competition for jobs and resources, which can increase wages and employment for other workers (Borjas, 2003). On the other hand, the loss of Chinese labor can reduce the demand for other workers or lower their wages. This can happen because Chinese consumption demand declines. It can also happen if there are economies of scale or if Chinese workers complement other workers in production, such that their departure reduces average productivity (Ottaviano and Peri, 2012). Over time, both the positive and the negative effects can be moderated by the inflow of new labor and the adoption of new technologies (Lewis, 2011; Abramitzky et al., 2022). Thus, the net effect of the Act is ultimately an empirical question.

The primary contribution of this study is to provide rigorous empirical evidence on the economic effects of the Chinese Exclusion Act. The analysis uses a county-level panel for the period of 1860-1940 for western states, where almost all Chinese immigrants resided after arriving at the port of San Francisco. We employ a *difference-in-differences* (DD) strategy that exploits two sources of variation: time variation from the introduction of

[1] See the references later in the Introduction.

the Act, and cross-sectional variation in treatment intensity across counties with varying 1880 Chinese population share. Chinese Exclusion should have had little direct effect on counties with few Chinese residents at the time, and larger effects on counties with many Chinese residents. Normalizing the Chinese population by total county population accounts for differences in county size. Since the distribution of Chinese share is highly skewed and Chinese population share may be measured with error, our baseline measure of treatment intensity is a binary variable for whether a county had high (above sample median) or low (below sample median) Chinese share in 1880. The baseline specification controls for county fixed effects to account for time-invariant differences across counties such as geography, and state-year fixed effects to account for state-specific changes over time such as differential growth rates. The location of Chinese in 1880 was not random. Historians have documented that the first waves of Chinese immigrants came to the U.S. to work in mining and railway construction, and subsequent waves often moved to locations where earlier immigrants concentrated. To account for this, the baseline estimates control for the interaction of year fixed effects with the number of years that a county has been connected to a railroad as of 1882 and with whether the county ever had a mine during 1840 to 1882. Only the interaction between the high Chinese share dummy variable and the post-Exclusion Act dummy variable is interpreted as plausibly causal. This assumes that, conditional on the baseline controls, there were no other differences between high and low Chinese share counties that would influence the outcomes of interest.

Our analysis proceeds in several steps. First, we set the stage by providing important descriptive statistics. In 1880, the Chinese were 12% of the male working-age population and 21% of all immigrants in the sample. Chinese workers were concentrated in specific sectors and locations. The total number (i.e., the stock) of Chinese living in western states declined after the Act, while the increase in the rest of the U.S. was negligible. This was due to the fact that 96% of Chinese immigrants were men, and the Act made it difficult for them to reunite with their families or to marry. Since the persistence of the loss of Chinese workers on the western economy partly depends on how easy it was to bring in new workers, we examine two important factors that influence migration costs. The first one is geographic distance. At the time, the U.S. West was relatively remote, and many locations were not yet connected to the railroad network (Donaldson and Hornbeck, 2016). This made it harder for employers to replace Chinese workers with other workers, born outside of the U.S. West. The second one is climate distance, proxied for with the difference in temperature between two locations. The climate prevailing in the U.S. West is rather different from that in the rest of the country. Since migrants tend to select locations with similar climates (Obolensky et al., 2024; Steckel, 1983), , climate distance may have further slowed down the inflow of workers from the non-West, where most of the U.S. population resided and where European immigrants entered the country. We also document that, consistent with the migration literature (Altonji and Card, 1991), the spatial distribution of the Chinese population across counties was persistent over time. This is important for the validity of our empirical strategy, which assumes that places with higher 1880 Chinese population shares would have continued to a have higher Chinese population share afterwards absent the Exclusion Act.

Second, we proceed with the regression analysis. We begin with the average effect of the Exclusion Act for the entire post-1882 period on remaining Chinese immigrants. The baseline estimates show that the Chinese Exclusion Act reduced Chinese population and labor supply, more so in urban areas. The reduction was driven by manufacturing, mining and railroad, which were sectors with a high concentration of Chinese workers. There was no effect on agriculture, where few Chinese were employed due to earlier laws that banned them from owning farmland. The Act also reduced the share of literate Chinese workers and lowered the occupational income score of Chinese workers. These results imply that the Act caused skilled workers to depart at higher rates, which is consistent with the notion that they had better outside options or more resources to facilitate emigration from the U.S. The change in the occupation of remaining Chinese workers could reflect the change in worker composition as well as an increase in labor market discrimination against Chinese workers after the Act.

Next, we examine the effects of the Act on the non-Chinese population. We focus on white workers, who accounted for 91% of the 1880 population and were the intended beneficiaries of the Act. Contrary to these intentions, we find that the Act reduced labor supply of both native-born workers and European immigrants, especially those working in manufacturing, mining and railroad. We also detect a negative effect on other sectors, including agriculture, albeit the estimates are not always statistically significant at conventional levels. For white workers, the Act also reduced the occupational income scores, the urban population share and the share of literate workers.

Since it is easier for white workers from nearby places than for those from faraway places to take the jobs vacated by Chinese workers, we separately examine white labor supply depending on birth place. We find that the negative effect of the Exclusion Act is most prominent for white workers born outside of the western states or in Europe: for these workers, the Chinese Exclusion Act reduced both labor supply and income scores. We find a positive effect only for one group: white workers born within the U.S. West.

For this group, the departure of the Chinese increased labor supply in mining, but not their income scores. These results are consistent with high migration costs to the West, and suggest that the departure of the Chinese made western counties less attractive to new arrivals from other parts of the U.S. and Europe.

Third, we examine the impact of the Chinese Exclusion Act on aggregate economic output. Amongst the sectors that lost labor after the Act (manufacturing, mining, railroads), we are able to measure production in manufacturing. Note that the U.S. West was in the early stages of industrialization at the eve of the 20th century (Eckert and Peters, 2022). Manufacturing establishments were small, with four workers on average, and not highly mechanized. In this context, we find that Chinese Exclusion reduced total output, worker productivity and the number of establishments. The negative effect is consistent with the reduction in the share of skilled workers, and the presence of economies of scale or complementarity of workers in production.

The reduction in white labor supply and economic output can be an outcome of a productivity decline caused by the departure of Chinese workers or a reduction in Chinese consumption. These two channels are complementary. To assess their probable relevance, we divide sectors according to the extent that they were consumed locally versus traded. We find that the negative effects on labor supply are larger for sectors that produce traded goods. Our measure of tradability is noisy and should be cautiously interpreted as suggestive. Nevertheless, the results go against the concern that our results are driven entirely by the direct effect of a reduction in Chinese consumption. Our interpretation is further corroborated by historical accounts, which indicate that Chinese savings rates were very high at the time, as Chinese workers sought to send money back home (Chang, 2019; Chang and Fishkin, 2019)

The main concern for the causal interpretation of our estimates is that Chinese workers located in places with lower potential for economic growth in 1880. This would cause our estimates to over-state the negative effects of the Chinese Exclusion Act. We address this concern in several ways. First, we conduct a placebo experiment using data from other parts of the United States, which had virtually no Chinese immigrants. We use the main estimating sample of western states to identify the characteristics of counties with high Chinese population shares in 1880. We then ask whether counties with similar characteristics in other states also experienced slower growth, which would suggest that our main results are confounded. Our findings show the contrary: in the placebo states, counties with high hypothetical Chinese share grew *more* than those with low Chinese share, after 1880. Taken literally, this implies that, had there been no Chinese Exclusion

Act, the western counties that suffered the most from the Act would have actually grown more than other counties. To understand this finding, note that the qualities that attracted Chinese immigrants to a county in the West were likely similar to what attracted European immigrants to a county in the placebo states, and this was a period where large waves of European immigrants continued to arrive and fuel economic growth in the placebo states. Moreover, there was practically no relocation of Chinese immigrants from the West to the rest of the U.S.

We provide a large body of additional evidence against omitted variables. For example, we check that the main estimates are robust to including several controls, such as the share of non-Chinese immigrants, population, labor force in manufacturing or agriculture, market integration, distance to New York City (the entry point of most European immigrants at the time), and the Homestead Act. These are time-invariant variables and we control for each interacted with year fixed effects to allow their influences to be fully flexible over time. See the paper for these and many other sensitivity tests.

The second-difference estimates also raise the conceptual concern that the estimated negative impact reflects spatial reallocation within the West. Our findings would overstate the negative aggregate effect if the Act led to the reallocation of Chinese immigrants or economic activity from counties with high 1880 Chinese population shares to counties with low ones. To address this concern, we look for spillover effects onto neighboring counties. If the costs of moving economic activity increase with physical distance, then we would expect the Act to reallocate activity to counties near where Chinese immigrants resided in 1880. We find no evidence of such positive spillover effects. If anything, the Act had a negative spillover effect on such counties. This is true even if we restrict the sample to counties that are in the control group of the main estimation. In other words, for two counties with almost no Chinese residents in 1880, the one next to a county with a large concentration of Chinese residents was more adversely affected by Chinese Exclusion than the one next to a county with no Chinese. These and other results in the paper go against the reallocation interpretation and support the aggregate decline interpretation.

Finally, we examine the dynamic effects to understand the short versus the long-run effects, which depend on the extent to which Chinese workers can be replaced, either by other workers or by new technologies. This is a period of rapid growth of the western states, where large numbers of workers from the eastern states moved westwards. If these workers moved to places that lost labor due to Chinese Exclusion, we should observe that the short and medium-run negative effects dissipate over time. We find that the adverse effects of the Act were long-lasting and persisted until the end of our sample in 1940. This is consistent with high costs of migrating to the west and the large number of economic opportunities for workers, especially skilled worker, in the Midwest and the East, which were also experiencing rapid growth at the time. The dynamic estimates also show that there are no pre-trends and the trend-break occurs soon after the introduction of the Act. This supports the parallel trends assumption and reduces concerns that spurious correlations may be driving our results.

To examine the role of migration costs more directly, we estimate heterogeneous treatment effects according to climate distance from counties in eastern states. We find that the Act reduced labor and economic activity more in western counties that were climatically more different from counties outside the West. This is consistent with the importance of environmental distance and migration costs playing a role. We find negative but imprecise estimates for geographic distance. This is likely due to the fact that the geographic distances were so large for all western counties that, at the margin, the variation was not meaningful for location decisions.

This study provides new evidence that the Chinese Exclusion Act, contrary to the stated intentions of its proponents, triggered a cascade of negative economic effects for white workers and slowed the economic growth of industrialization of the western United States for at least seventy years. The magnitudes of our estimates are specific to the context of our study, which is characterized by a low level of economic development and large distances from other population centers. Nevertheless, the insight that the ban of economically productive immigrants can lead to negative economic consequences for native-born workers is likely generalizable to other contexts where the departing workers cannot be easily replaced.

Our paper contributes to studies of the economic effect of large population flows, which can be broadly grouped into two categories. The first one holds the view that an increase in labor supply will reduce wages and employment opportunities for native workers. This is supported by studies on immigration such as Borjas (2003, 2005) and Dustmann et al. (2017). The second one holds the view that an increase in (immigrant) labor will increase productivity and wages because of economies of scale in production, which can arise, for example, from the complementarity of workers in production or innovation. This view is supported by evidence that immigration increases innovation and growth in the historical and modern U.S. (Burchardi et al., 2019, 2020; Sequeira et al., 2020; Ottaviano and Peri, 2012), Denmark (Foged and Peri, 2016), and post-World War II Germany (Peters, 2021).[2] The latter view is also consistent with recent work on the economic effects of immigration

[2]See Card (2009) and Dustmann et al. (2016) for reviews of the literature.

restrictions. Abramitzky et al. (2022) and Clemens et al. (2018) find, respectively, that the Immigration Acts of the 1920s and the end of the Bracero program in 1964 did not benefit U.S. native workers in any meaningful way. We add to this literature by providing systematic evidence that the Chinese Exclusion Act – the first ban on immigration based on ethnicity or country of origin in U.S. history – reduced economic opportunities for other workers and slowed down economic growth of the U.S. West. In this sense, we are most closely related to Moser and San (2019), which finds that the immigration quotas of the 1920s lowered American innovation by natives as well as immigrants; and to evidence that the expulsion of the Jews from 17th-century Spain (Chaney and Hornbeck, 2016) and from World War II Russia (Acemoglu et al., 2011) had long-lasting negative economic effects.

This paper is also related to works that have examined the effects of the Chinese Exclusion Act. Existing papers have analyzed the economic and social assimilation of Chinese who remained in the U.S. and their descendants (Chen and Xie, 2020; Chen, 2015), but have not considered the effect on non-Chinese workers or aggregate production. Since the first version of our paper (January 2022), a study by Hoi (2022) uses a linked sample of native-born men and finds that wages of low-skilled workers increased following the departure of the Chinese. The results of the two studies together imply that the Exclusion of the Chinese may have benefited specific segments of the (low-skilled) native workforce, but that its effect for on overall labor force and economy was negative.

The paper is organized as follows. Section 2 discusses the historical background. Section 5.1 presents the empirical strategy. Section 4 describes the data. Section 5 presents the results. Section 7 offers concluding remarks.

2 Historical Background

2.1 Chinese Immigration

The Chinese were the largest immigrant group in the American West, which was far from 19th century American population "center of gravity". According to the 1880 Census, approximately 85% of the U.S. population lived east of Illinois. Chicago, the largest city close to the "frontier", was over 2,000 miles from San Francisco and 1,000 miles to Denver. European immigrants at this time mostly arrived via Ellis Island (Abramitzky and Boustan, 2017), which was even further than Chicago from the West.

Chinese workers arrived to the U.S. by crossing the Pacific. They mostly lived in the West and were around a quarter of the workforce there by 1880 (Lee, 2003, p.25). Nearly all Chinese immigrants during this period came from Guangdong Province and the Pearl River Delta, which was plagued by internal conflict due to the Opium Wars, the Taiping rebellion, ethnic conflict between the Cantonese and Kejia (Hakka) and widespread banditry (Chang, 2003, p. 8). Families and villages often pooled together their money to send one person to the United States, who would then use the saved earning to bring over others (Chang 2003, p. 18).

Chinese immigration was facilitated by The Six Companies, which helped with the legal process as well as matching workers to employers in the U.S. Chinese workers organized themselves into "gangs" where a team of men would be hired out by one contractor, who was often a Chinese merchant. The gang provided their own housing, food and other services. These features made Chinese workers appealing to employers, who could deal with the contractor in English and did not need to provide amenities or support services for work that took place in unpopulated areas (Chang, 2003, p. 30).

The first wave of immigrants arrived in the 1850s during California's gold rush. A second large wave came to build the Transcontinental Railroad. Chinese workers usually worked on short-term contracts. After the completion of work, they were left by their employers in what were often rural parts of America. Chinese workers often stayed in these places. Where they had earlier logged to provide wood for railways and mines, they now logged to provide wood for the construction of new towns. Similarly, many who had worked as cooks or launders for the Chinese work gangs now worked to provide similar services for their new communities

By 1880, Chinese immigrants were concentrated in specific sectors and locations. They worked in key sectors that fueled general economic growth, such as mining and infrastructure-related work (e.g., railroad maintenance), construction and lumber mills. For example, over 70% of workers in logging in the Sierra Nevada mountains were Chinese They also worked in services and manufacturing, such as fish canneries in the Pacific Northwest (Pfaelzer, 2008, p. 140). The demand for Chinese labor was very high from American employers, who viewed them as a valuable and low-cost source of skilled and unskilled labor. They worked in establishments owned and managed by other Chinese immigrants as well as by white or U.S. born Americans. For example, Chinese manufacturers of shoes and hats, cigars, for example, dominated the sector in the Western U.S. during this period (Chang 2003, p. 60).

Most Chinese immigrants were working-age men. This was at first caused by economic necessity. After becoming financially stable, men would either return home or bring spouses and other family members to the U.S. In 1875, the Page Law prohibited Chinese women from entry.

2.2 The Chinese Exclusion Act

Economic concerns about competition between Chinese and white workers were a key motivation for the Chinese Exclusion Act. Hostility towards the Chinese was shared by white U.S.-born workers and European immigrants (Chang 2003, pp. 116-7), who perceived the Chinese as unskilled and as taking employment opportunities away from white workers. For instance, during the recession of the 1870s in California, Chinese workers were producing 50-75% of the boots and shoes in the state at a time when there was four applicants for each job (**?**, p. 74-5). Many Americans were also concerned about the (cultural) threat of the "Yellow Peril" on western civilization.[3] The Chinese were typically not Christian, spoke little English, dressed in traditional Chinese robes, and men wore their hair in the traditional Manchu queue as mandated by the Qing dynasty. These visible differences also made it easy to distinguish and discriminate against the Chinese.

These economic and cultural concerns were emphasized by nativist groups such as the Know-Nothings (Higham, 2002), which led Congress to pass the Chinese Exclusion Act in 1882. There was broad support from all political parties. The main dissent came from business owners, who expressed concerns about the loss of Chinese laborers and believed that they would not be easily replaceable.

The 1882 Chinese Exclusion Act barred all "laborers" from China from entering the United States and all those of Chinese ethnicity from naturalization for ten years. In practice, the Act applied to all Chinese except for a very few and select individuals, such as Qing government officials and Boxer Indemnity Scholars. An 1884 amendment expanded the scope of the Act to include all people of Chinese descent regardless of the country of origin. A further 1888 amendment prevented immigrants who had arrived prior to the Act from re-entering the United States. The Exclusion Act was renewed for ten more years in 1892 with the Geary Act, and then made indefinite in 1902. Congress repealed the Exclusion Act in 1943, when China became a U.S. ally in World War II. Chinese immigrants were limited to 105 people a year, but they were allowed to naturalize. It was not until the Immigration and Nationality Act of 1965 that Chinese immigrants were

[3]One early proponent of excluding the Chinese, Senator John F. Miller, in a speech to his fellow senators in 1881, called upon them to: "...[preserve] American Anglo-Saxon civilization without contamination or adulteration ... [from] the gangrene of oriental civilization... Why not discriminate? Why aid in the increase and distribution over ... our domain of a degraded and inferior race, and the progenitors of an inferior sort of men?" (Chang 2003, p. 130).

allowed to move to the United States in large numbers again (Lee, 2003, Ch. 3).

The Act led many Chinese in the U.S. to leave for other countries in the Americas or to return home, as workers wished to reunite with their families or to get married. It is important to note that this was a period when miscegenation (mixed-race marriages) was discouraged or illegal. The Chinese remaining in the U.S. faced increasing discrimination through formal and informal channels. Many local governments passed legislation that confiscated the property of the Chinese. There were also many instances of mob violence against the Chinese. Many of the Chinese who remained in the U.S. chose to live together so that they could organize and better protect themselves. It was during this period that the first "China Town" appeared in San Francisco (in 1900). Hostile attitudes and discrimination likely also contributed to the departure of the Chinese.

Restrictions for Chinese naturalization had come into place prior to the Exclusion Act. The 1870 Naturalization Act expanded U.S. citizenship eligibility from "any alien, being a free white person" to include "aliens of African nativity" and "persons of African descent". This wording gave discretion to individual courts to interpret whether Chinese were eligible for naturalization. The 1882 Exclusion Act barred Federal and state courts from allowing Chinese to naturalize (Molloy, 1947). This and the later legislation that barred re-entry also led to confusion over the rights of the Chinese who arrived in the U.S. prior to 1882. Eventually, the 1898 landmark decision in *United States v. Wong Kim Ark* stated that all individual born on U.S. territory (excluding children of foreign rulers and diplomats) are U.S. citizens and have all the rights of citizens by birthright.

The Exclusion Act was preceded and followed by many other restrictions on Chinese economic and social activity. Starting in 1859, to prevent Chinese from becoming independent farmers, western states passed laws to prohibit the Chinese from buying or leasing land (Kanazawa, 2005). Similarly, Chinese fishermen and miners faced increasing local and regional regulations that limited their access to mine or the most lucrative fishing, such as salmon in the Columbia River (Chan, 1986).

2.3 Other Immigrants

The second largest immigrant group in the West in the 1880s were Irish, who accounted for 20% and 6% of the immigrant and the total population, respectively. There were very few other non-white immigrants at the time. In 1880, only 158 Japanese lived in the U.S. West. Filipinos migrated to the U.S. mostly in the early 1900s. After the Spanish-American War, the Philippines became a U.S. colony and Filipinos were U.S. citizens. There were about 18,000 Mexicans in the west in 1880.

As the Japanese population grew (to 24,326 by 1900), they faced the same resistance and hostility as the Chinese had earlier. The limitations on property ownership were often applied to the Japanese. In 1907, the U.S. introduced the Gentlmen's Agreement, which *de facto* banned Japanese migration. In 1917, Congress introduced a literacy requirement and barred Southeast Asians, South Asians, and Middle Eastern people (those from the so-called "Asiatic Barred Zone") from immigrating to the United States (Goldin, 1994). In 1921 and then, more permanently, in 1924, a quota on immigration set the share of the population in 1890 and effectively banned Asian immigrants (Abramitzky and Boustan, 2017). Filipinos, as U.S. citizens, were exempt until 1934, when the Tydings–McDuffie Act restricted them to a quota of fifty each year but would grant the Philippines independence by 1945.

Our reduced from estimates will capture the cumulative effect of all of the restrictions after the Exclusion Act. The presence of restrictions prior to the Exclusion Act will cause our estimates to understate the total effect of all anti-Chinese legislation and sentiment. The implementation of later restrictions against other groups, such as the Japanese, can exacerbate the effects of anti-Chinese legislation.

Two important exceptions to the discussion are Hawaii, which was not a state or subject to these laws until 1959, or Puerto Rico, which has been a territory since 1898. Many Chinese moved there after the Exclusion Act. Hawaii and Puerto Rico are not in our sample.

3 Conceptual Framework

The Chinese Exclusion Act reduced both the flow and the stock of Chinese immigrants in the United States. The effect on the regional economy can be positive or negative and change over time. On the one hand, reducing the number of Chinese workers can reduce competition for jobs, which can increase the price of labor and employment for other workers (Borjas, 2003). This can happen if Chinese and non-Chinese workers are competing over natural resources such as minerals, fish, wood or land, and/or if labor demand is downward sloping.

On the other hand, the loss of labor can reduce demand for other workers and lower their wages. This can happen for two reasons. The first one is the direct effect from lowered Chinese consumption. The decline in Chinese consumption of goods reduces labor demand for the workers who produced these goods, many of whom were not Chinese. The second one is from a decline in productivity. This can happen if there are economies of scale or if Chinese workers complement other workers in production, such that their departure reduces average productivity (Ottaviano and Peri, 2012). To understand the second effect in our context, consider the sectors where most Chinese were employed, which included early manufacturing such as mills, mining, infrastructure, hotels and lodging. These are all sectors to which there are some economies of scale in production. They are also sectors where the goods that the Chinese were known to have produced, such as timber, paper pulp, mined goods, railroads, buildings, and hospitality, conceivably complement general economic activity. For example, timber is used to construct houses, mines and factories, and hotel and lodgings house workers and new migrants to the area.

The magnitude of the positive and negative effects on the non-Chinese workers and the regional economy depends on the elasticity of wages with respect to labor, the elasticity of substitution between Chinese and non-Chinese workers, and the marginal price of production with respect to scale.

The long-run effect can be very different from the short and medium-run effects because factors of production can adjust. The American West of the late 19th and early 20th centuries was characterized by the westward movement of the American population and the rapid innovation and adoption of new technologies (Abramitzky et al., 2022; Bazzi et al., 2020). The inflow of new labor and the adoption of labor-saving technologies can moderate both the positive and negative shorter-run effects. For instance, the inflow of new immigrants or U.S. born workers from elsewhere can replace the missing Chinese workers. This implies that the persistence of the initial effect of the Exclusion Act will depend on factors like the cost of new workers moving to places that lost Chinese workers and whether they have the same skills and productivity as the Chinese workers. Similarly, new technologies can reduce the marginal product of labor.

The main empirical analysis will capture the net of the positive and negative forces. For the negative forces, our prior is that the direct effects from reduced Chinese consumption play a limited role. Historical accounts indicate that Chinese workers had very high savings rates (to send money home or to bring other family members to the U.S.) and worked in sectors that produced traded goods like minerals and manufactured goods (Chang, 2019; Chang and Fishkin, 2019). The empirical analysis will investigate this after presenting the main results. We will also investigate migration costs in the empirical analysis.

It is important to note that replacement workers can come from within the West or eastern parts of the U.S. In the first case, our estimates will capture relocation effects. In the second case, our estimates will capture aggregate effects on the West. We will discuss this in detail and provide evidence against relocation later in the paper.

4 Data

The main data we use in our analysis are the individual-level data from U.S. decennial censuses for 1850 to 1940 (Ruggles et al., 2021) and county-aggregates from the Census of Manufacturing (Haines, 2010; Haines and Rhode, 2018).[4] We will discuss other data sources when they are relevant. All data are aggregated to the county-decade level. To address the fact that county boundaries changed over time, we follow standard approaches in the literature (Perlman, 2016; Hornbeck, 2010) and fix them to 1930 boundaries.

The historical censuses report the country of origin and race. We define someone to be Chinese if either the country of birth is China or if race is Chinese. Since Chinese immigrants started arriving in the 1850s and our sample only include working-age adults, these two variables are nearly synonymous for most Chinese adults in the U.S. in 1880. In later censuses, it is possible that U.S. born children from a parent who is Chinese and a parent who is of another race choose to report her race as the other race. However, this is unlikely to be quantitatively important since only 1.7% of married Chinese men had a non-Chinese spouse during this historical period.

4.1 Descriptive Statistics

Figure 1 maps the spatial distribution of Chinese in 1880 across the counties in our sample, with darker colors corresponding to a higher Chinese share. Figure 2 presents the same information after demeaning for state fixed effects to highlight variation within states. This is nearer the variation that our regressions, which will control for state-year fixed effects, will exploit. In our analysis, we focus on the sample of western states where the Chinese population is above 1% of the total population in 1880: Arizona, California, Idaho, Montana, Nevada, Oregon, Washington, and Wyoming. The maps show significant variation across counties within states in the U.S. West.

Figure 3 plots the total number of Chinese, the number of all other immigrants, and the total population in our western sample over time. Two important facts emerge. First, we observe a rapid increase in the total number of Chinese residing in the U.S. from

[4]The 1890 U.S. Census was destroyed by a fire. As noted below, though, we were able to recover a handful of outcomes (e.g., total population) for this year using different sources. Data from the Census of Manufacturing are available every 10 years from 1850 to 1920, and every 5 years between 1920 and 1940.

1860 until 1880, followed by a decline in the post-1882 decades. These trends raise the question of whether the Chinese who left the western states moved out of the U.S. or relocated internally, to other states. The same figure also plots the number of Chinese immigrants living in the rest of the United States. There is a small rise after 1880, but this cannot account for the fall of Chinese population in the West.**XX add this line ot the same figureXX** Also, the 75th percentile of the distribution of the number of Chinese individuals across eastern states was 2 in these years (this is not shown for brevity). Appendix Figures A.1 and A.2 present the time series of immigrants for the entire U.S. and for the states that are not in our sample. Together, this evidence is consistent with historical accounts of a large exodus of Chinese workers from the U.S. after the Exclusion Act, and indicates that the Exclusion Act did not lead to the internal migration of Chinese individuals from the West to the rest of the U.S.

Second, both non-Chinese immigrants and total population rise throughout this period. This is consistent with the fact that this was a period of rapid growth for the western states, when large waves of Americans born in the eastern states and European immigrants moved west. This is important for keeping in mind when interpreting our regression estimates.

Table 1 presents detailed descriptive statistics for the Chinese population in 1880. Panel I includes all counties. On average, 6.6% of the population is Chinese – and the values are almost identical irrespective of the definition (race vs country of origin) we use. The Chinese represent 21% of all foreign born individuals in the West. Group B presents statistics for men (15-64) in the labor force. All labor force outcomes in the main analysis focus on the male working age (15-64) population. This is standard in the historical literature and relevant for our context since most Chinese immigrants (96%) were male. Chinese immigrants account for 12% of the male labor force, and are concentrated in key sectors of the economy, such as mining (25%), personal services (50%), transportation (8%), and manufacturing (6%). [5] They are, instead, less likely to work in agriculture, where they account for as little as 2.25% of employment, and practically absent in finance and real estate (0.4%) as well as public administration (0.2%).

As Figures 1 and 2 make clear, there is substantial variation in the presence of Chinese immigrants across western counties. In Panels II and III of Table 1, we divide the sample into counties that had above and below the 1880 median (4%) of the Chinese population share. Panel II shows that 35% of all immigrants and 21% of the labor force were Chinese

[5] Within the personal service sectors, Chinese were concentrated in XX CARLO SHALL WE ADD A FEW OCCUPATIONS W/IN SERVICES? XX

in the former, while only 8% and 3% were Chinese in the latter. The large standard deviations also indicate spatial variation, within each group of counties. The Chinese were concentrated in specific sectors and locations, such that there were counties where a large share of workers in a given sector were Chinese. This is important to keep in mind for interpreting the magnitude of results later in the paper.

Table 2 presents the descriptive statistics for the main variables of our analysis in 1880. Panel I includes all counties in the sample. Mean county population and urban population share are, respectively, 4,528 and 4%. For comparison, note that in the other states (not in our sample), average county population in 1880 is 18,186 and average urban population share is 7%. In our sample, the average immigrant share is 27%, whereas the average share of whites, Chinese, and individuals from other races is 92%, 6.6%, and 1.3%, respectively. Reflecting unbalanced sex-ratios in the West at the time, the average share of men in the population is 67%.The average size of the labor force is 1,834, though the large standard deviation (5,659) implies substantial spatial variation. The average share of workers is 7% in manufacturing, 14% in mining, 6% in transportation (chiefly, railroads) and 34% in agriculture. The average share of workers holding skilled occupations and working in managerial occupations is 18% and 5%, respectively.[6]

In Panels II and III, we divide the sample into counties with 1880 Chinese population share above and below the median, respectively. On average, Chinese constituted 12% and 1.4% of the county population in the latter and in the former. Counties that had more Chinese on average had larger populations, were more urbanized, had more immigrants, larger labor forces, a higher (resp., lower) share of the labor force working in mining and transportation (resp., in agriculture), and more unskilled workers. The larger mining and railroads employment shares in counties with a higher share of Chinese population is consistent with the fact that the first waves of Chinese immigrants came to work in mines and on the construction of railroads. The data also show that counties with more Chinese had higher values of manufacturing output and of farm land. The income score is similar in the two types of counties.[7]

Table XX t_occupations_1880 XX presents the top-10 occupations held by Chinese (Group A) and white (Group B) workers in counties with the Chinese population share

[6]Skill groups are defined based on individuals' reported occupation following Katz and Margo (2014). In particular, skilled workers include: professionals, managers, craftsmen, clerical and sales occupations. Unskilled occupations include: operatives, laborers, and service workers (both private household and non-household). These groups omit farmers and workers employed in agriculture.

[7]U.S. Censuses did not collect wages prior to 1940. We thus use occupational income scores, which are often interpreted as a proxy for life-time income. This score assigns to an individual the median income of his job category in 1950 and are often interpreted as a proxy for life-time income.

above and below the median in 1880. In high Chinese counties, Chinese workers were most frequently employed as mine workers and laborers. Consistent with historical accounts, many of them were cooks and worked in laundries. Many Chinese worked as laborers or as cooks and were employed in laundries also in low Chinese counties; there, instead, fewer Chinese immigrants worked in the mining sector. Reflecting the low urban population share of the U.S. West at the time, the most common occupations for whites were farmers and farm laborers – both in high and in low Chinese share counties. In high Chinese share counties, though, more whites worked in mining and were managers.

5 Main Results

5.1 Baseline Specification

To understand how the Chinese Exclusion Act affected the non-Chinese population and the economic development of the U.S. West, we exploit two sources of variation: time variation in the introduction of the Act and cross-sectional variation in a county's Chinese population share on the eve of the Act. The latter influences the intensity of treatment. Counties where few Chinese resided should not be affected by the Act, while counties with a high Chinese population share will be more affected. The intuition behind our design is that, absent the Act, Chinese population share would have increased more in places with higher 1880 Chinese population shares. To validate this assumption, Table 3 presents the correlation between the log population of Chinese in a county and its lagged value.

We alternatively use one lag (ten years), two lags (twenty years) and three lags (thirty years). Panel A examines the entire period that we study, 1850-1940. Panel B examines the pre-Act years, 1850-1880. Panel C examines the post Act years, 1890-1940. The coefficients of the lags are always positive and statistically significant. We find strong persistence in the location of Chinese immigrants. We will also validate this logic by examining how the Chinese population share changed in the two types of counties after the Act before we examine other outcomes.

Our empirical strategy is in the spirit of a *difference-in-differences* (DD) estimate. We compare outcomes in counties with high Chinese population shares in 1880 to counties with low Chinese population shares in 1880. The baseline uses 1880 instead of earlier years because there were very few Chinese in earlier periods. We use a binary measure of Chinese population share because the 1880 Chinese population share is highly skewed (see Appendix Figure A.3). High Chinese share is a dummy variable that equals 1 if the

1880 Chinese population share in the county is above the sample median (4%) and equals 0 otherwise. **We will later show that the results are similar if we use alternative measures of Chinese share** .

The baseline specification is the following:

$$Y_{ijt} = \alpha + \beta(HighChineseShare_{i,1880} \times 1\{t > 1882\}) + \Gamma X_{ijt} + \varphi_i + \xi_{jt} + \nu_{ijt} \qquad (1)$$

where the outcome of interest in county i state j and year t, Y_{ijt}, is a function of: the interaction of a dummy variable that takes the value of one if the 1880 Chinese population share is above the sample median, $Chinese_{i,1880}$, and an indicator variable equal to one if the time period is after 1882; a vector of controls, X_{ijt}; county fixed effects, φ_i; and state-year fixed effects, ξ_{jt}. Standard errors are clustered at the county level. We will also present Conley SE with 100km cutoffs to account for spatial correlation.

County fixed effects control for time invariant differences across counties, such as distance to the San Francisco port. State-year fixed effects control for changes over time that affect all counties within a state similarly, such as the macro economic growth of the western states.

Since Chinese immigrants did not locate randomly and the first waves of immigrants were concentrated in mining and railroad construction, the baseline controls for the number of years that a county has been connected to the railroad between 1840 and 1880 and whether there was ever a mine in the county during 1840 and 1880. We include the interactions of each time invariant variable with year fixed effects.

β is the coefficient of interest. If the Act improved outcomes, then $\beta > 0$. If the Act worsened outcomes, then $\beta < 0$. β reflects the effect of the 1882 Chinese Exclusion Act and all of the subsequent legislation that reinforced the effect of the initial Act that we discussed in the Background Section.

The causal interpretation of β assumes that absent the Act, the outcomes of interest would have evolved along parallel trends in counties with high and low 1880 Chinese population shares. In other words, we assume that, conditional on the controls, the interaction of 1880 Chinese population share in the county and the post-1882 dummy variables is uncorrelated with the error term. We will provide evidence for this assumption after we present the main results.

5.2 Labor Supply

To show that the Exclusion Act was effective in reducing Chinese population and labor force, we begin by presenting results for Chinese immigrants. Throughout the paper outcomes are measured in logs unless otherwise noted,. Columns (1) and (2) of Table 4 examine total Chinese population and labor supply in each county. We find that the Act reduced both. The estimates are negative and statistically significant at the 1% level.

In columns (3)-(14), we examine the effects of the Act on Chinese labor supply across 1-digit sectors, sorted by the size of the 1880 share of Chinese workers. We find that the Act reduced the number of workers in sectors where the Chinese were a large fraction of the labor force (columns 3 to 8): personal and entertainment services, mining, manufacturing, wholesale and retail trade, and transportation (mostly, railways). The estimates are statistically significant at the 1% level, except for manufacturing and railways, for which they are statistically significant at the 10% level. In columns (9) to (14), where we examine Chinese labor supply in sectors with smaller Chinese labor shares (agriculture, professional services, construction, business and repair services, finance et. al., and public administration), we find statistically zero effects except for professional and related services.

XX NOT SURE WHERE WE WANT TO TALK ABOUT THIS (I am fine with this paragraph as it is now): In Table XXt_occXX columns (1) to (5), we examine the skill composition of Chinese workers. We find that the Exclusion Act reduced the share of Chinese immigrants living in urban areas (column 1) as well as the share of Chinese workers who were literate (column 2), skilled (column 3) or held managerial occupations (column 4). The estimates are statistically significant at the 1% and 5% levels.

These results imply that the Exclusion Act reduced the number of Chinese workers, and reduced the skill level of the average Chinese who remained. The latter may be due to high-skilled workers having better outside options and more resources – something that would allow them to leave the U.S. after the Act. It can also reflect and increase in discrimination towards the Chinese that pushed the Chinese who remained in the U.S. into lower-ranked occupations. We will return to this issue later by examining the heterogeneous effects of the Exclusion Act by pre-Act Chinese worker composition.

Column (5) shows that the Exclusion Act also reduced the occupational income score of remaining Chinese workers. This is consistent with the results obtained for skills and literacy.

To interpret the magnitudes, consider, for example, the estimate of -1.03 for total Chinese labor supply in Table XXt_ind_chineseXX column (2). This coefficient reflects the difference between counties with above and below median 1880 Chinese population share, which under the parallel trends assumption, is the effect of the Exclusion Act. Thus, the Act reduced the Chinese labor supply by 64.30% on average.[8] We present analogous calculations for all outcomes at the bottom of Table 4 The estimates in Table XX t_occ XX implies that the Act reduced the Chinese urban share by nearly 100%, the share of literate Chinese workers by XX%, the share of skilled Chinese workers by XX% and the share of managers amongst Chinese workers by 97.80%.

To investigate whether the Chinese Exclusion Act had the intended benefits for white workers, we repeat the same estimates for white workers. Table 5 XX I THINK THIS IS white_ind XX Table XXt_ind_chineseXX examines white county population (column 1), total labor supply (column 2), and labor supply in sectors sorted sectors by the 1880 share of Chinese workers. The main interaction coefficient is negative for all dependent variables. The estimates are statistically significant at conventional levels except for agriculture, forestry and fishing (column 9) and public administration (column 14).

Columns (1) and (2) imply that the Act reduced white population and labor supply by 21.34% and 28.82%. The analogous estimates are presented at the bottom of each column.

Since this was a period of high population and labor growth in the western states, these results imply that the Exclusion Act slowed down growth of treated counties. XXNQ: IMPORTANT – is this true given how big the effect is? it probably is looking at the dependent var mean. can we do some accounting and adding up exercise and present it here? is there still positive growth if there is a 21.34% reduction in the level of the post population level in the control group?

These results imply that the average white worker did not benefit from the departure of the Chinese as the architects of the Exclusion Act had intended. The negative findings for professional services, construction, business and repair services, and finance, insurance and real estate (columns 10-13) are interesting. Chinese workers made up a very small share in these sectors. Thus, the negative effects on white workers suggest large spillovers from the departure of the Chinese. This is consistent with anecdotal evidence that the departure of the Chinese reduced overall economic activity and dynamism in the places they had lived.

The two statistically insignificant effects on agriculture (column 9) and public administration (column 14) are also interesting. The negative effect on agriculture is almost

[8] Since the dependent variable is expressed as a logarithm, the percentage change implied by the coefficients is $(e^{\beta} - 1) \times 100$.

significant at the 15% level XX checkXX consistent with the fact that many agricultural goods are consumed locally. Thus, a slow-down in the overall population growth will slow down demand for food, which in turn, lowers demand for agricultural labor relative to control counties.

The coefficient for public administration is small in magnitude and statistically imprecise. Thus, we interpret this to mean that the Act had little effect on white employment in public administration. This is reassuring since the main public administration job at this point is for the postal officeXX check this true?XX, a job that is loosely related to contemporaneous population and largely determined by federal patronage and only XX cite guo, and edoardo's papersXX.

In Table XXt_occXX, columns (6) to (9), we explore the effects of the Act on the composition of white workers. We find that, as for the Chinese, the Act reduced the share of white workers who lived in urban areas and who were literate. However, we do not find effects on the share of skilled workers or managers. In column (10), we show that the Act reduced average white occupational income scores.

In Appendix Tables XX, we also present the effects for all workers, non-Chinese immigrants and non-Chinese Asian immigrants. We findXX

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5.3 Production

This section examines manufacturing output and productivity. These data are reported by Haines and Rhode (2018) as county-aggregates for the years 1860 to 1940.[9] Thus, we are unable to distinguish Chinese and non-Chinese workers and will focus on aggregate production.[10]

Table 7 column (1) examines the (log of the) average wage, defined as the total wage bill divided by the number of workers in manufacturing. Column (2) examines the (log of the) total manufacturing output value. Column (3) examines worker productivity measured as log output per worker. Column (4) examines the log number of establishments. We add one so that counties with zero establishments are not dropped from the estimating sample. As an alternative, column (5) examines the number of establishments using a Poisson regression.

The coefficients are negative in all columns, and, except for wages, they are statisti-

[9]Note that the number of observations differs from that in the main sample above because data from the Census of Manufacturing is not available for all counties and years.

[10]We are also unable to examine analogous outcomes in mining and railway because of data limitations.

cally significant at the 1% and 5% levels. These results imply that the departure of the Chinese and the reduction in the in-migration of white workers from other states were accompanied by a reduction in manufacturing output. The reduction in output was driven by a reduction in worker productivity and the number of establishments.

In interpreting the results, note that the establishments are, on average, quite small. The average manufacturing establishment has only 3.5 workers (not presented in tables). As with earlier tables, we present the magnitude calculations at the bottom of the table. They show that the Act reduced manufacturing output by 57.68% and the number of establishments by 29.53%. Note that there are only 27 establishments per county in 1880 and the 53 per county for the full sample (column 4). Thus, this is a sizable effect.

These results support the concerns expressed by business owners concerned about the loss of Chinese workers. They also suggest that the Chinese Exclusion Act did not increase wages of manufacturing workers. Together with our findings for occupational income scores, this provides additional evidence that, despite its goal, the Act is unlikely to have benefited non-Chinese workers.

5.4 Dynamic Estimates

To understand the evolution of how the Exclusion Act affected treated locations, we estimate a dynamic version of the baseline specification, where we replace the *Post* dummy variable with year (decade) dummies.

We begin by examining population labor supply of Chinese and white workers. For brevity, we focus on total population and labor supply. Figure 4 presents the estimates for Chinese, white and total labor force. Unsurprisingly, the estimates show that places with high Chinese population share in 1880 experienced growth in the Chinese population between 1850 and 1880. It then begins a precipitous decline immediately after the Act and remains lower than the peak 1880 levels for the subsequent years in our sample. For white and all labor, the coefficients are zero prior to the Act and become increasingly negative afterwards. These estimates exhibit no pre-trends and the timing of the trend break coincides with the Act. Note that we do not expect the pre-trends for Chinese labor to be zero and the fact that it is positive does not undermine our interpretation of the impact on other workers or economic production. Nevertheless, in the later sections, we conduct a large number of robustness checks against omitted variable concerns.

Figure 5 plots the coefficients for the occupational income score of Chinese, white and all workers. Also in this case, the estimates exhibit no pre-trends and the timing of the trend break coincides with the Act. Figure 6 plots the estimates for total manufacturing output, output per worker and the number of establishments.[11] We find similar temporal patterns, except that the negative effects on manufacturing begin one or two decades after the negative effects on labor.

The dynamic estimates show that the negative effects persisted to the end of our sample in 1940. This is interesting because it shows that the Chinese Exclusion Act had long-lasting consequences, and also because it mitigates concerns that our results are driven by the Immigration Act of 1924, which restricted immigrants from Southern and Eastern Europe and reduced the flow of immigrants to the United States. In support of our identification strategy, the lack of pre-trends support the parallel trends assumption. The one exception is for the Chinese population share which was growing rapidly in the years prior to the Act.

5.5 Relocation

Our findings imply that places that lost Chinese workers because of the Exclusion Act grew less than other places in the Western United States. This can reflect a negative aggregate effect – i.e., the labor that would have been in the treatment counties were nowhere in the West and production that would have taken place in the treatment counties did not take place anywhere in our sample. It can also reflect relocation – i.e., the labor and production that would have been in the treatment counties moved to the control counties. The former interpretation implies a stronger negative effect of the Act on aggregate Western economic development than the latter relocation implication.

To investigate the potential role of spillovers, we add the interaction of the average 1880 Chinese share in adjacent counties with our main independent variable. The logic is that, since moving costs increase with distance, on average, workers and firms should be more likely to relocate to nearby counties. Thus, if our results capture relocation to other surrounding counties that have a low Chinese share, the effect of the neighboring county having a high Chinese share should be positive. For each county, we compute the average of the Chinese share of all the neighboring counties in 1880. We weight this average by the length of shared borders. We then construct a dummy variable that takes a value of one if the weighted average is higher than the 1880 median Chinese share in our sample (0.04). The regressor of interest is the interaction of this dummy variable and

[11] The coefficients and standard errors are presented in Appendix Table A.3. Note that the statistical significance of the point estimates in the figures are not important for our study. We are interested in the joint significance between the coefficients before and after 1880, which is provided by the baseline estimate.

the post-Act dummy variable. Table 8 Panel A shows that this coefficient is negative.[12]

Panel B restricts the sample to counties in the control group, which have 1880 Chinese shares that are below the sample median. This is a stark variation of the previous exercise. The concern is that the control group is contaminated by spillovers from the treatment group. Thus, we address this by examining the effect of having neighboring counties with many Chinese on counties in the control group. We estimate the baseline equation, except that own Chinese share in 1880 is replaced by neighboring counties' Chinese share in 1880. The coefficient is again negative, which goes against relocation.

In a similar spirit, Panel C investigates whether labor and economic activity relocated to cities. This is motivated by the observation that after the Act, some Chinese fortified themselves in "Chinatowns". We restrict the sample to counties with urban population share of 25% or higher, and estimate the same specification as in Panel B. The sample is much smaller, but the coefficients are mostly negative in sign, or not statistically different from zero.[13] There is no evidence that Chinese relocated from counties with high Chinese shares in 1880 to nearby urban areas.

In Panel D, we examine a sample of counties with Chinese share above the 75th percentile of Chinese share in 1940. This focuses our attention on the counties where remaining Chinese concentrated after the Act. We still find negative coefficients. While this needs to be interpreted cautiously since we are selecting the sample based on an endogenous variable, the fact that we still find no evidence of relocation is reassuring.

Table 9 conducts similar exercises with alternative measures of geographic and travel distances. Panel I examines the full sample. We estimate the baseline equation and additionally include the interaction with a dummy variable that takes the value one if the average Chinese share of all the nearby counties is higher than the sample median 1880 Chinese share (0.04). Panels A and C define "nearby" counties as counties with centroids that lie within a radius of 1,011 km and 1,667 km from county i. Panels B and D are based on travel distance (in terms of hours) as computed in (Obolensky et al., 2024). "Nearby" counties are defined as counties within 4.21 hours (Panel B) and 22.92 hours (Panel D) by train. Panel II conducts a similar exercise except that we restrict the sample to counties in the control group, i.e., those that have 1880 Chinese share below the median. The specification is similar to the one in Panel I except that we no longer include

[12]The estimates are similar when replacing the average Chinese share in adjacent counties with that calculated over other counties in the same state. They are not shown for brevity and area available upon request.

[13]An alternative subsample is one that includes counties with below sample median 1800 urban population share, which is zero because. the median county in our sample has no urban population. The estimates for this sample are negative and often significant. They are available upon request.

the interaction of high Chinese share and post-Exclusion Act in county i. In both Panels I and II, we find no evidence of positive spillover effects. The estimates are statistically zero or negative.

The results on spillover effects go strongly against the interpretation that the main findings are driven by the relocation of labor and production from the treatment to control groups. Instead, they support the interpretation that our main findings reflect an aggregate negative effect for the West. Some of the labor and economic productivity that would have moved from other parts of America to the counties where Chinese workers resided prior to the Act chose to not migrate to the West.

5.6 Placebo Experiment

The main caveat to the causal interpretation of our estimate is omitted variables: there are unobservable factors correlated with the location of the Chinese in 1880 and economic development after the Act. The fact that the dynamic estimates show no evidence of pre-trends goes against this concern. We also address this concern in two other ways. The first is to conduct a placebo experiment. First, we select the best predictors of 1880 Chinese immigrant share in our main sample of Western counties using LASSO.[14] Then, we use these variables to predict the 1880 Chinese immigrant share in non-Western counties, where the actual Chinese population was virtually zero. Finally, we replicate our baseline specification with this placebo sample. If the coefficient of interest is negative in the placebo sample as it is in the main sample, we would be concerned that the main results are confounded.Table 10 reports the results with our main sample (Panel A), and different placebo samples – all other states (Panel B), mid-western states (Panel C), northwestern states (panel D) and southern states (Panel E). We find that almost all the estimates are positive in all of the placebo samples and are most precise for the midwestern states. This is reassuring given the similarity between the West and Midwest in being relatively less developed than the Northeast.

Since the U.S. West differed from the rest of the country along several dimensions (e.g., population density or employment share in manufacturing), one may wonder how

[14]LASSO selects the following variables: state fixed effects, non-Chinese immigrant share, employment share in agriculture, mining, railroads, and manufacturing, share of literate individuals, and a dummy variable indicating whether the county has at least one mine in the period 1840-1882 interacted with the number of years connected to railroad as of 1882. The variables not selected are: interaction between distance from a major port (San Francisco for the West, New York City for the non-West sample) and a dummy indicating whether the county is connected to the railroad, distance from ports, total population, population density, rural population share, average occupational income score, manufacturing output, value of farm land, and a dummy indicating whether the county is connected to the railroad.

informative the results presented in Table 10 are. To address this concern, we re-estimate the placebo exercise on a sample of counties outside the West with values of 1880 key demographic and economic variables between the 25th and the 75th percentile of those in the West. In Panels A to D of Table XXt_eastbXX, we restrict the sample based on the 1880: urban population share; manufacturing output per capita; non-Chinese immigrant population share; and, employment share in railroads and mining. Reassuringly, results are qualitatively unchanged.

The fact that the coefficients in the placebo states are positive suggests that, had there not been the Chinese Exclusion Act, the counties with high shares of Chinese in 1880 would have had larger labor forces and manufacturing output than the control counties. The placebo results also suggest that immigrants had similar preferences in looking for economic opportunities, and that Chinese immigrants in the West were attracted to places with characteristics similar to those selected by European immigrants in the Midwest).

5.7 Additional Robustness Checks

XXNQ: there are some tables in the excel file, like controlling for other immigrants shares that need to be added here. But i ran out of time.

5.7.1 Additional Controls

A second way to address omitted variables is to control for them. Motivated by the literature and our context, in Table XXta_robAXX we consider several variables., measured at baseline and interacted with year dummies. The first is total immigrant share in 1880, which addresses the concern that our negative effects may be also picking up the consequences of the several other immigration restrictions that occurred in the first few decades of the 1900s.[15] Next, we consider the concern that Chinese immigrants were moving to places with different potential economic growth, as proxied by base-year measures of log total population, log manufacturing labor force, log agricultural labor force, growth in the immigrant and total population, and growth in the manufacturing and agricultural labor force. These measures address the fact that the U.S. economy experienced structural transformation, which led to stronger wage and employment growth in initially rural counties during 1880-1920 (Eckert and Peters, 2022). Recall that many Chinese

[15] The most relevant ones are the 1921 and 1924 Immigration Acts, which drastically reduced the number of European immigrants allowed to enter the United States (Abramitzky and Boustan, 2017). Note, though, that this happened towards the end of our sample, and is thus unlikely to play an important role for our estimates.

immigrants settled closer to San Francisco, far from the more developed economies of the Eastern United States and Ellis Island, the point of arrival European immigrants. To address this, we control for a measure of county market integration (Hornbeck and Rotemberg, 2021), measured in 1870. Finally, we control for a dummy equal to one if a county was ever part of a Homestead Act before 1880, to account for its effects on local population growth and occupational choice. (Allen and Leonard, 2021; Smith, 2020).

5.7.2 Alternative Measures of Chinese Share

Our baseline divides counties into those with above and sample median 1880 Chinese share. The estimates are similar if we use the 1860 Chinese share instead of 1880 (column 1, Table XXta_robBXX) or employ different thresholds of high Chinese share. (columns 2 and 3, Table XXta_robBXX).

5.7.3 Alternative Sample Restrictions

The results are also robust to excluding counties with a high (i.e., above the 75th percentile) baseline share of the labor force in either mining (column 4, Table XXta_robBXX) or railroad (column 5, Table XXta_robBXX). Moreover, since the distribution of the 1880 Chinese population share is very skewed, we show that our results are unchanged if we omit counties with a 1880 Chinese population share above the 99th percentile (column 6, Table XXta_robBXX). Finally, since almost all Chinese immigrants arrived via the port in San Francisco and a large number of Chinese lived there subsequently, we also show that our results are robust to the exclusion of San Francisco county (column 7, Table XXta_robBXX).

5.7.4 Random Inference

Given the concentration of Chinese immigrants to select Western counties, one may be concerned that our results are driven by spurious correlations. This is a variant of the omitted variables concern. We address this by randomly permuting the independent variable, $HighChineseShare_{i,1880}$, across counties, and re-estimating the baseline equation in each sample. We conduct 1,000 iterations for each outcome. Figure A.4 plots the distribution of the coefficients for the main outcomes variables. The vertical red line is the estimate from the baseline sample. The figures show that we our main results are unlikely to be generated by chance.

6 Mechanisms

XXNQ: need to re-write framework section after we finalized the results.

Section 5.1 discussed how a negative effect of Chinese Exclusion on the white labor force and the aggregate economy is consistent with the presence of migration costs (i.e., departing Chinese workers cannot be easily replaced) and either *i*) economies of scale in production and/or *ii*) complementarity between Chinese and white workers. The departure of the Chinese could have also had negative spillovers to the local economy by lowering local consumption demand. These forces could have been exacerbated if the skilled Chinese were the most likely to leave, especially if skills increased the economies of scale, complementarities with white workers or if skilled Chinese consumed more (because they had higher consumption power). There are also possible explanations and it will be beyond the scope of our paper to be conclusive. Nevertheless, this section explores various possibilities as far as the data allow and provide suggestive evidence for the presence of migration costs, the complementarity of skilled Chinese and skilled white workers, and the limited role of the drop in local consumption caused by the departing Chinese.

6.1 Replacing Chinese Workers

The Exclusion of the Chinese was meant to increase opportunities for white workers. However, the cost for white workers to take up these new opportunities will vary depending on whether they were already residing in or near the treated counties. White workers who were far away from the treated counties would need to know which places had new openings suitable for their skills and pay to relocate to these new places.

To investigate the importance of migration costs, Table 5 presents the estimates separately for white men born in the same state (Panel A), born in other states in the western states (Panel B), born in states outside of the west (Panel C), Europe (Panel D) and places that are outside of the U.S. and Europe, which in this sample comprise mostly of those born in Canada and Mexico (Panel E). Note that some of those born in Mexico are not immigrants, but were born in the west before 18XX, when the area that became the Californian Territory was part of Mexico.[16] There were very few immigrants from other places. Amongst the non-Chinese foreign-born men in the sample in 1880, 19% were born in Europe, 2.45% born in Canada, 1.4% in Mexico, and 0.012% in Japan. For brevity,

[16]The U.S. Census only records the state, rather than the city or county, of birth for native-born individuals. Although it is possible to link individuals across Census years (Abramitzky et al., 2014, 2021), we refrain from doing so because we would end up with small and potentially selected samples (Bailey et al., 2020). We thus prefer to proxy for migration status using information on state of birth.

we focus on outcomes for which the main estimates were statistically significant in Table XX.

Panels A and B show that the estimates for white men born in the same state and in other states are mostly small and statistically insignificant at conventional levels. The one exception is mining. Column (4) shows that the exclusion Act increased the number of white men working in mining among those born in the west.

Interestingly, the estimates in Panels C to E show that the interaction coefficient of interest is negative, statistically more precise and larger in magnitude for white men who are not born in the western states. This is consistent with the notion that the cost of information and re-location are much higher for these men. The fact that the coefficients are not systematically larger in magnitude for those born outside the U.S. is not surprising when one considers that most immigrants enter eastern states first before moving west. Europeans mostly entered the U.S. via Ellis Island. The Canadian population was concentrated in its eastern provinces.

The findings show that the only group of white workers who benefited from the departure of the Chinese were white men who worked in mining and born in the west. These results are consistent with both XX Hoi, which find that low-skilled white men benefited from the departure of the Chinese using a linked sample if link rates are higher for men who do not move.[17]

It is also interesting to compare our estimates to those from Abramitzky et al. (2022), which imply that the Immigration Acts of the 1920s that dramatically lowered immigration (mostly from Southern and Eastern Europe) yielded no benefits for local U.S.-born workers, and that the null effect of the reduction of European immigrants is due to their being replaced by immigrants from other countries (e.g., Canada) and from domestic migrants from other parts of the country. Our finding that locals, for the most part, did not benefit from the departure of the Chinese is consistent with their findings. However, our estimates differ in showing that migrants from other parts of the U.S. and other countries did not easily replace the Chinese.

This can be due to two differences. The first is one of magnitude. Chinese Exclusion caused a more dramatic decline in the Chinese population, such that the total number of Chinese immigrants residing in the U.S. declined. The 1920s Immigration restrictions halted the flow of Southern and Eastern European immigrants, but did not reduce the stock XX is this true?XX. The second difference is in the geography between the west,

[17] This is not straightforward to empirically verify because migration is usually estimated from linked samples XX cite ferrie and longXX.

which absorbed the Chinese immigrants, and the eastern and midwestern states, which absorbed most of the "unwanted" European immigrants. The west was much further away from alternative sources of labor than the eastern parts of the U.S. since the latter was much more densely populated and connected to the more densely populated parts of Canada. The density of population would have reduced the cost of information transmission and physical relocation.

The western states were not only physically distant from the eastern population centers, but also very different in climate and geography from other parts of North America. At the time of our study, economic production depended heavily on weather and climate. The types of crops that can be cultivated depended on soil quality, temperature and precipitation. Manufacturing textiles or tobacco also depended on natural conditions such as humidity levels and temperature. Workers during this period often looked for similar climates when migrating XX cite.

We investigate the importance of the heterogeneous effect of the Chinese Exclusion Act by the similarity of the climateXXmarco, please add. is there a reasons that we don't look at production outcomes for this table? if they work out, it would be nice to add themXX.

These results again support the importance of migration costs in explaining the negative effect of the departure of the Chinese.

6.2 Skilled Chinese Workers

This section investigates the importance of the departure of skilled Chinese workers, which we showed earlier to be disproportionally larger than unskilled Chinese workers after the Exclusion Act. We estimate the baseline specification with the addition of the triple interaction of post, whether the a county had high Chinese population share in 1880 and the share of the county's Chinese workers who are skilled. The specification includes the lower order interaction term of the share of skilled workers and a post 1880 dummy variable. The interaction of Chinese population share and Chinese skilled population is absorbed by the county fixed effects. We define skill as XX.

First, we explore the possibility that skilled Chinese workers complement skilled white workers. Note that the crudeness of our data prevents us from more direct analyses of worker complementarities. Thus, we investigate the presence of complementarities in indirectly by examining whether the departure of skilled Chinese workers led to a reduction of skilled white workers relative to unskilled ones.

Before presenting the estimates for skilled white workers, we present the results for skilled Chinese workers. Table XX Panel A present estimates for total Chinese labor supply, the percentage of Chinese men who are literate, skilled and in managerial positions. Column (1) shows that counties with a higher share of skilled Chinese lost more Chinese workers after the Act. This follows from the earlier result in Table XX column (XX) that the Act reduce the skill composition of Chinese workers. Columns (2) to (4) show that XX.

Recall that the interpretation of literacy differs from the latter two because the latter variables are defined by occupation in year t, which can change in response to the departure of the Chinese in a way that does not reflect the skills of the workers. For example, if the departure of skilled Chinese workers creates more openings for managerial positions than lower positions, we may find a positive triple interaction effect. But it would be misleading to interpret this to mean that the Exclusion Act had a less negative effect on the skill composition of remaining Chinese in counties with a higher share of skilled Chinese in 1880.

Panel B examines the same outcomes for white men. The triple interaction is negative and statistically significant for all outcomes except occupational income score. The negative triple interaction effect for total white labor (column 4) the percentage of literate white men in column (5) show the Act had a larger negative effect on the size of the white labor supply and the share of skilled white workers in counties where the 1880 Chinese population was more skilled. The negative triple interaction effects for the percentage of white skilled men and the percentage of white men who are managers (columns 6 and 7) are consistent.

Note that the literal interpretation for the coefficient is the effect of the Chinese Exclusion Act for a county where 100% of the Chinese workers are skilled relative to a county where no Chinese workers are skilled. On average, XX% of Chinese workers are skilled in 1880. XX check that the magnitude is not crazyXX.

Panel C examines manufacturing output, productivity and the number of establishments as dependent variables. Unsurprisingly, the triple interaction coefficient is negative for all three measures. They are statistically significant at the 1% level for total output and the number of establishments (columns 7 and 9) and imprecise for total productivity per worker (column 8). These results show that the Act had a more negatie effect on manufacturing in counties that had a higher share of skilled Chinese before the Act, which experienced a larger reduction in the share of Chinese and white skilled labor after the Act.

The results in this section are consistent with the importance of skilled workers for economic production and the presence of complementarities between skilled Chinese and white workers.

XXNQ: I suggest not presenting the triple for LS by sector. They are huge to the point of being distracting and they don't add much.

6.3 Local Consumption and Tradable Goods

This section considers the extent to which the main results are driven by the decline in local consumption caused by the departure of the Chinese after the Exclusion Act. This goes against an abundance of historical narrative evidence that Chinese consumption was very low, mostly internalized within the Chinese community (e.g., the Chinese ate Chinese food produced by Chinese farmers and cooked by Chinese cooks), partly because of the social organization of the first Chinese immigrants and partly because Chinese workers sent a large share of their earnings as remittances back to China (Chang, 2019; Chang and Fishkin, 2019).

This is supported by our finding large negative effects on the labor supply of sectors that produce goods that are regionally, nationally and even internationally traded goods such as manufacturing and mining suggests that the drop in local demand is unlikely to be the only driver of the results. Similarly, since many agricultural goods are consumed locally, the smaller and statistically insignificant effect of the Act on Chinese and white agricultural labor supply also weighs against the local consumption channel being the main driver.

Using a similar logic, we investigate the question systematically by XX Tradables vs Non-TradablesXX

7 Conclusion

The Chinese Exclusion Act of 1882 was the first of several policies introduced by the U.S. government to stem the flow of immigrants who were seen as economic competition for white workers. Our findings show that the Act was successful in reducing Chinese immigration and the total number of Chinese workers in the U.S. for more than half a century. However, it had negative and long-lasting effects on the U.S. economy, even for the white workers who were the intended beneficiaries of the policy. The loss of the Chinese workers cascaded into a loss of production, economic opportunities and skilled workers and reduced economic growth of the western United States until at least 1940.

Our study adds to the other recent studies that have failed to find a negative effect of immigration on native wages that we discuss in the Introduction. The evidence from these studies together highlight the complexity of economic growth. In a simplistic zero sum framework, immigration will increase competition with native workers and reduce wages and economic opportunities. This is the framework that lies behind much of the criticism on immigration in both the historic and current context. Immigration is one of the central to the political debate in the U.S. and Europe today, and critics see the negative economic effects on U.S. or European-born workers as the main problem.[18] Meanwhile, the empirical evidence suggests that zero sum is not the correct framework for immigration because immigrants can push out the production possibility frontier and change both the demand and supply of labor. Immigration can increase the flow of ideas and trigger innovation, or alter the production function in other ways that increase the demand for labor and economic opportunities. The idea that the economy is not zero sum is especially relevant for long-run considerations, when the factors of production have time to adjust and innovation and learning can take place.

[18]For example, in the January 2024 Iowa Republican Caucus for the U.S. presidential elections, the top issue was immigration and 75% of caucus attendees saying that immigration hurts the U.S. more than it helps. https://mishtalk.com/politics/top-issue-in-iowa-is-immigration-not-the-economy-75-percent-say-immigration-hurts/

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Tables

Table 1: Summary Statistics: Chinese Population and Labor Force

	I. All Counties			II. 1880 Chinese Share >= Median			III. 1880 Chinese Share < Median		
	Obs.	Mean	Std. Dev.	Obs.	Mean	Std. Dev.	Obs.	Mean	Std. Dev.
A. Chinese Population 1880									
% Chinese (amongst county population)	289	6.63	8.03	144	11.87	8.55	145	1.42	1.23
using race definition only	289	6.61	8.02	144	11.85	8.54	145	1.41	1.22
using country of origin definition only	289	6.42	7.95	144	11.55	8.56	145	1.33	1.15
Age	264	31.68	4.56	144	32.80	3.86	120	30.33	4.96
% Male	264	95.99	5.99	144	95.94	5.44	120	96.06	6.61
% Chinese (amongst all immigrants)	289	21.39	18.24	144	35.01	15.23	145	7.86	8.08
B. % Chinese amongst All Male (age 15-64) Labor in Specified Group									
All	289	12.05	12.14	144	20.91	11.42	145	3.25	2.96
Manufacturing	279	5.78	11.87	143	9.47	15.08	136	1.90	4.63
Mining	256	25.45	29.49	141	35.53	31.80	115	13.09	20.60
Railroad	213	17.69	28.52	118	21.30	31.60	95	13.20	23.57
Agriculture	289	2.25	4.94	144	3.89	6.49	145	0.62	1.23
Skilled	289	2.78	5.37	144	5.06	6.81	145	0.53	1.16
Unskilled	289	23.20	19.15	144	37.40	16.15	145	9.11	8.56
Managers	287	4.60	7.92	143	8.26	9.77	144	0.97	1.98
Literate	289	9.89	10.84	144	17.39	10.78	145	2.43	2.67

Notes: Observations are at the county and year level. The data are from U.S. Census of 1880. In Panel B, manufcaturing, mining, railroad and agriculture are reported occupational categories in the Census. Skill groups are defined based on individuals' reported occupation following Katz and Margo (2014). Skilled workers include: professionals, managers, craftsmen, clerical and sales occupations. Unskilled occupations include: operatives, laborers, and service workers (both private household and non-household). These groups omit workers employed in agriculture.

Table 2: Summary Statistics: Population, Labor Force, and Economic Outcomes

	I. All Counties			II. 1880 Chinese Share >= Median			III. 1880 Chinese Share < Median		
	Obs.	Mean	Std. Dev.	Obs.	Mean	Std. Dev.	Obs.	Mean	Std. Dev.
A. Population 1880									
Total Population	289	4,528.27	14,901.23	144	6,505.12	20,559.90	145	2,565.05	4,065.78
% Urban Share	289	4.12	13.94	144	6.47	18.14	145	1.79	7.14
% Immigrant Share	289	27.38	11.60	144	33.27	11.41	145	21.54	8.41
Age	289	25.79	2.50	144	26.80	2.52	145	24.79	2.05
% Male Share	289	67.34	8.20	144	68.72	7.20	145	65.97	8.90
% White Share	289	92.07	8.50	144	86.88	8.89	145	97.22	3.50
% Chinese Share	289	6.63	8.03	144	11.87	8.55	145	1.42	1.23
% Other Races Share	289	1.26	2.79	144	1.19	2.17	145	1.32	3.29
B. Male (age 15-64) Labor 1880									
Total Labor Force	289	1,834.04	5,659.39	144	2,770.54	7,812.82	145	904.00	1,301.25
% Mfg. Share of Labor Force	289	6.71	6.85	144	7.18	7.81	145	6.24	5.73
% Mining Share of Labor Force	289	14.39	16.84	144	21.94	19.18	145	6.90	9.39
% Railroad Share of Labor Force	289	2.17	4.41	144	3.04	5.74	145	1.32	2.15
% Agric. Share of Labor Force	289	33.39	18.49	144	26.84	16.17	145	39.90	18.40
% Share Skilled	289	18.10	6.87	144	18.26	6.72	145	17.95	7.04
% Share Unskilled	289	43.24	17.67	144	52.81	16.08	145	33.74	13.62
% Share Managers	289	4.88	3.81	144	4.50	1.71	145	5.25	5.08
% Share Literate	289	91.81	6.62	144	91.41	6.49	145	92.20	6.74
C. Economic Production 1880									
Income Score	289	19.91	2.49	144	20.87	2.15	145	18.96	2.45
Mfg. Total Output	288	12,750.67	123,613.68	143	22,795.99	175,031.70	145	2,843.91	6,703.79
Value of Farm Land	288	32,087.56	76,075.86	143	41,201.46	90,920.67	145	23,099.37	56,738.81
% Connected to Railroad	260	21.92	41.45	128	32.03	46.84	132	12.12	32.76

Notes: Observations are at the county and year level. The data are from U.S. Census of 1880. In Panel B, manufcaturing, mining, railroad and agriculture are reported occupational categories in the Census. Skill groups are defined based on individuals' reported occupation following Katz and Margo (2014). Skilled workers include: professionals, managers, craftsmen, clerical and sales occupations. Unskilled occupations include: operatives, laborers, and service workers (both private household and non-household). These groups omit workers employed in agriculture.

Table 3: Chinese Population Persistence

	Dependent Var: Log Chinese Population in Year t		
	x=10	x=20	x=30
	(1)	(2)	(3)
	A. 1850-1940		
Log Chinese Pop. in year t-x	0.76	0.51	0.37
	(0.02)	(0.03)	(0.03)
Observations	2,398	2,112	1,823
	B. 1850-1880		
Log Chinese Pop. in year t-x	0.73	0.52	0.62
	(0.02)	(0.05)	(0.12)
Observations	673	387	161
	C. 1890-1940		
Log Chinese Pop. in year t-x	0.90	0.77	0.50
	(0.01)	(0.02)	(0.03)
Observations	1,725	1,725	1,662

Notes: Observations are at the county and year level. The independent variable is the log of Chinese population in year t-x, with the value of x stated in the column headings. Robust standard errors are presented in parenthesis.

Table 4: Effect on Chinese Individuals

	Dependent Variable										
			Labor Supply								
	County Pop. (1)	%Urban (2)	Total (3)	Mfg. (4)	Mining (5)	Railroad (6)	Agric. (7)	%Literate (8)	%Skilled (9)	%Manager (10)	Income Score (11)
Post x High Chinese Share	-0.92	-12.29	-1.03	-0.16	-0.9	-0.11	-0.02	-8.06	-4.23	-3.82	-0.17
	(0.18)	(3.77)	(0.17)	(0.09)	(0.13)	(0.06)	(0.12)	(2.78)	(1.72)	(1.51)	(0.03)
Conley SE, 100 km cutoff	[0.14]	[2.98]	[0.13]	[0.07]	[0.13]	[0.07]	[0.07]	[3.02]	[1.61]	[1.38]	[0.03]
Observations	2,688	1,773	2,401	2,401	2,401	2,401	2,401	1,546	1,712	1,712	1,708
Dependent Variable Mean	204.2	24.42	131.7	11.47	24.59	2.772	16.58	76.79	15.47	11.08	20.09
-- in 1880	357.9	4.197	318	35.02	75.71	12.04	28.45	72.28	2.915	1.436	19.36
Coeff. Difference in means	-9.62	-1.35	-10.71	-1.74	-9.43	-1.20	-0.22	-0.89	-0.47	-0.42	-1.85
Coeff. Difference in medians	-6.24	-0.86	-6.96	-1.11	-6.11	-0.77	-0.14	-0.56	-0.30	-0.27	-1.18

Notes: Observations are at the county and year level. The dependent variables in col. (1), (3)-(7), (11) are the log of the stated variable +1. All regressions control for the # of years connected to railroad as of 1882 interacted with years fixed effects, a dummy variable that equals 1 if the county ever had a mine during 1840-1882 interacted with year fixed effects, and county and state-by-year fixed effects. Standard errors clustered by county are shown in parentheses, Conley SE with 100km cutoffs are shown in brackets. Dependent variable means are presented at the bottom of the table. See the text for a discussion of the coefficient difference in means and the coefficient difference in medians.

Table 5: Effect on White Individuals

	Dependent Variable										
			Labor Supply								
	County Pop. (1)	%Urban (2)	Total (3)	Mfg. (4)	Mining (5)	Railroad (6)	Agric. (7)	%Literate (8)	%Skilled (9)	%Manager (10)	Income Score (11)
	A. White										
Post x High Chinese Share	-0.24	-4.32	-0.34	-0.27	-0.48	-0.48	-0.20	-1.4	-0.50	-0.04	-0.04
	(0.13)	(2.44)	(0.14)	(0.16)	(0.19)	(0.17)	(0.13)	(0.71)	(1.05)	(0.29)	(0.01)
Conley SE, 100 km cutoff	[0.11]	[1.46]	[0.10]	[0.10]	[0.12]	[0.10]	[0.11]	[0.65]	[0.95]	[0.29]	[0.01]
Observations	2,689	2,401	2,401	2,401	2,401	2,401	2,401	2,114	2,398	2,398	2,398
Dependent Variable Mean	14,891	13.06	5,179	892.3	268.4	249.3	1,126	95.26	24.98	6.283	20.78
-- in 1880	4,126	4.165	1,503	153.2	147.7	24.52	473.4	93.79	20.24	5.296	19.89
Coeff. Difference in means	-2.61	-0.48	-3.67	-2.93	-5.14	-5.14	-2.18	-0.15	-0.06	0.00	-0.44
Coeff. Difference in medians	-1.67	-0.30	-2.35	-1.87	-3.30	-3.30	-1.39	-0.10	-0.04	0.00	-0.28
	B. White Natives										
Post x High Chinese Share	-0.18	-4.22	-0.27	-0.25	-0.35	-0.44	-0.15	-1.91	-1.98	-0.27	-0.04
	(0.13)	(2.44)	(0.14)	(0.16)	(0.18)	(0.16)	(0.13)	(0.68)	(1.27)	(0.31)	(0.01)
Conley SE, 100 km cutoff	[0.11]	[1.47]	[0.10]	[0.10]	[0.11]	[0.10]	[0.11]	[0.65]	[1.02]	[0.34]	[0.01]
Observations	2,689	2,401	2,401	2,401	2,401	2,401	2,401	2,113	2,387	2,387	2,387
Dependent Variable Mean	12,241	13.08	3,867	661.9	166.7	169.1	834.6	97.22	26.87	6.452	21.06
-- in 1880	3,068	4.022	876.5	78.48	65.69	15.21	330.6	95.29	21.16	5.273	19.94
Coeff. Difference in means	-1.96	-0.46	-2.93	-2.71	-3.78	-4.72	-1.64	-0.21	-0.22	-0.03	-0.44
Coeff. Difference in medians	-1.25	-0.30	-1.87	-1.73	-2.42	-3.03	-1.04	-0.13	-0.14	-0.02	-0.28
	C. All										
Post x High Chinese Share	-0.31	-3.48	-0.45	-0.29	-0.7	-0.55	-0.24	-0.09	1.01	0.42	-0.05
	(0.13)	(2.25)	(0.14)	(0.16)	(0.19)	(0.17)	(0.13)	(0.98)	(1.02)	(0.28)	(0.01)
Conley SE, 100 km cutoff	[0.11]	[1.42]	[0.10]	[0.10]	[0.12]	[0.11]	[0.11]	[0.93]	[0.95]	[0.28]	[0.01]
Observations	2,689	2,689	2,401	2,401	2,401	2,401	2,401	2,114	2,399	2,399	2,399
Dependent Variable Mean	15,621	12.69	5,516	919.1	295.6	265.1	1,223	93.30	23.76	6.021	20.63
-- in 1880	4,528	4.122	1,834	188.7	224	36.73	504.4	91.81	18.10	4.881	19.91
Coeff. Difference in means	-3.35	-0.38	-4.83	-3.14	-7.41	-5.87	-2.61	-0.01	0.11	0.05	-0.55
Coeff. Difference in medians	-2.15	-0.24	-3.10	-2.01	-4.78	-3.78	-1.67	-0.01	0.07	0.03	-0.35

Notes: Observations are at the county and year level. The dependent variables in col. (1), (3)-(7), (11) are the log of the stated variable +1. All regressions control for the # of years connected to railroad as of 1882 interacted with years fixed effects, a dummy variable that equals 1 if the county ever had a mine during 1840-1882 interacted with year fixed effects, and county and state-by-year fixed effects. Standard errors clustered by county are shown in parentheses, Conley SE with 100km cutoffs are shown in brackets. Dependent variable means are presented at the bottom of the table. See the text for a discussion of the coefficient difference in means and the coefficient difference in medians.

Table 6: Effect on Immigrants

	Dependent Variable										
			Labor Supply								
	County Pop. (1)	%Urban (2)	Total (3)	Mfg. (4)	Mining (5)	Railroad (6)	Agric. (7)	%Literate (8)	%Skilled (9)	%Manager (10)	Income Score (11)
	A. Born in State										
Post x High Chinese Share	-0.12	-3.51	-0.02	-0.13	0.35	-0.27	-0.04	2.21	1.67	0.65	-0.03
	(0.12)	(2.30)	(0.10)	(0.14)	(0.15)	(0.14)	(0.10)	(2.51)	(1.62)	(0.39)	(0.02)
Observations	2,401	2,275	2,401	2,401	2,401	2,401	2,401	1,729	1,987	1,987	1,987
Dependent Variable Mean	5,930	12.79	1,085	192.4	31.77	37.78	272.2	87.27	19.02	4.044	18.62
-- in 1880	1,540	4.266	160.1	15.55	6.201	2.322	65.80	81.12	8.868	1.011	16.74
	B. Natives, born out of State										
Post x High Chinese Share	-0.37	-4.75	-0.39	-0.32	-0.41	-0.47	-0.30	0.54	-1.69	-0.39	-0.04
	(0.16)	(2.57)	(0.15)	(0.17)	(0.19)	(0.17)	(0.15)	(0.40)	(1.23)	(0.34)	(0.01)
Observations	2,401	2,401	2,401	2,401	2,401	2,401	2,401	2,113	2,387	2,387	2,387
Dependent Variable Mean	7,575	13.58	2,895	478.4	136.5	136.9	596.5	97.90	27.91	6.833	21.40
-- in 1880	1,580	4.034	730.2	63.66	59.90	13.04	267.5	97.03	22.05	5.592	20.21
	C. European Immigrants										
Post x High Chinese Share	-0.39	-3.80	-0.39	-0.18	-0.46	-0.25	-0.22	-1.42	-0.89	0.97	-0.05
	(0.14)	(2.46)	(0.14)	(0.18)	(0.18)	(0.16)	(0.13)	(0.67)	(1.12)	(0.44)	(0.02)
Observations	2,689	2,359	2,401	2,401	2,401	2,401	2,401	2,070	2,334	2,334	2,334
Dependent Variable Mean	1,987	12.95	1,021	182	81.36	54	221.6	93.98	22.18	6.242	20.48
-- in 1880	868.2	4.257	524.9	62.10	68.91	7.955	117.5	93.57	20.09	6.321	20.30
	D. Non-European Immigrants										
Post x High Chinese Share	-0.91	-5.30	-1.06	-0.40	-0.78	-0.52	-0.48	1.64	6.81	1.56	-0.02
	(0.15)	(2.66)	(0.16)	(0.17)	(0.17)	(0.16)	(0.14)	(1.99)	(1.11)	(0.41)	(0.02)
Observations	2,689	2,313	2,401	2,401	2,401	2,401	2,401	1,992	2,264	2,264	2,263
Dependent Variable Mean	968.7	14.13	515.6	66.29	45.88	36.48	132.8	83.21	18.29	5.664	20.37
-- in 1880	540.7	4.337	418.9	47.38	88.99	13.32	53.56	79.71	10.66	2.708	19.87

Notes: Observations are at the county and year level. The dependent variables in col. (1), (3)-(7), (11) are the log of the stated variable +1. All regressions control for the # of years connected to railroad as of 1882 interacted with years fixed effects, a dummy variable that equals 1 if the county ever had a mine during 1840-1882 interacted with year fixed effects, and county and state-by-year fixed effects. Standard errors clustered by county are shown in parentheses, Conley SE with 100km cutoffs are shown in brackets. Dependent variable means are presented at the bottom of the table. See the text for a discussion of the coefficient difference in means and the coefficient difference in medians.

Table 7: Effect on Manufacturing, Mining, and Agriculture

	Dependent Variable				
	Wage	Total Output	Total Output Per Worker	# Establ.	# Establ. (Poisson)
	(1)	(2)	(3)	(4)	(5)
Post x High Chinese Share	-0.04	-0.86	-0.16	-0.35	-1.09
	(0.04)	(0.25)	(0.07)	(0.13)	(0.53)
Conley SE, 100 km cutoff	[0.04]	[0.19]	[0.06]	[0.09]	[0.57]
Observations	1,865	2,241	1,955	2,133	2,067
Dependent Variable Mean	16.52	101363	103.1	52.93	54.62
-- in 1880	11.15	12751	78.03	27.24	27.33
Coeff. Difference in means	-0.44	-9.03	-1.74	-3.78	-11.30
Coeff. Difference in medians	-0.28	-5.84	-1.11	-2.42	-7.35

Notes: Observations are at the county and year level. The dependent variables are the log of the stated variable +1, except for column (5).All regressions control for the # of years connected to railroad as of 1882 interacted with years fixed effects, a dummy variable that equals 1 if the county ever had a mine during 1840-1882 interacted with year fixed effects, and county and state-by-year fixed effects. Monetary amounts are expressed in thousands of 2020 U.S. dollars (deflated using the Minneapolis Fed 1800–2020 CPI). Standard errors clustered by county are shown in parentheses, Conley SE with 100km cutoff in brackets.

Table 8: Reallocation to Adjacent Counties

	Dependent Variable					
	Chinese Total LF	White Total LF	Total LF	Total Output	Total Output Per Worker	# Establ.
	(1)	(2)	(3)	(4)	(5)	(6)
	A. Full Sample					
Post x High Chinese Share	-0.70	-0.26	-0.36	-0.85	-0.08	-0.45
	(0.23)	(0.16)	(0.16)	(0.32)	(0.08)	(0.15)
Post x HCS in Border Counties	-0.68	-0.11	-0.15	0.00	-0.16	0.20
	(0.24)	(0.17)	(0.17)	(0.32)	(0.08)	(0.16)
Observations	2,380	2,380	2,380	2,223	1,940	2,115
Dependent Variable Mean	105.6	4,804	5,106	88,599	103	44.12
-- in 1880	256.5	1,274	1,542	5,559	78.23	17.09
	B. Counties with Chinese Share < Sample Median					
Post x HCS in Border Counties	-0.59	-0.20	-0.24	-0.36	-0.07	0.06
	(0.24)	(0.20)	(0.20)	(0.38)	(0.08)	(0.20)
Observations	1,154	1,154	1,154	1,082	947	1,051
Dependent Variable Mean	41.71	5,564	5,851	101,037	101.6	48.71
-- in 1880	50.15	851.5	908.2	2,858	74.27	12.19
	C. Counties with Urban Share > 25%					
Post x HCS in Border Counties	0.18	-0.47	-0.47	-0.50	-0.23	-0.38
	(0.60)	(0.59)	(0.59)	(0.66)	(0.18)	(0.59)
Observations	195	195	195	179	170	170
Dependent Variable Mean	536.8	22,596	24,290	530,914	109.4	241.2
-- in 1880	1,125	4,799	5,983	37,790	82.80	82.67
	D. Counties with Chinese Share > 75th Percentile in 1940					
Post x HCS in Border Counties	-1.55	-0.83	-0.86	-1.50	-0.38	-0.92
	(0.33)	(0.32)	(0.33)	(0.67)	(0.11)	(0.37)
Observations	603	603	603	570	522	533
Dependent Variable Mean	309.4	11,354	12,222	243,966	110.5	110.8
-- in 1880	730.4	3,029	3,789	16,284	87.20	42.39

Notes: Observations are at the county and year level. HCS Border Counties is a dummy variable taking value 1 if the average Chinese shares in neighboring counties is higher than the median share of Chinese in Western counties. The dependent variables are the log of the stated variable +1. All regressions control for the # of years connected to railroad as of 1882 interacted with years fixed effects, a dummy variable that equals 1 if the county ever had a mine during 1840-1882 interacted with year fixed effects, and county and state-by-year fixed effects. Monetary amounts are expressed in thousands of 2020 U.S. dollars (deflated using the Minneapolis Fed 1800–2020 CPI). Standard errors clustered by county are shown in parentheses.

Table 9: Reallocation to Adjacent Counties

	Dependent Variable											
	Chinese Total LF	White Total LF	Total LF	Total Output	Total Output Per Worker	# Establ.	Chinese Total LF	White Total LF	Total LF	Total Output	Total Output Per Worker	# Establ.
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	I.. Full Sample											
	A. Geographic Distance, 10 pct = 1,011 km						B. Travel Distance, 10 pct = 4.21 h					
Post x High Chinese Share	-0.90	-0.23	-0.34	-0.69	-0.13	-0.34	-1.08	-0.31	-0.43	-0.82	-0.19	-0.34
	(0.19)	(0.15)	(0.15)	(0.26)	(0.07)	(0.13)	(0.18)	(0.14)	(0.14)	(0.26)	(0.07)	(0.13)
Post x HCS in Counties Nearby	-0.84	-0.66	-0.72	-1.07	-0.22	-0.07	0.24	0.27	0.34	0.45	-0.23	0.18
	(0.28)	(0.23)	(0.23)	(0.43)	(0.15)	(0.18)	(0.28)	(0.24)	(0.25)	(0.45)	(0.14)	(0.20)
Observations	2,401	2,401	2,401	2,241	1,955	2,133	2,271	2,271	2,271	2,132	1,864	2,021
Dependent Variable Mean	131.7	5,179	5,516	101,363	103.1	52.93	136.1	5,286	5,614	103,937	102.3	55.08
-- in 1880	318	1,503	1,834	12,751	78.03	27.24	328.8	1,529	1,870	13,440	78.41	28.60
	C. Geographic Distance, 25 pct = 1,667 km						D. Travel Distance, 25 pct = 22.92 h					
Post x High Chinese Share	-1.02	-0.32	-0.43	-0.86	-0.15	-0.34	-0.88	-0.13	-0.24	-0.61	-0.18	-0.17
	(0.17)	(0.13)	(0.13)	(0.25)	(0.07)	(0.12)	(0.19)	(0.14)	(0.14)	(0.28)	(0.07)	(0.13)
Post x HCS in Counties Nearby	-0.50	-0.80	-0.79	-0.06	-0.19	-0.43	-0.69	-0.5	-0.62	-0.69	-0.05	-0.62
	(0.33)	(0.28)	(0.28)	(0.50)	(0.08)	(0.28)	(0.21)	(0.16)	(0.16)	(0.31)	(0.07)	(0.15)
Observations	2,401	2,401	2,401	2,241	1,955	2,133	2,271	2,271	2,271	2,132	1,864	2,021
Dependent Variable Mean	131.7	5,179	5,516	101,363	103.1	52.93	136.1	5,286	5,614	103,937	102.3	55.08
-- in 1880	318	1,503	1,834	12,751	78.03	27.24	328.8	1,529	1,870	13,440	78.41	28.60
	II. Counties with Chinese Share < Sample Median											
	E. Geographic Distance, 10 pct = 1,011 km						F. Travel Distance, 10 pct = 4.21 h					
Post x HCS in Counties Nearby	-1.02	-0.66	-0.75	-1.38	-0.05	-0.34	0.23	-0.19	-0.14	-0.63	-0.21	-0.03
	(0.33)	(0.25)	(0.25)	(0.47)	(0.15)	(0.17)	(0.46)	(0.27)	(0.28)	(0.71)	(0.11)	(0.26)
Observations	1,162	1,162	1,162	1,090	954	1,059	1,098	1,098	1,098	1,033	903	1,000
Dependent Variable Mean	41.47	5,530	5,816	100,368	101.3	48.39	41.28	5,597	5,858	102,371	99.48	50.23
-- in 1880	49.82	847.6	904	2,844	73.92	12.12	49.68	838.6	893.8	2,943	73.49	12.55
	G. Geographic Distance, 25 pct = 1,667 km						H. Travel Distance, 25 pct = 22.92 h					
Post x HCS in Counties Nearby	-0.11	-0.55	-0.54	0.18	-0.23	-0.37	-0.95	-0.89	-0.89	-1.50	0.07	-0.92
	(0.47)	(0.38)	(0.38)	(0.67)	(0.13)	(0.42)	(0.35)	(0.28)	(0.27)	(0.48)	(0.10)	(0.27)
Observations	1,162	1,162	1,162	1,090	954	1,059	1,098	1,098	1,098	1,033	903	1,000
Dependent Variable Mean	41.47	5,530	5,816	100,368	101.3	48.39	41.28	5,597	5,858	102,371	99.48	50.23
-- in 1880	49.82	847.6	904	2,844	73.92	12.12	49.68	838.6	893.8	2,943	73.49	12.55

Notes: Observations are at the county and year level. HCS in Counties Nearby is a dummy variable taking value 1 if the average Chinese shares in counties within the distance indicated in the panel title is higher than the median share of Chinese in Western counties. The dependent variables are the log of the stated variable +1. All regressions control for the # of years connected to railroad as of 1882 interacted with years fixed effects, a dummy variable that equals 1 if the county ever had a mine during 1840-1882 interacted with year fixed effects, and county and state-by-year fixed effects. Monetary amounts are expressed in thousands of 2020 U.S. dollars (deflated using the Minneapolis Fed 1800–2020 CPI). Standard errors clustered by county are shown in parentheses.

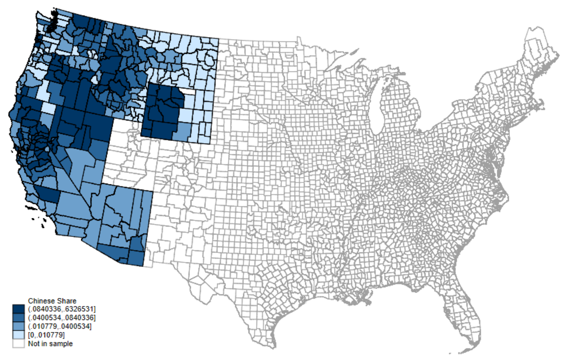
Table 10: Placebo Exercise

	Dependent Variable						
	Chinese Total LF	White Total LF	Total LF	European Immigrants	Total Output	Total Output Per Worker	# Establ.
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
A. Western States (Main Sample)							
Post x High Predicted Chinese Share	-0.91	-0.48	-0.58	-0.51	-0.87	-0.27	-0.43
	(0.17)	(0.13)	(0.13)	(0.13)	(0.25)	(0.06)	(0.12)
Observations	2,401	2,401	2,401	2,689	2,241	1,955	2,133
Dependent Variable Mean	131.7	5,179	5,516	1,987	101,363	103.1	52.93
-- in 1880	318	1,503	1,834	868.2	12,751	78.03	27.24
B. All Other States (Placebo Sample)							
Post x High Predicted Chinese Share	0.24	0.18	0.22	0.28	0.25	0.00	0.13
	(0.04)	(0.05)	(0.04)	(0.06)	(0.10)	(0.03)	(0.04)
Observations	23,335	23,335	23,335	26,015	21,897	20,311	20,045
Dependent Variable Mean	4.527	6,496	7,224	2,806	165,070	70.87	102.7
-- in 1880	1.615	4,186	4,745	2,042	52,257	55.77	91.38
C. Midwestern States (Placebo Sample)							
Post x High Predicted Chinese Share	0.48	0.45	0.45	0.51	0.68	0.02	0.36
	(0.08)	(0.08)	(0.08)	(0.11)	(0.16)	(0.04)	(0.07)
Observations	8,702	8,702	8,702	9,728	8,177	7,547	7,559
Dependent Variable Mean	2.713	6,741	6,937	3,003	170,339	95.04	95.09
-- in 1880	0.891	4,481	4,582	2,505	40,474	69.08	84.10
D. Northeastern States (Placebo Sample)							
Post x High Predicted Chinese Share	0.68	0.02	0.02	0.38	-0.03	-0.13	0.21
	(0.18)	(0.15)	(0.15)	(0.18)	(0.22)	(0.10)	(0.12)
Observations	1,953	1,953	1,953	2,170	1,941	1,941	1,730
Dependent Variable Mean	32.57	27,435	28,214	17,930	877,276	64.72	538.3
-- in 1880	7.143	17,995	18,302	11,320	395,551	53.57	521.6
E. Southern States (Placebo Sample)							
Post x High Predicted Chinese Share	0.18	0.09	0.16	0.16	0.17	0.02	0.06
	(0.05)	(0.06)	(0.06)	(0.09)	(0.14)	(0.04)	(0.06)
Observations	11,682	11,682	11,682	12,996	10,918	10,084	9,882
Dependent Variable Mean	1.172	3,147	4,319	301.3	45,054	52.87	39.46
-- in 1880	0.650	1,943	2,953	279.2	9,512	45.89	33.84

Notes: Observations are at the county and year level. The independent variable uses the predicted shares of Chinese population in each county based on controls selected by LASSO, please refer to text for the list of selected variables. The dummy variable "High Predicted Chinese Share" takes value 1 if the predicted share is higher than the median predicted share for the Western sample. The dependent variables are the log of the stated variable +1. All regressions control for the # of years connected to railroad as of 1882 interacted with years fixed effects, a dummy variable that equals 1 if the county ever had a mine during 1840-1882 interacted with year fixed effects, and county and state-by-year fixed effects. Monetary amounts are expressed in thousands of 2020 U.S. dollars (deflated using the Minneapolis Fed 1800–2020 CPI). Standard errors clustered by county are shown in parentheses.

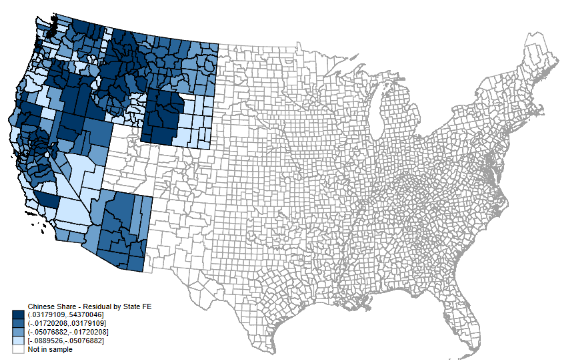
Figures

Figure 1: Spatial Distribution of Chinese in 1880



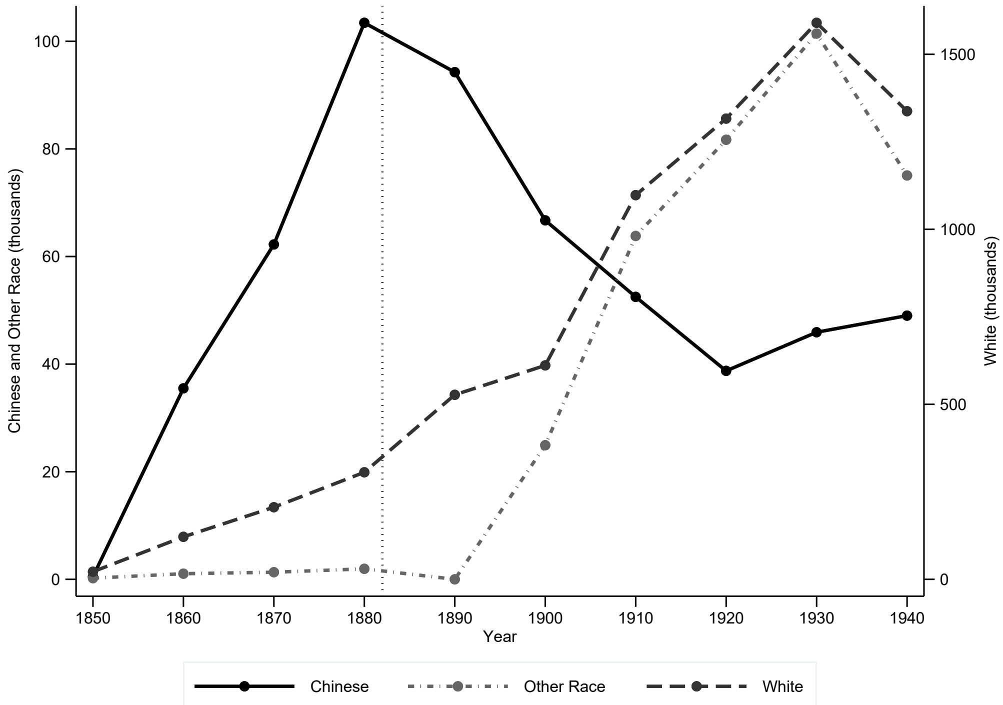
Notes: The map represents the 1880 share of Chinese population across U.S. counties. Different colors represent the quartiles of the distribution of Chinese share in the main estimation sample (as described in Section 4). Lighter colors indicate lower shares, darker colors indicate higher shares.

Figure 2: Spatial distribution of Chinese (demeaned)



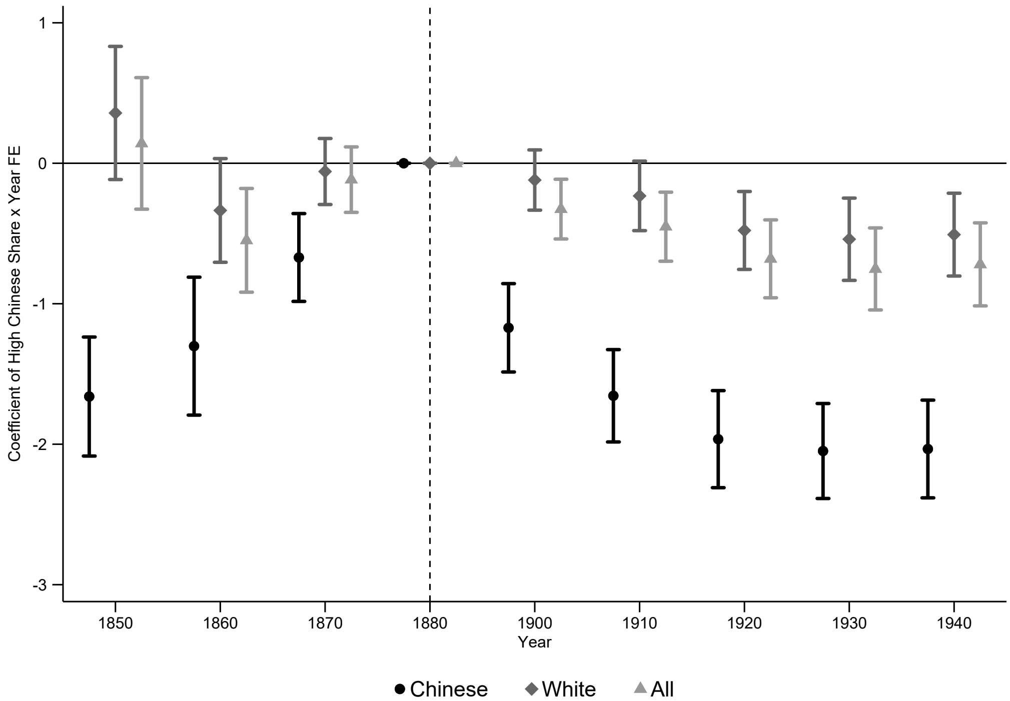
Notes: The map represents the 1880 share of Chinese population across U.S. counties, demeaned by State fixed effects. Different colors represent the quartiles of the distribution of Chinese share in the main estimation sample (as described in Section 4). Lighter colors indicate lower shares, darker colors indicate higher shares.

Figure 3: Evolution of Immigrant Population



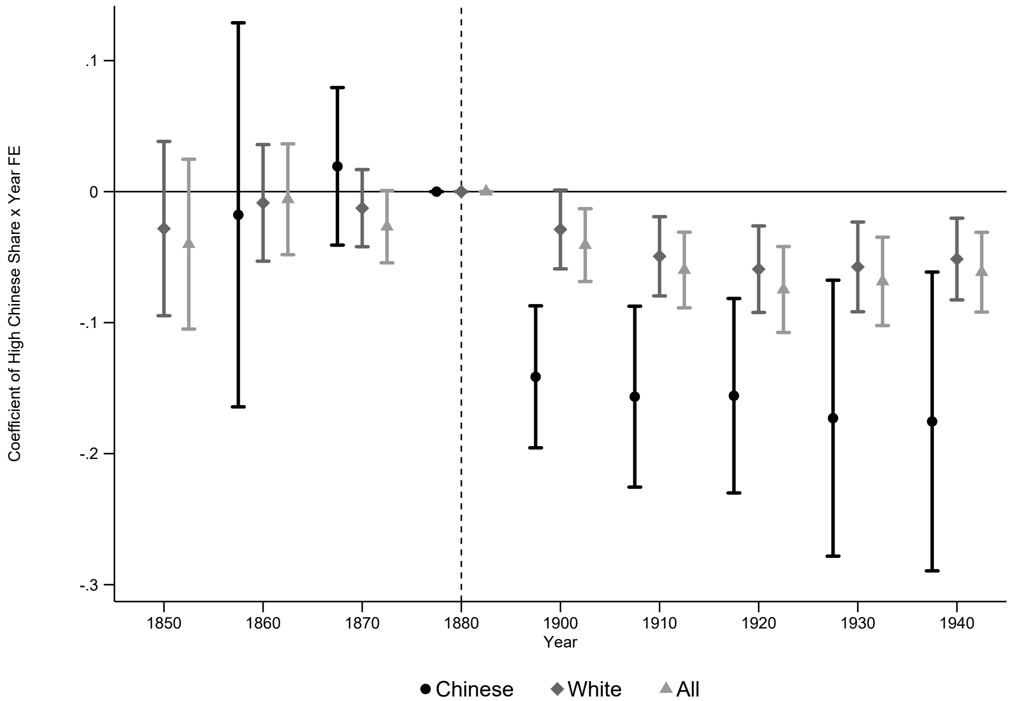
Notes: The figure represents the total number of foreign-born individuals in each census year. The data are from the U.S. Census between 1860 and 1940.

Figure 4: Dynamic Effect on Labor Force



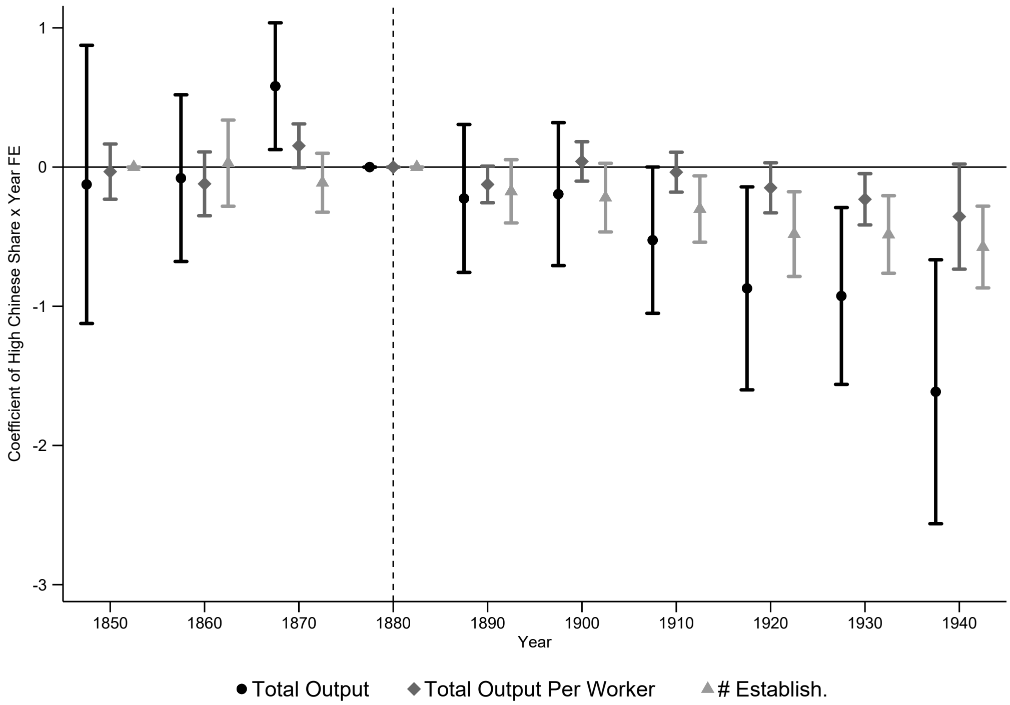
Notes: Observations are at the county and decade level. The dependent variable is the log of labor force. The independent variables are the 1880 Chinese share interacted with a vector of time dummy variables. Vertical lines are 95% confidence intervals based on standard errors clustered at the county level. The regression controls for the number of years connected to railroad as of 1882 interacted with years fixed effects, a dummy variable that equals 1 if the county ever had a mine during 1840-1882 interacted with year fixed effects, and county and state-by-year fixed effects. The data are from the full count U.S. Population Census between 1850 and 1940 (except for the year 1890, where only county-aggregate measures are available).

Figure 5: Dynamic Effect on Occupational Income Score



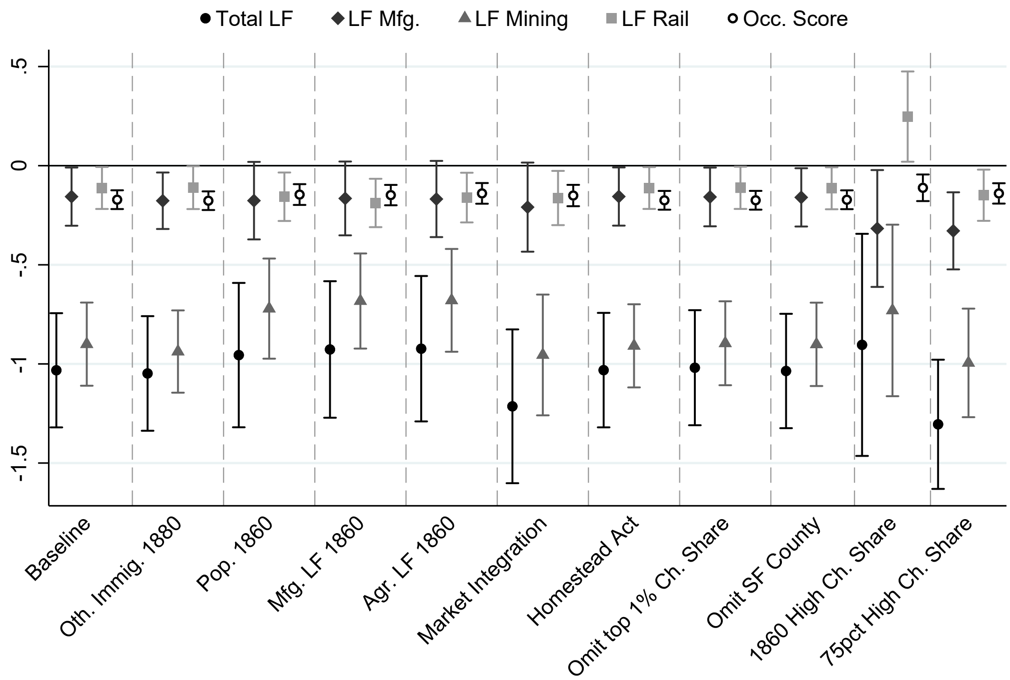
Notes: Observations are at the county and decade level. The dependent variable is the log of population. The independent variables are the 1880 Chinese share interacted with a vector of time dummy variables. Vertical lines are 95% confidence intervals based on standard errors clustered at the county level. The regression controls for the number of years connected to railroad as of 1882 interacted with years fixed effects, a dummy variable that equals 1 if the county ever had a mine during 1840-1882 interacted with year fixed effects, and county and state-by-year fixed effects. The data are from the full count U.S. Population Census between 1850 and 1940.

Figure 6: Dynamic Effect on Manufacturing and Mining



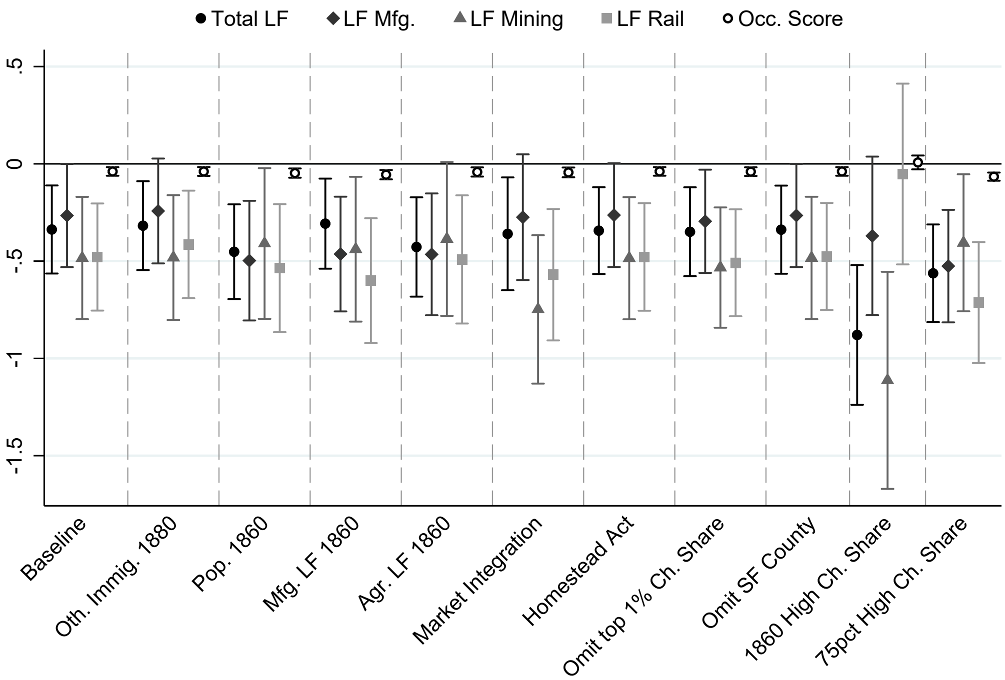
Notes: Observations are at the county and decade level. The dependent variables are the log of total output, log of total output per worker and log of number of establishment. The independent variables are the 1880 Chinese share interacted with a vector of time dummy variables. Vertical lines are 95% confidence intervals based on standard errors clustered at the county level. The regression controls for the number of years connected to railroad as of 1882 interacted with years fixed effects, a dummy variable that equals 1 if the county ever had a mine during 1840-1882 interacted with year fixed effects, and county and state-by-year fixed effects. The data are from the full count U.S. Population Census and from the Census of Manufacturing between 1850 and 1940. Missing values for county i at time t are linearly interpolated if data for county i are available for both $t-1$ and $t+1$.

Figure 7: Robustness to



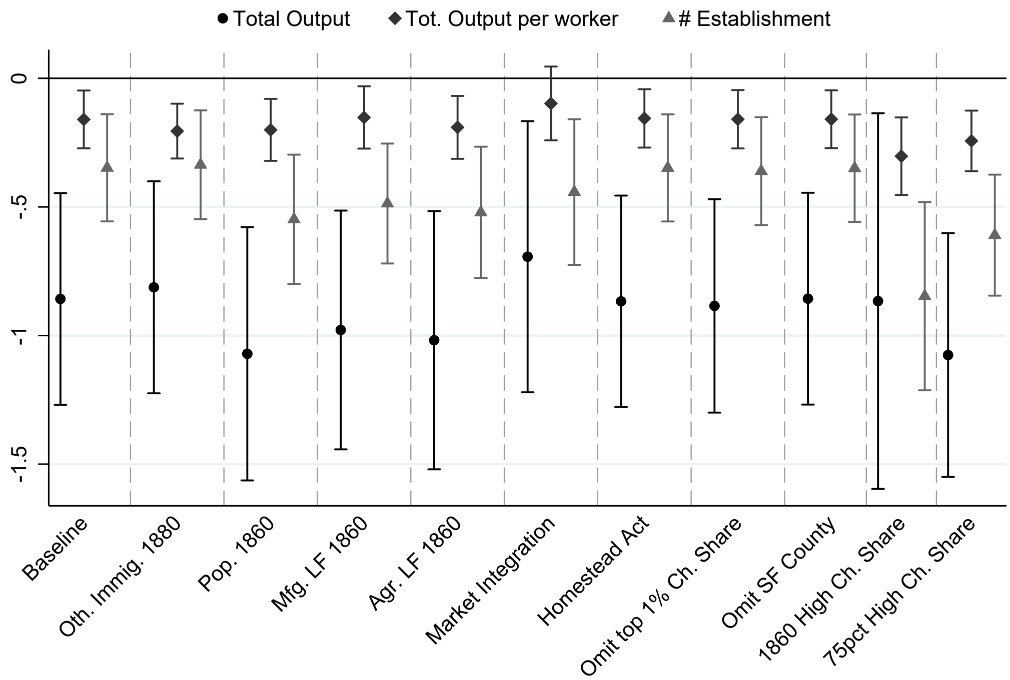
Notes: The figure represents the coefficients for Chinese total labor force, labor force in manufacturing, mining and railroads and Occupational Income Score for the baseline and 10 different specifications. The specifications correspond to those described in the column headings for Table A.4.

Figure 8: Robustness to



Notes: The figure represents the coefficients for white total labor force, labor force in manufacturing, mining and railroads and Occupational Income Score for the baseline and 10 different specifications. The specifications correspond to those described in the column headings for Table A.5.

Figure 9: Robustness to



Notes: The figure represents the coefficients for total output, total output per worker and number of establishments for the baseline and 10 different specifications. The specifications correspond to those described in the column headings for Table A.6.

Appendix

Table A.1: Effect on the Whole Population and Non-Chinese Immigrant Individuals

	Dependent Variable						
	Log Population and Labor Force						
	Pop. Total (1)	Urban/Pop Tot (2)	LF Total (3)	LF Mfg. (4)	LF Mine (5)	LF Rail (6)	LF Agric. (7)
	A. All						
Post x High Chinese Share	-0.31**	-3.48	-0.45***	-0.29*	-0.70***	-0.55***	-0.24*
	(0.13)	(2.25)	(0.14)	(0.16)	(0.19)	(0.17)	(0.13)
Conley SE, 100 km cutoff	[0.11]	[1.42]	[0.10]	[0.10]	[0.12]	[0.11]	[0.11]
Observations	2,689	2,689	2,401	2,401	2,401	2,401	2,401
Dependent Variable Mean	15621	12.69	5516	919.1	295.6	265.1	1223
-- in 1880	4528	4.122	1834	188.7	224	36.73	504.4
	B. Non-Chinese Immigrants						
Post x High Chinese Share	-0.48***	-4.43*	-0.49***	-0.22	-0.45**	-0.39**	-0.31**
	(0.15)	(2.48)	(0.15)	(0.18)	(0.19)	(0.17)	(0.13)
Conley SE, 100 km cutoff	[0.10]	[1.49]	[0.10]	[0.10]	[0.11]	[0.10]	[0.10]
Observations	2,401	2,359	2,401	2,401	2,401	2,401	2,401
Dependent Variable Mean	2894	12.99	1416	237.8	102.7	87.81	339
-- in 1880	1065	4.553	629.1	74.90	82.23	9.263	143.2

Notes: Observations are at the county and year level. The sample in Panel A is the whole population, while in Panel B the sample is restricted to Non-Chinese immigrants. The dependent variables in col. (1), (3)-(7) are the log of the stated variable +1. The dependent variable in col. (2) is in percentage. All regressions control for the number of years connected to railroad as of 1882 interacted with years fixed effects, a dummy variable that equals 1 if the county ever had a mine during 1840-1882 interacted with year fixed effects, and county and state-by-year fixed effects. The data are from full count individual-level U.S. Censuses 1860 to 1940. Col. (1) also includes county-level data from the 1890 Census. Standard errors clustered by county are shown in parentheses, Conley SE with 100km cutoff in brackets. *** p<0.01, ** p<0.05, * p<0.1.

Table A.2: Robustness Check: Include Women in Sample

	Dependent Variable				
	Labor Supply				
	Total	Mfg.	Mining	Railroad	Agric.
	(1)	(2)	(3)	(4)	(5)
	A. Chinese				
Post x High Chinese Share	-1.04	-0.16	-0.90	-0.11	-0.03
	(0.18)	(0.09)	(0.13)	(0.06)	(0.12)
Observations	2,401	2,401	2,401	2,401	2,401
Dependent Variable Mean	136.4	11.95	24.62	2.785	16.66
-- in 1880	324.7	35.34	75.78	12.08	28.50
	B. White				
Post x High Chinese Share	-0.35	-0.28	-0.48	-0.48	-0.20
	(0.14)	(0.16)	(0.19)	(0.17)	(0.13)
Observations	2,401	2,401	2,401	2,401	2,401
Dependent Variable Mean	6,390	1,014	270.9	258.7	1,176
-- in 1880	1,723	160.3	148	24.62	478.7
	C. All				
Post x High Chinese Share	-0.46	-0.32	-0.70	-0.55	-0.24
	(0.14)	(0.16)	(0.19)	(0.17)	(0.13)
Observations	2,401	2,401	2,401	2,401	2,401
Dependent Variable Mean	6,780	1,046	298.2	274.7	1,279
-- in 1880	2,066	196.2	224.4	36.87	509.8

Notes: Observations are at the county and year level. Samples in all panels include men and women. The dependent variables are the log of the stated variable +1. All regressions control for the # of years connected to railroad as of 1882 interacted with years fixed effects, a dummy variable that equals 1 if the county ever had a mine during 1840-1882 interacted with year fixed effects, and county and state-by-year fixed effects. Standard errors clustered by county are shown in parentheses.

Table A.3: Dynamic Effects Table

	Dependent Variable								
	Chinese Total LF	White Total LF	Total LF	Chinese Income Score	White Income Score	All Income Score	Total Output	Total Output Per Worker	# Establ.
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
High Chinese Share x 1850	-1.66	0.36	0.14				-0.12	-0.03	
	(0.22)	(0.24)	(0.24)				(0.51)	(0.10)	
High Chinese Share x 1860	-1.30	-0.34	-0.55	-0.05	0.00	0.01	-0.08	-0.12	0.03
	(0.25)	(0.19)	(0.19)	(0.07)	(0.02)	(0.02)	(0.30)	(0.12)	(0.16)
High Chinese Share x 1870	-0.67	-0.06	-0.12	0.00	-0.00	-0.01	0.58	0.15	-0.11
	(0.16)	(0.12)	(0.12)	(0.04)	(0.01)	(0.01)	(0.23)	(0.08)	(0.11)
High Chinese Share x 1890							-0.23	-0.12	-0.17
							(0.27)	(0.07)	(0.12)
High Chinese Share x 1900	-1.17	-0.12	-0.33	-0.16	-0.02	-0.03	-0.19	0.04	-0.22
	(0.16)	(0.11)	(0.11)	(0.03)	(0.02)	(0.01)	(0.26)	(0.07)	(0.13)
High Chinese Share x 1910	-1.66	-0.23	-0.45	-0.17	-0.04	-0.05	-0.53	-0.04	-0.30
	(0.17)	(0.13)	(0.12)	(0.04)	(0.01)	(0.01)	(0.27)	(0.07)	(0.12)
High Chinese Share x 1920	-1.96	-0.48	-0.68	-0.17	-0.05	-0.06	-0.87	-0.15	-0.48
	(0.18)	(0.14)	(0.14)	(0.04)	(0.02)	(0.02)	(0.37)	(0.09)	(0.15)
High Chinese Share x 1930	-2.05	-0.54	-0.75	-0.19	-0.05	-0.06	-0.93	-0.23	-0.48
	(0.17)	(0.15)	(0.15)	(0.06)	(0.02)	(0.02)	(0.32)	(0.09)	(0.14)
High Chinese Share x 1940	-2.03	-0.51	-0.72	-0.19	-0.04	-0.05	-1.61	-0.36	-0.57
	(0.18)	(0.15)	(0.15)	(0.06)	(0.02)	(0.02)	(0.48)	(0.19)	(0.15)
Observations	2,401	2,401	2,401	1,708	2,398	2,399	2,585	2,372	2,505

Notes: Observations are at the county and year level. The dependent variables in col. (1)-(3) and (7)-(9) are the log of the stated variable + 1. All regressions control for the # of years connected to railroad as of 1882 interacted with years fixed effects, a dummy variable that equals 1 if the county ever had a mine during 1840-1882 interacted with year fixed effects, and county and state-by-year fixed effects. Monetary amounts are expressed in thousands of 2020 U.S. dollars (deflated using the Minneapolis Fed 1800–2020 CPI). Standard errors clustered by county are shown in parentheses.

Table A.4: Robustness Checks: Chinese Labor Supply

	Control for Year FE x Other Immigrant Share 1880	Control for Year FE x: Population 1860	Control for Year FE x Mfg LF 1860	Control for Year FE x: Agric. LF 1860	Control for Year FE x: Control for Year FE x Market Integration	Control for Year FE x Homestead Act	Omit Top 1% Chinese Share	Omit San Francisco County	High Chinese Share = 1 if Chinese Share>=1860 Median	High Chinese Share = 1 if Chinese Share>=1880 75 pct
	Dependent Variables: Chinese Labor Supply									
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	A. Total Labor Force									
Post x HCS	-1.05	-0.96	-0.93	-0.92	-1.21	-1.03	-1.02	-1.04	-0.90	-1.30
	(0.18)	(0.22)	(0.21)	(0.22)	(0.23)	(0.17)	(0.18)	(0.17)	(0.34)	(0.20)
Obs.	2,401	1,962	1,962	1,962	1,809	2,401	2,383	2,393	1,962	2,401
R-square	0.79	0.79	0.79	0.79	0.80	0.79	0.79	0.78	0.79	0.79
	B. Manufacturing									
Post x HCS	-0.18	-0.18	-0.17	-0.17	-0.21	-0.16	-0.16	-0.16	-0.32	-0.33
	(0.09)	(0.12)	(0.11)	(0.12)	(0.14)	(0.09)	(0.09)	(0.09)	(0.18)	(0.12)
Obs.	2,401	1,962	1,962	1,962	1,809	2,401	2,383	2,393	1,962	2,401
R-square	0.68	0.67	0.68	0.67	0.68	0.68	0.68	0.64	0.67	0.68
	C. Mining									
Post x HCS	-0.94	-0.72	-0.68	-0.68	-0.95	-0.91	-0.90	-0.90	-0.73	-0.99
	(0.13)	(0.15)	(0.15)	(0.16)	(0.18)	(0.13)	(0.13)	(0.13)	(0.26)	(0.17)
Obs.	2,401	1,962	1,962	1,962	1,809	2,401	2,383	2,393	1,962	2,401
R-square	0.63	0.64	0.64	0.64	0.62	0.63	0.63	0.63	0.64	0.63
	D. Railroads									
Post x HCS	-0.11	-0.16	-0.19	-0.16	-0.16	-0.11	-0.11	-0.11	0.25	-0.15
	(0.07)	(0.07)	(0.07)	(0.08)	(0.08)	(0.06)	(0.06)	(0.06)	(0.14)	(0.08)
Obs.	2,401	1,962	1,962	1,962	1,809	2,401	2,383	2,393	1,962	2,401
R-square	0.51	0.52	0.52	0.52	0.50	0.51	0.51	0.49	0.51	0.51
	E. Income Score									
Post x HCS	-0.18	-0.15	-0.15	-0.14	-0.15	-0.17	-0.17	-0.17	-0.11	-0.14
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.04)	(0.03)
Obs.	1,708	1,449	1,449	1,449	1,370	1,707	1,698	1,700	1,449	1,708
R-square	0.45	0.44	0.44	0.44	0.42	0.46	0.44	0.44	0.43	0.44

Notes: Observations are at the county and year level. Columns titles indicate the set of controls added to the baseline specification. The dependent variable is the log of the variable stated in the panel title + 1 in Panels A-D, and the variable stated in the panel title for Panel E. All regressions control for the # of years connected to railroad as of 1882 interacted with years fixed effects, a dummy variable that equals 1 if the county ever had a mine during 1840-1882 interacted with year fixed effects, and county and state-by-year fixed effects. Monetary amounts are expressed in thousands of 2020 U.S. dollars (deflated using the Minneapolis Fed 1800–2020 CPI). Standard errors clustered by county are shown in parentheses.

Table A.5: Robustness Checks: White Labor Supply

	Dependent Variables: White Labor Force									
	Control for Year FE x Other Immigrant Share 1880	Control for Year FE x: Population 1860	Control for Year FE x Mfg LF 1860	Control for Year FE x: Agric. LF 1860	Control for Year FE x: Control for Year FE x Market Integration	Control for Year FE x Homestead Act	Omit Top 1% Chinese Share	Omit San Francisco County	High Chinese Share = 1 if Chinese Share>=1860 Median	High Chinese Share = 1 if Chinese Share>=1880 75 pct
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	A. Total Labor Force									
Post x HCS	-0.32	-0.45	-0.31	-0.43	-0.36	-0.34	-0.35	-0.34	-0.88	-0.56
	(0.14)	(0.15)	(0.14)	(0.15)	(0.18)	(0.14)	(0.14)	(0.14)	(0.22)	(0.15)
Obs.	2,401	1,962	1,962	1,962	1,809	2,401	2,383	2,393	1,962	2,401
R-square	0.89	0.91	0.91	0.91	0.86	0.89	0.89	0.89	0.90	0.89
	B. Manufacturing									
Post x HCS	-0.24	-0.50	-0.46	-0.47	-0.27	-0.26	-0.3	-0.27	-0.37	-0.53
	(0.16)	(0.19)	(0.18)	(0.19)	(0.20)	(0.16)	(0.16)	(0.16)	(0.25)	(0.18)
Obs.	2,401	1,962	1,962	1,962	1,809	2,401	2,383	2,393	1,962	2,401
R-square	0.87	0.89	0.89	0.88	0.86	0.87	0.87	0.87	0.88	0.87
	C. Mining									
Post x HCS	-0.48	-0.41	-0.44	-0.39	-0.75	-0.49	-0.53	-0.48	-1.11	-0.41
	(0.19)	(0.23)	(0.23)	(0.24)	(0.23)	(0.19)	(0.19)	(0.19)	(0.34)	(0.21)
Obs.	2,401	1,962	1,962	1,962	1,809	2,401	2,383	2,393	1,962	2,401
R-square	0.79	0.80	0.80	0.80	0.79	0.79	0.79	0.79	0.80	0.79
	D. Railroads									
Post x HCS	-0.41	-0.54	-0.60	-0.49	-0.57	-0.48	-0.51	-0.48	-0.05	-0.71
	(0.17)	(0.20)	(0.19)	(0.20)	(0.20)	(0.17)	(0.17)	(0.17)	(0.28)	(0.19)
Obs.	2,401	1,962	1,962	1,962	1,809	2,401	2,383	2,393	1,962	2,401
R-square	0.88	0.89	0.89	0.89	0.89	0.88	0.88	0.88	0.88	0.88
	E. Income Score									
Post x HCS	-0.04	-0.05	-0.06	-0.04	-0.04	-0.04	-0.04	-0.04	0.01	-0.07
	(0.01)	(0.01)	(0.01)	(0.01)	(0.02)	(0.01)	(0.01)	(0.01)	(0.02)	(0.01)
Obs.	2,398	1,959	1,959	1,959	1,808	2,398	2,380	2,390	1,959	2,398
R-square	0.62	0.65	0.65	0.66	0.66	0.61	0.62	0.61	0.63	0.62

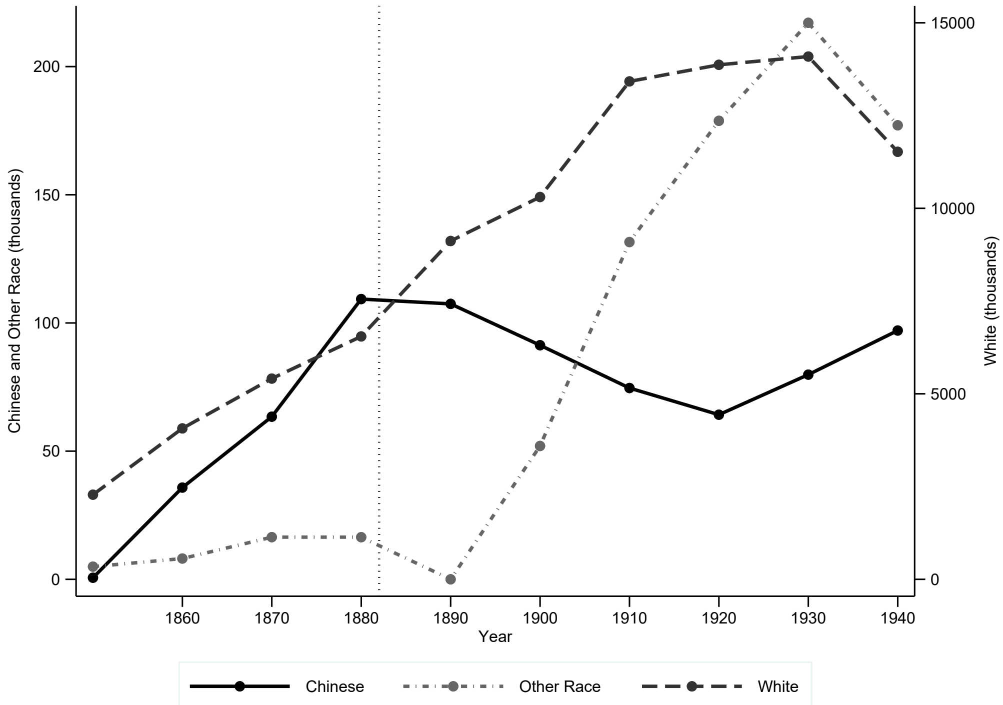
Notes: Observations are at the county and year level. Columns titles indicate the set of controls added to the baseline specification. The dependent variable is the log of the variable stated in the panel title + 1 in Panels A-D, and the variable stated in the panel title for Panel E. All regressions control for the # of years connected to railroad as of 1882 interacted with years fixed effects, a dummy variable that equals 1 if the county ever had a mine during 1840-1882 interacted with year fixed effects, and county and state-by-year fixed effects. Monetary amounts are expressed in thousands of 2020 U.S. dollars (deflated using the Minneapolis Fed 1800–2020 CPI). Standard errors clustered by county are shown in parentheses.

Table A.6: Robustness Checks: Manufacturing Outcomes

	Dependent Variables: Manufacturing									
	Control for Year FE x Other Immigrant Share 1880	Control for Year FE x: Population 1860	Control for Year FE x Mfg LF 1860	Control for Year FE x: Agric. LF 1860	Control for Year FE x: Control for Year FE x Market Integration	Control for Year FE x Homestead Act	Omit Top 1% Chinese Share	Omit San Francisco County	High Chinese Share = 1 if Chinese Share>=1860 Median	High Chinese Share = 1 if Chinese Share>=1880 75 pct
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	A. Total Output									
Post x HCS	-0.81	-1.07	-0.98	-1.02	-0.69	-0.87	-0.88	-0.86	-0.87	-1.08
	(0.25)	(0.30)	(0.28)	(0.30)	(0.32)	(0.25)	(0.25)	(0.25)	(0.44)	(0.29)
Obs.	2,241	1,855	1,855	1,855	1,693	2,241	2,225	2,233	1,855	2,241
R-square	0.73	0.75	0.75	0.75	0.72	0.73	0.73	0.72	0.74	0.73
	B. Total Output per Worker									
Post x HCS	-0.21	-0.20	-0.15	-0.19	-0.10	-0.16	-0.16	-0.16	-0.30	-0.24
	(0.06)	(0.07)	(0.07)	(0.07)	(0.09)	(0.07)	(0.07)	(0.07)	(0.09)	(0.07)
Obs.	1,955	1,626	1,626	1,626	1,534	1,955	1,941	1,947	1,626	1,955
R-square	0.45	0.51	0.51	0.51	0.44	0.44	0.44	0.44	0.50	0.44
	C. # of Establishments									
Post x HCS	-0.34	-0.55	-0.49	-0.52	-0.44	-0.35	-0.36	-0.35	-0.85	-0.61
	(0.13)	(0.15)	(0.14)	(0.15)	(0.17)	(0.13)	(0.13)	(0.13)	(0.22)	(0.14)
Obs.	2,133	1,730	1,730	1,730	1,621	2,133	2,118	2,125	1,730	2,133
R-square	0.82	0.82	0.82	0.81	0.81	0.82	0.81	0.81	0.81	0.82

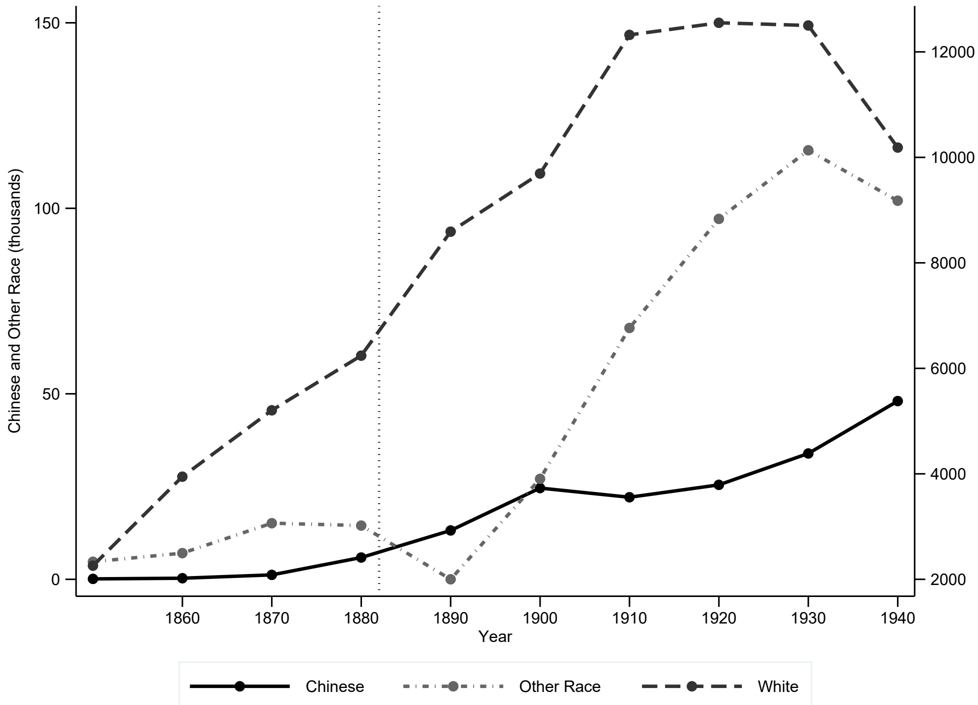
Notes: Observations are at the county and year level. Columns titles indicate the set of controls added to the baseline specification. The dependent variable is the log of the variable stated in the panel title + 1. All regressions control for the # of years connected to railroad as of 1882 interacted with years fixed effects, a dummy variable that equals 1 if the county ever had a mine during 1840-1882 interacted with year fixed effects, and county and state-by-year fixed effects. Monetary amounts are expressed in thousands of 2020 U.S. dollars (deflated using the Minneapolis Fed 1800–2020 CPI). Standard errors clustered by county are shown in parentheses.

Figure A.1: Evolution of Immigrant Population



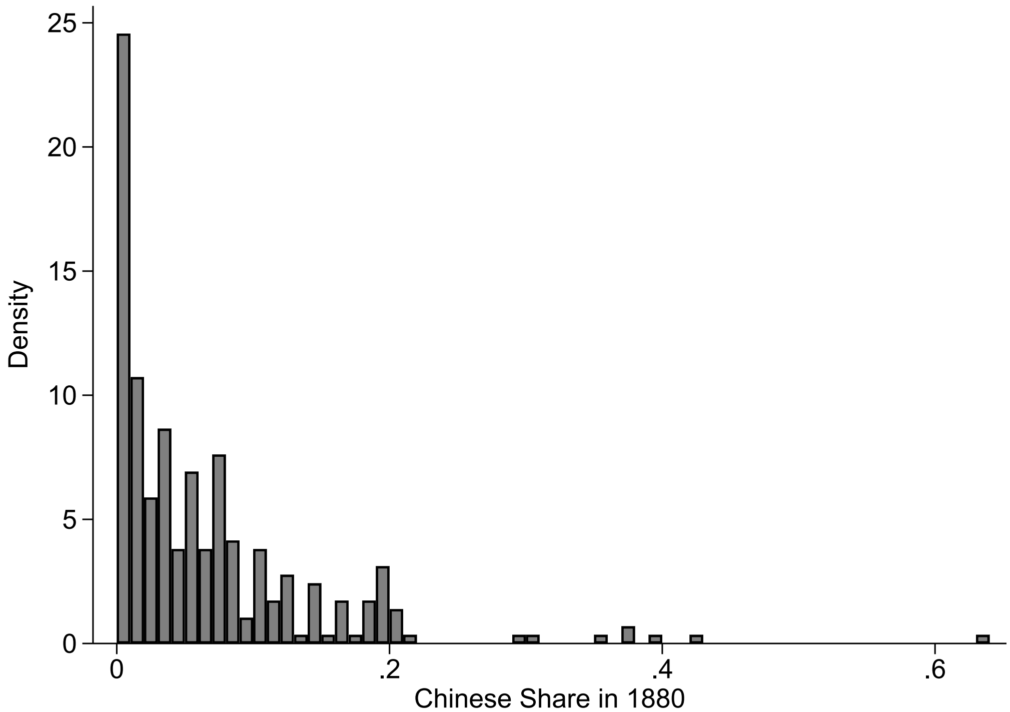
Notes: The figure represents the stock of foreign-born individuals in each census year, by race, in the United States. The data are from the full count U.S. Census between 1860 and 1940.

Figure A.2: Evolution of Immigrant Population



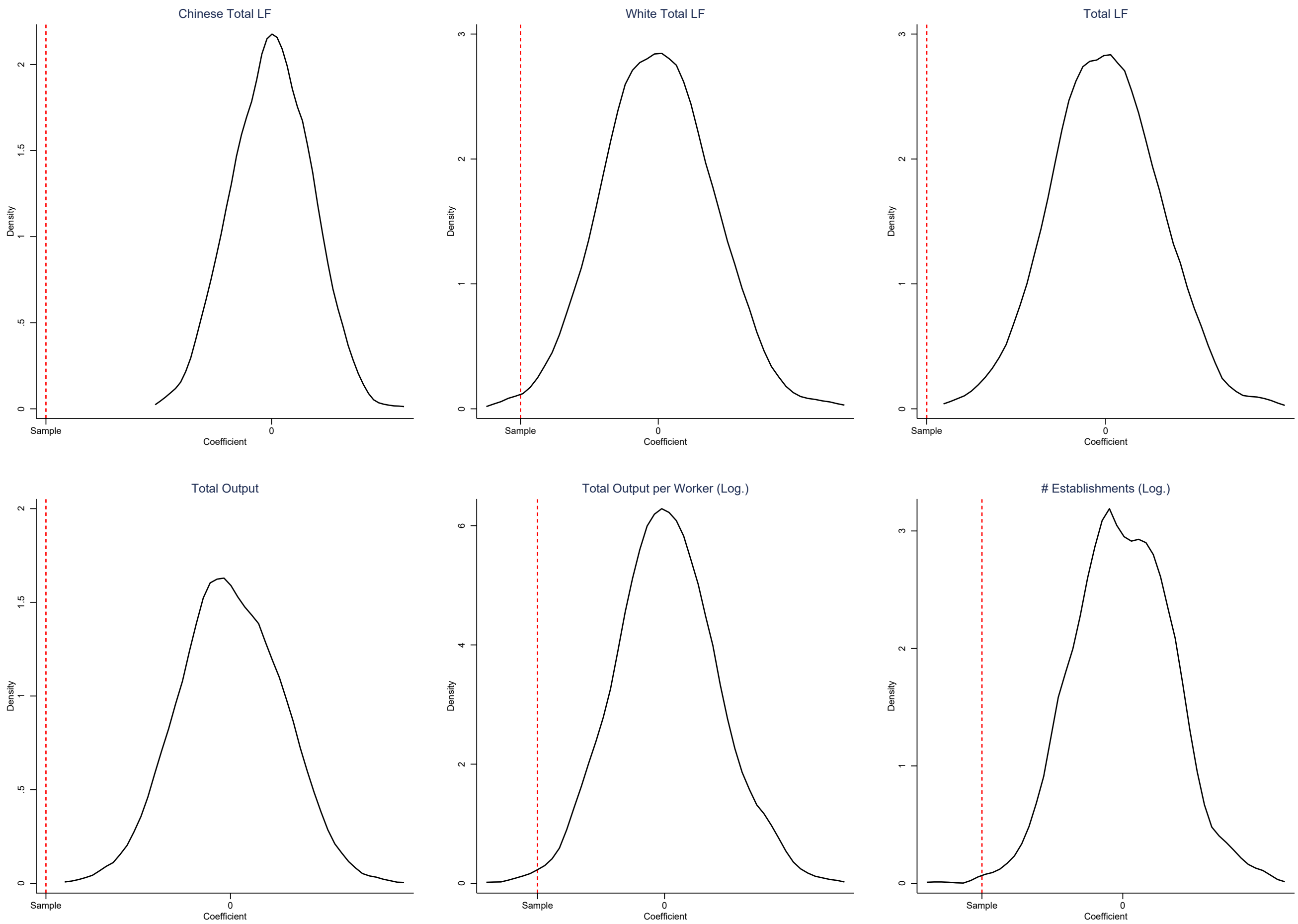
Notes: The figure represents the stock of foreign-born individuals in each census year, by race, in the East. The data are from the full count U.S. Census between 1860 and 1940.

Figure A.3: Evolution of Immigrant Population



Notes: The figure represents the distribution of the Chinese share in 1880. The data are from the full count U.S. Census.

Figure A.4: Permutation Test



Notes: The curves are the distributions of β coefficients from 1,000 iterations of equation 1 after randomly permuting the variable $HighChineseShare_{i,1880}$across counties, as explained in Section **??**. The vertical dashed lines correspond to the baseline estimates from Tables 4–7.