Changes in the Assimilation of Asian Americans from 1860–1940

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Abstract

Asian immigration to the United States motivated the first instance of federal immigration legislation with the Chinese Exclusion Act of 1882, but little is known about Asian immigration during the 1860–1940 period despite a robust literature on their European counterparts. I use linked cohorts drawn from complete-count census data to find that while Asian immigrants started with an occupational score that was 48 to 119 percent lower than European immigrants, they displayed a "catch-up" assimilation phenomenon: successive Asian cohorts assimilated more than European immigrants, resulting in a 49 percent reduction of their occupation gap with the native population. These findings provide insight into the assimilation process of an understudied immigrant community, furthering the understanding of assimilation in the United States.

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1 Introduction

Asian migration has spanned nearly the entire course of American migration history. It motivated the first instance of federal immigration restriction with the Chinese Exclusion Act of 1882 (Wellborn 1912, p. 50; Chen 1992, p. 4). Today, Asians constitute one of the largest racial groups of new immigrants to the United States (Ward and Batalova 2023). Throughout their migration history, their presence has provoked the conversations that have built the modern United States. Asians pushed our understanding about national identity and inclusion with the 19th-century Yellow Peril (Hsu 2015). They are uniquely linked to our current challenges in the debate about the American role in a globalized world with the Covid-19 pandemic (Gover et al. 2020) and competition with China (Lee 2022).

However, little empirical work has been conducted on the earliest Asian immigrants due to problems linking Asian names across English-language historical records (Hilger 2016). I am the first to use the novel Postel (2023) technique to create linked cohorts of Asian immigrants, allowing me to conduct a comprehensive study of Asian immigration to the United States spanning the 1860–1940 period, and I find that Asian immigrants assimilated differently from their European counterparts. Though Asian immigrants started with an occupational score that was 48 to 119 percent (0.14 to 0.25 ranking points) lower than European immigrants, they assimilated more than European immigrants, reducing their occupation gap with the native population by 49 percent (0.14 ranking points) over the course of the investigative period.

This finding enhances the qualitative work that had previously characterized the discourse on early Asian immigration. We know that the first group who came to the United States in significant numbers were Chinese laborers seeking to capitalize on the 1849 California Gold Rush (Daniels 1988). Over time, more came: almost always men, typically for low-skill work in the mining, agriculture, and railroad industries of the American West in ethnic enclaves that provided the social support needed in a new country (Chen 1992, p. 3–4, 10). My findings confirm that the intuition of the literature is a systematic characterization of early Asian immigrants: the ranking of the average Asian immigrant is roughly coterminous to a mine worker or laborer, while the ranking of the average European immigrant translates into housekeepers, bookkeepers, and other semi-skilled professions.

The Chinese-born population peaked at over a hundred thousand individuals in 1880 before the Chinese Exclusion Act of 1882 barred the entry of Chinese laborers into the United States. It was after Chinese immigration slowed that Japanese (and to a lesser extent, Filipino) immigrants came in large numbers. There were also female immigrants, first Japanese (Daniels 1988, p. 155), then Chinese (Chen 1992, p. 11), who built a prominent class of second-generation Asian Americans by the 1940s (Chiswick 1983).

The empirical work on Asian immigration begins in the early modern period and typically concerns this easily identifiable second generation. Heterogeneity between Asian-origin groups is of particular concern, both descriptively (Daniels 1988) and empirically (Chiswick 1983). My results are robust across country of origin in addition to being robust over occupational types and distributions. This is especially important given that changes in the American economy were forthcoming. The United States urbanized over the 19th and 20th centuries (Boustan et al. 2013) and saw population transfers from poorer to richer regions of the country (Vedder and Gallaway 1980). Technological innovation meant an increase in the capital-to-labor ratio and a capital-saving bias (Crafts 1999, p. 26), while increased regulatory action meant the stabilization of business-cycle fluctuations (James 1993). These developments, combined with the introduction of immigration restrictions, highlights the variety of contextual information relevant to understanding the course of Asian assimilation.

The other main theme of the empirical literature on Asian assimilation is the relevance of discrimination for this highly visible minority group. Periods of high discrimination are associated with linguistic assimilation for Japanese Americans (Saavedra 2021). Alternatively, reductions in discrimination incentivizes the integration into mainstream community life: the economic convergence of Asians and Asian Americans in the 1960s is attributed to reductions in labor market discrimination during the Civil Rights Movement (Duleep and Sanders 2012; Nee and Holbrow 2013; Hilger 2016). While I do not conduct causal investigation, my work easily motivates a causal study on how changes in environment shape assimilation behaviors.

Discrimination similarly implies the relevance of co-ethnic interaction in explaining assimilation. In the absence of a conventional family structure—early Chinese immigrants were almost always men and usually temporary migrant workers (Walker 1977)—ethnic enclaves, organized by shared clans, provided community support that members needed (Fei and Liu 1982, p. 375; Chen 1992, pp. 3–

4). e interaction on assimilation is contested for Asian immigrants in both the contemporary and historic time periods (White et al. 1993; Logan et al. 2002; Li 2005; Chaney 2010). I that in all but the pre-Exclusion period of 1860–1880, increased co-ethnic interaction is associated with a greater assimilation penalty for Asian immigrants compared to European immigrants. A 1 percentage point increase in the proportion of co-ethnics within a county is associated with a minimum decrease of 0.001 ranking points. In contrast, European immigrants faced negligible penalties (1860–1880; 1920–1940), if at all (1880–1900; 1900–1920).

These findings greatly enhance our current understanding of assimilation, which is based on the behavior of European immigrants. To briefly explain, concurrent with early Asian immigration was the well-known European Age of Mass Migration: 30 million European immigrants came to the United States between 1850 and 1913 (Abramitzky et al. 2014). It is this immigrant group that has contributed most to our current understanding of assimilation during the period, and the conventional belief is that European immigrants during this period started with low-status occupations but displayed high occupational mobility that led them to converge with the native population (Abramitzky et al. 2014). Subsequent work has sought to clarify changes in the amount of convergence over time (Collins and Zimran 2023), explore alternative measures of assimilation (Abramitzky et al. 2020b), and determine the characteristics of assimilation for specific-sub groups (Spitzer and Zimran 2018; Eriksson 2020).

My main contribution is that I conduct a European-style study of Asian immigration to the United States. I do so by using complete-count census data to examine the occupational convergence of cohorts of adult males from 1860–1940. By incorporating the the Postel (2023) technique for linking Chinese names into the standard ABE matching algorithm to address changes in cohort quality (Abramitzky et al. 2019) and selective return migration (Lubotsky 2007; Abramitzky et al. 2014), I am able to link Asian cohorts at a rate comparable to European cohorts.

My findings reveal a distinct pattern of Asian assimilation behavior that develops the current understanding of migration. The most important is that my work introduces a new strand of literature: with my linked cohorts, there are new opportunities to further develop the understudied phenomenon of early Asian immigration. I also provide a more complete understanding of American immigration in the Age of Mass Migration. Though numerically smaller, Asian immigrants during this period provoked strong social controversy, and they were the earliest foreign nationals subject

to federal immigration legislation.[1] As such, their integration into the United States from both an occupational and a spatial perspective demonstrates how the American national identity developed under intense scrutiny. Finally, I provide a broader timeline of Asian immigration history in the United States. Contemporary Asian immigration is well-documented, but it is just the latest iteration of an immigration history that dates to the 19th century. This work bridges the gap between work in the modern period and the historic period, providing contextual knowledge for scholars seeking to understand contemporary assimilation phenomena.

Since the 19th century, Asians have shaped the conversation about American immigration. I quantitatively describe the evolution of Asian migration and assimilation in concert with these broad thematic changes: my linked cohorts provide insight into who they were, where they settled, and what their outcomes looked like, patterns that are different from European immigrants. As the United States contends with a demographic shift—the Asian American population is predicted to nearly quadruple in size by 2060 (Budiman and Ruiz 2021)—these insights provide a more complete understanding of the future of migration and assimilation, of which Asians and Asian Americans have proven to be remarkably influential.

2 Background

2.1 Historic Patterns of Asian Assimilation

In 1852, Long Achick of San Francisco published an open letter to John Bigler, the Governor of California. He wanted to defend the character of his friend Hab Wa, who came to the United States to work in California's mines (Wa and Achick 1852). Over the course of that decade, the number of Chinese immigrants would rise from a couple hundred to thirty-five thousand, most as laborers in the mining and railroad industries (Chen 1992, p. 3), and the white population was beginning to grow nervous.

They had "slantindicular eye[s]" and a complexion of "yellow mud." They spoke a strange language and were preoccupied with opium (The Atlanta Daily Constitution 1875). Somehow, they simultaneously schemed to take away opportunities from white Americans. Three years later, Governor Bigler warned that Chinese migrants were hoarding "the rich products of our soil," and that

[1] European immigration was not restricted until the Immigration Act of 1924.

soon, they would grow numerous enough to "[fill] our cities" (Bigler 1855).

But Long Achick was not like these other Chinamen. He cut an exotic figure in "silks, satins, and furs" and could even speak in "pure English" (New York Daily Tribune 1859). Among the white residents of San Francisco, he was known as "the intelligent Chinaman," and in 1859, he introduced himself as the "authorized expressor of his countrymen's feelings" to Generals Winfield Scott and J.P. Haven (The New York Herald 1853; Unknown1859).

Yet little is known about the life of a man with such distinction: a search of the complete-count 1850 and 1860 censuses reveals no individual under that name. The circumstances of his own migration to the United States are equally mysterious, but he was familiar with the typical arrangement of the period, wherein a merchant would provide a loan to the prospective migrant, to be paid with interest upon employment in the United States (Wa and Achick 1852).

Perhaps Long Achick made his influence as one of those merchants: he was certainly knowledgeable about the dealings of other immigrants in the city. He wrote that Chy Lung had recently sold $10,000 of Chinese goods and that Fei-Chaong had seen a similarly prosperous season. He listed the most popular Chinese imports and claimed that it was American cargo ships that best carried them. Most impressively, he minced through a contentious set of international relations, navigating the laws and the social mores of his Chinese and American audience to distinguish himself in his adopted homeland (Wa and Achick 1852).

How did such a complex network of multi-ethnic interaction develop? In the following sections, I describe the characteristics of the earliest Asian immigrants to the United States: who they were, how they lived, and the ways in which their identity shaped their integration into the United States.

2.1.1 Co-Ethnic Interaction

A chief complaint of Governor Bigler was the strength of Chinese co-ethnic cooperation. They had "no community of feeling or interest with the mass of our citizens," he warned, "hording [sic] together and forming distinct and separate communities" (Bigler 1855). By 1880, they had become a sizable minority in the West Coast—up to 10% of the population in many California counties (Figure 1).

Long Achick viewed this ethnic solidarity differently. He reminisces that in China, he could rely on the support of his clan (Wa and Achick 1852). It is little surprise that Chinese immigrants sought a similar comfort. In the absence of a conventional family structure—these immigrants were

almost always men and usually temporary migrant workers (Walker 1977)—Chinese ethnic enclaves also featured clan organizations, ordered by the shared surname, that provided community support for its members (Fei and Liu 1982, p. 375; Chen 1992, pp. 3–4). But close ties also required an extensive set of obligations. Chinese immigrants did not negotiate their labor as individuals: they worked through intermediaries, typically Chinese merchants of a common familial or geographical background, who dictated their jobs and purchases (Walker 1977, pp. 264–265).

In the absence of empirical work on Asian immigration during this period, the literature on co-ethnic behavior may provide some clues about how this insular community assimilated into the United States. Under the conventional spatial assimilation model, ethnic enclaves are occupied by new immigrants who leave following assimilation into the mainstream economy (Li 2005, p. 38; Chaney 2010, p. 19). In fact, for European immigrants during the Age of Mass Migration, ethnic enclaves were negatively associated with economic convergence (Abramitzky et al. 2020a; Eriksson 2020). This is particularly important given our understanding of historic assimilation, which is that European immigrants started with low-status occupations but displayed high occupational mobility that led them to converge with the native population (Abramitzky et al. 2014). Assimilation into the United States is therefore related to examining the co-ethnic interactions of immigrants.

However, the literature has proposed the intriguing alternative that the conventional model is specific to European assimilation patterns during the Age of Mass Migration (Li 2005, p. 38; Chaney 2010, p. 19). Though White et al. (1993) find that Asian immigrants do act similarly to European immigrants, more recent literature on Asians and Latinos suggest that suburban enclave residence may be positively correlated with economic status (Logan et al. 2002) and that these groups may be less likely to leave ethnic enclaves following economic convergence (Li 2005, p. 38; Chaney 2010, p. 19–20). It may be that enclaves function as a broader mechanism of group solidarity for a visible minority group such as the Chinese: protection against social discrimination is consistently cited as a motivation for enclave settlement patterns in early Chinese immigrant history (Li 2005, p. 31; Zhou and Lee 2013, p. 29) and even for modern Chinese immigrants (Waters and Eschbach 1995).

2.1.2 Discrimination

As proof of their work ethic, Long Achick boasted that his countrymen labored for wages as little as three dollars a month (Wa and Achick 1852); wages for Chinese workers were much lower than

for white workers (San Francisco Chronicle 1881). This created widespread resentment, much of which took on a distinctly racial subtext. In an 1878 discussion about Chinese exclusion, committee members pivoted quickly from economics—for example, the suggestion that California employers abstain from employing the Chinese as they "drove the whites from the labor field"—to loaded speculation about the "evil reaches" of a "servile race" (San Francisco Chronicle 1878).

This hostile environment toward Chinese immigration led to the Chinese Exclusion Act of 1882, which was the first piece of federal immigration legislation in the United States. The Act was motivated, designed, and implemented as an explicit result of racialized opposition to the integration of the Chinese community into the United States, and its passage halted the immigration of Chinese laborers to the United States (Lee 2002). In the majority opinion for *Chae Chan Ping v. United States* (1889), which held the Act as Constitutional, Justice Stephen J. Field went as far as to write that the United States government had the right to exclude "foreigners of a different race in this country" who "will not assimilate with us" (Field 1889).

However, the question of integration persisted for those immigrants who remained. Once again, there is no direct empirical literature for Asians in this period, but later work on discrimination may prove helpful given the negative racial sentiment against Chinese immigrants which remained rampant into the late 20th century (Lee 2002). Some findings suggest that discrimination may be a motivating factor for assimilative behavior. Abramitzky et al. (2020b) determine that the adoption of English-language names is associated with favorable economic outcomes for european immigrants during this period; similarly, Saavedra (2021) finds increased assimilation among Japanese Americans via the adoption of English names in the period following Pearl Harbor. Alternatively, reductions in discrimination may increase the attractiveness of integration into mainstream community life. Most notably, reductions in labor market discrimination during the Civil Rights Movement have been cited as the cause for the economic convergence of Asians and Asian Americans in the 1960s (Duleep and Sanders 2012, Nee and Holbrow 2013, and Hilger 2016).

In 1943, the Act was repealed, but changes were already in place. The advent of second-generation Chinese Americans following increased female immigration (Chen 1992, p. 11) had weakened the influence of traditional enclave organization. Existing Chinese immigrants and their descendants had dispersed across the United States (Chen 1992, p. 4–5). In their place, other groups, mostly from Japan and sometimes from the Philippines, had come to the United States in large

numbers (Figure 2), bringing with them their own unique background.

2.1.3 Cohort Composition

Some of these new immigrants took the low-wage, low-status jobs formerly available to their Chinese counterparts: California State Commissioner of Horticulture G.H. Heoke called for the "importation" of twenty-five thousand Filipinos to harvest crops in the state following a World War I labor shortage (The Shanghai Times 1917). Many also faced the same obstacles, particularly in California, where they were concentrated. In 1909, California legislators unsuccessfully attempted to bar Japanese residents from holding property (Los Angeles Times 1909), and a ban on Japanese immigration was even discussed as early as 1920 (Los Angeles Times 1920).

But these new groups were also different from the Chinese. While the assimilation rates of European immigrants during the period were not materially affected by their country of origin (Collins and Zimran 2023), Asian immigrants were distinguishable from an early period. Chinese immigrants were urban, but many Japanese immigrants settled in rural areas and became successful farmers (Lee 2002, p. 44; (Daniels 1988, p. 156–157). More importantly, female immigrants began to come, forming a second-generation class of Asian Americans (Daniels 1988, p. 155; Chen 1992, p. 11). Their outcomes were similarly heterogeneous: Chiswick (1983) finds that the extent to which Asian Americans closed earnings and educational gaps in the 1940–1970 period depended on parental country of origin.

The American economy was also changing. The effect of labor market discrimination on Asian assimilation has already been discussed; similar work has been conducted for European immigrants (Ferrara and Fishback 2024). There is also more known about how European immigrants reacted to the changing economic conditions of the 19th and 20th centuries, such as increased urbanization (Zimran 2022) and shifts in occupational choices (Collins and Zimran 2023). These developments, combined with changes in the legal status of Asian immigrants, emphasizes the variety of factors that may have affected the course of Asian assimilation.

2.2 Current Patterns of Asian Assimilation

The empirical work on Asian immigration is richest after the Immigration Act of 1965. In the modern period, there are more immigrants to study: the percent of Asian immigrants relative

to the total immigrant population increased from 6.7% in 1965 to 12.3% in 1966, remaining in the double-digits for years afterward (Keely 1971, p. 162). The Act also increased the number of professional-class immigrants from Asia (Keely 1971, p. 165); subsequently, the study of Asian migration today centers on the characteristics—educational (Hirschman and Wong 1986), cultural (Chetty et al. 2020), or otherwise (Sakamoto et al. 2022)—that explain the high assimilation of the archetypal Asian immigrant.

In general, we know that Asian immigrants assimilate well relative to other minority groups (Duncan and Trejo 2016; Akee et al. 2024). Asian immigrants and Asians are also conceptually separate: Chetty et al. (2020) and Abramitzky et al. 2019 find that Asian immigrants display higher convergence over their lifetimes than second-generation Asian Americans, and that Asian Americans themselves act similarly to the native population. Together, these results suggest that Asian immigrants undergo rapid economic assimilation over their lifetimes, resulting in their second-generation children displaying similar economic behaviors (ie., successful assimilation) relative to the native population.

We also know the characteristics associated with high assimilation. Xie and Gough (2011) find that Chinese immigrants to the United States have positive gains to co-ethnic interaction via residency in ethnic enclaves, while other Asian-origin immigrant groups[2] have neither gains or losses. Conversely, Zeng and Xie (2004) suggest that place of education, not race or nativity, contributes to outcome disparities. And while immigration from Europe to the United States is negligible in the modern period, some work has been done on their outcomes, which are fairly good for the first generation and similar to the native population for the second generation (Abramitzky et al. 2019).

Much has been discussed in terms of the literature that may provide insight into the unknown outcomes of early Asian immigrants. In the early period, assimilation may relate to co-ethnic interaction and discrimination, while in later periods, empirical work establishes the high assimilation of second-generation Asian Americans and post-1965 Asian immigrants. Contrast with European immigrants, whose assimilation during both the historical and modern period and under various circumstances have been well-established: generally high and robust across source countries, but sensitive to discrimination, co-ethnic interaction, and a changing labor market. To truly understand the assimilation of Asian immigrants, we must examine Asian immigration with the same level of

[2] That is, Filipino, Indian, Vietnamese, and Korean immigrants.

detail. This is why my paper uses linked cohorts to allow Asian immigrants to be studied like and compared directly to European immigrants for the first time.

3 Data/Methods

I construct four linked cohorts spanning the twenty-year periods of 1860–1880, 1880–1900, 1900–1920, and 1920–1940 for populations of Asian male immigrants, white male immigrants, and white native males aged 18–40 in the first census and aged 35–63 in the second census.

3.1 Linkage Data

The lack of linked data for Asian populations is a primary obstacle in the study of their assimilation (Hilger 2016). Postel (2023) notes that Chinese names in the census are frequently misspelled and commonly include name-ordering issues derived from the structure of Chinese-language names, wherein the surname precedes the given name.

I have observed some additional difficulties with Chinese-language names in the time span investigated. First, Chinese immigrants often give a diminutive to the census enumerator instead of a full name, a phenomenon that is especially frequent in the 1860 and 1880 censuses, and accounts for nearly all Chinese-language names in the 1860 census. This is found when the given name of an individual is recorded as "Ah" or "A" while the surname is a single-syllable word; in these cases, the "first name" is actually a standard prefix, while the "surname" is a character that may or may not be found in the individual's full name.[3] Given that diminutives reduce information about the full name and frequently overlap, the proportion of false links in the early period of the investigation will likely be much higher than anticipated.

An additional complication is the adoption of English-language names by Chinese immigrants beginning in the 20th century. Chinese immigrants may choose an English given name and retain their Chinese-language given name as a "surname," as was likely the case for David Lai-Gim in the 1940 census. The opposite case also occurs; most frequently, Chinese immigrants appear to adopt the surname "Louie" while retaining their Chinese-language given names. Given the transliteration

[3] For example, my Chinese name is Chen (surname) Ling-Yin (given name). Valid diminutives for my name include "Ah Ling" or "Ah Yin." My actual diminutive is "Ah Tao," highlighting how diminutives usually give no information about the true surname and may give little information about the true given name.

issues associated with Chinese-language names, linkage will privilege those who choose to adopt English-language names in some capacity. Additionally, the true Chinese surname is lost or difficult to discern, further complicating linkage efforts.

As a result, conventional linking methods do poorly with Asian cohorts: Table 1 shows the reduced linkage quality of Asian cohorts relative to white cohorts in the 1880–1900 period using a series of widely available methodologies including the Census Linking Project (CLP), the Census Tree (CT), and the Multigenerational Longitudinal Panel (MLP). In all cases, the low match rates of Asian cohorts make their study implausible.

However, the new Postel (2023) linkage strategy provides a name-cleansing technique that increases the number of Chinese individuals linked under standard algorithms. When the ABE exact-standard matching algorithm[4] is applied to a cleansed cohort of Chinese individuals in the 1880–1900 period, the linkage rate for the 1880–1900 cohort jumped to 9.6%[5], which is a rate comparable to those of white native and white immigrant cohorts created from the same matching algorithm. This is achieved by standardizing and re-ordering Chinese names in the census, with the caveat that this technique cannot compensate for the use of diminutives or the use of hybrid Chinese-English names.

I employ a linked cohort strategy using a combination of standard linkage packages and the Postel (2023) technique. I link Asian cohorts if there is a successful match with at least one of the six standard methods provided in the corresponding Census Linking Project crosswalk[6], which are derived from the ABE matching algorithm first developed by Ferrie (1996) and adapted by Abramitzky, Boustan and Eriksson (2012, 2014, 2017). I then cleanse Chinese name data using the Postel (2023) technique. I expand her original 1880–1900 links to all cohorts by correcting and separating name fragments that are then reordered and matched using the ABE exact-standard algorithm.

I link white cohorts using the ABE Exact-Standard links in the Census Linking Project crosswalks. Because there is a much larger pool of linked European immigrants, a stricter linkage technique that is partially observed in the Asian cohorts reduces the number of false positive matches.

[4] A successful link with the ABE exact-standard matching algorithm is defined as an exact match on standardized names and birth states with ages that match within 2 years.

[5] Calculated for cohorts of Chinese men of any age.

[6] That is, exact-standard, NYSIIS-standard, exact-conservative, NYSIIS-conservative, race-NYSIIS-standard, and race-NYSIIS-conservative. Each method has a degree to which first name, last name, and age (along with other demographic characteristics such as race and birth state, if included) must agree across censuses to be defined as a successful match.

Cohorts consist of non-southern men aged 18–40 in first year and 35–63 in the final year with an allowance of 3 years in case of age misidentification. For Asian cohorts, the foreign national groups included are from China, Japan and the Philippines; other national groups common today such as immigrants from Korea or India are of a negligible number during the period studied. The foreign national groups for white cohorts are consistent with the groups discussed in Collins and Zimran (2023) and include a spread of communities from across Europe. Cohorts are then modified along racial and national groups so that three sets of comparisons can be made: first, between Asian immigrants and the white native population, second, between European immigrants and the white native population, and third, between Asian immigrants and European immigrants. Figure 3 and Table 2 identify the proportion and the number of successful links given these guidelines, respectively.[7]

Finally, I weigh linked individuals using observables drawn from Collins and Zimran (2023). Examples include but are not limited to age, occupational category, urban status, literacy, property holdings, and marital status. This ensures that the linked population reflects the characteristics of the broader population.

3.2 Occupational Data

Income (Borjas 2015) is the obvious proxy used to quantify economic assimilation. However, wage and salary income was not collected until the 1940 decennial census. Therefore, investigations of early economic history commonly use occupational status (Villarreal and Tamborini 2018; Collins and Zimran 2023) to quantify economic assimilation. Not only can occupations be ranked against one another by approximating their typical wage, but the occupational distributions of different populations can also be examined to determine how preferences may affect engagement in occupations that are otherwise ranked similarly. In fact, specific professions have been closely associated with various immigrant groups, such as the Chinese laundry industry in the early 20th century (Wang 2004).

The Collins and Zimran (2023) replication package ranks socioeconomic status as an average of two rankings constructed using occupational data in 1900 ("occscore") and property data in

[7] I identify an Asian native group to show the development of the Asian American population of the United States. This group is excluded from the normal cohorts.

1870 ("wealthscore"). This ranking system is preferable to the IPUMS 1950-basis occupational classification system because it implements occupational and wealth data consistent with the time periods examined. The resultant ranking system creates a proxy for economic status that is used to quantify the convergence of immigrant economic status to the native population over time.

Wealth scores are calculated using the 1870 census as a baseline. Occupational scores are calculated by using a 1910-basis occupational classification system, and all scores are calculated from the pool of Asian and white men in the corresponding year who are working-aged with an occupation. Thus, occupational mobility can be conceptually understood as the change in the average of these scores at the beginning and at the end of a cohort period.

Individuals are assigned to one of the six occupational categories of White Collar, Farmer, Craft, Operative, Unskilled, and Farm Family. Occupations are determined from the IPUMS 1950-basis occupational classification system. Examples of White Collar occupations include those engaged in medical, educational, or engineering professions. Craft occupations encompass skilled tradesmen like blacksmiths and carpenters. Operative occupations can either describe apprentices in the trades or less skilled occupations like launderers and mine operators. Unskilled occupations describe the widest range of occupations; generally, they are not in skilled trades and are not associated with a high level of formal education, with examples that range from midwives to waitresses to policemen.

The Farm Family category requires additional clarification. Broadly speaking, it consists of men who live in a household with a family member who is a farmer (Collins and Zimran 2023, p. 249). To account for this ambiguous occupational status in the IPUMS classification system, rankings for the Farm Family occupational category are separated into lower estimates, middle estimates, and upper estimates as Farm Labor, Midpoint, and Farmer, respectively. The Farm Labor estimate classifies Farm Family members as low-status laborers, while the Farmer estimate classifies Farm Family members as higher-status farm owners.

I construct estimates using each Farm Family classification. These rankings are relevant for white cohorts because of the engagement of white natives, and some white immigrants, in farming occupations.[8] Since Asian immigrants were not commonly found in farming occupations, the rankings do not significantly alter the findings. This can be seen in Figure 4, which compares the broader occupational distributions of the white native population to European immigrants and Asian immi-

[8] Additional details about the implications of rankings for white cohorts can be found in Collins and Zimran (2023).

grants for the starting year of each cohort. Both Asian and European immigrants are less likely than white natives to be in higher occupational tiers. Asian immigrants are typically concentrated in the Operative and Unskilled workers. Examples of common professions include miners, cooks, laborers, and launderers. Meanwhile, European immigrants are employed in a greater variety of work within the lower occupational tiers; unlike Asian immigrants, they are more frequently employed as skilled craftsmen like carpenters or in industrial occupations like machinists. Longitudinal trends reveal that both immigrants and natives are increasingly classified as White Collar, while a decreasing proportion are classed as Farmer or Farm Family, which may be related to the urbanization of the United States over the 19th and 20th centuries (Boustan et al. 2013).

3.3 Enclave Data

In addition to occupational status, I use the proportion of co-ethnics within a county as a proxy for economic assimilation. The conventional view is that ethnic enclaves are occupied by new immigrants who leave following assimilation into the mainstream economy (Li 2005, p. 38; Chaney 2010, p. 19). Assimilation can thus be observed by examining the frequency and characteristics of immigrants who stay in these enclaves. Enclaves also provide insight into non-economic components of assimilation, including socialization and cultural cohesion. These relations are particularly relevant in the modern period, with Borjas (2015) finding that decreased economic assimilation for post-1965 immigrant populations results from increased interaction with preexisting co-ethnics.

Enclave boundaries are determined using IPUMS time-stable county data. I do not define ethnic enclave residency in absolute terms: rather, I determine the changes associated with one percentage-point increase in the proportion of co-ethnics within a county, in which co-ethnics are defined as those in the same county sharing a foreign birth country with the individual. Similar definitions of an ethnic enclave have precedence in the recent literature, such as with Eriksson (2020)'s use of Norwegian enclaves.

3.4 Empirical Strategy

3.4.1 Main Strategy

I calculate the change in occupational rank for cohorts of Asian immigrants, European immigrants, and white natives using the Collins and Zimran (2023) occupational ranking scale. Change in occupational rank can be informally interpreted as the change in assimilation, wherein positive changes in rank are associated with increased assimilation and vice versa.

The main estimator equation calculates the change in rank for each type of cohort (Asian immigrant, European immigrant, or white native) by subtracting the weighted average rank of all individuals in the starting cohort year by the weighted average rank of all individuals in the final cohort year:

$$\Delta \text{rank}_{\text{A}} = \frac{\sum_{i=1}^{\text{I}} \text{rank}_{\text{F},\, i}\ (\text{w}_i)}{\sum_{i=1}^{\text{I}} \text{w}_i} - \frac{\sum_{i=1}^{\text{I}} \text{rank}_{\text{S},\, i}\ (\text{w}_i)}{\sum_{i=1}^{\text{I}} \text{w}_i} \tag{1}$$

The outcome variable is the change in the cohort's weighted average rank $\Delta \text{rank}_{\text{A}}$. The individual i's starting occupational rank is denoted $\text{rank}_{\text{S},\, i}$ and the individual i's final occupational rank is denoted $\text{rank}_{\text{F},\, i}$ with a total number of I individuals per cohort. Finally, w_i is a weight assigned to each individual that ensures that the entire linked cohort reflects the census population's demographic averages. These include characteristics related to geographic, family, and personal attributes, and they are constructed using the Collins and Zimran (2023) midpoint ranking calculation.

To clarify the magnitude of the outcome variable, consider the following examples. An individual j in the 1860–1880 Asian panel with a rank of 0.1647 in 1860 ($\text{rank}_{\text{S},\, j}$) and an average rank of 0.9642 in 1880 ($\text{rank}_{\text{F},\, j}$) can be conceptualized per the OCC1950 categorization as a laborer who ascended to management. Assuming that $\text{w}_j = 1$, we have that $\Delta \text{rank}_j = 0.7995$. Most individuals display less mobility, however: in that same panel, a mine operative k with an average rank of 0.2628 in 1860 climbs to an average rank of 0.2903 with his promotion as a laundry operative; assuming once again that $\text{w}_k = 1$, we have that $\Delta \text{rank}_k = 0.0275$. The magnitude of the results in the following section displays the patterns of the latter case, which are modest developments or declines in ranking that are generally contained within a broad socioeconomic class.

Finally, note that immigration status is determined by the "birthplace" variable in IPUMS,

wherein those born outside of the states of the United States, including United States territories, are denoted as immigrants, while those born within the states of the United States are denoted as natives. Occasionally, birthplaces are inconsistently designated between the two censuses used to construct each cohort. As a result, immigrant cohorts must contain individuals with a foreign birthplace in both the earlier and the later census. In rare cases, individuals within native cohorts may have a foreign birthplace in either the earlier or the later census.

3.4.2 Enclave Strategy

Instead of comparing the absolute change in occupational rank per cohort type, I now compare the change in occupational rank relative to the white native population given the share of co-ethnics within a county. To do so, I construct two new types of cohorts: first, a cohort of Asian immigrants and white natives, and second, a cohort of European immigrants and white natives, for each of the four time periods examined. I then calculate the relative changes in rank for each individual in the two types of cohorts:

$$\Delta \text{rank}_{\text{I}} = \beta_0 + \beta_1 \, \text{share}_{\text{CE}} + \beta_2 \, \text{age}_{\text{S}}{}^{\text{p}} + \epsilon \tag{2}$$

The variable denoting share of co-ethnics $\text{share}_{\text{Imm}}$ refers to the proportion of individuals within county boundaries that share the birthplace of the immigrant. Since cohorts consist of the immigrant group and white natives, $\text{share}_{\text{Imm}}$ takes a value between 0 and 1 for each immigrant, depending on the share of that immigrant's co-ethnics within the county of residence, and it takes a value of 0 for white natives. The relative ranking calculation also makes it possible to insert a quartic age control polynomial.

I then take the weighted average of all individual changes in rank given the share of co-ethnics. This determines the relative effect of changes in the share of co-ethnics for the occupational rank of Asian immigrants versus European immigrants relative to the white native population:

$$\Delta \text{rank}_{\text{A}} = \frac{\sum_{i=1}^{\text{I}} \beta_{1,i} \, (\text{w}_i)}{\sum_{i=1}^{\text{I}} \text{w}_i} \tag{3}$$

The outcome variable remains the change in the cohort's weighted average rank $\Delta \text{rank}_{\text{A}}$, though it now depends on a weighted average of each individual i's β_1 value that is age controlled. The

modified cohorts mean that there is a different total number of I individuals per cohort, but each individual continues to be assigned a weight w_i from the Collins and Zimran (2023) midpoint ranking calculation.

3.5 Robustness Checks

I conduct a series of robustness checks.

3.5.1 Age-Weighted Strategy

First, I address concerns about age-dependent assimilation in the main strategy by replicating the conceptual equations from Collins and Zimran (2023). These equations calculate the relative change in occupational rank and are similar to the Enclave Strategy. Unlike the Main Strategy, the rankings are relative and age controlled; conceptually, they are similar to the Enclave Strategy.[9] The age controls do not end up being relevant except for the 1920–1940 Asian cohort, and in all other cases, the relative values can be approximately converted to the absolute ranking values by subtracting the ranking scores of white natives. Replications of all main tables and figures using this strategy are found in Appendix A: Age-Weighted Strategy.

I construct two new types of cohorts: first, a cohort of Asian immigrants and white natives, second, a cohort of European immigrants and white natives, for each of the four time periods examined. The empirical strategy for the first two types of cohorts follows closely from the Enclave Strategy. I calculate the relative changes in rank for each individual in these two types of cohorts:

$$\Delta \text{rank}_{\text{I}} = \beta_0 + \beta_1 \, \text{foreign}_{\text{I}} + \beta_2 \, \text{age}_{\text{S}}^{\text{P}} + \epsilon \tag{4}$$

The outcome variable is the change in an individual's occupational rank $\Delta \text{rank}_{\text{I}}$, which is calculated for each member within a cohort that includes white natives and either Asian immigrants or European immigrants. It is a function of the binary variable immigrant status $\text{foreign}_{\text{I}}$, which takes on a value of 1 if the individual is an immigrant and 0 if an individual is not an immigrant (that is, the individual is a white native). It is also a function of a quartic age polynomial.

[9] It is not possible to add age controls to absolute rankings because of the lack of a "control" or "baseline" group (ie, white natives) from which to create regressions. However, this allows us to visualize the occupational upgrading of white natives, which is useful for the analysis.

I then take the weighted average of all individual changes in rank. This determines the relative effect of being an immigrant on occupational rank:

$$\Delta\text{rank}_{\text{A}} = \frac{\sum_{i=1}^{\text{I}} \beta_{1,i}\,(\text{w}_i)}{\sum_{i=1}^{\text{I}} \text{w}_i} \tag{5}$$

The variables follow directly from the Enclave Strategy; recall that the outcome variable remains the change in the cohort's weighted average rank $\Delta\text{rank}_{\text{A}}$, which is calculated based on a average of each individual i's β_1 value that is weighted w_i.

3.5.2 Conditional Assimilation

I also address the concern that changes in the characteristics of immigrants across cohorts may be responsible for the results. In Appendix B: Conditional Assimilation, I use the strategy outlined in Age-Weighted Strategy to run the analysis conditional on the occupational upgrading, occupational distribution, and nationality patterns displayed in each cohort, which controls for the unique distribution patterns of each cohort. The results are generally robust across the latter two distributions, suggesting that my findings do not relate to some, but not all, changes in the broader American economy.

To explain the significance of this robustness check, consider the following example. The integration of the Postel (2023) technique, which is specific to names of Chinese origin, results in cohorts that consistently underrepresent Filipino immigrants as shown by the low proportion of Filipinos in linked cohorts (Table 3 and Figure 5). By running the main analysis conditional on the counterfactual that all cohorts feature the nationality distribution of the 1860–1880 cohort, and so forth, the concern that differential assimilation patterns arise because of a specific cohort's national-origin proportions is minimized.

3.5.3 ABE Exact-Standard Linkage

I also address inconsistencies in my linkage across Asian and white cohorts by creating Asian cohorts linked entirely using the ABE Exact-Standard method. I do this by using this method to link Asians found in the Census Linking Project crosswalks and then appending matches with the Postel Postel (2023) links. After replicating the results using both the Main Strategy and the Age-Weighted

Strategy strategies, I find that the results are generally similar to the main results but statistically insignificant due to the reduced cohort sizes. Replications of all main tables and figures can be found in Appendix C: ABE Exact-Standard Linkage.

3.5.4 Other

As a final note, it is also possible to conduct a robustness check on my enclave analysis by defining alternative geographic boundaries for enclaves. However, it appears that this will not substantially change the enclave analysis. Figure 6a shows that approximately 10%–70% of Asian immigrants within the 1860–1940 period live in an IPUMS county that contains at least 10% co-ethnics or a minimum of 2,000 co-ethnics; compare this to the 7%–8% of European immigrants who reside in these types of counties. Similar proportions of Asian and European immigrants reside in enclaves using the Census Place Project sub-county boundaries (Figure 6b). An interesting aside is that it does seem that Asian immigrants reside more frequently with co-ethnics. They do so at a much higher frequency than their European counterparts.

4 Findings

4.1 Main Results

I contribute two main findings. First, I find that Asian immigrants started at a lower average occupational tier than European immigrants. Second, I find that Asian assimilation reflects a "catch-up" pattern wherein Asian immigrants, who started less assimilated than their European counterparts, demonstrated more rapid cohort convergence to native occupational characteristics.

The two main results follow directly from Figure 7 and Table 4, which show the absolute rank values for all three types of cohorts. Here, each cohort is graphed against their average starting and final occupational rank as described in Equation 1. Because each cohort increases their final rank relative to their starting rank, the lower connected point denotes the average starting rank, while the upper connected point denotes the average final rank. First, notice that the absolute starting tier of Asian immigrants is very low: on average, their ranking score was 48 to 119 percent (0.14 to 0.25 ranking points) lower than European immigrants and 43 to 153 percent (0.22 to 0.31 ranking points) lower than white natives. This confirms what the qualitative literature has

described already: on average, Asian immigrants start out in low-tier occupations as miners (0.25 ranking points) and laundry workers (0.27 ranking points), unlike both European immigrants and white natives, whose average occupations are comparable to bartenders (0.43 ranking points) and painters (0.53), respectively.[10]

More interestingly successive cohorts of Asian immigrants increased their assimilation relative to European immigrants. This is a new finding that has not been discussed in the qualitative or empirical literature thus far, and it is most evident in the drastic increase in absolute rank values in the 1900–1920 and 1920–1940 cohorts. By the end of the investigative period, Asian immigrants reduced their occupation gap with the native population by 49 percent (0.14 ranking points). Though the final rank values of all Asian cohort remain behind both the European immigrant and white native cohort, this reduction highlights the rapid gains that Asians made in both the kinds of occupations sought and the wealth that they held.

Figure 8 and Table 5 allow this second finding to be examined in more detail. They show the absolute change in rank values within each cohort as described in Equation 1. Upon examination, it becomes clear that in the earlier two cohorts of 1860–1880 and 1880–1900, Asian immigrants assimilated less than European immigrants and white natives. However, in the final two cohorts of 1900–1920 and 1920–1940, Asian immigrants assimilated much more than both European immigrants and white natives. Two further points of discussion on the specific timing of these cohorts should be noted. First, though I do not conduct a causal investigation, it is interesting that the dramatic change in the rate of assimilation occurs, with some delay, after the Chinese Exclusion Act of 1882. Second, comparing the change in rank for European immigrants versus white natives reveals the "u-shaped" trend for European immigrants first described in Collins and Zimran (2023), in which European immigrants saw a greater increase in occupational rank in the earliest (1850–1880) and latest (1910–1940) cohorts relative to the middle cohorts. As such, this portion of the findings, though not causal, suggests that the specific timing of these findings is highly relevant.

As a final note, this portion of the main findings are highly robust. The assimilation patterns of Asian immigrants, European immigrants, and white natives are distinct with no overlap in values. With the exception of the absolute change in rank for Asian immigrants in the 1860–1880 cohort, in

[10] Per the discussion in the Data/Methods, ranking points are computed from both occupation and property holdings. The ranking points associated with these occupations are thus a general illustration of how the ranking may order individuals.

which case there is ambiguity over whether the change in average cohort rank is statistically different from 0 points after 20 years (Figure 8 and Table 5), the values I have found are all statistically significant at a 99% significance level as well.

Additionally, these results hold after several robustness checks. A replication of the main strategy with age-weighted regressions shows similar and robust values (Appendix B: Conditional Assimilation). The results also hold across changes in the occupational distribution and the nationality distribution over time (Appendix C: ABE Exact-Standard Linkage). Finally, the use of ABE Exact-Standard cohorts for both Asians and whites shows results comparable to these findings, though the reduced cohort size of the former results in a lack of statistical significance (Appendix A: Age-Weighted Strategy).

4.2 Enclaves

The enclave results are not as tight as the two main findings. As a result, I find it useful to discuss my findings in terms of relative effects, which are significant, as opposed to the exact values, which have a high margin of error.

In general, Asian immigrants and European immigrants displayed divergent behavior with regards to their proximity to co-ethnics. Two conclusions are immediately evident. First, greater proximity to co-ethnics is associated with extremely negative occupational outcomes for Asian immigrants. In contrast, European immigrants are associated with ambiguous occupational outcomes given greater co-ethnic proximity. Second, co-ethnic proximity in Asian immigrants is highly associated with occupational status, while for European immigrants, co-ethnic proximity does not appear to be highly associated with occupational status.

Figure 9 and Table 6 demonstrate the first conclusion: for the 1880–1900 and 1900–1920 cohorts, an increase in the proportion of co-ethnics within a county is associated with a negative change in occupational rank; there is a negative but statistically insignificant change in rank for the 1920–1940 cohort. However, for European immigrants, an increase in the proportion of co-ethnics within a county is associated with a slightly positive effect on change in occupational rank for the 1880–1900 and 1900–1920 cohorts and a slightly negative effect for the 1860–1880 cohorts.

The initial characteristics of Asian immigrants with increased co-ethnic proximity are similarly relevant. Once again, for all but the 1860–1880 cohort, which is not statistically significant regard-

less, an increase in the proportion of co-ethnics within a county is associated with an increase in starting occupational status: that is, higher-status Asians in the earlier year of the cohort tend to gather together (Figure 10 and Table 7). This phenomenon is also interesting because it is almost entirely absent for European immigrants. In their case, co-ethnic proximity does not appear to be as related to the starting occupational status of European immigrants, with only negligibly small positive or negative changes in starting status observed.

The relationship between co-ethnic proportions and final occupational status fluctuates wildly for Asians, and as a result, I do not view it as a helpful tool in analyzing co-ethnic interaction (Figure 11 and Table 8). Once again, co-ethnic proximity does not appear to be a particularly relevant predictor in the final occupational status of European immigrants.

Nevertheless, co-ethnic proximity remains relevant in assessing changes in occupational status and initial occupational statuses. Though these findings do not account for selection-into bias,[11] when they are taken in conjunction with the prior discussion on patterns of assimilation in ethnic enclaves, they provide some insight patterns of assimilation for Asian and European immigrants in enclaves, most notably suggesting divergences in assimilation behavior that should be examined further.

5 Conclusion

Asian immigrants during the Age of Mass Migration displayed distinct assimilation patterns that have not yet been described in the literature. I use new linked cohorts to describe patterns of historic Asian assimilation in the United States and confirm the qualitative assessment of their low occupational ranking. I discover that they assimilate more than European immigrants and white natives—not enough to achieve convergence with white natives, but enough to sharply decrease their occupational gap with the white native population. Finally, I challenge conventional theories about immigrant assimilation during the Age of Mass Migration through my work on enclaves. The co-ethnic interactions of Asian immigrants appear to be materially relevant to their occupational standings, both in that greater co-ethnic interaction is related to higher initial occupational standing and that this co-ethnic interaction actually hurts their assimilation in the long run. Combined, these

[11] Selection-into bias suggests that immigrants who choose to stay in enclaves are distinct from the general population because they have characteristics (eg., lack of language fluency) that may prevent a barrier to assimilation.

contributions provide a blueprint for the study of an important group that can clarify the broader understanding of migration and assimilation.

My work is highly relevant in the broader study of migration. Not only was Asian immigration crucial for the development of select American industries, but it also served as the center of debate about the globalization of markets and the boundaries of national identity. Indeed, Asian immigration was the target of the earliest federal immigration legislation with the Chinese Exclusion Act of 1882 and has periodically pushed immigration legislation ever since.[12]

In fact, this investigation motivates some additional sources of inquiry that can clarify their contributions to American migration history. Most notably, it should be possible to extend the Postel (2023) technique to other Asian languages that are inconsistently Romanized or that have non-English name ordering patterns, which would address the large numbers of Japanese immigrants found in cohorts after the 1880–1900 period. Additionally, I believe that immigration policy may have effects on assimilation: my findings for an increased pace of Asian assimilation and a negative association with co-ethnic interaction coincide with the Exclusion Act. Though I do not conduct a casual investigation, the Act itself may generate changes (eg., a hostile social environment) that may serve as a penalty for co-ethnic association and subsequently affect the integration of current residents. Finally, the enclave study can be further tested by examining selection-into bias. An understanding of the types of Asian immigrants choosing to reside in enclaves is especially relevant given that co-ethnic interaction is significant for Asian populations in this preliminary analysis. Indeed, the endurance of Chinese enclaves in most major metropolitan areas today also points toward their continued relevance for at least some Asian subgroups.

In all, this work demonstrates the relevance of Asian immigration in the study of migration. Asian migration is growing quickly, and awareness of Asian American contributions is increasingly entering the national stage. As a result, understanding their historic patterns of assimilation is crucial to the integration of this growing population into the United States.

[12] Examples include *United States v. Wong Kim Ark (1898)*, the Immigration Act of 1917, and the Immigration Act of 1924.

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Tables: Main Results

Table 1: Linkage Matches, 1880–1900

	(1) Default	(2) ABE Exact-Standard	(3) All CLP	(4) CT	(5) MLP–Backward	(6) MLP–Forward
Asian Native	8	6	21	4	9	1
Asian Immigrant	6,590	1,960	4,441	10	31	34
White Native	1,005,388	1,005,388	1,036,909	1,349,889	1,880,390	1,546,428
White Immigrant	179,824	179,824	219,067	193,398	355,598	303,363

Sources: IPUMS Full-Count Censuses, 1880 and 1900; Census Linking Project Crosswalk, 1880–1900; Postel (2023) data package; The Census Tree, 1880–1900.

Notes: The "Default" link uses the paper's main linkage technique; see Table 2 for details. The "ABE Exact-Standard" link uses the ABE exact-standard method. The "All CLP" link describes matches with at least one of the six standard methods provided in the Census Linking Project's 1880–1900 crosswalk. The "CT" link describes matches with the Census Tree's 1880–1900 crosswalk. The "MLP–Backward" link uses the 1880 Multigenerational Longitudinal Panel identifier in the 1900 census, while the "MLP–Forward" link uses the 1900 Multigenerational Longitudinal Panel identifier in the 1880 census. All links are restricted to non-southern males aged 18–40 in the earlier year of the cohort who are of Chinese, Japanese or Filipino national origin.

Table 2: Linkage Matches

	(1) 1860–1880	(2) 1880–1900	(3) 1900–1920	(4) 1920–1940
Asian Native	0	8	635	729
Asian Immigrant	2,034	6,590	6,051	4,335
White Native	499,397	1,005,388	1,576,395	2,783,357
White Immigrant	110,004	179,824	243,785	376,690

Sources: IPUMS Full-Count Censuses, 1860, 1880, 1900, 1920, and 1940; Census Linking Project Crosswalks, 1860–1880, 1880–1900, 1900–1920, and 1920–1940; Postel (2023) data package. Corresponds to Figure 3.

Notes: Linked cohorts are restricted to non-southern males aged 18–40 in the earlier year of the cohort. White native and European immigrant cohorts are linked using the ABE Exact-Standard algorithm. Asian cohorts are linked using any of the six standard methods provided in the Census Linking Project and supplemented with the links generated from the Postel (2023) technique.

Table 3: Linked Asian Immigrants by Country of Origin

	(1) 1860–1880	(2) 1880–1900	(3) 1900–1920	(4) 1920–1940
China	2,031	6,588	4,526	2,001
Japan	0	2	1,524	2,182
Philippines	0	0	1	152

Sources: IPUMS Full-Count Censuses, 1860, 1880, 1900, 1920, and 1940; Census Linking Project Crosswalks, 1860–1880, 1880–1900, 1900–1920, and 1920–1940; Postel (2023) data package. Corresponds to Figure 5.

Notes: Asian cohorts are restricted to non-southern males aged 18–40 in the earlier year of the cohort who are of Chinese, Japanese, or Filipino descent. Asian cohorts are linked using any of the six standard methods provided in the Census Linking Project and supplemented with the links generated from the Postel (2023) technique.

Table 4: Absolute Rank Values

	(1) 1860–1880	(2) 1880–1900	(3) 1900–1920	(4) 1920–1940
Initial Asian Immigrant	0.285***	0.257***	0.206***	0.202***
	(0.006)	(0.003)	(0.003)	(0.004)
Final Asian Immigrant	0.294***	0.284***	0.337***	0.395***
	(0.008)	(0.004)	(0.004)	(0.006)
Initial White Immigrant	0.422***	0.460***	0.453***	0.416***
	(0.001)	(0.001)	(0.001)	(0.000)
Final White Immigrant	0.511***	0.504***	0.473***	0.460***
	(0.001)	(0.001)	(0.001)	(0.000)
Initial White Native	0.501***	0.497***	0.502***	0.512***
	(0.000)	(0.000)	(0.000)	(0.000)
Final White Native	0.586***	0.567***	0.546***	0.544***
	(0.000)	(0.000)	(0.000)	(0.000)

Significance levels: *** p<0.01, ** p<0.05, * p<0.1

Sources: IPUMS Full-Count Censuses, 1860, 1880, 1900, 1920, and 1940; Census Linking Project Crosswalks, 1860–1880, 1880–1900, 1900–1920, and 1920–1940; Postel (2023) data package; Collins and Zimran (2023) data package. Corresponds to Figure 7.

Notes: Farm families are ranked using the Collins and Zimran (2023) midpoint ranking.

Table 5: Absolute Change in Rank

	(1) 1860–1880	(2) 1880–1900	(3) 1900–1920	(4) 1920–1940
Asian Immigrant	0.009	0.028***	0.131***	0.193***
	(0.010)	(0.005)	(0.005)	(0.007)
White Immigrant	0.088***	0.044***	0.020***	0.044***
	(0.001)	(0.001)	(0.001)	(0.001)
White Native	0.086***	0.070***	0.044***	0.032***
	(0.001)	(0.000)	(0.000)	(0.000)

Significance levels: *** p<0.01, ** p<0.05, * p<0.1

Sources: IPUMS Full-Count Censuses, 1860, 1880, 1900, 1920, and 1940; Census Linking Project Crosswalks, 1860–1880, 1880–1900, 1900–1920, and 1920–1940; Postel (2023) data package; Collins and Zimran (2023) data package. Corresponds to Figure 8.

Notes: Farm families are ranked using the Collins and Zimran (2023) midpoint ranking.

Tables: Enclaves

Table 6: Relative Change in Rank per 1pp Increase in Co-ethnics

	(1)	(2)	(3)	(4)
	1860–1880	1880–1900	1900–1920	1920–1940
Asian Immigrant	0.412**	-0.295***	-0.151**	-0.325
	(0.161)	(0.063)	(0.060)	(0.376)
White Immigrant	-0.012***	0.024***	0.006***	-0.025***
	(0.001)	(0.001)	(0.001)	(0.001)

Significance levels: *** p<0.01, ** p<0.05, * p<0.1

Sources: IPUMS Full-Count Censuses, 1860, 1880, 1900, 1920, and 1940; Census Linking Project Crosswalks, 1860–1880, 1880–1900, 1900–1920, and 1920–1940; Postel (2023) data package; Collins and Zimran (2023) data package. Corresponds to Figure 9.

Notes: Residence in an ethnic enclave is defined as an individual of foreign birthplace residing in an IPUMS-defined county that contains 10% or greater of co-ethnics or a minimum of 2000 co-ethnics.

Table 7: Relative Gaps in Rank per 1pp Increase in Co-ethnics

	(1)	(2)	(3)	(4)
	1860–1880	1880–1900	1900–1920	1920–1940
Initial Asian Immigrant	-0.063	0.130***	0.211***	0.142***
	(0.092)	(0.040)	(0.032)	(0.047)
Final Asian Immigrant	0.346***	-0.163***	0.060	-0.162***
	(0.125)	(0.049)	(0.047)	(0.057)
Initial White Immigrant	0.027***	-0.006***	0.010***	0.019***
	(0.001)	(0.001)	(0.001)	(0.000)
Final White Immigrant	0.014***	0.018***	0.016***	-0.006***
	(0.001)	(0.001)	(0.001)	(0.000)

Significance levels: *** p<0.01, ** p<0.05, * p<0.1

Sources: IPUMS Full-Count Censuses, 1860, 1880, 1900, 1920, and 1940; Census Linking Project Crosswalks, 1860–1880, 1880–1900, 1900–1920, and 1920–1940; Postel (2023) data package; Collins and Zimran (2023) data package. Corresponds to Figure 10 and Figure 11.

Notes: Residence in an ethnic enclave is defined as an individual of foreign birthplace residing in an IPUMS-defined county that contains 10% or greater of co-ethnics or a minimum of 2000 co-ethnics.

Figures: Main Results

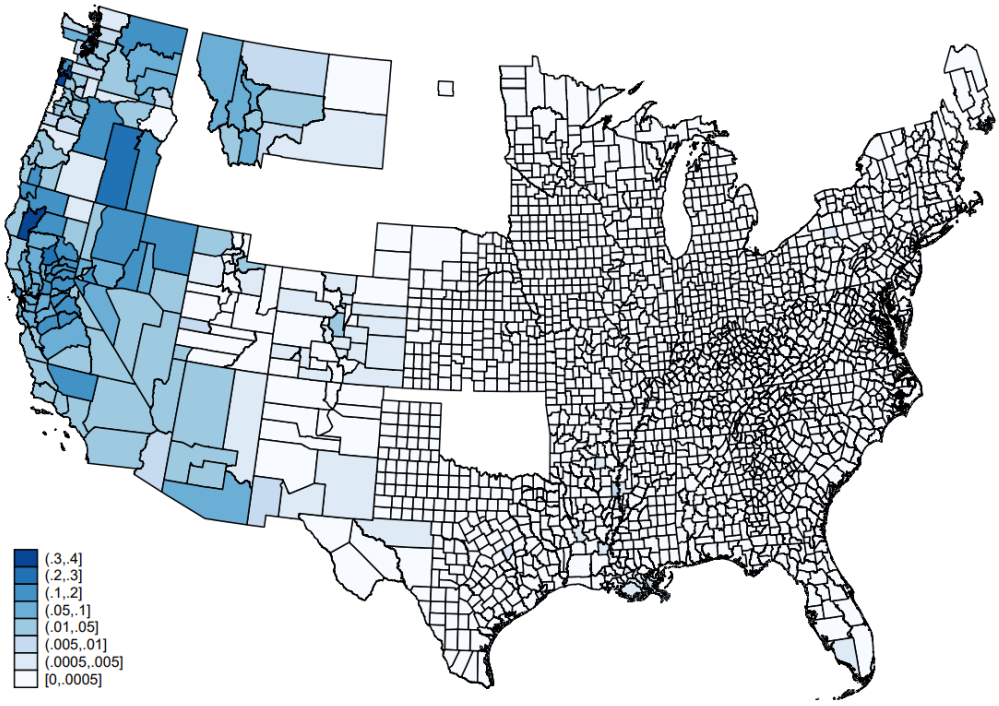


Figure 1: Share of Chinese Immigrants by County, 1880

Source: IPUMS Full-Count Census, 1880.

Figure 2: Share of Asian Immigrants by Country of Origin

Sources: IPUMS Full-Count Censuses, 1860, 1870, 1880, 1900, 1910, 1920, 1940, and 1950; Census Linking Project Crosswalks, 1860–1880, 1880–1900, 1900–1920, and 1920–1940.

Notes: The large share of "Other" immigrants starting in the 20th century can be attributed to immigration from the former Ottoman Empire.

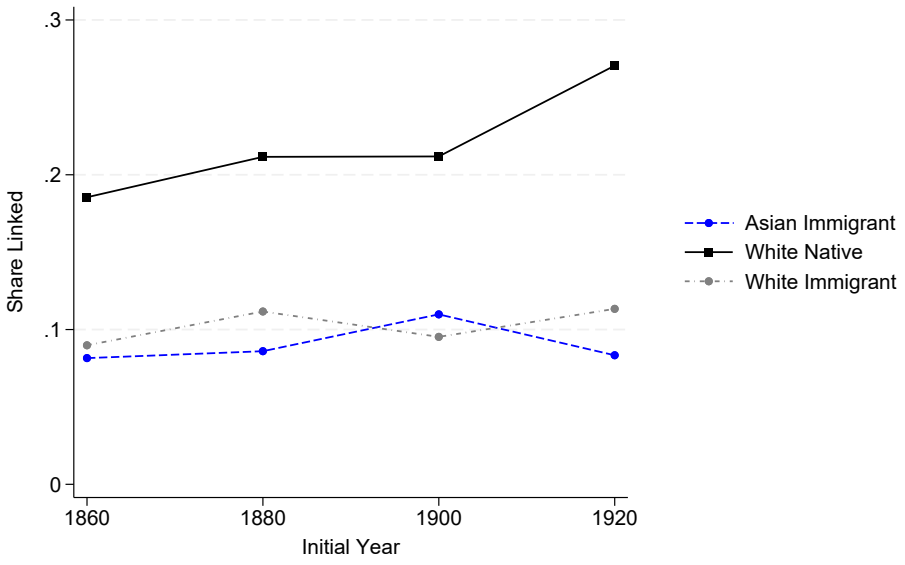


Figure 3: Linkage Match Rates

Sources: IPUMS Full-Count Censuses, 1860, 1880, 1900, 1920, and 1940; Census Linking Project Crosswalks, 1860–1880, 1880–1900, 1900–1920, and 1920–1940; Postel (2023) data package. Corresponds to Table 2.

Notes: The population of potential links within a cohort is defined as the number of non-southern males aged 18–40 of the correct race and birthplace in the earlier year of the cohort. Linked cohorts are restricted to non-southern males aged 18–40 in the earlier year of the cohort. White native and European immigrant cohorts are linked using the ABE Exact-Standard algorithm. Asian cohorts are linked using any of the six standard methods provided in the Census Linking Project and supplemented with the links generated from the Postel (2023) technique.

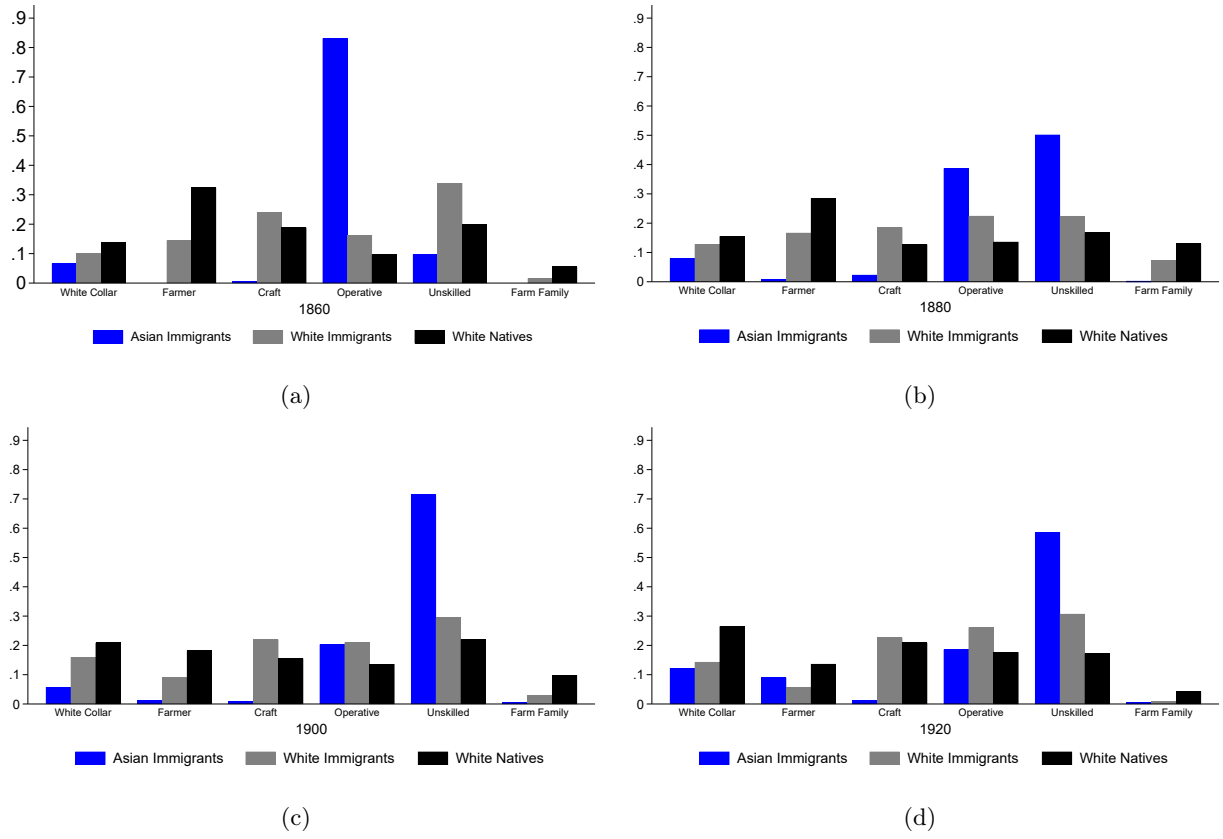


Figure 4: Occupational Distributions in Cohort Start Year

Sources: IPUMS Full-Count Censuses, 1860, 1880, 1900, and 1920; Census Linking Project Crosswalks, 1860–1880, 1880–1900, 1900–1920, and 1920–1940; Postel (2023) data package; Collins and Zimran (2023) data package. See Figure 4 in Collins and Zimran (2023).

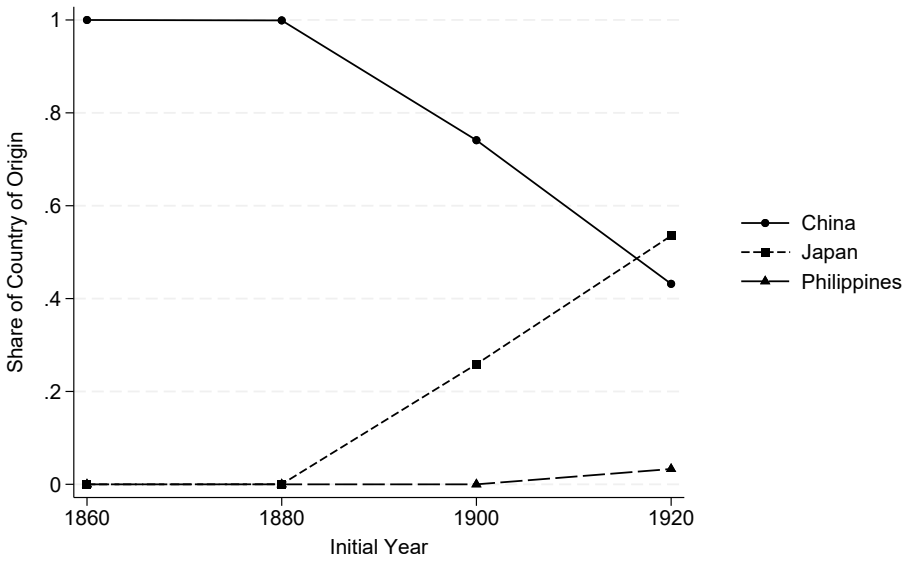
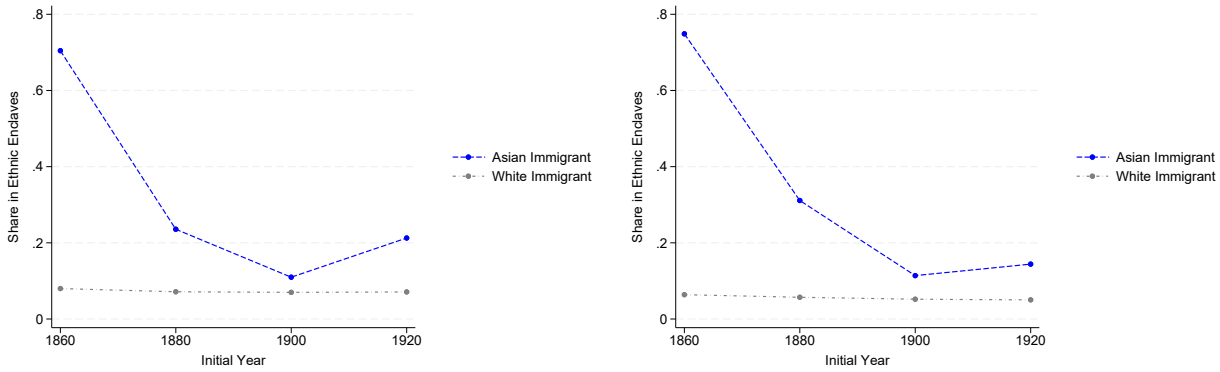


Figure 5: Share of Linked Asian Immigrants by Country of Origin

Sources: IPUMS Full-Count Censuses, 1860, 1880, 1900, 1920, and 1940; Census Linking Project Crosswalks, 1860–1880, 1880–1900, 1900–1920, and 1920–1940; Postel (2023) data package. Corresponds to Table 3.

Notes: Asian cohorts are restricted to immigrants of Chinese, Japanese, or Filipino national origin.



(a) IPUMS County

(b) Census Place Project Sub-County

Figure 6: Share of Immigrants in Ethnic Enclaves

Sources: IPUMS Full-Count Censuses, 1860, 1880, 1900, 1920, and 1940; Census Linking Project Crosswalks, 1860–1880, 1880–1900, 1900–1920, and 1920–1940; Census Place Project Crosswalks, 1860, 1880, 1900, 1920, and 1940; Postel (2022) data package.

Notes: Shares are calculated as fraction of immigrants who remain in an ethnic enclave that corresponds to their foreign birthplace for the entire cohort period. Shares may include immigrants who move to a different ethnic enclave. Residence in an ethnic enclave is defined as an individual of foreign birthplace residing in the corresponding geographic subdivision that contains 10% or greater of co-ethnics or a minimum of 2,000 co-ethnics.

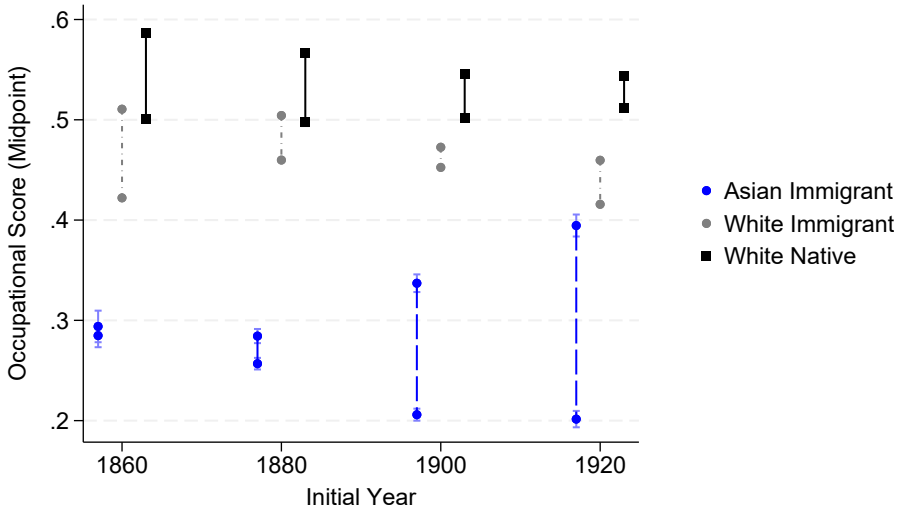


Figure 7: Absolute Rank Values

Sources: IPUMS Full-Count Censuses, 1860, 1880, 1900, 1920, and 1940; Census Linking Project Crosswalks, 1860–1880, 1880–1900, 1900–1920, and 1920–1940; Postel (2023) data package; Collins and Zimran (2023) data package. Corresponds to Table 4.

Notes: Error bars are calculated using a 95% confidence interval. Farm families are ranked using the Collins and Zimran (2023) midpoint ranking.

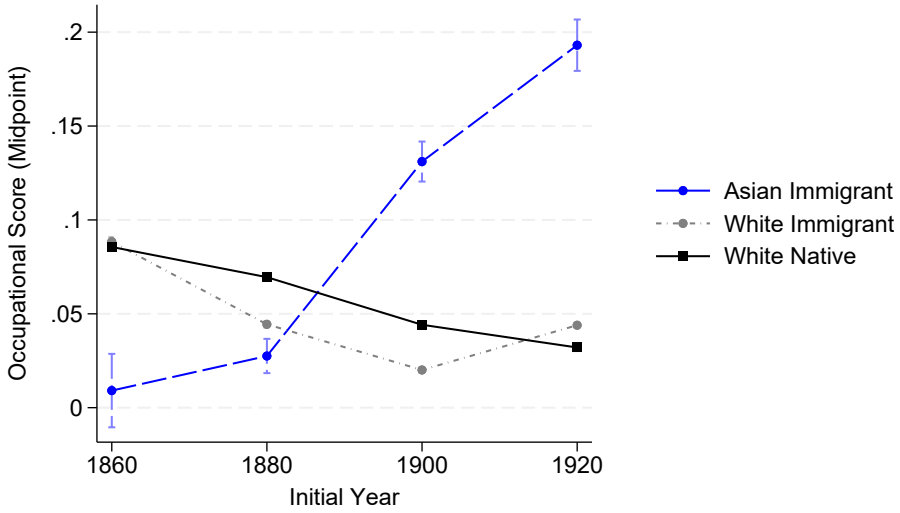


Figure 8: Absolute Change in Rank

Sources: IPUMS Full-Count Censuses, 1860, 1880, 1900, 1920, and 1940; Census Linking Project Crosswalks, 1860–1880, 1880–1900, 1900–1920, and 1920–1940; Postel (2023) data package; Collins and Zimran (2023) data package. Corresponds to Table 5.

Notes: Error bars are calculated using a 95% confidence interval. Farm families are ranked using the Collins and Zimran (2023) midpoint ranking.

Figures: Enclaves

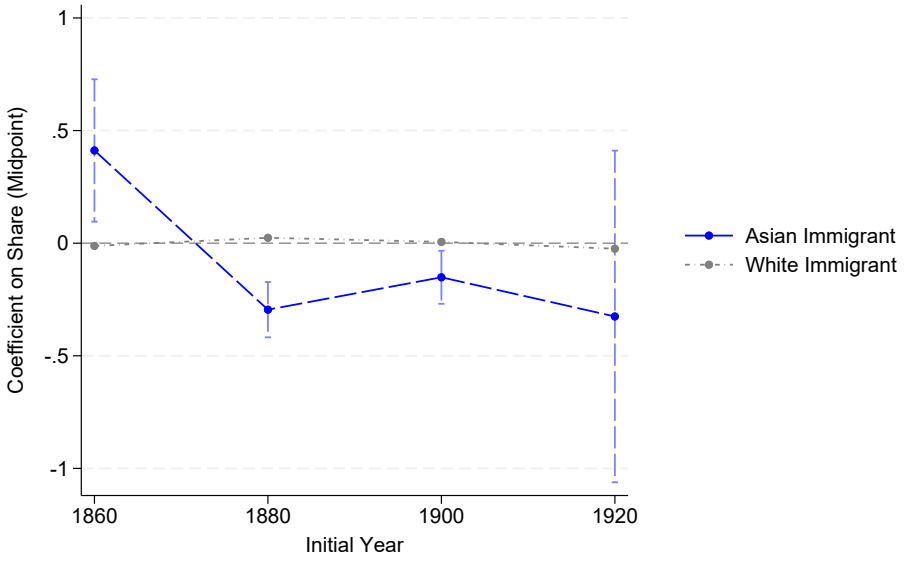


Figure 9: Relative Change in Rank per 1pp Increase in Co-ethnics

Sources: IPUMS Full-Count Censuses, 1860, 1880, 1900, 1920, and 1940; Census Linking Project Crosswalks, 1860–1880, 1880–1900, 1900–1920, and 1920–1940; Postel (2023) data package; Collins and Zimran (2023) data package. Corresponds to Table 6.

Notes: The proportion of co-ethnics is calculated as the share of individuals from one's country of birth within an IPUMS county. Error bars are calculated using a 95% confidence interval. Farm families are ranked using the Collins and Zimran (2023) midpoint ranking.

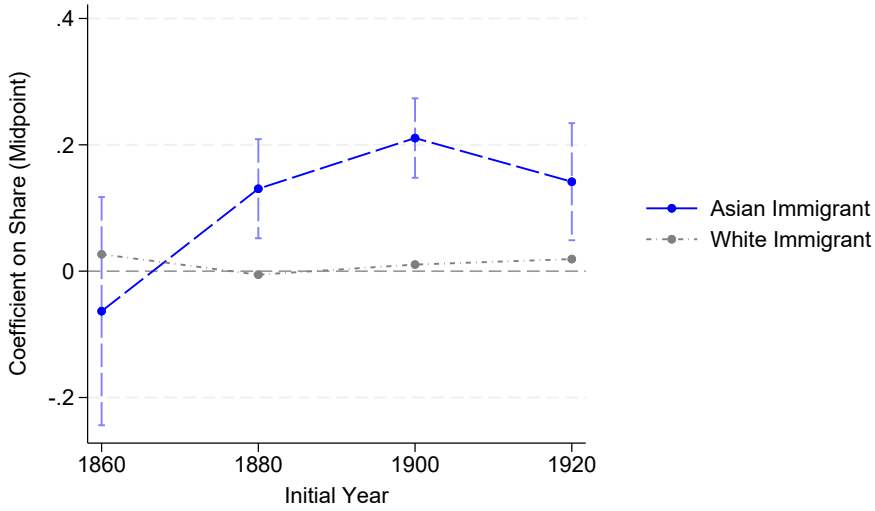


Figure 10: Relative Initial Gap in Rank per 1pp Increase in Co-ethnics

Sources: IPUMS Full-Count Censuses, 1860, 1880, 1900, 1920, and 1940; Census Linking Project Crosswalks, 1860–1880, 1880–1900, 1900–1920, and 1920–1940; Postel (2023) data package; Collins and Zimran (2023) data package. Corresponds to Table 7.

Notes: The proportion of co-ethnics is calculated as the share of individuals from one's country of birth within an IPUMS county. Error bars are calculated using a 95% confidence interval. Farm families are ranked using the Collins and Zimran (2023) midpoint ranking.

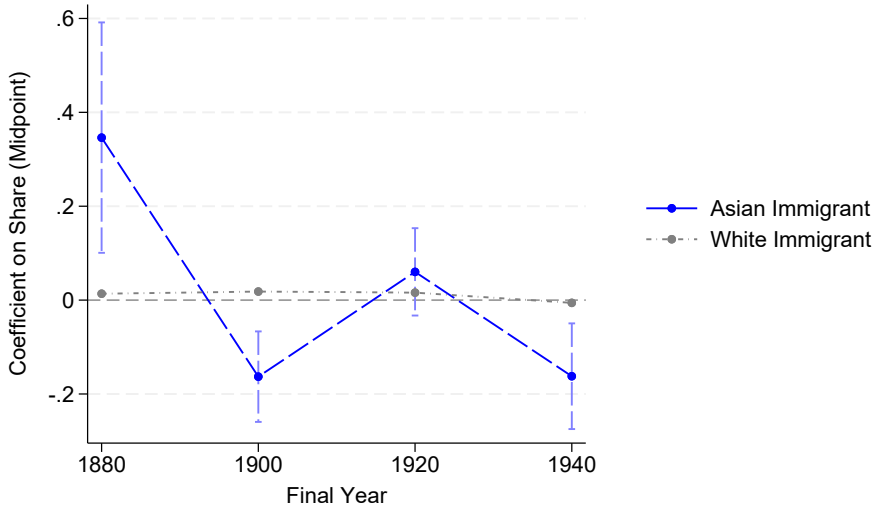


Figure 11: Relative Final Gap in Rank per 1pp Increase in Co-ethnics

Sources: IPUMS Full-Count Censuses, 1860, 1880, 1900, 1920, and 1940; Census Linking Project Crosswalks, 1860–1880, 1880–1900, 1900–1920, and 1920–1940; Postel (2023) data package; Collins and Zimran (2023) data package. Corresponds to Table 7.

Notes: The proportion of co-ethnics is calculated as the share of individuals from one's country of birth within an IPUMS county. Error bars are calculated using a 95% confidence interval. Farm families are ranked using the Collins and Zimran (2023) midpoint ranking.

Appendix A: Age-Weighted Strategy

Table 8: Relative Change in Rank

	(1)	(2)	(3)	(4)
	1860–1880	1880–1900	1900–1920	1920–1940
Asian Immigrant	-0.068***	-0.050***	0.075***	0.091***
	(0.010)	(0.005)	(0.007)	(0.019)
White Immigrant	0.019***	-0.012***	-0.010***	0.039***
	(0.001)	(0.001)	(0.001)	(0.002)

Significance levels: *** p<0.01, ** p<0.05, * p<0.1

Sources: IPUMS Full-Count Censuses, 1860, 1880, 1900, 1920, and 1940; Census Linking Project Crosswalks, 1860–1880, 1880–1900, 1900–1920, and 1920–1940; Postel (2023) data package; Collins and Zimran (2023) data package. Corresponds to Figure 12.

Notes: Farm families are ranked using the Collins and Zimran (2023) midpoint ranking.

Table 9: Relative Gaps in Rank

	(1)	(2)	(3)	(4)
	1860–1880	1880–1900	1900–1920	1920–1940
Initial Asian Immigrant	-0.227***	-0.232***	-0.282***	-0.240***
	(0.005)	(0.002)	(0.002)	(0.004)
Final Asian Immigrant	-0.294***	-0.282***	-0.208***	-0.149***
	(0.005)	(0.002)	(0.003)	(0.005)
Initial White Immigrant	-0.096***	-0.046***	-0.051***	-0.114***
	(0.001)	(0.001)	(0.000)	(0.000)
Final White Immigrant	-0.077***	-0.058***	-0.061***	-0.076***
	(0.001)	(0.001)	(0.000)	(0.000)

Significance levels: *** p<0.01, ** p<0.05, * p<0.1

Sources: IPUMS Full-Count Censuses, 1860, 1880, 1900, 1920, and 1940; Census Linking Project Crosswalks, 1860–1880, 1880–1900, 1900–1920, and 1920–1940; Postel (2023) data package; Collins and Zimran (2023) data package. Corresponds to Figure 13 and Figure 14.

Notes: Farm families are ranked using the Collins and Zimran (2023) midpoint ranking.

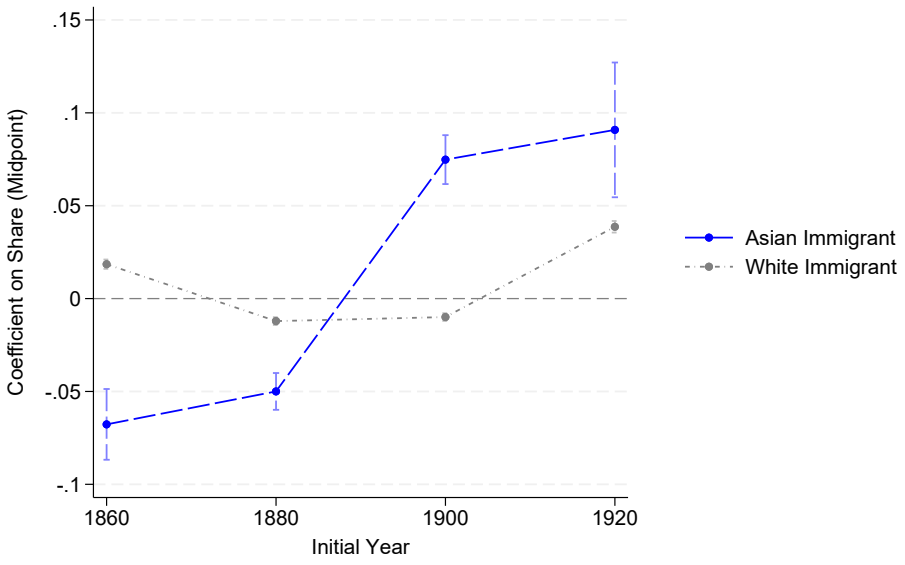


Figure 12: Relative Change in Rank

Sources: IPUMS Full-Count Censuses, 1860, 1880, 1900, 1920, and 1940; Census Linking Project Crosswalks, 1860–1880, 1880–1900, 1900–1920, and 1920–1940; Postel (2023) data package; Collins and Zimran (2023) data package. Corresponds to Table 8.

Notes: Error bars are calculated using a 95% confidence interval. Farm families are ranked using the Collins and Zimran (2023) midpoint ranking.

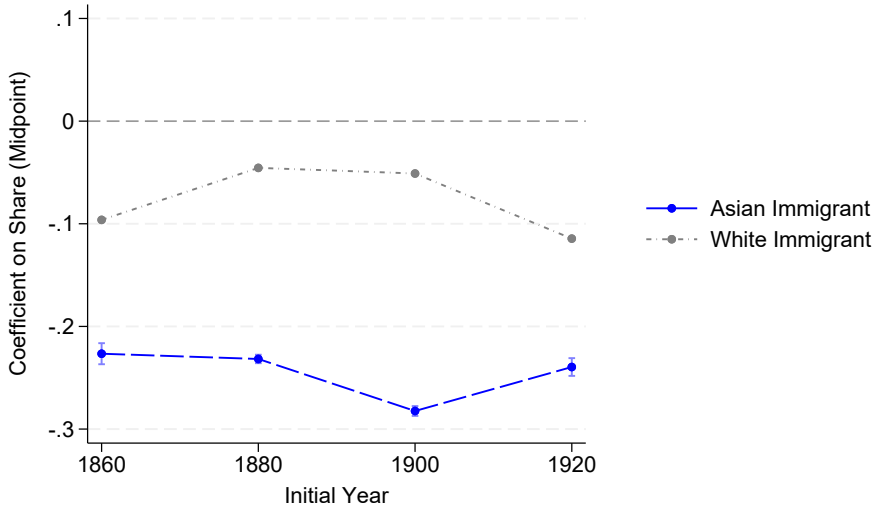


Figure 13: Relative Initial Gap in Rank

Sources: IPUMS Full-Count Censuses, 1860, 1880, 1900, 1920, and 1940; Census Linking Project Crosswalks, 1860–1880, 1880–1900, 1900–1920, and 1920–1940; Postel (2023) data package; Collins and Zimran (2023) data package. Corresponds to Table 9.

Notes: Error bars are calculated using a 95% confidence interval. Farm families are ranked using the Collins and Zimran (2023) midpoint ranking.

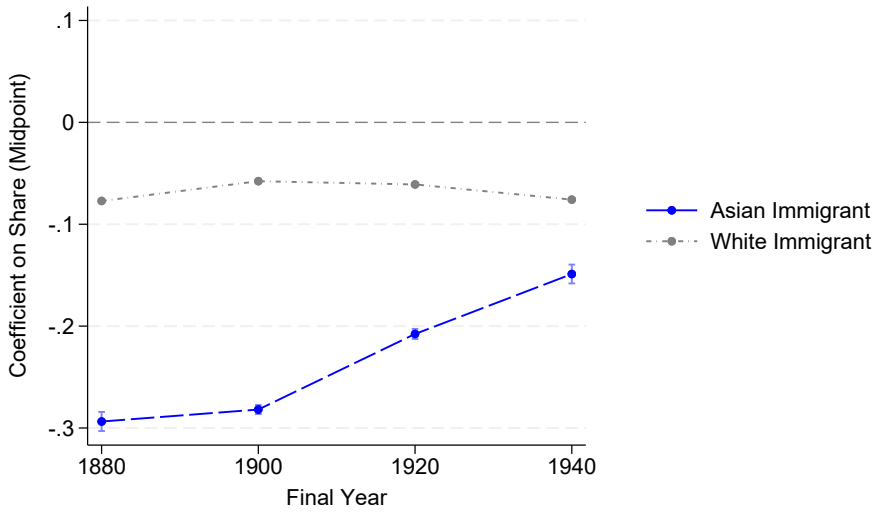


Figure 14: Relative Final Gap in Rank

Sources: IPUMS Full-Count Censuses, 1860, 1880, 1900, 1920, and 1940; Census Linking Project Crosswalks, 1860–1880, 1880–1900, 1900–1920, and 1920–1940; Postel (2023) data package; Collins and Zimran (2023) data package. Corresponds to Table 9.

Notes: Error bars are calculated using a 95% confidence interval. Farm families are ranked using the Collins and Zimran (2023) midpoint ranking.

Appendix B: Conditional Assimilation

5.1 Conditional on Occupational Upgrading

Table 10: Relative Change in Rank Conditional on Occupational Upgrading, Asian

	(1)	(2)	(3)	(4)
	1860–1880	1880–1900	1900–1920	1920–1940
1860 Basis	-0.068***	-0.009	-0.061***	0.002
	(0.010)	(0.013)	(0.011)	(0.021)
1880 Basis	-0.016**	-0.050***	0.018**	-0.051***
	(0.007)	(0.005)	(0.007)	(0.012)
1900 Basis	0.052**	0.031***	0.075***	0.018
	(0.021)	(0.011)	(0.007)	(0.011)
1920 Basis	0.117***	0.085***	0.159***	0.091***
	(0.030)	(0.024)	(0.021)	(0.019)
True	-0.068***	-0.050***	0.075***	0.091***
	(0.010)	(0.005)	(0.007)	(0.019)

Sources: IPUMS Full-Count Censuses, 1860, 1880, 1900, 1920, and 1940; Census Linking Project Crosswalks, 1860–1880, 1880–1900, 1900–1920, and 1920–1940; Postel (2023) data package; Collins and Zimran (2023) data package. Corresponds to Figure 15.

Notes: Farm families are ranked using the Collins and Zimran (2023) midpoint ranking.

Table 11: Relative Change in Rank Conditional on Occupational Upgrading, White

	(1) 1860–1880	(2) 1880–1900	(3) 1900–1920	(4) 1920–1940
1860 Basis	0.019***	0.052***	0.048***	0.013***
	(0.001)	(0.002)	(0.002)	(0.003)
1880 Basis	0.018***	-0.012***	-0.008***	0.016***
	(0.001)	(0.001)	(0.002)	(0.003)
1900 Basis	0.017***	-0.006***	-0.010***	0.009***
	(0.001)	(0.001)	(0.001)	(0.001)
1920 Basis	0.039***	0.020***	0.019***	0.039***
	(0.002)	(0.002)	(0.002)	(0.002)
True	0.019***	-0.012***	-0.010***	0.039***
	(0.001)	(0.001)	(0.001)	(0.002)

Sources: IPUMS Full-Count Censuses, 1860, 1880, 1900, 1920, and 1940; Census Linking Project Crosswalks, 1860–1880, 1880–1900, 1900–1920, and 1920–1940; Postel (2023) data package; Collins and Zimran (2023) data package. Corresponds to Figure 16.

Notes: Farm families are ranked using the Collins and Zimran (2023) midpoint ranking.

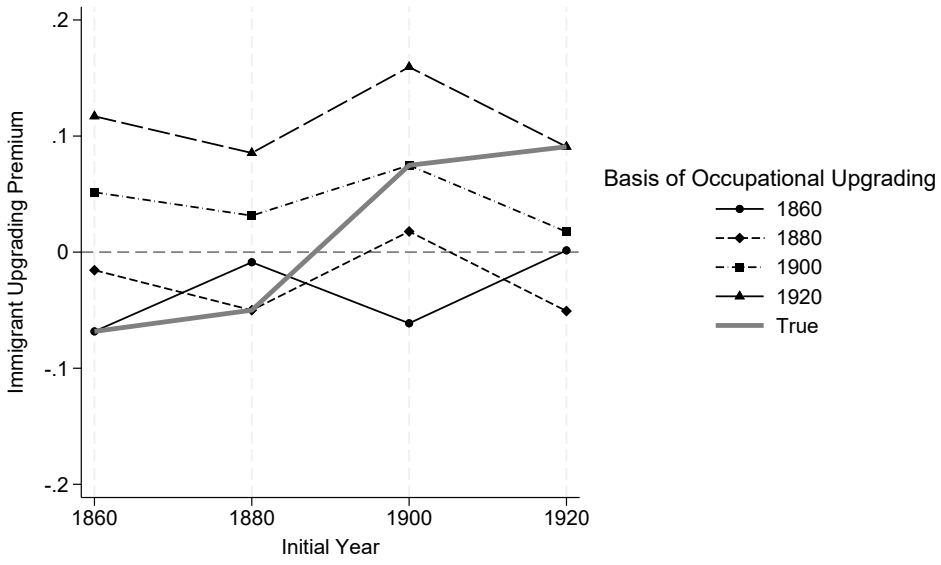


Figure 15: Relative Change in Rank Conditional on Occupational Upgrading, Asian

Sources: IPUMS Full-Count Censuses, 1860, 1880, 1900, 1920, and 1940; Census Linking Project Crosswalks, 1860–1880, 1880–1900, 1900–1920, and 1920–1940; Postel (2023) data package; Collins and Zimran (2023) data package. Corresponds to Table 10.

Notes: For clarity, error bars are not included; see Table 10 for standard error values. Farm families are ranked using the Collins and Zimran (2023) midpoint ranking.

Figure 16: Relative Change in Rank Conditional on Occupational Upgrading, White

Sources: IPUMS Full-Count Censuses, 1860, 1880, 1900, 1920, and 1940; Census Linking Project Crosswalks, 1860–1880, 1880–1900, 1900–1920, and 1920–1940; Postel (2023) data package; Collins and Zimran (2023) data package. Corresponds to Table 11.

Notes: For clarity, error bars are not included; see Table 11 for standard error values. Farm families are ranked using the Collins and Zimran (2023) midpoint ranking.

5.2 Conditional on Occupational Distribution

Table 12: Relative Change in Rank Conditional on Occupational Distribution, Asian

	(1)	(2)	(3)	(4)
	1860–1880	1880–1900	1900–1920	1920–1940
1860 Basis	-0.068***	-0.016**	0.052**	0.117***
	(0.010)	(0.007)	(0.021)	(0.030)
1880 Basis	-0.009	-0.050***	0.031***	0.085***
	(0.013)	(0.005)	(0.011)	(0.024)
1900 Basis	-0.061***	0.018**	0.075***	0.159***
	(0.011)	(0.007)	(0.007)	(0.021)
1920 Basis	0.002	-0.051***	0.018	0.091***
	(0.021)	(0.012)	(0.011)	(0.019)
True	-0.068***	-0.050***	0.075***	0.091***
	(0.010)	(0.005)	(0.007)	(0.019)

Sources: IPUMS Full-Count Censuses, 1860, 1880, 1900, 1920, and 1940; Census Linking Project Crosswalks, 1860–1880, 1880–1900, 1900–1920, and 1920–1940; Postel (2023) data package; Collins and Zimran (2023) data package. Corresponds to Figure 17.

Notes: Farm families are ranked using the Collins and Zimran (2023) midpoint ranking.

Table 13: Relative Change in Rank Conditional on Occupational Distribution, White

	(1)	(2)	(3)	(4)
	1860–1880	1880–1900	1900–1920	1920–1940
1860 Basis	0.019***	0.018***	0.017***	0.039***
	(0.001)	(0.001)	(0.001)	(0.002)
1880 Basis	0.052***	-0.012***	-0.006***	0.020***
	(0.002)	(0.001)	(0.001)	(0.002)
1900 Basis	0.048***	-0.008***	-0.010***	0.019***
	(0.002)	(0.002)	(0.001)	(0.002)
1920 Basis	0.013***	0.016***	0.009***	0.039***
	(0.003)	(0.003)	(0.001)	(0.002)
True	0.019***	-0.012***	-0.010***	0.039***
	(0.001)	(0.001)	(0.001)	(0.002)

Sources: IPUMS Full-Count Censuses, 1860, 1880, 1900, 1920, and 1940; Census Linking Project Crosswalks, 1860–1880, 1880–1900, 1900–1920, and 1920–1940; Postel (2023) data package; Collins and Zimran (2023) data package. Corresponds to Figure 18.

Notes: Farm families are ranked using the Collins and Zimran (2023) midpoint ranking.

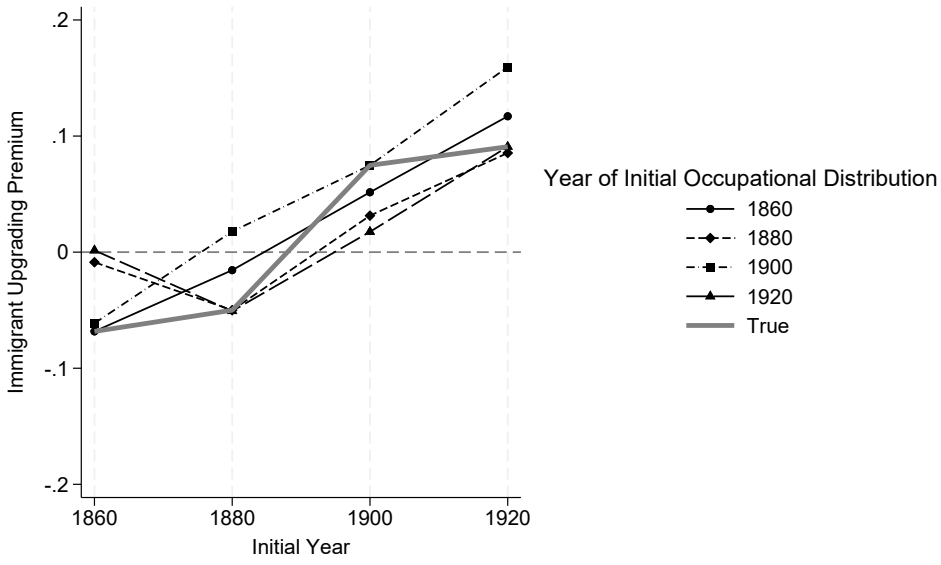


Figure 17: Relative Change in Rank Conditional on Occupational Upgrading, Asian

Sources: IPUMS Full-Count Censuses, 1860, 1880, 1900, 1920, and 1940; Census Linking Project Crosswalks, 1860–1880, 1880–1900, 1900–1920, and 1920–1940; Postel (2023) data package; Collins and Zimran (2023) data package. Corresponds to Table 12.

Notes: For clarity, error bars are not included; see Table 12 for standard error values. Farm families are ranked using the Collins and Zimran (2023) midpoint ranking.

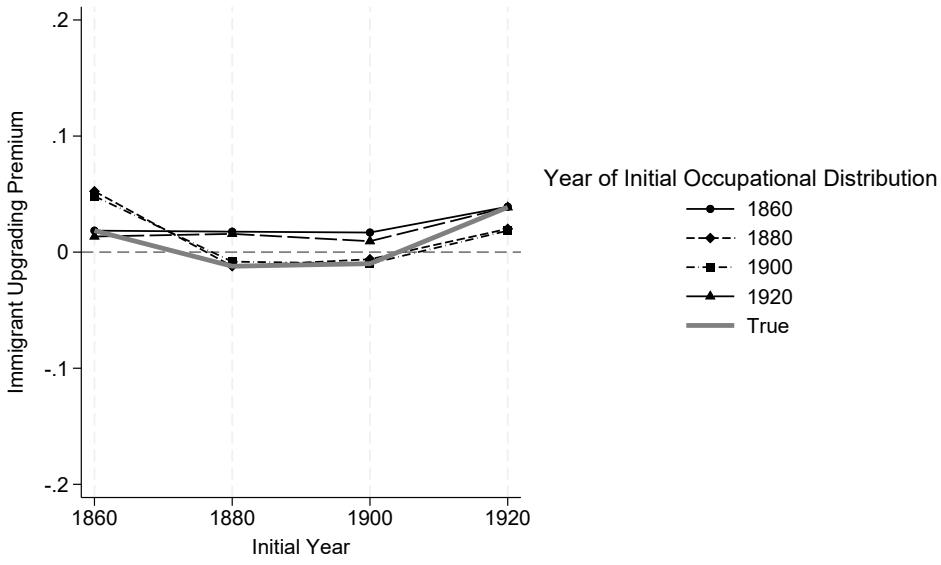


Figure 18: Relative Change in Rank Conditional on Occupational Upgrading, White

Sources: IPUMS Full-Count Censuses, 1860, 1880, 1900, 1920, and 1940; Census Linking Project Crosswalks, 1860–1880, 1880–1900, 1900–1920, and 1920–1940; Postel (2023) data package; Collins and Zimran (2023) data package. Corresponds to Table 13.

Notes: For clarity, error bars are not included; see Table 13 for standard error values. Farm families are ranked using the Collins and Zimran (2023) midpoint ranking.

5.3 Conditional on Nationality Distribution

Table 14: Relative Change in Rank Conditional on Nationality Distribution, Asian

	(1)	(2)	(3)	(4)
	1860–1880	1880–1900	1900–1920	1920–1940
1860 Basis	-0.068***	-0.050***	0.028***	0.044
	(0.010)	(0.005)	(0.008)	(0.028)
1880 Basis	-0.068***	-0.050***	0.028***	0.044
	(0.010)	(0.005)	(0.008)	(0.028)
1900 Basis	-0.068***	-0.050***	0.075***	0.064***
	(0.010)	(0.005)	(0.007)	(0.023)
1920 Basis	-0.068***	-0.050***	0.095***	0.091***
	(0.010)	(0.005)	(0.008)	(0.019)
True	-0.068***	-0.050***	0.075***	0.091***
	(0.010)	(0.005)	(0.007)	(0.019)

Sources: IPUMS Full-Count Censuses, 1860, 1880, 1900, 1920, and 1940; Census Linking Project Crosswalks, 1860–1880, 1880–1900, 1900–1920, and 1920–1940; Postel (2023) data package; Collins and Zimran (2023) data package. Corresponds to Figure 19.

Notes: Farm families are ranked using the Collins and Zimran (2023) midpoint ranking.

Table 15: Relative Change in Rank Conditional on Nationality Distribution, White

	(1)	(2)	(3)	(4)
	1860–1880	1880–1900	1900–1920	1920–1940
1860 Basis	0.018***	-0.017***	-0.004***	0.013***
	(0.001)	(0.001)	(0.001)	(0.004)
1880 Basis	0.023***	-0.012***	-0.003***	0.019***
	(0.002)	(0.001)	(0.001)	(0.003)
1900 Basis	0.019**	0.001	-0.010***	0.032***
	(0.009)	(0.002)	(0.001)	(0.002)
1920 Basis	0.017	0.008**	-0.016***	0.039***
	(0.016)	(0.004)	(0.002)	(0.002)
True	0.018***	-0.012***	-0.010***	0.039***
	(0.001)	(0.001)	(0.001)	(0.002)

Sources: IPUMS Full-Count Censuses, 1860, 1880, 1900, 1920, and 1940; Census Linking Project Crosswalks, 1860–1880, 1880–1900, 1900–1920, and 1920–1940; Postel (2023) data package; Collins and Zimran (2023) data package. Corresponds to Figure 19.

Notes: Farm families are ranked using the Collins and Zimran (2023) midpoint ranking.

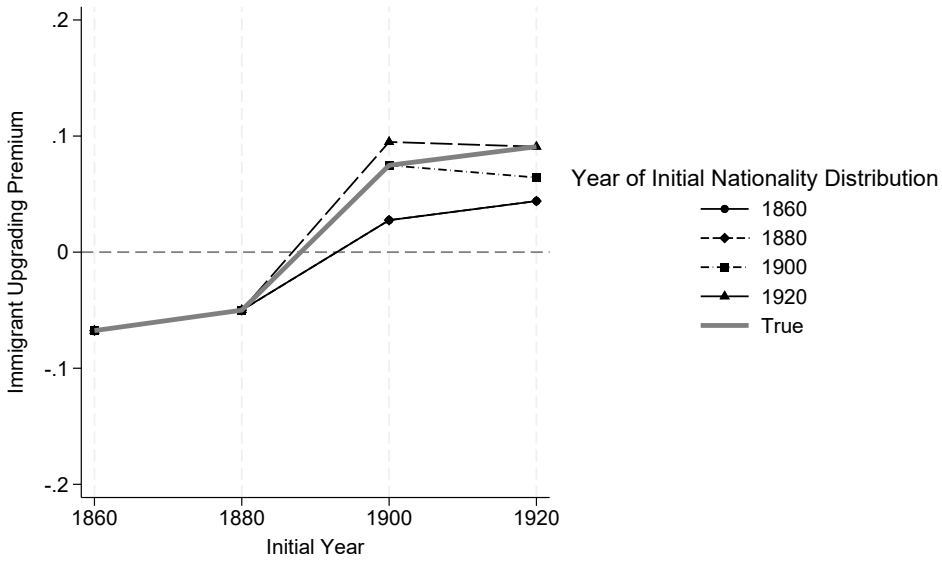


Figure 19: Relative Change in Rank Conditional on Occupational Upgrading, Asian

Sources: IPUMS Full-Count Censuses, 1860, 1880, 1900, 1920, and 1940; Census Linking Project Crosswalks, 1860–1880, 1880–1900, 1900–1920, and 1920–1940; Postel (2023) data package; Collins and Zimran (2023) data package. Corresponds to Table 14.

Notes: For clarity, error bars are not included; see Table 14 for standard error values. Farm families are ranked using the Collins and Zimran (2023) midpoint ranking. Year-adjusted distributions are identical to the true distribution in the 1860–1880 and 1880–1900 cohorts because they consist entirely of Chinese immigrants; see Figure 5 for details. For the same reason, the 1860-adjusted distribution is identical to the 1880-adjusted distribution.

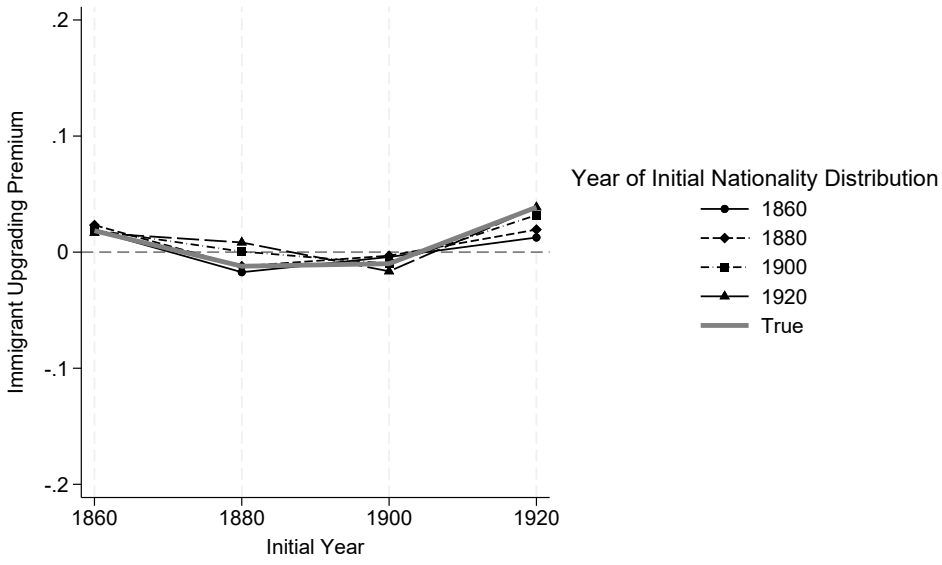


Figure 20: Relative Change in Rank Conditional on Occupational Upgrading, White

Sources: IPUMS Full-Count Censuses, 1860, 1880, 1900, 1920, and 1940; Census Linking Project Crosswalks, 1860–1880, 1880–1900, 1900–1920, and 1920–1940; Postel (2023) data package; Collins and Zimran (2023) data package. Corresponds to Table 15.

Notes: For clarity, error bars are not included; see Table 15 for standard error values. Farm families are ranked using the Collins and Zimran (2023) midpoint ranking. Year-adjusted distributions are identical to the true distribution in the 1860–1880 and 1880–1900 cohorts because they consist entirely of Chinese immigrants; see Figure 5 for details. For the same reason, the 1860-adjusted distribution is identical to the 1880-adjusted distribution.

Appendix C: ABE Exact-Standard Linkage

5.4 Main Strategy

Table 16: Linkage Matches

	(1) 1860–1880	(2) 1880–1900	(3) 1900–1920	(4) 1920–1940
Asian Native	0	1	136	340
Asian Immigrant	385	689	686	1340
White Native	499397	1005388	1576395	2783357
White Immigrant	110004	179824	243785	376690

Sources: IPUMS Full-Count Censuses, 1860, 1880, 1900, 1920, and 1940; Census Linking Project Crosswalks, 1860–1880, 1880–1900, 1900–1920, and 1920–1940; Postel (2023) data package. Corresponds to Figure 21.

Notes: Linked cohorts are restricted to non-southern males aged 18–40 in the earlier year of the cohort. White native and European immigrant cohorts are linked using the ABE Exact-Standard algorithm. Asian cohorts are also supplemented with the links generated from the Postel (2023) technique.

Table 17: Linked Asian Immigrants by Country of Origin

	(1) 1860–1880	(2) 1880–1900	(3) 1900–1920	(4) 1920–1940
China	385	689	298	353
Japan	0	0	388	921
Philippines	0	0	0	66

Sources: IPUMS Full-Count Censuses, 1860, 1880, 1900, 1920, and 1940; Census Linking Project Crosswalks, 1860–1880, 1880–1900, 1900–1920, and 1920–1940; Postel (2023) data package. Corresponds to Figure 23.

Notes: Linked cohorts are restricted to non-southern males aged 18–40 in the earlier year of the cohort. White native and European immigrant cohorts are linked using the ABE Exact-Standard algorithm. Asian cohorts are also supplemented with the links generated from the Postel (2023) technique.

Table 18: Absolute Rank Values

	(1)	(2)	(3)	(4)
	1860–1880	1880–1900	1900–1920	1920–1940
Initial Asian	0.277***	0.269***	0.296***	0.373***
	(0.010)	(0.010)	(0.012)	(0.009)
Final Asian	0.315***	0.294***	0.336***	0.424***
	(0.017)	(0.012)	(0.014)	(0.010)
Initial White	0.422***	0.460***	0.453***	0.416***
	(0.001)	(0.001)	(0.001)	(0.000)
Final White	0.511***	0.504***	0.473***	0.460***
	(0.001)	(0.001)	(0.001)	(0.000)
Initial Native	0.501***	0.497***	0.502***	0.512***
	(0.000)	(0.000)	(0.000)	(0.000)
Final Native	0.586***	0.567***	0.546***	0.544***
	(0.000)	(0.000)	(0.000)	(0.000)

Significance levels: *** p<0.01, ** p<0.05, * p<0.1

Sources: IPUMS Full-Count Censuses, 1860, 1880, 1900, 1920, and 1940; Census Linking Project Crosswalks, 1860–1880, 1880–1900, 1900–1920, and 1920–1940; Postel (2023) data package; Collins and Zimran (2023) data package. Corresponds to Figure 24.

Notes: Farm families are ranked using the Collins and Zimran (2023) midpoint ranking.

Table 19: Absolute Change in Rank

	(1)	(2)	(3)	(4)
	1860–1880	1880–1900	1900–1920	1920–1940
Asian Immigrant	0.037*	0.025*	0.041**	0.052***
	(0.020)	(0.015)	(0.018)	(0.014)
White Immigrant	0.088***	0.044***	0.020***	0.044***
	(0.001)	(0.001)	(0.001)	(0.001)
White Native	0.086***	0.070***	0.044***	0.032***
	(0.001)	(0.000)	(0.000)	(0.000)

Significance levels: *** p<0.01, ** p<0.05, * p<0.1

Sources: IPUMS Full-Count Censuses, 1860, 1880, 1900, 1920, and 1940; Census Linking Project Crosswalks, 1860–1880, 1880–1900, 1900–1920, and 1920–1940; Postel (2023) data package; Collins and Zimran (2023) data package. Corresponds to Figure 25.

Notes: Farm families are ranked using the Collins and Zimran (2023) midpoint ranking.

Table 20: Relative Change in Rank per 1pp Increase in Co-ethnics

	(1)	(2)	(3)	(4)
	1860–1880	1880–1900	1900–1920	1920–1940
Asian Immigrant	0.591	-0.566***	0.239	-0.142
	(0.513)	(0.169)	(1.151)	(0.099)
White Immigrant	-0.012***	0.024***	0.006***	-0.025***
	(0.001)	(0.001)	(0.001)	(0.001)

Significance levels: *** p<0.01, ** p<0.05, * p<0.1

Sources: IPUMS Full-Count Censuses, 1860, 1880, 1900, 1920, and 1940; Census Linking Project Crosswalks, 1860–1880, 1880–1900, 1900–1920, and 1920–1940; Postel (2023) data package; Collins and Zimran (2023) data package. Corresponds to Figure 26.

Notes: Residence in an ethnic enclave is defined as an individual of foreign birthplace residing in an IPUMS-defined county that contains 10% or greater of co-ethnics or a minimum of 2000 co-ethnics.

Table 21: Relative Gaps in Rank per 1pp Increase in Co-ethnics

	(1)	(2)	(3)	(4)
	1860–1880	1880–1900	1900–1920	1920–1940
Initial Asian Immigrant	-0.134	0.068	-1.039	0.177
	(0.167)	(0.114)	(0.520)	(0.070)
Final Asian Immigrant	0.451	-0.505***	-0.971	0.036
	(0.335)	(0.139)	(0.660)	(0.077)
Initial White Immigrant	0.027***	-0.006***	0.010***	0.019***
	(0.001)	(0.001)	(0.001)	(0.000)
Final White Immigrant	0.014***	0.018***	0.016***	-0.006***
	(0.001)	(0.001)	(0.001)	(0.000)

Significance levels: *** p<0.01, ** p<0.05, * p<0.1

Sources: IPUMS Full-Count Censuses, 1860, 1880, 1900, 1920, and 1940; Census Linking Project Crosswalks, 1860–1880, 1880–1900, 1900–1920, and 1920–1940; Postel (2023) data package; Collins and Zimran (2023) data package. Corresponds to Figure 27 and Figure 28.

Notes: Residence in an ethnic enclave is defined as an individual of foreign birthplace residing in an IPUMS-defined county that contains 10% or greater of co-ethnics or a minimum of 2000 co-ethnics.

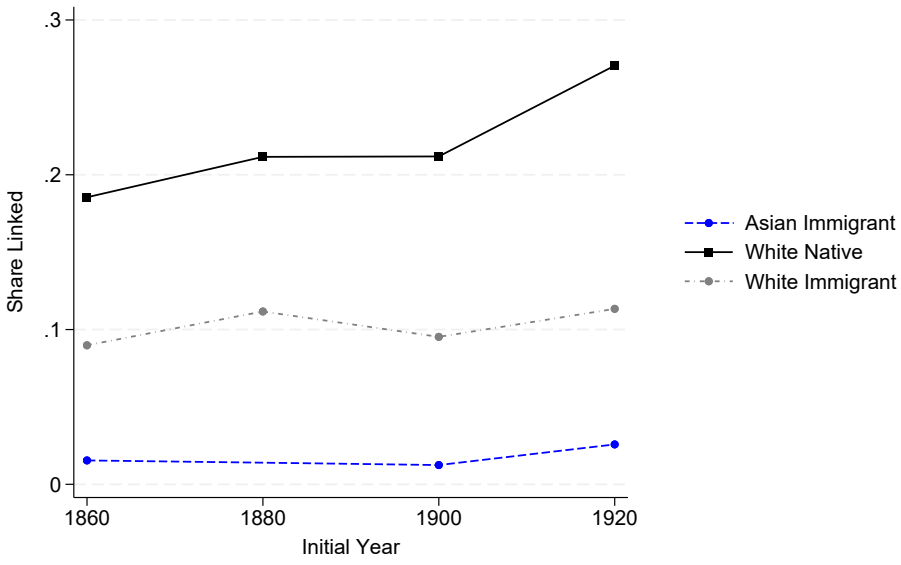


Figure 21: Linkage Match Rates

Sources: IPUMS Full-Count Censuses, 1860, 1880, 1900, 1920, and 1940; Census Linking Project Crosswalks, 1860–1880, 1880–1900, 1900–1920, and 1920–1940; Postel (2023) data package. Corresponds to Table 16.

Notes: The population of potential links within a cohort is defined as the number of non-southern males aged 18–40 of the correct race and birthplace in the earlier year of the cohort. Linked cohorts are restricted to non-southern males aged 18–40 in the earlier year of the cohort. White native and European immigrant cohorts are linked using the ABE Exact-Standard algorithm. Asian cohorts also supplemented with the links generated from the Postel (2023) technique.

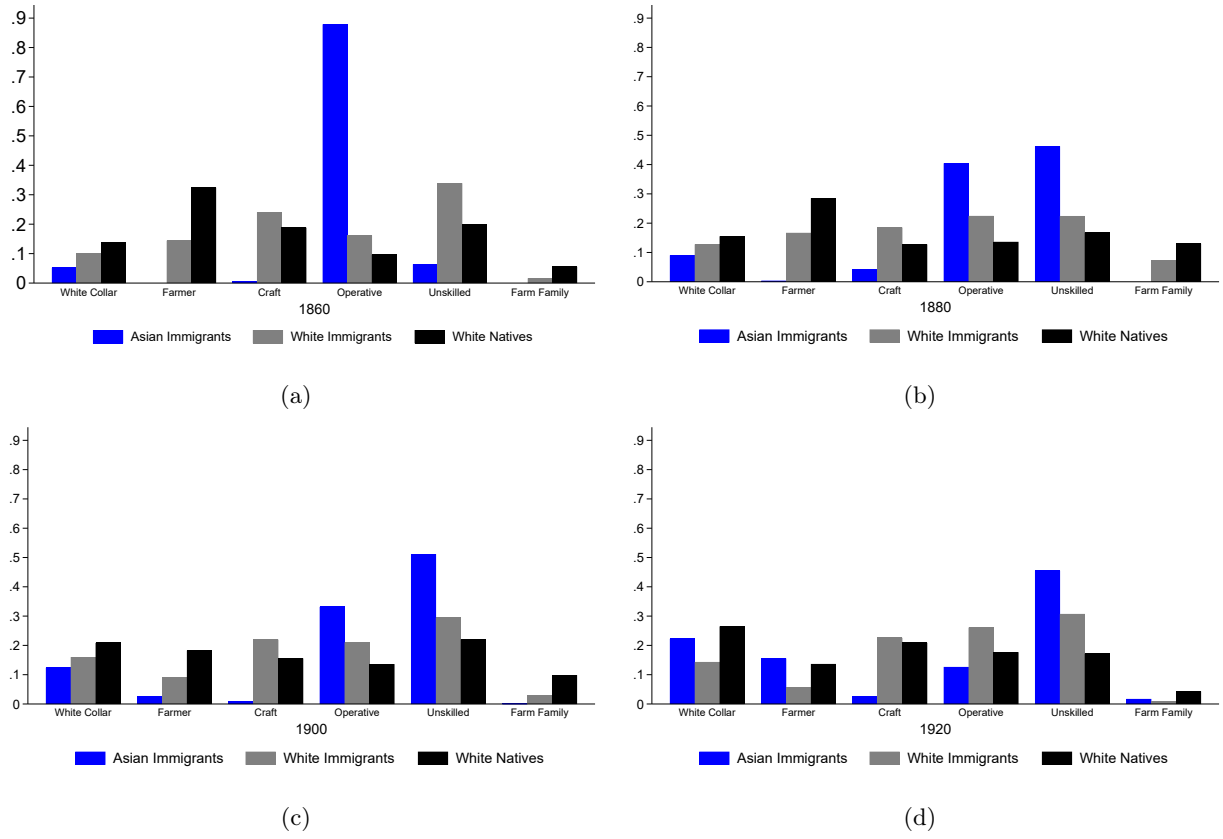


Figure 22: Occupational Distributions in Cohort Start Year

Sources: IPUMS Full-Count Censuses, 1860, 1880, 1900, and 1920; Census Linking Project Crosswalks, 1860–1880, 1880–1900, 1900–1920, and 1920–1940; Postel (2023) data package; Collins and Zimran (2023) data package. See Figure 4 in Collins and Zimran (2023).

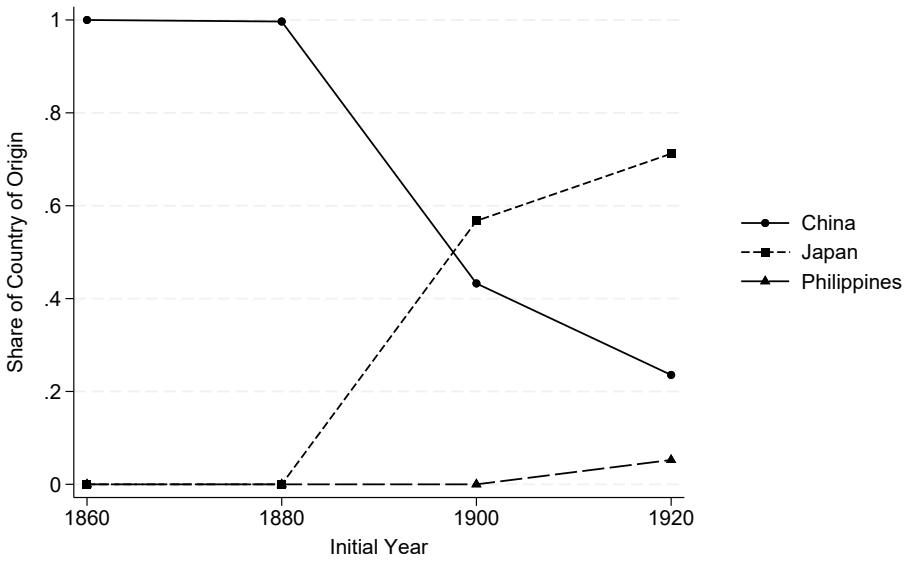


Figure 23: Share of Linked Asian Immigrants by Country of Origin

Sources: IPUMS Full-Count Censuses, 1860, 1880, 1900, 1920, and 1940; Census Linking Project Crosswalks, 1860–1880, 1880–1900, 1900–1920, and 1920–1940; Postel (2023) data package. Corresponds to Table 17.

Notes: Asian cohorts are restricted to immigrants of Chinese, Japanese, or Filipino national origin.

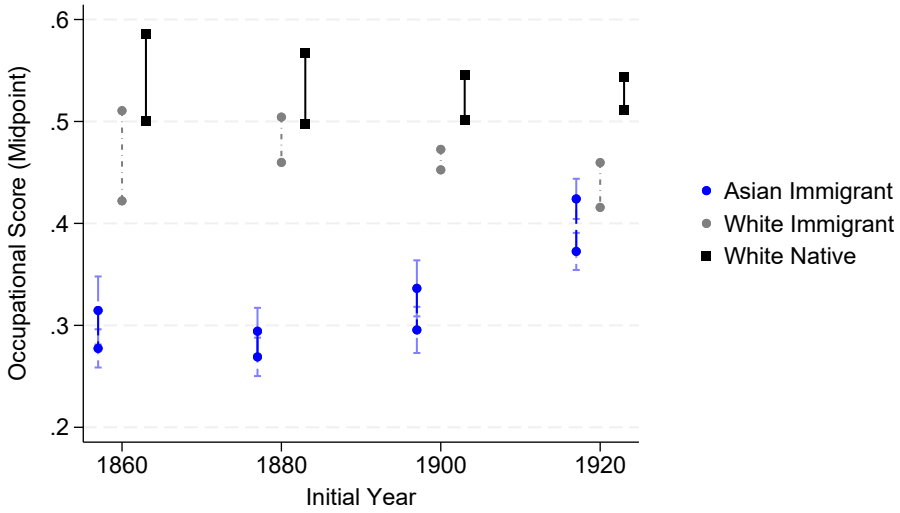


Figure 24: Absolute Rank Values

Sources: IPUMS Full-Count Censuses, 1860, 1880, 1900, 1920, and 1940; Census Linking Project Crosswalks, 1860–1880, 1880–1900, 1900–1920, and 1920–1940; Postel (2023) data package; Collins and Zimran (2023) data package. Corresponds to Table 18.

Notes: Error bars are calculated using a 95% confidence interval. Farm families are ranked using the Collins and Zimran (2023) midpoint ranking.

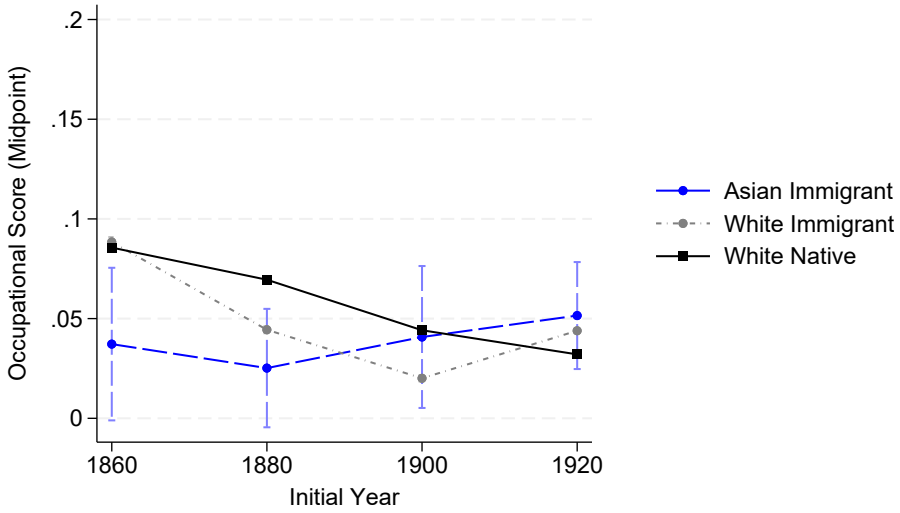


Figure 25: Absolute Change in Rank

Sources: IPUMS Full-Count Censuses, 1860, 1880, 1900, 1920, and 1940; Census Linking Project Crosswalks, 1860–1880, 1880–1900, 1900–1920, and 1920–1940; Postel (2023) data package; Collins and Zimran (2023) data package. Corresponds to Table 19.

Notes: Error bars are calculated using a 95% confidence interval. Farm families are ranked using the Collins and Zimran (2023) midpoint ranking.

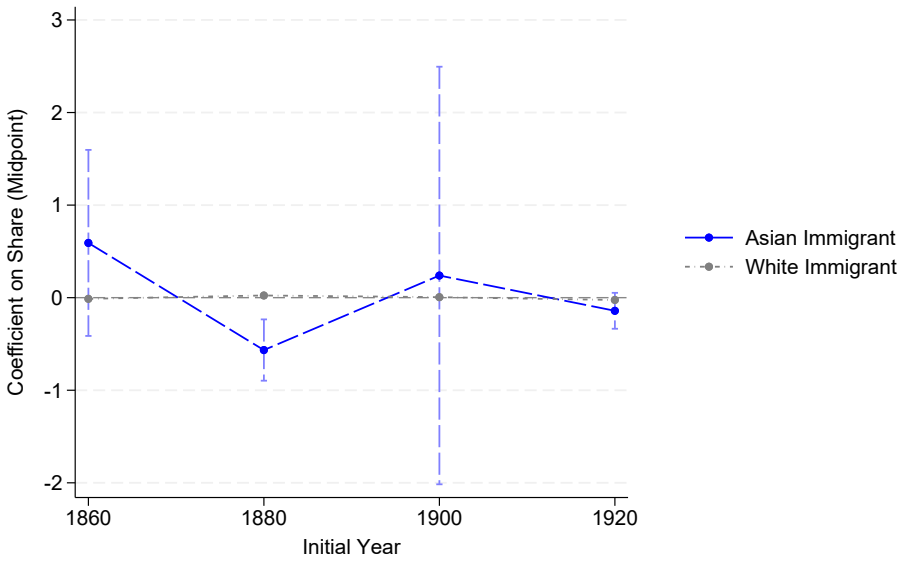


Figure 26: Relative Change in Rank per 1pp Increase in Co-ethnics

Sources: IPUMS Full-Count Censuses, 1860, 1880, 1900, 1920, and 1940; Census Linking Project Crosswalks, 1860–1880, 1880–1900, 1900–1920, and 1920–1940; Postel (2023) data package; Collins and Zimran (2023) data package. Corresponds to Table 20.

Notes: The proportion of co-ethnics is calculated as the share of individuals from one's country of birth within an IPUMS county. Error bars are calculated using a 95% confidence interval. Farm families are ranked using the Collins and Zimran (2023) midpoint ranking.

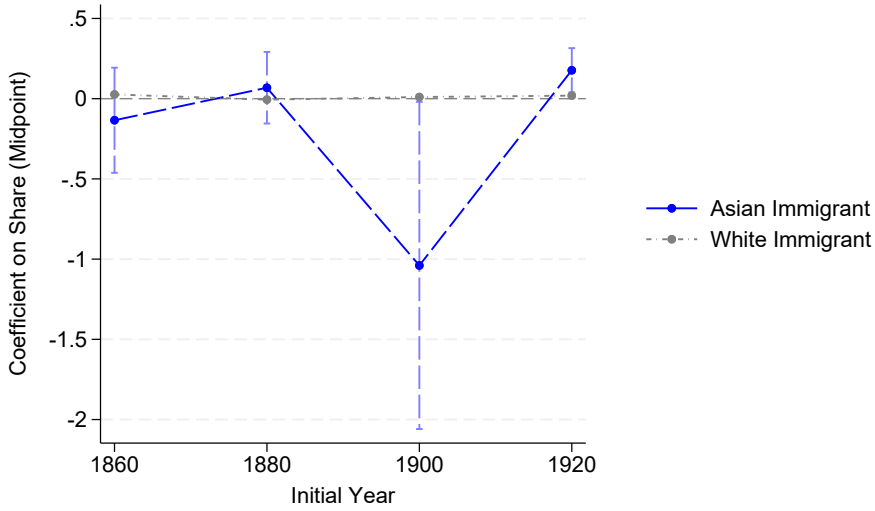


Figure 27: Relative Initial Gap in Rank per 1pp Increase in Co-ethnics

Sources: IPUMS Full-Count Censuses, 1860, 1880, 1900, 1920, and 1940; Census Linking Project Crosswalks, 1860–1880, 1880–1900, 1900–1920, and 1920–1940; Postel (2023) data package; Collins and Zimran (2023) data package. Corresponds to Table 21.

Notes: The proportion of co-ethnics is calculated as the share of individuals from one's country of birth within an IPUMS county. Error bars are calculated using a 95% confidence interval. Farm families are ranked using the Collins and Zimran (2023) midpoint ranking.

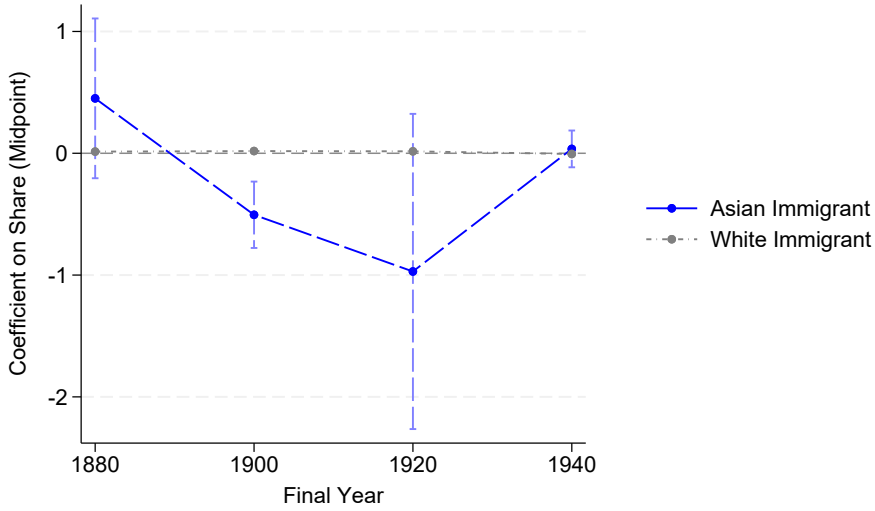


Figure 28: Relative Final Gap in Rank per 1pp Increase in Co-ethnics

Sources: IPUMS Full-Count Censuses, 1860, 1880, 1900, 1920, and 1940; Census Linking Project Crosswalks, 1860–1880, 1880–1900, 1900–1920, and 1920–1940; Postel (2023) data package; Collins and Zimran (2023) data package. Corresponds to Table 21.

Notes: The proportion of co-ethnics is calculated as the share of individuals from one's country of birth within an IPUMS county. Error bars are calculated using a 95% confidence interval. Farm families are ranked using the Collins and Zimran (2023) midpoint ranking.

5.5 Age-Weighted Strategy

Table 22: Relative Change in Rank

	(1) 1860–1880	(2) 1880–1900	(3) 1900–1920	(4) 1920–1940
Asian Immigrant	-0.048*	-0.030	0.030	0.038**
	(0.027)	(0.017)	(0.021)	(0.015)
White Immigrant	0.019***	-0.012***	-0.010***	0.039***
	(0.001)	(0.001)	(0.001)	(0.002)

Significance levels: *** p<0.01, ** p<0.05, * p<0.1

Sources: IPUMS Full-Count Censuses, 1860, 1880, 1900, 1920, and 1940; Census Linking Project Crosswalks, 1860–1880, 1880–1900, 1900–1920, and 1920–1940; Postel (2023) data package; Collins and Zimran (2023) data package. Corresponds to Figure 29.

Notes: Farm families are ranked using the Collins and Zimran (2023) midpoint ranking.

Table 23: Relative Gaps in Rank

	(1) 1860–1880	(2) 1880–1900	(3) 1900–1920	(4) 1920–1940
Initial Asian Immigrant	-0.224***	-0.244***	-0.236***	-0.157***
	(0.024)	(0.010)	(0.007)	(0.007)
Final Asian Immigrant	-0.271***	-0.274***	-0.206***	-0.118***
	(0.022)	(0.010)	(0.007)	(0.008)
Initial White Immigrant	-0.096***	-0.046***	-0.051***	-0.114***
	(0.001)	(0.001)	(0.000)	(0.000)
Final White Immigrant	-0.077***	-0.058***	-0.061***	-0.076***
	(0.001)	(0.001)	(0.000)	(0.000)

Significance levels: *** p<0.01, ** p<0.05, * p<0.1

Sources: IPUMS Full-Count Censuses, 1860, 1880, 1900, 1920, and 1940; Census Linking Project Crosswalks, 1860–1880, 1880–1900, 1900–1920, and 1920–1940; Postel (2023) data package; Collins and Zimran (2023) data package. Corresponds to Figure 30 and Figure 31.

Notes: Farm families are ranked using the Collins and Zimran (2023) midpoint ranking.

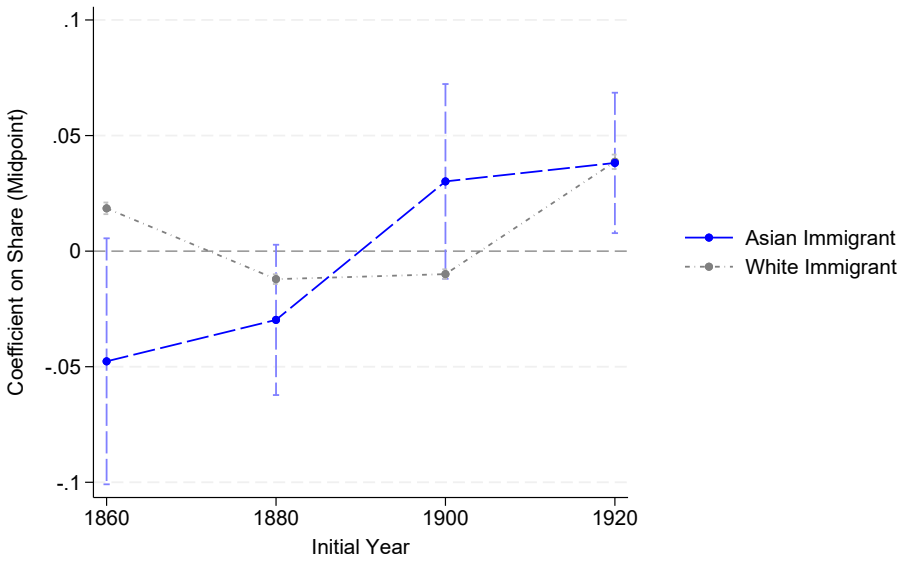


Figure 29: Relative Change in Rank

Sources: IPUMS Full-Count Censuses, 1860, 1880, 1900, 1920, and 1940; Census Linking Project Crosswalks, 1860–1880, 1880–1900, 1900–1920, and 1920–1940; Postel (2023) data package; Collins and Zimran (2023) data package. Corresponds to Table 22.

Notes: Error bars are calculated using a 95% confidence interval. Farm families are ranked using the Collins and Zimran (2023) midpoint ranking.

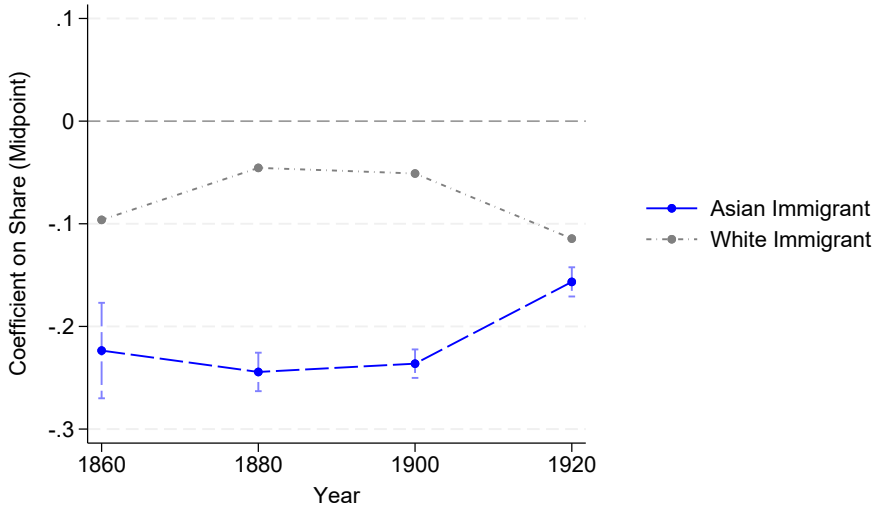


Figure 30: Relative Initial Gap in Rank

Sources: IPUMS Full-Count Censuses, 1860, 1880, 1900, 1920, and 1940; Census Linking Project Crosswalks, 1860–1880, 1880–1900, 1900–1920, and 1920–1940; Postel (2023) data package; Collins and Zimran (2023) data package. Corresponds to Table 23.

Notes: Error bars are calculated using a 95% confidence interval. Farm families are ranked using the Collins and Zimran (2023) midpoint ranking.

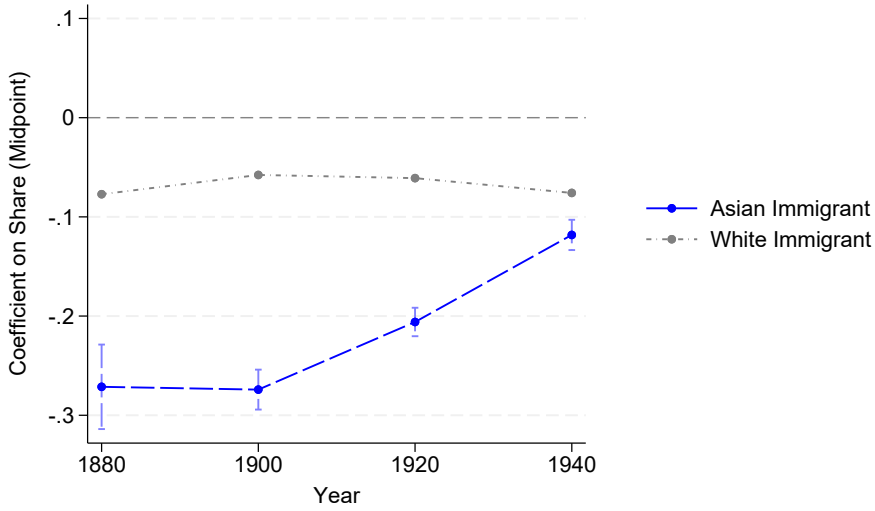


Figure 31: Relative Final Gap in Rank

Sources: IPUMS Full-Count Censuses, 1860, 1880, 1900, 1920, and 1940; Census Linking Project Crosswalks, 1860–1880, 1880–1900, 1900–1920, and 1920–1940; Postel (2023) data package; Collins and Zimran (2023) data package. Corresponds to Table 23.

Notes: Error bars are calculated using a 95% confidence interval. Farm families are ranked using the Collins and Zimran (2023) midpoint ranking.