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Upward Mobility and Discrimination: The Case of Asian Americans
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ABSTRACT

Asian Americans are the only non-white US racial group to experience long-term, institutional discrimination and subsequently exhibit high income. I re-examine this puzzle in California, where most Asians settled historically. Asians achieved extraordinary upward mobility relative to blacks and whites for every cohort born in California since 1920. This mobility stemmed primarily from gains in earnings conditional on education, rather than unusual educational mobility. Historical test score and prejudice data suggest low initial earnings for Asians, unlike blacks, reflected prejudice rather than skills. Post-war declines in discrimination interacting with previously uncompensated skills can account for Asians' extraordinary upward mobility.

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Few white Americans today realize just how pervasive legal anti-Asian discrimination was before 1945.... In light of this history, the current problems of the Asian-American community seem relatively minor, and its success appears even more remarkable. Social scientists wonder just how this success was possible, and how Asian-Americans have managed to avoid the 'second-class citizenship' that has trapped so many blacks and Hispanics.

David Bell, *The New Republic*, July 15, 1985

1. Introduction

Asian American ("Asian") history represents a puzzling case study because Asians are a "non-white" American racial group that experienced long-term, institutional discrimination, yet still achieved mean income levels similar to whites by the late 1960s.[1] In this paper I re-examine and provide a new explanation for this puzzle. Conventional wisdom often ascribes Asian success to extraordinary investments in children's educational attainment.[2] However, I show that Asian earnings growth stemmed primarily from gains *conditional* on education. I then document evidence that extraordinary post-war growth

[1] Asians are plausibly unique in this respect. Many other "white" immigrant groups such as Irish Americans, Italian Americans and Jewish Americans encountered prejudice historically and exhibit high incomes in the modern period. However, historians overwhelmingly agree that these groups did not experience the qualitative degree of institutional discrimination reserved for "non-white" groups including blacks, Native Americans, Asians and Hispanics, and described below in Section 3 and Table (II) in more detail (Jensen, 2002; Kenny, 2006; Diner, 2006; Mangione, 1993; Chang, 2004; Page, 2004; Gonzalez, 2011). For example, Kenny (2006) states "The Irish experience of race in the United States does not belong in the same category as black slavery or Asian exclusion," while Diner (2006) states "As women and men considered among the privileged by virtue of their whiteness, [Jews] enjoyed relative tolerance," and that they experienced "relatively full political and civil rights" from the end of the 18th century. While Hispanic Americans have faced substantial institutional discrimination (e.g. Gonzalez, 2011), I do not focus on them in this paper for several reasons. First, I do not observe Hispanic Americans directly in my test score data described below. Second, IPUMS identifies Hispanic Americans in relatively complex ways related to nationality, language, and names that may be endogenous to some of the outcomes I study.

[2] The belief that minorities get ahead by investing in more education, rather than obtaining greater pay conditional on education, is widespread. Kristof (2015) focuses on high educational attainment of Asian children, which he partially attributes to "East Asia's long Confucian emphasis on education." President John F. Kennedy implicitly adopted this theory of group progress in 1963 when he told an assembly of black civil rights leaders, "it seems to me...that we could emphasize... which I think the Jewish community has done, on educating their children, on making them study, making them stay in school and all the rest" (Branch, 1989).

in Asian conditional earnings plausibly reflected high Asian skills that remained uncompensated in pre-war labor markets characterized by greater institutional discrimination. I argue that Asian history therefore sheds new light on the longstanding question of whether large earnings gaps driven primarily by prejudice can persist in sufficiently open and competitive labor markets (Becker, 1957; Arrow, 1972; Goldberg, 1982).

I build this argument in multiple steps that make use of several recently-available or new data sources. These sources include 100% 1940 census data (Minnesota Population Center and Ancestry.com, 2013), Army General Classification Test (AGCT) score data for over 500,000 WWII enlistees in 1943 (Ferrie et al., 2012; Aaronson and Mazumder, 2011; Carruthers and Wanamaker, 2016), and a matched sample of test score and earnings data for over 200,000 individuals.[3] Other new and novel data sources include 20th Century survey data recording white prejudice against various racial and ethnic groups, archival data on racial composition and inputs of schools in Los Angeles and San Francisco before 1945, and new data on racial composition of firms in the Bay Area. These data, along with new methods to estimate intergenerational mobility of small groups in census data (Hilger, 2016), allow me to focus the analysis on California (CA). CA contained a large majority of all mainland Asians in 1940, and also fortuitously contained a small black minority that had migrated from the South in pursuit of economic opportunity and furnishes a valuable comparison group.

As background, I establish that Asians faced similar or plausibly worse prejudice and discrimination than local blacks in CA through the 1940s. I then show how vastly different historical legacies imported to CA by these two groups—skill-biased immigration restrictions for Asians vs. multigenerational educational exclusion for Southern blacks—would tend to predict relatively higher skill levels for Asians, especially among those selecting into parenthood. Finally, I show that legal discrimination against all non-whites in CA dramatically declined from 1943-59 due to a combination of court cases and legislation, culminating in CA's Fair Employment Practices Act. After establishing this context, I address three main questions about the economic rise of Asians in CA.

Question 1: Does high Asian income reflect high dynastic income growth, or compositional effects of new immigration? To my knowledge even this basic question about Asian American history has not been addressed in prior literature. Using a pseudo-panel approach that I validate empirically, I develop measures of intergenerational income growth rates within racial groups that abstract from composition changes due to immigration flows. I find that Asian dynasties exhibit upward "divergence" from blacks

[3] I thank Bhashkar Mazumder for generously sharing his cleaned version of the WWII enlistee test score data.

and upward "reversals of fortune" toward whites in every cohort born in CA since 1920.[4] These extraordinary growth rates are inconsistent with neoclassical absolute convergence (Ramsey, 1928; Solow, 1956), suggesting that Asians embody different structural growth parameters, or a growth process that departs from neoclassical assumptions.

Question 2: Why did Asians achieve more rapid dynastic income growth than other groups? To shed light on this question I estimate a simple descriptive decomposition of group earnings in each year into three terms: (1) parental income distributions, (2) children's educational attainment conditional on parental income, and (3) children's earnings conditional on education. I find that all three components favor Asians over blacks historically, although these differences shrink dramatically when restricting to the CA-born in earlier years. I quantify the relative importance of these three components by imputing counterfactual, steady-state black-white earnings gaps for all children born in CA 1920-1980, assigning blacks each of the three components of Asian and white earnings separately. Contrary to popular perception, large gains in earnings *conditional* on education have played the primary role in Asian earnings growth, alongside a secondary role for greater educational attainment conditional on parental income, and virtually no role for higher parental income. In CA, the only white advantage over blacks has been greater white earnings conditional on education; educational mobility and parental income have played virtually no role.

Question 3: Why were Asians but not blacks able to close their conditional earnings gap? To shed light on this question, I examine determinants of conditional earnings gaps in 1940 by comparing AGCT test scores in 1943 for whites, blacks and Asians in CA. Consistent with their different historical legacies, I find that Asians in 1943 already exhibit near-parity with whites in mean test scores both overall and within all education groups, while analogous black mean test scores lag behind both Asians and whites by nearly a full standard deviation, as has been found in more recent decades (Neal and Johnson, 1996; Johnson and Neal, 1998; Dickens and Flynn, 2006; Neal, 2006; Fryer, 2010).[5] Asians' large earnings gaps in the absence of any observed human capital gap is, to my knowledge, unique among non-white racial groups in US history (e.g. Trejo, 1997; Hurst, 1997). I quantify the contribution of these test score gaps to black conditional earnings gaps by matching white and black test score records to the 100%

[4] This upward mobility holds even when restricting to native-born parents of CA-born children, and therefore is unlikely to reflect weaker English fluency in the parent generation. I place no restrictions on where CA-born children live later in life.

[5] WWII examination data only contain Chinese Americans in CA due to internment of Japanese Americans by 1943, but I discuss other historical research below that documents high test scores of Japanese American children before WWII (Bell, 1935).

1940 census data containing earnings and education, both at the individual level and at the "labor market" level defined by states and educational attainment. At the individual level, skills as captured by test scores account for 40% of black-white earnings gaps nationally, or slightly less than the share of black-white earnings gaps explained by AFQT scores in the 1990s by Johnson and Neal (1998). At the market level, however, black-white mean skill gaps account for nearly 80% of black-white mean earning gaps. These market-level effects of mean group skills are large enough to explain relative conditional earnings gains experienced by Asians 1940-70 in CA—and hence Asian upward mobility—under the assumption that the Asian test score advantage over other non-whites was uncompensated in 1940 and fully compensated by 1970.

As of the 1940, these findings suggest a relatively larger role for taste-based discrimination or misperception of skills in the Asian conditional earnings gap (Becker, 1957), and a relatively larger role for discrimination based on skills via pay for productivity or statistical discrimination in the black earnings gap (Aigner and Cain, 1977). One explanation for rapid Asian upward mobility is, therefore, that earnings gaps driven by prejudice rather than productivity could not persist in a post-war labor market that eliminated most forms of legal discrimination against non-white workers. Another explanation is that *de facto* discrimination declined more rapidly for Asians than blacks in CA for reasons unrelated to Asians' initial skill advantage, though I argue this explanation is hard to reconcile with the large magnitude of Asians' post-war relative earnings gains. And of course, without quasi-experimental variation in group characteristics such as human capital, or precise measures of changing contemporary environments across groups, I cannot rule out other plausible explanations. Whatever the underlying cause, Asian history represents a case study in which a large pre-war racial earnings gap almost surely driven by prejudice failed to survive in the absence of harsh legal discrimination.

2. Prior Literature

This study fits into large prior literatures on human capital, discrimination, and group earnings gaps in a clear way. Broadly, Asians are consistent with prior work documenting intergenerationally persistent group *human capital* gaps, but sharply at odds with prior work documenting intergenerationally persistent group *earnings* gaps. One possible reason for this discrepancy is that Asians are the only non-white group with historically high levels of human capital. This large and persistent human capital stock may have generated anomalous upward earnings mobility once pervasive labor market discrimination against Asians declined in the decades following WWII.

Borjas (1992, 1993, 1994, 1995); Leon (2005); Abramitzky et al. (2014) explore intergenerational convergence in education and earnings among ethnic groups, but due to data constraints these studies place most empirical emphasis on "white" European immigrants who were spared most forms of institutional discrimination; do not incorporate test scores; and do not assure geographic overlap across groups within the US. These studies find strong persistence of initial group earnings gaps across generations.[6] In contrast with the intergenerational earnings persistence displayed by these predominantly white ethnic groups, I find that Asians' large initial earnings disadvantage does not persist, but rather disappears or reverses in one generation in every cohort of Asians born in CA since 1920. I argue that the severe discrimination faced by Asians before WWII, combined with their high initial human capital, can account for this contrast with slower earnings convergence for white ethnic groups.

Another literature documents a major role for human capital in explaining racial wage and earnings gaps. Higgs (1977) presents evidence that skills play a significant role in black-white wage gaps in Virginia in 1900 and 1909. Carruthers and Wanamaker (2016) also find that skills explain a large share of black-white wage and earnings gaps in the South in 1940. Cutright (1973), in contrast with these other studies finds that test scores account for only 25% of black-white wage gaps in 1964 using a national sample of Korean War enlistees.[7] Research on labor markets since 1990 typically finds that individual test scores can account for 50-75% of black-white wage and earnings gaps (Neal and Johnson, 1996; Johnson and Neal, 1998; Neal, 2006; Fryer, 2010). Other work on data since the 1980s finds that observable measures of human capital can largely account for low earnings of Mexican Americans (Trejo, 1997) and Native Americans (Hurst, 1997). Asians large, unexplained earnings gap in 1940 therefore represents a historical anomaly and suggests that Asians were in a more advantageous position than other non-white minorities to increase earnings as labor market barriers in CA declined after WWII.

Prior research on Asian Americans specifically has suggested many qualitative explanations for high Asian incomes in the modern period including selective migration, intragroup spillovers, positive stereotypes, demographic imbalance, portability of human capital, and culture, among others (e.g., see arguments and literature reviews in Hirschman and Wong, 1986; Sue and Okazaki, 2009; Lee and Zhou, 2015). Suzuki (1995, 2002) documents a significant role for selection into migration and return-migration among

[6] E.g., Borjas (1994, Table 5) estimates group-level intergenerational persistence in mean log occupational earnings around .6 - .7, and Abramitzky et al. (2014, Figure 6) also suggest very strong persistence for white ethnic groups.

[7] Korean War enlistees, like WWII enlistees, may represent a disproportionately positively selected group of blacks for reasons discussed in Section 4.

Japanese Americans in accounting for high and rising Japanese American earnings. Murayama (1984) documents rapid occupational progress by Japanese Americans within Pacific Northwest railroad corporations in the early 20th century, despite significant prejudice of white employers and coworkers. Consistent with many of these prior strands of research on Asian history, I document high Asian skills in prewar CA labor markets and show that the onset of compensation for these high skills after WWII can fully account for Asians' high upward intergenerational mobility.

Chiswick (1983) documents advantageous labor market outcomes among Asian American men in the 1970 census, but does not provide the longer-term context of pre-war discrimination, institutional reform, and high upward mobility described here. Chiswick (1988) finds that Mincerian returns to schooling are positively correlated with average schooling across various racial and ethnic groups in the 1970 census and attributes this to unobserved differences in the relative prices of child quality and quantity facing different groups. In contrast, when focusing on CA I find a much larger role for conditional pay *levels* in explaining group income mobility, and less evidence for important differences in group fertility rates or Mincerian returns to schooling.

Duleep and Sanders (2012) document that Asians exhibit a substantial unexplained earnings gap in 1960 that largely vanishes by 1980, and suggest that this change likely relates to Civil Rights legislation. Darity Jr. et al. (1997) study impacts of observable ethnic group characteristics on occupational indices in national samples, and Cooper (2003) analyzes weekly wage residuals for Chinese, Japanese, Mexican and white males in CA from 1950-1990.[8] These and other authors (Daniels, 1990, pg 314-15) partly anticipate my findings that Asian conditional earnings increased over time. I show the Asian earnings gap was also not explained by cognitive test scores, and that this earnings convergence conditional on skills played the primary role in overall upward Asian mobility. My longer timeframe is consistent with a gradual trend in Asian earnings convergence from 1940-80, rather than a sharp increase following major employment anti-discrimination laws passed by California in 1959 and the US in 1964. However, I lack statistical power to detect trend breaks within the 1940-80 window.

3. On Comparing Asian and Black Outcomes

To clarify the purpose of group comparisons undertaken below it is useful to write down a stylized statistical model. Suppose outcome vector $\mathbf{Y}_{rt}$ for generation t of group r is

[8] Cooper (2003) is forced to drop 1940 from her analysis due to small sample size for Asians in CA in the 1940 1% sample, and her 1950 census sample for CA contains 109 Asians.

determined by "contemporary environment" denoted $\mathbf{CE}_{rt}$, "ancestral legacy" denoted $\mathbf{AL}_{rt}$, the interaction of these two terms, and other factors $\mathbf{u}_{rt}$:

$$\begin{aligned}\mathbf{Y}_{rt} &= \mathbf{B_0}\cdot\mathbf{CE}_{rt} \\ &\quad +\mathbf{B_1}\cdot\mathbf{AL}_{rt}\left(\mathbf{CE}_{r,t-1},...,\mathbf{CE}_{r,0}\right) \\ &\quad +\mathbf{B_2}\cdot\mathbf{CE}_{rt}\times\mathbf{AL}_{rt}\left(\mathbf{CE}_{r,t-1},...,\mathbf{CE}_{r,0}\right)+\mathbf{u}_{rt}.\end{aligned}$$

"Contemporary environment" includes factors such as types and degrees of contemporary social prejudice and discrimination in schooling, housing and labor markets. "Ancestral legacy" includes intergenerationally transmitted factors such as financial and human capital, location, social networks, preferences, and norms. Crucially, ancestral legacy also incorporates factors such as migration restrictions that generate non-random selection into a group's membership. The parameter $\mathbf{B_2}$ reflects the idea that changes in contemporary environments can have differential impacts on outcomes of groups with different ancestral legacies. I now characterize key aspects of ancestral legacy and contemporary environment for Asians and blacks in the early-mid 20th century, focusing on CA for reasons described below. While I am unable to credibly estimate the parameters of this model, it provides a framework for thinking about comparisons of intergenerational mobility across groups with different ancestral legacies during periods of change in contemporary environments.[9]

Migration, Abduction, and Slavery

Asians and blacks in the US embody very different ancestral legacies. Asians in the US have always represented voluntary migrants and their descendents. These migrants have arrived from China, Japan and other Asian countries in pursuit of economic opportunity as prospectors, laborers, merchants, farmers, skilled professionals and students since the mid-19th Century.[10] In contrast, the vast majority of blacks in the US during the 20th century represent descendents of slaves imported to the US before the Civil War. These slaves were kidnapped in many parts of Africa, shipped to the US involuntarily, and often subjected to catastrophic trauma including starvation, torture, rape, and psychological abuse (e.g., Rediker, 2008).[11] Under slavery, the great majority of blacks were legally

[9] All tables and figures in this section reflect census data described in Section 4 unless stated otherwise.

[10] Cloud and Galenson (1987, 1991) argue that much of the late 19th century migration from China took place through extra-legal indentured servitude contracts, but was nonetheless voluntary in the vast majority of cases.

[11] Native Americans, as well as many Hispanics living on land annexed by the US, also "entered" the US involuntarily under circumstances of violence and material expropriation.

unable to accumulate education or financial assets, yielding extremely low black literacy and wealth as of 1870 (e.g., Margo, 2016). Under Jim Crow laws, blacks throughout the US but especially in the South continued to face segregation and limited access to human capital and financial markets throughout much of the 20th century.

Geography

Asians and blacks also inherited different geographic legacies. Most Asians arrived on the West Coast while most blacks arrived in the South, and these geographic origins have persisted over time. Figure I maps the number of native-born Asian and black children (age 0-18) living in every county in the mainland US in 1940. Panel (a) shows that Asians in 1940 were heavily concentrated along the West Coast and especially in CA. In 1940, CA had over seven times more native-born Asians than any other mainland state, and still had six times more native-born Asians than any other state as of 1980.[12] Panel (b) shows that blacks in 1940 were still concentrated in the South and New England. However, the map highlights that a significant minority of blacks had migrated to CA by 1940. CA therefore represents the only state in which it is possible to conduct detailed historical comparisons of Asians and blacks in a contemporary environment that was potentially somewhat similar across groups, and I focus on children born in CA in much of the analysis below. CA was viewed as a place of racial tolerance and opportunity relative to the South by many early black migrants (Graaf et al., 2001), and below I find that restricting to the CA-born greatly increases the similarity of Asian and black families along several dimensions.[13]

Racial Prejudice

Prejudice affects the contemporary environment faced by different demographic groups. Despite radically different origins and settlement patterns, blacks and Asians both faced intense prejudice from the white US population in the early 20th century. This can be inferred using rich historical survey data gathered by social psychologists in the 1920s and 30s, who asked their subjects—typically white students at universities—to express preferences over various nationalities and races. These surveys are less likely to suffer from the self-censorship than similar modern surveys because they predate social norms

[12] Substantial pre-war Asian populations also lived in New York and Washington. I do not focus on these states because the test score data is unreliable for Asians in New York and too small to be useful in Washington. Asians were also concentrated in Hawaii. I do not focus on Hawaii in in this paper because very few blacks have ever lived in Hawaii, and because Asians in Hawaii probably did not experience the same kinds of social prejudice or institutional discrimination as mainland Asians (Takaki, 1998; Daniels, 1990).

[13] Black families in 1940 had migrated to CA primarily from Texas and Louisiana, and to a lesser extent Arkansas, Mississippi and Alabama. A majority of blacks in CA had been born in other states until 2000.

proscribing racial prejudice. The two primary methodologies for measuring prejudice at this time were "social distance" scaling based on how much intimacy with particular groups a person deemed acceptable (Bogardus, 1926), and pairwise group comparison scaling based on distributional assumptions about preferences (Thurstone, 1927a,b).

Table I presents the *rank* of blacks, Chinese and Japanese out of 12-32 total ethnic groups in 23 different samples from 10 published studies spanning 1926-1956. In the US generally, whites express profound prejudice against Chinese, Japanese and blacks, with stronger prejudice against blacks and Chinese at the national level. Prejudice in the two West Coast samples, however, is stronger against both Chinese and Japanese than blacks, consistent with the central role of CA in historical anti-Asian activism. Moreover, these racial preferences appear stable over the entire 1926-56 period, with temporary deviations in 1946 associated with WWII national allegiances. These data make it difficult to dismiss comparisons of Asians and blacks in CA by claiming that Asians never experienced comparable degrees of white racial prejudice in the early-mid 20th century.[14]

Other facts are also consistent with pervasive white prejudice against both Asians and blacks in pre-war CA. Asians experienced mob violence including lynchings and over 200 "roundups" from 1849-1906 (Pfaelzer, 2008), and hostility from anti-Asian clubs much like the Ku Klux Klan (*e.g.*, Workingmen's Party of CA 1877-1880, Asiatic Exclusion League 1905 - 1940s), to an extent that does not appear to have any counterpart for blacks in pre-war CA history. Well under 5% of adult Asians or blacks of either gender living in CA married whites in every census before 1970. In 1920, 75% of CA voters, both major political parties, and the state Governor all supported a direct ballot initiative to increase legal discrimination against Japanese farmers by closing loopholes in prior Alien Land Laws (Daniels, 1990). New archival data on employment of whites and non-whites

[14]By presenting ranks, I ignore the cardinal scales employed in the original studies, although these cardinal scales plausibly contain some information about strength of preferences and reinforce the ordinal scale patterns. "Social distance" studies include Bogardus (1926), Katz and Allport (1931), Katz and Braly (1935), Bogardus (1928), Hartley (1946), and Bogardus (1959). These studies ask individuals to place racial groups on a "social distance scale" containing 7 allegedly ordered categories: "would marry into group", "would have as close friends," "would have as next door neighbors," "would work in same office," "have as speaking acquaintances only," "have as visitors only to my nation," and finally "debar from my nation." Respones were shown to be robust to various perturbations of the survey instrument Bogardus (1959, pg. 92-94). Pairwise comparison studies include Thurstone (1928), Chant and Freedman (1934), and Guilford (1931). These studies ask individuals "which of the following two nationalities/ethnicities would you prefer to associate with?" in many pairwise comparisons, and then construct a scale based on distributional assumptions about individuals' underlying racial preferences. Young (1927) asks subjects to rank nationalities/ethnicities by "innate ability"; this study also finds that prejudice does not respond to a semester-long course advancing more modern, opportunity-based theories of racial outcome differences.

in a sample of 234 firms employing 350,000 workers throughout the Bay Area in 1943 and 1944 indicate that over 50% of firms—including many large firms—employed zero or 1-2 non-whites (including blacks, Asians, Hispanics, and Native Americans), with extreme concentration of non-whites in a few firms.[15]

Institutional Discrimination

White voters in CA expressed their prejudice by supporting many forms of legal discrimination against both Asians and blacks. Table II, based on a discussion in Appendix A, summarizes the broad contours of this discrimination. At various times Asians faced institutional discrimination in citizenship, ability to testify in court, immigration, taxes and fees, labor unions, employment, land ownership and leasing, marriage to whites, WWII internship and expropriation, education, and residential restrictions. Many but not all of these restrictions also applied to blacks in CA. Here I discuss three key findings. First, discriminatory US immigration policy generated positive selection of Asians both into migration and family formation. Second, Asians likely experienced similar or worse institutional discrimination than blacks living in CA before the 1960s. Third, all of the harshest forms of legal (though not necessarily *de facto*) discrimination against racial minorities in CA disappeared during the period 1943-59.

1. Exclusionary policies selected higher-skilled Asians for migration and parenthood. Since the Chinese Exclusion Act of 1882 and the Gentlemen's Agreement of 1907, US immigration law has screened Asian immigrants on factors highly correlated with skill such as business ownership and occupational status. Subsequent laws and practices served to encourage return-migration and deportation of lower-skilled Asians, while allowing certain higher-skilled and higher-wealth Asians to stay in the US and bring in wives from Asia to start families (McKenzie et al., 1927; Hutchinson, 1947; Lee, 2005; Daniels, 1990; Chan, 1991). These policies yielded selection into family formation in the US as well as migration. Table III confirms selection into migration by showing that Japanese and especially Chinese American migrants were more highly educated than non-migrants in their home countries at least as far back as 1940. The table also documents significant positive educational selection of blacks migrating to CA from other parts of the US. Table IV presents evidence on occupational selection into fatherhood by race

[15]Records on firm employment accessed in Administrative Files of collection RG 228 Committee on Fair Employment Practice Region XII - San Francisco, HMS Record ID SB-877, held at the San Bruno, CA branch of the National Archives and Records Administration. Data on white and non-white employment by firm based on ES 270 forms used by the War Manpower Commission to assess labor requirements of specific firms and catalogue workforce characteristics, and provided in some cases to Fair Employment Practices Committee administrators. This sample of ES 270 forms appears to have been gathered for reasons unrelated to enforcing discrimination law, and is therefore plausibly representative of the Bay Area labor market. Data available from author upon request.

and year, defining fatherhood as co-residence with own children.[16] The table shows that Asians exhibit much stronger positive selection on occupational status into fatherhood of US-born children than both whites and blacks living in CA, especially before 1960. While many Asians arriving in the 19th century may well have been lower-skilled, only a small, positively selected fraction of these early arrivals contribute dynastically to the rapid economic ascent of Asians after 1940 that I document below. In contrast, CA has never placed legal restrictions on black migration.

2. Asians experienced similar or worse institutional discrimination than blacks in pre-war CA. Table II shows that Asians faced similar or greater historical discrimination than blacks in pre-war CA in citizenship and suffrage, due process, employment, labor unions, land ownership and leasing, housing markets, public education, and of course internment and expropriation during WWII. In Appendix A, I further discuss how CA permitted *de jure* educational segregation of Asians and Native Americans but not blacks from 1890 to 1946, and that this did result in a small minority of Asian children attending segregated "oriental schools" which in some cases were underfunded and in other cases were shown to slightly reduce Asian academic achievement. Consistent with state law, I have been unable to find evidence of any *de jure* segregated black schools in CA after 1890, and Graaf et al. (2001, e.g., pages 14, 137) suggests that access to relatively high-quality, integrated public schools attracted many Southern blacks to CA. I also explore *de facto* segregation using a new archival data set on school racial composition in Los Angeles in 1938 linked to school financial reports, and find that blacks, Asians and Hispanics all attended racially diverse schools with significant white shares and similar per-pupil funding and class sizes. While blacks did attend schools with fewer whites than Asians, evidence below suggests this could easily have reflected greater willingness to accept racial groups of similar skill profiles to whites in majority-white schools, rather than reflecting greater white prejudice toward blacks than Asians in the CA school system. Prior research, for example, documents large "school readiness gaps" between races in the modern period (e.g., Fryer and Levitt, 2013).[17] In Appendix

[16] The census only asks women, not men, about number of children ever born, and many Asian men historically were in fact married but did not bring their wives with them to the US. Therefore co-residence is the only available measure of fatherhood. The quality of this proxy for fatherhood likely deteriorates somewhat in more recent decades as the rate of single motherhood has risen.

[17] Hendrick (1975) documents much evidence of early- and mid-20th century CA educators arguing that racial segregation in schools could be justified by group academic ability differences, but not by prejudice. Taylor (1928, p. 84-86), for example, documents that some high-ability Mexican children in CA were allowed to attend white schools rather than segregated Mexican schools, and that high schools were typically integrated based on the idea that any children reaching these upper grades no longer required separate instruction. Both of these sources suggest these arguments often combined genuine educational principles with covert prejudice.

A I also argue that "ethnic organizations" would have been unlikely to provide a more effective shield against white discrimination for Asians than local CA blacks.

3. Institutional discrimination against all non-whites in CA declined dramatically 1943-59. Finally, Table II and Appendix A show that institutional discrimination against all non-whites in CA declined dramatically between 1943-59. During this period, legislation and court decisions prohibited racial discrimination in naturalization, housing, employment and labor unions, education, land ownership, commercial licenses, marriage, employment, labor unions, and employment agencies. These changes before 1960 all would have tended to increase competition for minority workers in the labor market by removing legal barriers to employment, induce pre-emptive voluntary integration by firms and unions, and erode social norms of racial exclusion (e.g., Heckman and Payner, 1989; Donohue and Heckman, 1991). I am not able to pin down causal effects of any *specific* change in discrimination on racial outcomes, and I am not able to measure differential changes in discrimination across racial groups during this period. Overall, these changes suggest a significant relaxation of previously severe labor market restrictions on non-white workers in post-war CA.

4. Data

Here I briefly describe key data sources and empirical decisions, leaving details for Appendix B. I rely on census data 1940-2000 for most key results in the paper, including recently-available 100% count 1940 census data that permits a detailed examination of Asians in pre-war CA for the first time (Ruggles et al., 2015). I define "Asians" as Chinese, Japanese and "Other Asian or Pacific Islander," though most Asians before 1970 were Chinese or Japanese. I combine all Asians for reasons of both simplicity and statistical power, just like most researchers combine all white and black ethnic groups into broader categories. I focus on log of annual labor earnings (head + spouse) as my key outcome measure, excluding zeros, and confirm robustness of key results to other choices in Section 10. I rely on the method in Hilger (2016) to estimate the relationship between parental earnings and children's education based on young adult children who co-reside with parents in census data.[18]

[18]The key assumption of this approach is that dependent and independent children in their late 20s exhibit similar relationships between final schooling and parental income. This assumption cannot be verified for Asians due to small samples in panel datasets, but Hilger (2016) shows it is a reasonable approximation in many other contexts over the 1940-2000 period, yielding mobility estimates that line up with time trends for both whites and blacks in other data sources over the 1940-80 period, as well as state income mobility variation for the 2000s from Chetty et al. (2014).

I also make use of recently-discovered World War II enlistment data containing Army General Classification Test (AGCT) scores for a large sample of enlistees in 1943 (Ferrie et al. 2012; also see Aaronson and Mazumder 2011; Carruthers and Wanamaker 2016). An important and apparently unrecognized fact is that AGCT data contain a positively selected sample of enlistees due to restrictions on test-taking to individuals who passed preliminary examinations of physical, educational, and emotional fitness (Bingham, 1946; Ginzberg, 1959, and other references in data appendix). I conclude AGCT scores likely understate population black-white gaps in education and cognitive skills, and may likewise understate black-Asian skill gaps documented below. Despite these selection problems, this extraordinarily large sample of cognitive test scores allows me to examine skill differences for small subgroups born in the 1920s, and to assess correlations of both individual and group-level skills with earnings. For some analysis I make use of a matched sample of 1940 census data and 1943 AGCT test scores. As described in Appendix B, the match rate is high relative to similar prior work and yields a broadly representative sample of 211,000 white and black young men.

Finally, in Section 3 and Appendix A I make use of novel historical data on school inputs at a Chinese segregated school in San Francisco in the 1920s, school inputs and racial composition of public schools in Los Angeles in 1938, and racial composition of individual firms in the Bay Area in 1943 and 1944.

5. Intergenerational Group Mobility

In Appendix C, I plot national aggregate outcomes by race over all available years of data, reweighted to harmonize age and gender distributions across races.[19] These aggregate national trends characterize Asians as higher-skilled than other non-white US minorities at every point over the past 150 years. The perception that Asians began their history in the US disadvantaged by lower skills and earnings could potentially be true relative to whites, but is not plausible when comparing Asians to blacks or Native Americans at the national level. In contrast, trends in human capital and earnings among the CA-born are more consistent with this perception, as shown in Appendix Figures A.4-A.5. Among the CA-born, Asians and blacks appear similarly disadvantaged in 1940, but Asians rapidly overtake both blacks and whites in education and earnings over subsequent decades. However, these aggregate time series trends are not a focus of this paper because they confound intergenerational group mobility with composition changes from migration flows

[19] When reweighting group means on age and sex, I use blacks as the base group because CA-born blacks are the smallest group in many years.

between censuses. These composition changes are potentially very large, as illustrated in Appendix Figure A.1. For example, in 1960 new Asian immigrants amount to 75% of all Asians present in the US in 1950, with even greater inflows in subsequent decades.

I therefore use a pseudo-panel approach to compare intergenerational income growth across races in a way that plausibly eliminates bias from migration flows between censuses. I construct pseudo-panels that link adult outcomes to parental characteristics during childhood, exploiting the fact that most children live with their parents until age 17. Specifically, consider children age 1-17 in 1940 with known state of birth in the US. For this 17-year cohort block of children we can observe parental income. We can then observe outcomes of these children at ten-year intervals in later censuses using self-reported state of birth. This strategy delivers balanced pseudo-panels under the assumption that individuals report race, age, and place of birth consistently across decades, and that families with US-born children rarely emigrate. Pseudo-panels permit calculation of "group mobility" based on comparisons of $\mathbb{E}[y_{i,r,t}]$ and $\mathbb{E}[y_{i,r,t-1}]$, where $y_{i,r,t}$ denotes household earnings of person i in group r in generation t. I construct these pseudo-panels for 17-year cohort blocks still living with parents in years 1940, 1960, 1970, and 1980.[20]In Appendix D, I test the assumptions required to obtain valid pseudo-panels by testing for anomalous changes in the size and gender composition of cohorts defined by place of birth.[21] Results show relatively stable size and gender composition of cohorts, supporting the pseudo-panel approach.

These pseudo-panels yield one mean parental income observation for each 17-year cohort block of children, and one mean earnings observation for these children in each census starting 20 years after observing parental income when children have entered the labor market at ages 21-37. This combination of multiple observations on every cohort serves as a further test of internal consistency. Figure II presents these data for CA-born black, white, and Asian cohorts reaching ages 1-17 in each decade, configured to assess speed of Asian intergenerational mobility relative to local whites and blacks. The figure plots parental household earnings ratios with respect to Asians on the X-axis, and children's household earnings ratios with respect to Asians on the Y-axis. The 45-degree line represents the benchmark of identical earnings ratios across generations, and distinguishes two broad families of models. In the "absolute convergence" region, Asian mobility is consistent with inter-group mean-reversion of groups with identical prefer-

[20]I pool all children ages 1-17 to maximize statistical power, weighting families by number of children in household. I omit cohorts age 1-17 in 1950 because earnings and education in 1950 are only observed for one member of each household.

[21]These tests are not perfect because consistent cohort size may conceal changes in the composition of the cohort from migration flows that cancel out on net.

ences and technologies from different initial conditions (Ramsey, 1928; Solow, 1956).[22] In the "Divergence" region, relatively rich Asian parents have children who are relatively even richer, or poor Asian parents have children who surpass previously richer groups. Points in this region suggest that Asians are converging to higher steady-state income levels than comparison groups. Differential steady states across groups are consistent with (1) "conditional convergence" models with group variation in preferences and technologies (Barro and Sala-i Martin, 1992), and (2) "new growth" models with identical groups affected by various externalities or non-convexities. Examples of non-neoclassical features include human capital externalities (Azariadis and Drazen, 1990; Borjas, 1992), knowledge spillovers (Romer, 1986), and credit constraints (Galor and Zeira, 1993).

Results in Figure II reject neo-classical absolute convergence with respect to both blacks and whites in every cohort born in CA since 1920, with the possible exception of Asian convergence to whites in the 1940 cohort which exhibits "only" full convergence from a 50% parental earnings disadvantage in one generation. These findings suggest that Asian dynasties raising children in CA historically benefit from different preferences or technologies, or from some violation of assumptions underlying neo-classical growth. Importantly, this pattern is not driven by English fluency differences between parents and native-born children; 50-80% of Asian parents are native-born in all years 1940-80, and restricting to native-born parents yields nearly identical results. I now turn to understanding what factors might account for this unusually rapid dynastic earnings growth among Asians.

6. Intergenerational Earnings Decomposition

Why have Asian dynasties in CA been converging toward higher group earnings than blacks and whites? To shed light on this question I estimate a simple, intergenerational decomposition of group earnings in the spirit of Conlisk (1974). Let $y_{r,t}$ indicate average adult log earnings in group r in generation t, and $h_{r,t}$ indicate average adult education. Let $f_r(y_{t-1})$ indicate the probability density function of parental income in group r. Mean earnings of group r in generation t can then be written non-parametrically as:

$$\mathbb{E}[y_{r,t}] = \int_{y_{t-1}} y_{r,t}(h_{r,t}(y_{t-1}))\, f_{r,t}(y_{t-1})\, dy_{t-1}. \quad (1)$$

This decomposition breaks mean group earnings into three terms. The term $f_{r,t}(y_{t-1})$

[22] Ethnic groups can be thought of approximately as small open economies with mobile labor. Rappaport (2005) shows that mobile labor has a surprisingly small effect on the rate of convergence predicted in a standard neoclassical growth model.

captures a group's parental income distribution. The term $h_{r,t}(y_{t-1})$ captures educational attainment conditional on parental income, or "educational mobility." Educational mobility can vary across races due to many factors including parental skills or preferences, discrimination in human capital markets, and beliefs about the returns to skill. This relation could also be nonlinear if families with low incomes face liquidity constraints on educational investments. The term $y_{r,t}(h_{r,t})$ captures children's earnings conditional on education. These Mincerian earnings functions can differ across races due to skill differences stemming from school quality and home environment, or due to labor market discrimination based on prejudice or misperceptions.[23]

After examining these terms non-parametrically, I also make use of a linearized version of this decomposition. This version is easier to work with empirically, and also sheds light on multigenerational implications of group differences at any point in time. Write educational mobility as $h_{f,t}(y_{r,t-1}) = \theta_{r,t} + \gamma_{r,t} y_{r,t-1}$ and adult earnings functions as $y_{r,t}(h_{r,t}) = \alpha_{r,t} + \beta_{r,t} h_{r,t}$, implying

$$\mathbb{E}[y_{r,t}] = \alpha_{r,t} + \beta_{r,t}\theta_{r,t} + \beta_{r,t}\gamma_{r,t} E[y_{r,t-1}]. \tag{2}$$

If I further assume time-invariant parameters for each group, I obtain the steady state relation

$$y_{r,SS} = \frac{\alpha_r + \beta_r \theta_r}{1 - \beta_r \gamma_r}. \tag{3}$$

These decompositions allow me to state how group outcome gaps would mechanically be affected by replacing each of these three components for one group with the corresponding component of another group, either in the subsequent generation or in steady state. For example, I can estimate the share of the black-white earnings gap that would be closed if blacks adopted Asian educational mobility $h_{asian,t-1}(y_{t-1})$ or white parental income $f_{white,t-1}(y_{t-1})$. These counterfactuals provide a simple way to quantify the "importance" of group differences in three broad components of group mean earnings.[24]

I estimate these three components in each year for whites, blacks and Asians born in

[23] I omit a direct effect of parental income on children's income because the method in Hilger (2016) only permits estimation of children's education by parental income, not children's income by parental income. Fortunately, prior research in sociology based on data back to the 1960s suggests that the remaining descriptive impact of parental income on children's income, after conditioning on children's education, is small (Torche, 2015).

[24] It is also straightforward to solve for the transition path of the linear decomposition for any generation T as

$$\mathbb{E}[y_T] = (\alpha + \beta\theta) \sum_{j=1}^{T} (\beta\gamma)^{j-1} + (\beta\gamma)^T \mathbb{E}[y_0]. \tag{4}$$

CA.[25] Estimation of parental income distributions and adult earnings functions in census data is straightforward. I rely on the method developed in Hilger (2016) to estimate children's final education conditional on parental income, addressing the longstanding problem that many children can no longer be linked to their parents at ages following school completion (e.g., Cameron and Heckman, 1993).[26]

Even as a purely descriptive, reduced-form exercise, this decomposition has many limitations. For example, two-generation mobility statistics likely overstate multi-generational mobility (e.g., Solon, 2015), and annual group earnings variation likely understates lifetime group earnings variation (Rothstein and Wozny, 2014). Nonetheless, the exercise provides a useful tool for exploring potential causes of variation in group earnings mobility.

6.1. Estimates

Figure III plots parental income distributions by race in 1940 for children born in the US and CA. Parental incomes are grouped into population deciles. Panel (a) shows that Asian and black children in 1940 grew up with extremely different parental income distributions at the national level, with black children concentrated in the bottom deciles. Panel (b) shows this contrast is much milder when restricting to black and Asian children born in CA, either due to positive selection into migration or better earnings opportunities for black parents in CA.

Figure IV plots educational attainment conditional on parental income, and again illustrates the key role of geography in Asian American history. Panel (a) shows that among all native-born in 1940 Asians exhibit greater educational mobility than whites, who in turn exhibit greater educational mobility than blacks, both in terms of intercepts and slopes. However, panel (b) shows that as of 1940 these differences disappear when restricting to the CA-born. Among the CA-born, all races display very high educational mobility in terms of both intercepts and slopes, relative to the national pattern. Panel (c) shows that CA-born Asians once again exhibit a higher greater educational mobility than other CA-born groups in later years, while white and black educational mobility remain virtually identical.

[25] In practice it is important to estimate these relationships over bounded regions of income and education variables, because the linearity assumptions break down outside the main support. I therefore drop children with education below the bottom 2% of the population education distribution in each year as in Card and Krueger (1992a), and I use mean log of parental income within population parental income deciles in each year, bounding income at the mean of the top and bottom deciles. Therefore in practice I estimate $\mathbb{E}[y_{r,t}] = \alpha_{r,t} + \beta_{r,t}\theta_{r,t} + \beta_{r,t}\gamma_{r,t}E[y_{r,t-1}] - \beta_r\gamma_r y_{\min} - \beta_r h_{\min}$ and $y_{r,SS} = \frac{\alpha_r + \beta_r\theta_r - \beta_r\gamma_r y_{\min} - \beta_r h_{\min}}{1-\beta_r\gamma_r}$, where $y_{\min}$ and $h_{\min}$ are as described.

[26] See footnote 18 or Hilger (2016) for more detailed discussion of this method.

Finally, I estimate group earnings as a function of educational attainment. Figure V displays mean log earnings of men by educational attainment in 1940 and 1980, restricting to the CA-born. In 1940, Asians and blacks both received about $0.4-0.6$ log points lower pay than whites at every level of education. By 1980, Asians have closed or slightly reversed this large gap, pulling ahead of blacks by about 0.4 log points in the meat of the education distribution. Note this relative gain in Asians' conditional earnings over blacks is extremely large, equivalent to something like 4 years of additional educational attainment. [27]

In Appendix Table A.4, I present estimated intercepts and slopes for linearized versions of educational mobility gradients and earnings functions, restricting to the CA-born.[28] Estimates are consistent with lessons from the above discussion. Asians begin to display an advantage in educational mobility after 1940, while white and black educational mobility gradients remain nearly identical in all years. Earnings function parameter estimates lack sufficient precision to pin down exact timing of Asian earnings convergence before 1980. Earnings function slopes, i.e. Mincerian returns to schooling, rise rapidly after 1980 for all groups, especially for blacks.

6.2. Counterfactual Black-White Earnings Gaps

After 1940, all three elements of the decomposition—parental income, educational mobility, and earnings functions—favor Asians relative to blacks historically in CA. In order to assess the relative contribution of these three components I construct counterfactual estimates of the black-white earnings gap over time. I consider counterfactuals in which I assign to black dynasties each of these three components from whites and Asians, one component at a time, based on estimates for the CA-born in Appendix Table A.4.

Table V reports actual and counterfactual log earnings by race based on Equation (2), which takes only one generation of transmission into account. Appendix Table A.5 reports similar estimates extrapolating to steady state based on Equation (3). As these estimates are very similar, I focus on next-generation predictions which have the advantage of permitting effects of counterfactual parental income. Figure VII displays

[27] The same pattern of similarly low Asian and black conditional earnings in 1940, followed by rapid convergence of Asian but not black conditional earnings to that of whites, also emerges in the other two mainland states with significant pre-war Asian populations, New York and Washington. Occupational differences can account for about half of the Asian-white earnings gap in CA. However, these occupational differences themselves, like many other labor market outcomes such as hours and employment rates, could reflect either labor market discrimination or skill differences and therefore shed little additional light on the underlying sources of Asian-white earnings gaps.

[28] These functions cannot be estimated in 1950 due to collection of census data from only one member of each household.

resulting counterfactual black-white earnings gaps constructed from estimates in Table V.. Panel (a) shows that the overwhelmingly most important black disadvantage relative to *whites* among in CA is lower earnings conditional on education; lower parental income and differential educational mobility play almost no role. Panel (b) repeats this exercise but imputes *Asian* components to black dynasties. Once again, conditional earnings gaps are the most important factor, with high educational mobility playing a large secondary role. However, even this secondary role for high Asian educational mobility is largely driven by conditional earnings gains of blacks with some college education after 1940, as shown in Figure V.b. Without these conditional earnings gains of blacks, imputing higher educational mobility of Asians to blacks yield much smaller effects on black-white earnings gaps.[29] Therefore convergence of group earnings conditional on education, rather than educational mobility, has been the primary driver of differential upward mobility across Asians, blacks, and whites in California's post-war history.

High educational mobility of CA-born Asian children reaching adulthood after 1940 could be driven by a number of mechanisms, including higher unobserved parental skills, group-level human capital externalities (Borjas, 1992; Lee and Zhou, 2015), or Asian cultural preferences for education Brandt et al. (2014). However, in the next section I discuss potential explanations for the more important driver of Asian upward mobility: earnings growth conditional on education.

7. Why Did the Asian Conditional Earnings Gap Disappear?

Why did Asians, but not blacks, close their conditional earnings gaps with whites? Understanding causes of the initial earnings gaps for each group may shed light on this question. A large literature distinguishes two broad explanations for group earnings gaps: (1) productivity differences observed by firms but not researchers and (2) prejudice. Group productivity differences not observed by researchers can account for group earnings gaps if firms reward individual productivity, or if firms accurately observe *mean* group productivity and use group membership to proxy for individual productivity, i.e. "statistically discriminate" (Aigner and Cain, 1977). Because these types of discrimination are profit-maximizing, they can yield stable group earnings gaps as long as group skill gaps persist.

Explanations for group earnings gaps based on prejudice, rather than productivity, can take the form of "taste-based" discrimination stemming from racial preferences of employers, workers, or customers (Becker, 1957; Arrow, 1971), or employer misperceptions of

[29] Results available from other upon request.

group skill differences (e.g. exaggerated stereotypes as in Bordalo et al. 2016). They can also take the form of "institutional" discrimination based on laws and customs that restrict employment of certain groups. Models of individual or "neoclassical" discrimination predict that markets will attenuate prejudice-based earnings gaps by segregating minority workers into firms with unprejudiced employers, workers, and customers. Earnings gaps driven by taste-based discrimination are more likely to emerge when prejudice is more widespread and minorities represent a larger share of the labor force. These models imply lower profits for discriminating firms and hence, in some cases, long-run elimination of group earnings gaps as nondiscriminating firms increase market share (Becker, 1957; Arrow, 1971, though see Goldberg, 1982). However, discrimination can persist in these models if there are sufficient barriers to segregation of minority workers or expansion of nondiscriminating firms. In contrast, earnings gaps driven by institutional discrimination can persist with few limitations. For example, if minorities are legally excluded from all high-income occupations, sorting and arbitrage mechanisms no longer reduce earnings gaps.

As discussed in Section 2, empirical work using data from more recent decades has indicated that cognitive test scores—interpreted as measures of productivity not captured by educational attainment—can account for a large share of black-white wage and earnings gaps (Neal and Johnson, 1996; Johnson and Neal, 1998; Fryer, 2010; Carruthers and Wanamaker, 2016). These black-white test score gaps are zero at infancy but emerge before school entry (Fryer and Levitt, 2013), widen in school Fryer and Levitt (2006), and do appear to reflect productive skills rather than racial bias in the test (Neal and Johnson, 1996).[30] However, some evidence suggests that taste-based discrimination against blacks may account for the remaining share of black-white earnings gaps not accounted for by observed skills (Charles and Guryan, 2008; Lang and Lehmann, 2012).

One reasonable conjecture, therefore, is that Asian earnings gaps in 1940 reflect a different type of problem than black earnings gaps in CA, namely prejudice or misperceptions rather than skill deficits. If this were true, we might expect skill gaps even conditional on educational attainment to account for a large share of black but not Asian conditional earnings gaps as of 1940. Prior research documenting high academic achievement of Japanese American children attending school in CA in the 1930s appears promising for this theory (Ichihashi, 1932; Bell, 1935).[31] Flynn (1991) finds that both Chinese and

[30] Observed aspects of the home environment can account for a substantial share of these modern score gaps in children (Neal, 2006; Fryer and Levitt, 2006; Fryer, 2010), which likely relate to multigenerational suppression of black skills under slavery and Jim Crow regimes (e.g., Margo, 2016).

[31] Interestingly, Bell (1935) also claims that white anti-Japanese attitudes in the early 20th century acknowledge high Japanese skill levels, citing as "typical" the following quote of V.S. McClatchy,

Japanese Americans have very similar IQ scores to whites for the generation attending school in the 1960s. I am not aware of similarly rich published evidence on cognitive or academic achievement for early 20th century cohorts of Chinese or black Americans in CA, overall or conditional on educational attainment. Fortunately, AGCT test score data from 1943 are large enough to fill these gaps.

Figure VI plots the distribution of normalized test score residuals by race from an OLS regression of test z-scores on dummies for education and age.[32] Chinese Americans and whites have strikingly similar conditional skill distributions, while the black skill distribution lags behind by nearly a full standard deviation. Table VI shows that this pattern holds separately within broad educational categories. These high test scores of Chinese Americans provide strong evidence that the AGCT was not hopelessly biased against non-whites, as Neal and Johnson (1996) also find for the AFQT (the successor to the AGCT) in more recent cohorts.

Can these black-white test score gaps account for a large share of conditional earnings gaps in 1940, as they do in the more recent period? To address this question I turn to the matched national sample of AGCT scores linked to earnings and educational attainment in census data, restricting to individuals over age 23 in 1940 to allow school completion and labor market entry. Table VII reports estimates from regressions of log earnings on a dummy for black and AGCT scores, replicating specifications in Johnson and Neal (1998) on data fifty years earlier in time. Column (1) documents a large 0.633 log point raw black-white earnings gap controlling for age. Column (2) indicates that AGCT scores reduce this gap by 38% to 0.39 log points, or somewhat less than the 50% share of black-white earnings gaps accounted for by AFQT scores in the early 1990s in Johnson and Neal (1998). Given that these data likely understate black-white skill differences due to the lower pass rate of blacks in pre-AGCT examinations, results suggest that skills as measured by one test explain a substantial share of black-white earnings gaps at this time. Column (3) shows that educational attainment is likely an important channel by which AGCT scores increase earnings, but does not further reduce the unexplained share of the black-white earnings gap. Columns (4)-(7) show that, relative to whites, blacks exhibit lower returns to AGCT scores, age and education.[33]

Secretary of the CA Joint Immigration Committee during a 1920 hearing: "It will be agreed...that the facts now before us conclusively establish that the Japanese are undesirable as immigrants and as citizens, not because they are of inferior race, but because they are superior in certain characteristics....Their racial characteristics would soon give them economic control of this country if they secured a foothold...."

[32] I restrict to residence rather than birth in CA in this exercise due to some documentation or coding anomalies in the state of birth variable in the test score data, but results are similar using state of birth.

[33] Formal tests reject equality of coefficients on age and AGCT in columns (4) and (6) and in analogous

Taken as a lower bound on the effect of individual skills on earnings, these results can explain a substantial share of black-white earnings gaps nationally and in CA in 1940. They also imply that full, belated compensation of individual Asian skills after WWII could account for a substantial share of the decline in the Asian-white conditional earnings gap by 1970. A rapid change in factor prices for non-white groups with very different factor endowments is therefore one potential explanation for Asians' divergent growth.

8. Social Multipliers in Skill

The above results suggest an important potential role for compensation of individual skill in explaining group earnings dynamics in CA. There are also many reasons to suppose that *group* skills at the market level may have additional effects on group earnings. For example:

- Employers may find it more costly to exclude higher-skilled groups if firms earn greater profits on higher-skilled workers due to pay compression (e.g., Frank, 1984; Acemoglu and Pischke, 1999), or if labor markets for higher-skilled workers are tighter (Biddle and Hamermesh, 2013; Baert et al., 2015).[34]

- Racial prejudice may represent exaggerated stereotypes causally dependent on a "kernal of truth" about lower-skilled groups (Bordalo et al., 2016).[35]

regressions (not shown) replacing AGCT with education. I also reject equality of coefficients on age in columns (5) and (7), as well as joint equality of both AGCT and education across races. Additional controls for hours and weeks worked in these regressions are highly significant but do not reduce the black-white earnings gap further in my sample. Using levels rather than logs, and imputing low earnings for observations with missing earnings, do not change any of the qualitative results discussed here. Quadratic terms in AGCT scores are underpowered so I omit them.

[34] An anecdote in Bain (2000) illustrates this theory. Apparently, railroad employers were highly prejudiced against Asians in the late 19th century and dismissed them as potential workers, but immediately changed their hiring policy upon observing credible evidence of Asians' high productivity. Booker T. Washington can also be interpreted as advocating this theory, stating that "...as the Negro learned to produce what other people wanted and must have, in the same proportion would he be respected" Washington (1901). Formalizing this theory would be an interesting task for future research.

[35] This story is very different from statistical discrimination, which does not require any racial prejudice. There are many examples in US history of higher-skilled individual members of minority groups expressing concern about white prejudice inspired by perception of low skills in their broader group. Caro (1975, p. 31) claims that higher-skilled German Jews in New York "realized that non-Jews were lumping them all together, taking the behavior of the newcomers as the stereotype by which they thought of all Jews," and reacted by seeking to "make the shabby immigrants 'respectable'..." Taylor (1928, p. 82) refers to ""the social ostracism by Americans to which middle and upper-class Mexicans are subject in common with their fellow-nationals," and claims "[Upper-class Mexicans] profess to understand why [white] Americans do not want Mexican laborors as neighbors; but that the same

- Higher-skilled groups may contain more managers and business owners who may act as unprejudiced employers of their own group members.

All of these theories suggest "social multiplier" effects in which a group's market-wide or aggregate skill distribution can affect group members' earnings more than would be predicted by effects of individual skills. Unlike statistical discrimination, these theories predict that group mean earnings gaps typically exceed group mean producitivity gaps. [36]

This point can be demonstrated using a standard linear-in-means peer effects framework (e.g., Borjas, 1992; Glaeser et al., 2003). For log earnings y_{ijr} and test score x_{ijr} of individual i in market j and race $r \in \{w, b\}$, let log earnings be determined by the true relation

$$y_{ijr} = \alpha + \gamma_b 1\{r = b\} + \beta x_{ijr} + \delta \bar{x}_{jr,-i} + e_{ijr}, \tag{5}$$

where γ_b denotes the residual black-white log earnings gap, and $\bar{x}_{jr,-i} \equiv E[x_{ijr}|j, r, -i]$ or mean test scores of an individual's own-race peers within a market. I assume $e_{ijr} \perp j, r$ to abstract from endogenous sorting. Consider the "short" linear predictor $y_{ijr} = \tilde{\alpha} + \tilde{\gamma}_b + \tilde{\beta} x_{ijr} + \tilde{e}_{ijr}$, as estimated above in Table VII and in Neal and Johnson (1996); Johnson and Neal (1998) on national samples. If blacks tend to have lower-skilled peers such that $Cov(1\{r = b\}, \bar{x}_{jr,-i}) < 0$, then the short regression understates the share of black-white earnings gaps accounted for by black-white skill gaps ($\tilde{\gamma}_b < \gamma_b \leq 0$) and the predicted earnings gains associated with group skill improvements ($\tilde{\beta} < \beta + \delta$). Two approaches can recover γ_b and $\beta + \delta$. First, I can include $\bar{x}_{jr,-i}$ in the regression on matched microdata to estimate equation (5) directly. Second, I can run a version of the short regression on data aggregated to the level of market and race, $\bar{y}_{jr} = \check{\alpha} + \check{\gamma}_b + \check{\beta} \bar{x}_{jr} + \check{e}_{jr}$, which yields $\check{\gamma}_b = \gamma_b$ and $\check{\beta} = \beta + \gamma_b$. This approach does not require microdata, and therefore allows me to use the full, unmatched versions of the test score and earnings data, which may be more representative.

I am unable to test for social multiplier effects in a causal sense due to a lack of exogenous variation in group skills, implying potential violations of the assumption $e_{ijr} \perp j, r$. However, I can assess whether non-experimental correlations suggest a large potential role for social multipliers. I first divide the US into "labor markets" defined by state and four broad education categories: no high school, some high school, high school degree,

ostracism should be extended to them is bitterly resented."

[36] These mechanisms also differ from the "ethnic capital" concept in Borjas (1992, 1995); Leon (2005). Borjas suggests that a person's own human capital may depend on the aggregate human or financial capital of her ethnic community during childhood. I am suggesting that the compensation a person receives for her previously-accumulated human capital may depend on the human capital of her contemporary peers in the labor market.

and any college. I then aggregate earnings by markets and race for men ages 23-38 in the 1940 100% census, and WWII enlistment test z-scores based on the national score distribution for men ages 23-38. Figure VIII plots earnings gaps against test score gaps across all labor markets along with the estimated regression line. Strikingly, the implied relationship predicts small black-white earnings gaps in hypothetical markets without black-white skill gaps, although this prediction is far out of sample. To my knowledge, even this cross-sectional correlation has not been documented previously due to data limitations.[37]

Table VIII presents fixed effects regressions of log earnings on a black dummy variable and AGCT scores in a variety of specifications. In Columns (1)-(3), I estimate a simplified version of the regression in Table VII in the matched microdata. Column (1) documents a slightly larger black-white earnings gap without age controls. Column (2) controls for market fixed effects (state $\times$ broad education group), and shows that black-white earnings gaps fall slightly. Column (3) once again shows that AGCT scores account for a slightly smaller share of black-white earnings gaps in this simpler specification: about 25% rather than the 38% reported above. Column (4) adds mean peer test scores to the specification. Consistent with important social multipliers, the black dummy declines dramatically and the coefficient on peer scores is large conditional on own scores. Columns (5)-(7) replicate columns (1)-(3) on matched data aggregated to the level of race and market. Again consistent with an important role for intra-group spillovers, the coefficient on AGCT score nearly triples in the aggregate specification, and now accounts for over 60% of black-white earnings gaps. However, these specifications are limited by the smaller and potentially less representative nature of the matched sample, which only contains a subset of all potential markets due to missing data. Therefore, in columns (8)-(10) I once again estimate specifications from columns (1)-(3), but now on the full samples of test score and earnings data without restricting to the matched sample. These columns strengthen the findings from the matched sample: the coefficient on group-level AGCT in column (10) is now well over three times its microdata analogue in column (3) and eliminates nearly 80% of the black-white earnings gap.

These results have interesting implications for interpreting Asian upward mobility. Suppose CA labor markets failed to recognize Asians' skill advantage over local CA blacks in 1940. And suppose that once institutional discrimination declined in the post-war economy, labor markets gradually and fully compensated Asians for this persistent

[37] The NLSY is too small to estimate black-white test score gaps by state. NAEP data are large enough to estimate black-white test scores by state, but does not contain final educational attainment. Project Talent data contain educational attainment at ages 23 and 29 but only for subsets that responded to voluntary followup surveys.

skill advantage over CA blacks at the rate of 0.44 log earnings points per standard deviation in *group* test scores (as in Column 10 of Table VIII). This would account for virtually all of Asians' extraordinary upward mobility.

Of course, these findings could also be driven by measurement error in individual human capital, whereby market-level mean test scores proxy for individual skills (Borjas, 1992, 1995); this would represent a different mechanism, but would still be consistent with the idea that skills largely explain Asians' upward mobility. The patterns here could also be driven by unobserved variables that merely correlate with mean group test scores, such as white prejudice. Distinguishing these theories would require long-term, quasi-experimental variation in peer skills combined with credible measures of labor market discrimination across different markets.

9. Other Explanations for Asian Economic Divergence

So far I have emphasized a key role for Asians' high initial skills, and the fact that these skills appear to have been uncompensated in pre-war CA labor markets, in accounting for Asians' rapid economic ascendance in the post-war atmosphere of declining discrimination. In terms of the conceptual model in section (3), I emphasize the *interaction* between Asians' ancestral legacy of high skill on the one hand, and improvements in the post-war contemporary environment for non-whites in CA on the other. However, I have only examined non-experimental variation in skills across racial groups and broad, descriptive variation in discrimination across groups and over time. Therefore I am not able to exclude important roles for other aspects of these groups' ancestral legacies that correlate with skills, or more subtle variation in these groups' contemporary environments. Despite this uncertainty, I argue that my interpretation has important advantages over competing explanations.

One alternative explanation is that *harsher* pre-war discrimination against Asians than blacks in CA left more room for improvement in Asians' contemporary environment after 1940, and that these larger improvements could have increased Asian earnings even in the absence of large, previously uncompensated stocks of human capital. Given that Asians exhibit very similar earnings to blacks in 1940 despite their much higher skills, it is plausible that Asians experienced larger subsequent reductions in discrimination. However, recall that Asian conditional earnings increased after WWII by a sensational 0.4 log points relative to CA-born blacks. This is equivalent to something like 4 years of educational attainment—an entire college degree! While not impossible, it is hard to imagine that discrimination fell so much more for Asians than local blacks over the 1940-

70 period that labor markets awarded Asians but not blacks the equivalent of a college degree. It is also implausible that relative improvements in Asian school quality account for these gains, which are *four times* larger than the 0.1 log point relative earnings gains achieved by black high school graduates born in the segregated South between the 1910s and the 1940s due to (surely much larger) relative school quality gains (Card and Krueger, 1992b). Moreover, I am not aware of any candidate historical forces that would have generated such a seismic reduction in discrimination toward Asians but not other CA non-white groups. [38] Given the evidence presented above, it seems more likely that post-war labor markets in CA opened up in some roughly similar way for all non-whites, and this gave Asians the room they needed for competitive labor markets to finally reward their skills. It would be a remarkable coincidence if special post-war gains in labor market access for Asians specifically, unrelated to high Asian skills, happened to generate relative gains in Asian conditional earnings that lined up so nicely with returns to market-level group skill in 1940.

In Section, 6 I argue that factors increasing Asians' educational mobility, such as different group preferences for education, have played a significant but secondary role among the CA-born compared to factors affecting how Asians received compensation for their skills, and played no role at all for CA-born young adults in 1940. English fluency is also unlikely to play a significant role given my focus on CA-born Asians, the vast majority of whom attended integrated schools with many other US-born children of other races starting early in childhood (Wollenberg, 1978); I also find nearly identical results when I restrict to US-born Asian *parents* as well as CA-born children.

Table IX displays many additional outcomes for black and Asian parents ages 25-55 with CA-born co-residing children in every 20th century census year.[39] Some factors are roughly similar for blacks and Asians in most years, including marital status and fertility, casting doubt on any central role for quantity-quality tradeoffs in children (e.g., Becker and Tomes, 1976; Chiswick, 1988). Asians have slightly greater labor supply, total family income in 1950, and likelihood of collecting non-labor income in 1940. However, these differences in non-human capital do not appear large enough to explain Asians' sharp

[38] All of the important legislation and court cases overturning legal discrimination against *native-born* Asians in CA applied to all non-whites generally (i.e. residency, marriage, employment, and labor unions); removal of Alien Land Laws and special anti-Asian taxes only applied directly to foreign-born Asians. Almost no Asians ever attended segregated "Oriental" schools. Meanwhile, the US had just completed a major war against Japan, and China had become a communist dictatorship—not obviously auspicious tidings for white American views toward Asians.

[39] This sample becomes less comparable across races in more recent decades as rates of single parenthood have risen, implying greater exclusion of lower-SES fathers from my sample in groups with higher rates of single parenthood. Unfortunately, the census only asks women about fertility, and therefore co-residence remains the only method for restricting the sample to parents.

subsequent divergence. The largest differences are that Asian parents have been more likely to live outside cities, self-employ, and rent rather than buy their own homes. It is possible that something about rural, renting, self-employed lifestyles chosen by Asians in the early-mid 20th century set their children on a path to greater income growth, and that these adult economic choices were not related to Asians' large cognitive skill advantage over blacks. For example, Asians could have made different choices due to different preferences, rather than different skill endowments, and it may be that these preferences themselves or the choices they enabled gave their children economic advantages.

While I cannot reject this explanation conclusively, it is less attractive than explanations based on human capital endowments. Living outside cities in rented homes has not previously been considered a major advantage for children. Bates (1997) provides evidence suggesting that self-employment among immigrants often reflects an absence of more-preferred labor market opportunities, rather than a preference for entrepreneurship or a desire to expose children to distinct skills associated with running one's own business. Indeed, Asians' self-employment rate fell dramatically as their labor market opportunities expanded and no longer exceeded that of whites by 1980, suggesting self-employment was not a deep cultural preference or deliberate child-rearing strategy but rather a high-skilled group's temporary response to discriminatory constraints.

10. Robustness

Throughout the analysis I have excluded households with zero and missing total earnings (head + spouse) from the analysis. Many of these zeros represent self-employed families with positive labor supply and business income, and many others likely represent measurement error or transitory earnings shocks. An alternative approach is therefore to impute positive household earnings for these households and include them in the analysis. I implement this by calculating average household earnings among all individuals with non-zero earnings in cells defined by year, race, age, sex, education, marital status, and state or country of birth. I assign cell means to individuals with zero and missing earnings based on this set of characteristics, roughly following Autor et al. (1998). In households with two earners I take the maximum of these two predictions. For households with zero earnings I follow Neal (2006) and adjust for selection by multiplying imputed household earnings by 0.6. While this method is *ad hoc*, it provides a rough check on whether households with zero and missing earnings are likely to be driving the main results. Using this new income variable I re-estimate the main results from pseudo-panels in Section 5 and counterfactual black-white earnings gaps in Section 6. Appendix

Figures (A.10)-(A.11) document that the main results are largely unchanged.

Focusing on household earnings may confound group variation in earnings with group variation in rates of single parenthood. To examine this I re-estimate group dynastic growth rates as in Section 5 using fathers' and sons' individual earnings rather than total household earnings. Appendix Figure A.12 documents that the results are virtually unchanged.

Duncan and Trejo (2016) document that 20% of second-generation Asian Americans in the 2000s report their race to census enumerators as "white," and that these Asians tend to have lower schooling than other Asians. However, I find that Asians exhibit unusually high dynastic growth rates in pseudo-panels for every cohort born in the CA after 1920, and that Asians experienced rapid declines in conditional earnings gaps by the late 1960s. While I cannot rule out a role for endogenous ethnic identification in these results, it seems likely that a very low share of Asians would have identified themselves as white to census enumerators in these earlier decades. Note that intermarriage of Asians with whites increased dramatically only after 1970, suggesting widespread cultural assimilation took place after the main results documented in this paper.

11. Conclusion

In this paper I have set up a context and framework for understanding the remarkable economic ascendance of Asian Americans, a "non-white" racial group that experienced severe, long-term institutional discrimination yet emerged with incomes similar to whites by the 1970s. I focus on Asian, black and white children born in CA, which is by far the primary mainland destination of Asians historically and also the only state with large enough populations of both Asians and blacks to conduct detailed historical comparisons.

As context, I show that US immigration policy generated positive selection of Asians both into migration and family formation, that Asians likely experienced similar or worse prejudice and legal discrimination than blacks living in CA before the 1960s, and that all of the harshest forms of legal (though not necessarily *de facto*) discrimination against non-white minorities in CA disappeared during the period 1943-59. I then address three main questions.

Question 1: Does high Asian income reflect high dynastic income growth, or compositional effects of new immigration? I exploit pseudo-panels linking parental income to future income of CA-born children to distinguish group intergenerational income mobility from compositional effects of migration. I find that Asian dynasties exhibit extraordinary upward intergenerational mobility. Asian children embody "divergence" in

the form of a "rich getting richer" pattern toward local blacks and a "reversal of fortune" pattern toward local whites, in every cohort born in CA since at least the 1920s.

Question 2: Why did Asians achieve more rapid dynastic income growth than other groups? To explore potential mechanisms underlying Asians' rapid upward mobility, I estimate an intergenerational decomposition of group earnings into parental income distributions, educational mobility, and children's earnings conditional on education. I quantify the importance of these three components by permuting them across groups to construct counterfactual black-white earnings gaps in the next generation. Contrary to public perception, gains in Asian earnings conditional on education have played the dominant role in Asian upward mobility, with a significant but secondary role for higher educational mobility, and no significant role for higher parental income.

Question 3: Why were Asians but not blacks able to close their conditional earnings gap? I exploit a large sample of WWII enlistee cognitive test scores from 1943, along with prior research, to assess the contribution of skill gaps to Asian and black conditional earnings gaps in 1940 in CA. I find large test score gaps for blacks conditional on education, but not for Asians. Asians' large earnings gaps in the absence of any observed human capital gap is, to my knowledge, unique among non-white racial groups in US history (e.g. Trejo, 1997; Hurst, 1997). In national samples combining data on test scores, earnings, and education, I find that individual AGCT test scores can account for 40% of black-white earnings gaps, and that mean group skill gaps across labor markets can account for 80% of black-white mean earning gaps. These market-level effects of mean group skills are large enough to explain relative conditional earnings gains experienced by Asians 1940-70 in CA—and hence Asian upward mobility—under the assumption that the Asian group-level test score advantage over other non-whites was uncompensated in 1940 and fully compensated by 1970.

I conclude that Asian history can be interpreted as a case study in which a large pre-war racial earnings gap almost surely driven by prejudice, rather than productivity, failed to survive post-war removal of harsh legal discrimination. I argue that Asians' high initial skills—an ironic byproduct of America's anti-Asian exclusion policies—interacted with declining discrimination against all non-whites in CA during the 1943-1959 period to generate faster Asian economic progress. While this explanation is consistent with the large magnitude of Asians' early skill advantage and subsequent earnings gains, it is possible that aspects of Asian and black ancestral legacies other than skills, or differential post-war changes in the contemporary environment facing these groups, could also have played important roles in Asian economic progress. Distinguishing these theories more conclusively represents a challenging task for future research.

A. Institutional Discrimination Against Asians and Blacks in California

Asians have long faced severe political discrimination. Foreign-born Asians were barred from naturalization by the Naturalization Act of 1790. This Act excluded Asians from citizenship and voting except by birth, and created the important new legal category of "aliens ineligible for citizenship" that would prove useful in crafting future discriminatory laws. Both Asians and blacks in CA could not testify against a white witness in court from 1853-73 (*People v. Hall*, 1853, see McClain, 1984), limiting Asians' legal defense against white aggression. The Chinese Exclusion Act of 1882 and the "Gentlemen's Agreement" in 1907 barred further immigration of all "laborers" from China and Japan, with exceptions for Asian "merchants," diplomats, students, and teachers and in some cases the wives of prior Asian residents. Subsequent laws and practices served to encourage return-migration and facilitate deportation of lower-skilled Asians, while still allowing certain higher-skilled and higher-wealth Asians to stay in the US and bring in wives and children from Asia (McKenzie et al., 1927; Hutchinson, 1947; Lee, 2005; Daniels, 1990; Chan, 1991).[40] Below, I show direct evidence on skill-biased positive selection of Asians into both migration and parenthood, consistent with these institutional constraints. In contrast, CA has never screened black migrants on occupation, skill, wealth, or any other characteristics.

Asians have also faced intense economic discrimination. Many cities and states levied discriminatory taxes and fees on Asians (1852 Foreign Miner's Tax, 1852 Commutation Tax, 1860 Fishing License, 1862 Police Tax, 1870 "queue" ordinance, 1870 sidewalk ordinance, and many others). Many professional schools and associations in CA excluded Asians (e.g., State Bar of CA), as did most labor unions (e.g., Knights of Labor, American Federation of Labor), and many employers declined to hire Asians well into the 20th century (e.g., Mears, 1928, p. 194-204). From 1913-23, virtually all western states passed increasingly strict Alien Land Acts that prohibited foreign-born Asians from owning land

[40] Amendments to the Chinese Exclusion Act from 1882-1932 excluded many other smaller-scale merchants from exempted classes, eventually requiring proof of international trade with one's country of origin (Lee, 2005, pg. 90-91). The Scott Act of 1888 deported over 20,000 Chinese laborers who happened to be abroad at time of the law's passage. The Geary Act of 1892 required all Chinese to prove lawful status on demand or face punishment and deportation. The US Supreme Court case *United States v. Ju Toy* 1905 restricted due process and *habeas corpus* petitions for anyone entering the US including Chinese with US citizenship. The Gentlemen's Agreement of 1907 caused the Japanese to screen potential migrants on wealth, occupation, and other characteristics, implemented in part through the Japanese Associations of America (Daniels, 1990). The Immigration Act of 1917 created an "Asiatic Barred Zone" excluding other East Asian countries (not Japan) with broader exceptions for some highly-skilled workers (lawyers, physicians, chemists, civil engineers, etc.), introduced literacy requirements for any immigrant over age 16, and expanded discretionary powers of US immigration officials to reject immigrants on these and other grounds. The National Origins Act of 1924 barred immigration of all foreign-born Asians, including Japanese, as "aliens ineligible for citizenship," yet continued exceptions for wives and children of Chinese merchants.

or leasing land for extended periods.[41] Asians also faced laws against marriage to whites (1905 amendment to Section 60 of the CA Civil Code) and US citizens (Expatriation Act 1907, Cable Act 1922). From 1942-46, the US forcibly relocated over 100,000 mainland Japanese Americans to military detention camps, in practice destroying a large share of Japanese American wealth. In contrast, blacks in CA were eligible for citizenship and suffrage, were officially (though often not *de facto*) included in CA professional associations and labor unions that excluded Asians, were not covered by the Alien Land Acts, and were not confined or expropriated during WWII.

In education as well, Asians in CA faced legal disadvantages relative to blacks after 1890, when the CA Supreme Court ruled in *Wysinger v. Crookshank* (83 California 593, 1890) that CA school laws allowed *de jure* segregation of Asians and Native Americans but not blacks or other racial groups (Stephenson, 1910; U.S. Commission on Civil Rights, 1977; Wollenberg, 1978). In keeping with this decision, after 1890 a small minority of Asians in CA did attend *de jure* segregated schools in San Francisco and Sacramento (Kersey, 1933, pg. 429;Wollenberg, 1978). Evidence suggests that these few cases of formal segregation did reduce school quality for affected students. In district financial reports, the Commodore Stockton "Oriental school" segregating Chinese students in San Francisco ranked near the bottom of 106 district elementary schools in per-pupil spending during the 1920s, with spending around 80% of the median school (San Francisco, California, 1924, and other years through 1929).[42] Likewise Bell (1935) finds slightly worse outcomes for Japanese students segregated into Oriental schools in Sacramento County. In contrast, there is no documentation of any *de jure* segregated black schools in CA after 1890. Indeed, Graaf et al. (2001, e.g., pages 14, 137) suggests that access to relatively high-quality (Ayres, 1920), racially integrated public schools attracted many Southern blacks to CA.[43]

De facto educational segregation of non-white minorities did take place in CA, though less comprehensively than in the South (Hendrick, 1975; U.S. Commission on Civil Rights, 1977; Wollenberg, 1978; Graaf et al., 2001; Torres-Rouff, 2012). The primary instruments of segregation were "restrictive covenants" excluding non-whites from residential neigh-

[41] Higgs (1978) argues that Alien Land Laws had little practical effect on Asians due to a variety of loopholes, though Azuma (1994) provides a case study suggesting otherwise.

[42] Japanese students in San Francisco were not segregated. An attempt to segregate Japanese students in San Francisco at the start of the 20th Century led to the Gentleman's Agreement in 1907, in which CA agreed not to segregate Japanese students, and Japan agreed to prevent further immigration of Japanese laborers to the US (e.g., Wollenberg, 1978).

[43] Consistent with the cited references, I find no documentation of any formally "black" schools in CA in the following additional sources: "Accredited Secondary Schools in the United States" from every available year 1928-1944 in which "Negro schools" are indicated with superscripts (Phillips and United States Office of Education, 1929; Carr and United States Office of Education, 1930; United States Office of Education, 1933; Carr and United States Office of Education, 1934; United States Office of Education, 1937; Carr and of Education, 1939; United States Office of Education, 1943; Carr and of Education, 1944), the "Directory of Secondary Day Schools" from years 1949 and 1952 (Rice and United States Office of Education, 1949, 1952), the Sears Sacramento School Survey Volume II (1928), Auditor's annual financial reports 1924-42 for Los Angeles, Annual Report of the Fresno Public Schools 1900-37, and Annual report of the public schools of the City and County of San Francisco 1906-29.

borhoods along with "manipulation of school boundaries, the location of new schools, and a selective transfer policy" (Hendrick, 1975, pg. 190-191). Los Angeles contains the only pre-war survey of racial composition across *de jure* integrated schools, including Asians and blacks, of which I am aware. This survey was conducted confidentially in 1938 by the School Board and discussed in Hendrick (1975, pg. 194). I digitize and link this survey to data on school inputs from annual financial reports (Board of Education of the City of Los Angeles, 1938). Table A.1 characterizes schools attended by whites, blacks, Hispanics and Asians (predominantly Japanese Americans) in these data. All minorities attended schools containing many whites. While Asians attended schools with higher white shares than blacks, group variation in class size and spending per pupil is minimal. Why might Asians have gained greater access to predominantly white schools than other minorities, despite similarly strong white prejudice against Asians? Evidence below suggests one reason: Asian and white children would have tended to possess similar cognitive preparation for schooling, while blacks would have tended to lag behind and potentially pose greater problems of classroom management.

Beyond San Francisco and Los Angeles, it is not likely that Asians faced dramatically more favorable educational environments than blacks in pre-war CA. Asian and black school-age children lived largely in the same counties in CA for most of the 20th century.[44] And within counties Asians and blacks likely faced similar residential restrictions. Two unverified sources report that 80% of homes in Southern CA were unavailable for occupancy by blacks (U.S. Commission on Civil Rights, 1973, pg. 4) or Asians (Lotchin, 2011, pg. 174, footnote 57); Mangum (1940, pg. 149) asserts that restrictions in CA "generally include [Asians] as well as the Negro"; and many covenants quoted in publications exclude both blacks and Asians or all non-whites (e.g., *Shelley v. Kraemer* (334 US 1, 1948)). In San Francisco, Chinese apparently faced harsher residential restrictions than blacks before WWII (Broussard, 1993, p. 31-32), though in Los Angeles residential restrictions appear to have affected all non-whites from the early 20th century Sides (2004, p. 17-18).

Finally, minorities tend to face more harsh educational segregation in places where they compose a larger share of the local school-age population (e.g., Margo, 1990; Card and Krueger, 1992b), and this factor would have disadvantaged Asians relative to blacks in CA up through the 1940s.[45]

Many aspects of institutional discrimination against minorities in CA weakened after 1940 and well before the federal Civil Rights Act of 1964. In 1941, President Roosevelt issued Executive Order 8802 prohibiting discrimination by race among government agen-

[44] Over the 1920-40 period, Asians were slightly more concentrated in San Francisco and Sacramento, and blacks were slightly more concentrated in Los Angeles, Alameda (Oakland) and San Diego. In future research, it would be useful to compare exact residential patterns for blacks and Asians in CA 1900-1940, but processing residential address in the 100% census data for CA is beyond the scope of this paper.

[45] While Asians in CA were a larger share of local populations than blacks before 1940, they were still very sparse compared to blacks in the South at this time. For example, black and white school resource gaps were very large in Southern states in 1920 where black population shares exceeded 50%, but were nearly equal in states with black population shares under 10% (Card and Krueger, 1992b, Figure II). For comparison, in 1920 CA was 3.4% Asian.

cies and their contractors in defense industries, and related antidiscrimination Executive Orders were issued by Presidents Truman, Eisenhower, Kennedy, and Johnson. In 1943, Congress overturned the Chinese Exclusion Acts and granted Chinese Americans eligibility for naturalization. In 1946, CA Governer Earl Warren repealed state laws permitting segregated schooling of Asians and Native Americans after federal courts declared *de jure* school segregation for Mexican Americans illegal under CA state law (Wollenberg 1974, *Mendez* et al *v. Westminister [sic] School District of Orange County, et al*, 64 F.Supp. 544 (S.D. Cal. 1946), affirmed, 161 F.2d 774 (9th Cir. 1947)). Also in 1946, 59% of CA voters opposed strengthening the anti-Japanese Alien Land Law through Proposition 15, contrasting with only 25% of CA voters who had opposed a similarly anti-Japanese proposition in 1920. In 1948 the US Supreme Court invalidated restrictive covenants (*Shelley v. Kraemer* 334 US 1) and extended equal protection to "aliens ineligible to citizenship" in cases such as access to commercial licenses (*Takahashi v. California Fish and Game Commission*, 334 US 410), while the CA Supreme Court struck down all state laws barring inter-racial marriage (*Perez v. Sharp*, 32 Cal.2d 711). In 1952, the CA Supreme Court declared all prior Alien Land Laws unconstitutional (*Fujii v. California* 38 Cal 2nd 718). CA legislators began introducing bills to prohibit racial and religious discrimination in employment starting in 1945, and in 1959 CA passed the Fair Employment Practices Act prohibiting discrimination by employers, labor unions, and employment agencies on the basis of race, religion, color, national origin, or ancestry.

These changes before 1960 all would have tended to increase competition for minority workers in the labor market by removing legal barriers to employment; by inducing voluntary racial integration by firms and unions anticipating future legal developments or seeking excuses to end costly exclusionary policies only valued by some whites; and by eroding broad social norms required to sustain high levels of racial exclusion (e.g., Heckman and Payner, 1989; Donohue and Heckman, 1991). I am not able to pin down causal effects of any *specific* change in legislation or social norms on racial outcomes. Rather, I argue that all these changes suggest a relaxation of previously severe labor market restrictions on minority workers over the decades after 1940.

Asians may have had one advantage in their contemporary environment over blacks in CA: ethnic community organizations such as the Chinese Six Companies and family "clans," and the Japanese Associations of America Daniels (1990). These organizations lobbied on behalf of their communities at all levels of governments to curtail discriminatory legislation, with limited success. They also provided some social insurance and law enforcement services, at points helped to screen potential migrants to comply with US exclusion laws and home countries' national interests, and in the Japanese case openly advanced a cultural agenda of high educational attainment and model citizen behavior. It is difficult to quantify the advantages imparted to Asians by these organizations. However, blacks in CA also had many organizations serving similar purposes, including NAACP chapters, community groups, churches, and media outlets. Moreover, while Asians may have benefitted from political support of their home countries, blacks in CA benefitted more directly from the right to vote, which CA fully granted to black citizens both *de jure* and *de facto* unlike many Southern states (Graaf et al., 2001).

B. Data Appendix

The decennial census is the only data set large enough and extending back far enough in time to conduct detailed historical comparisons of Asians with other groups.[46] I rely primarily on census data from 1940-2000, when income and education are both available, though also make limited use of censuses back to 1850 (Ruggles et al., 2015). I rely on recently digitized 100% sample 1940 census data, making it possible to examine minorities in pre-war CA and to match census data with test score data. I define "Asians" broadly as Chinese, Japanese, and "Other Asian or Pacific Islander", though most Asians up through 1970 were Chinese or Japanese. Asians have been identified in the census race variable through "enumerator observation" (1850-1950) and self-reporting (1960-2000) in every year back to 1850.[47]

I focus on household annual labor earnings (head + spouse) as my primary measure of income for several reasons: non-labor income is not available in the 1940 census, hourly wages suffer from measurement error in reported hours[48] (Baum-Snow and Neal, 2009); both earnings of head and hourly wages do not capture total resources available for investments in children's education; and household wages allow pooling of male and female children on a comparable footing in order to maximize sample size. I confirm robustness of my main results to all these decisions in Section 10. I estimate the relationship between parental earnings and children's education using the subset of children co-residing with parents in their late twenties after most children have completed schooling, and adjust for missing independent children using the method developed in Hilger (2016).[49]

I also make use of recently-discovered World War II enlistment data containing Army General Classification Test (AGCT) scores for a large sample of enlistees in 1943 (Ferrie et al. (2012); also see Aaronson and Mazumder (2011); Carruthers and Wanamaker (2016)). The AGCT was intended to measure "ability to learn" in the army environment (not "innate" abilities) and contained 140-150 multiple-choice questions on vocabulary,

[46] The Current Population Survey is another large, long-standing survey. For this paper, census data are preferable to CPS data because the March CPS begins in 1962, only introduces "Asian/Pacific Islander" to its racial classification in 1988, and excludes military and incarcerated individuals from its sample.

[47] Carter (2015) documents significant over- and under-counts of Chinese Americans in the 1940 full count data at the national level, but not in California (she reports a 3% under-count of Chinese Americans in California). The over-count problem is generally much more severe. I adjust for this problem in the 1940 full count data by setting the race variable to missing for individuals identified as Chinese (Japanese) in states where fewer than 30% of Chinese (Japanese) report "mother tongue" of Chinese (Japanese). This results in dropping all Chinese Americans in Delaware, Ohio, Kansas, Missouri, Alabama, North Carolina, Oklahoma, and Tennessee and all Japanese Americans in Michigan, Minnesota, North Dakota, Alabama, Oklahoma, and Tennessee in 1940. This adjustment has very little impact on national statistics because these states are a small share of all Asians in the US at this time.

[48] Neal (2006) imputes hours from CPS data, but the CPS does not separately identify Asians in its race variable before 1988 and is too small to provide useful imputations for Asians in later years.

[49] In Hilger (2016), I show that the method generates educational mobility statistics that match different mobility patterns across blacks and whites and time trends before the 1980s as measured in several other survey datasets with complete parent-child linkages, and that correlate strongly with income mobility variation across states after 1980 using tax data from Chetty et al. (2014).

arithmetic, and block counting. The test correlated strongly with IQ scores, displayed high reliability and validity, strongly predicted in-service and post-service occupations, and strongly correlated with satisfactory completion of military assignments. Importantly, the AGCT sample contains a positively selected sample of enlistees because the test was only administered to individuals who passed brief preliminary examinations of physical, educational, and emotional fitness (Bingham, 1946; Ginzberg, 1959). Overall, only 73% of white enlistees and 53% of black enlistees took the AGCT.[50] Low educational attainment and quality, roughly associated with sub-4th grade levels of literacy in spoken and written English, accounted for most of this racial discrepancy, though discrimination by white examiners and possibly greater ambivalence toward military service by blacks also played some role (Ginzberg, 1959; Smith, 2013).[51] Despite lower initial pass rates for blacks, the military and hence the AGCT test score sample deliberately maintained racial balance by increasing the number of initial black enlistees (Ginzberg, 1959, p. 120).[52] Therefore AGCT scores likely understate black-white gaps in education and cognitive skills in the broader population, and this should be kept in mind when discussing results below.

Despite these selection problems, this extraordinarily large sample of cognitive test scores allows me to conduct three novel empirical exercises. First, I separately examine test scores of Chinese, black and white enlistees born in the 1920s and living in CA in 1943, during a period when many Jim Crow laws were still in effect.[53] Second, I match these test score data to 100% individual census data in 1940 to assess cross-sectional effects of individual test scores on earnings of young men. Third, I use test score and earnings data separately on full unmatched samples to compare black-white test score and earnings gaps across labor markets defined by state of residence and broad education category.

I match AGCT and census data on exact state of birth, race, first name and last name, and year of birth plus or minus one year.[54] I obtain a match rate of nearly 40%, which is high by the standards of census matching, perhaps due to the short time interval between the two datasets.[55] Summary statistics for men in the 1940 census

[50] Previous work making use of these test scores does not appear to recognize this selection problem.

[51] Malcolm X, for example, claims to have feigned a mental disorder during his psychological examination to avoid military service (X et al., 1992).

[52] Pre-AGCT preliminary exams took place on one-day visits of potential enlistees to "induction stations." Only individuals passing these tests would return several weeks later to "reception centers" for multiple days of more detailed testing including the AGCT intended to guide their occupational assignment in the military (Hershey 1943, pg. 52-53 shows order of events, pg 50-51 documents share of whites and blacks reaching reception centers for AGCT testing, also seeLew 1944; Ginzberg 1959). I have been unable to obtain the rejection rate for Chinese enlistees; Ginzberg (1959, p. 120 footnote) claims the military only published rejection rates for blacks and non-blacks separately.

[53] Japanese Americans are almost entirely unrepresented among WWII enlistees in 1943 due to the Japanese Internment policy following Pearl Harbor.

[54] I drop individuals who would be under age 23 in 1940 to assure that most individuals are no longer in school, and individuals with reported education under 5 years, which is the 2nd percentile of education in this year.

[55] For example, Long and Ferrie (2013); Abramitzky et al. (2014) match males across multiple decennial censuses and obtain match rates around 10-15%.

sample, the 1943 enlistment records sample, and the matched data, for both US and CA residents are presented in Table A.2. Chinese American men ages 18-38 represent 0.8% of all CA residents in both the 1940 census and the test score data, consistent with overall composition of WWII servicemen (Smith, 1947). Blacks are over-represented in the test score data among CA residents, but under-represented at the national level as among servicemen generally (Smith, 1947). Some of this discrepancy between US and CA samples may reflect rapid migration of blacks to CA between 1940 and 1943 (Graaf et al., 2001). Overall, the test score data contain about 3% of men ages 18-38 in the 1940 census, both for the US and CA. Table A.2 also indicates that the matched sample is fairly representative of the AGCT data. Test scores are slightly higher in the matched sample, but similarly dispersed. Age, education, and race are also similar in the matched sample, with the exception that I match almost no Chinese Americans, most likely due to difficulties matching Chinese names. I therefore only examine Asians in unmatched test score data.

Finally, in Section 3 and Appendix A I make use of novel historical datasets on school inputs at a Chinese segregated school in San Francisco in the 1920s, data on school inputs and racial composition of public schools in Los Angeles in 1938, narratives of workplace discrimination contained in complaints filed to the federal Fair Employment Practices Committee in CA during WWII, and new data on racial composition of individual firms in the Bay Area in 1943 and 1944 gathered by the War Manpower Commission during WWII and shared with the Fair Employment Practices Commission in CA.

C. Basic Historical Trends: Aggregate Time Series

In this appendix I plot national aggregate outcomes by race over all available years of data, reweighted to match the white age and gender distribution in each year and restricting to ages 25-65. I focus on national trends with no further restrictions, rather than trends restricting to those born in the US or in CA, because national trends may have informed broader perceptions of Asian American history. To further illustrate the importance of ancestral legacy, results in this section incorporate Native Americans as a second "involuntary immigrant" group that has undergone multiple centuries of institutional discrimination in both human capital and labor markets (e.g., Page, 2004).

As discussed in the paper, these comparisons furnish useful historical context, but they confound intergenerational group mobility with compositional changes from migration (Borjas, 1987; Chen, 2011; Suzuki, 1995, 2002). Figure A.1 illustrates the magnitude of this problem by plotting gross immigration flows into the US from various Asian countries since 1820. The Chinese Exclusion Act, the Gentlemen's Agreement, and the 1965 Immigration Act are all discernable. On the right-hand axis, the dashed line labeled "Share" plots total Asian immigrant flows as a share of the total Asian population stock in the US in the previous decade, and indicates that migration flows were large relative to stocks even before the 1965 Immigration Act, and much larger thereafter. Return-migration flows also affect the composition of Asians between censuses (Suzuki, 1995). Below I develop comparisons that partly address these problems.

Figure A.2a plots basic literacy rates (ability to read and write in any language) by race and year, which captures some low minimum level of schooling.[56] Asians had much higher literacy rates than blacks and Native Americans in 1870, but this gap had closed by 1900. Figure A.2b plots average educational attainment by race and year. In every year 1940-2000, Asians exhibit significantly higher education than all other groups, followed by whites, followed by blacks and Native Americans.

Figure A.3 plots log earnings of men 1940-2000. All three minorities reduce their earnings gaps with whites after 1940. I also impute log earnings in earlier periods based on occupation.[57] Figure A.3b displays imputed log earnings of men from 1880-2000. All minorities exhibit convergence toward whites over most of the last 150 years. However, blacks and Native Americans do not display any clear convergence toward Asians in actual or imputed earnings.

Table A.3 presents the most common occupation for each race by year, and sketches out the different occupational trajectories underlying Figure A.3b. In 1860-80, many Asians were "mine operatives and laborers." Later Asians tended to work on farms as wage laborers, rather than tenants, again reflecting differences in regional economies. Asians then worked in restaurants, laundries and other service industries before shifting into more white-collar positions in late 20th century. In comparison, blacks and Native Americans tended to work on farms as tenants after the Civil War, and have remained in lower-skilled agriculture and manufacturing throughout the 20th century.

Unsurprisingly given the different ancestral legacies discussed above, these aggregate national trends characterize Asians as higher-skilled than other longstanding US minorities at every point over the past 150 years. The perception that Asians began their history in the US disadvantaged by lower skills and earnings could potentially be true relative to whites, but is not plausible when comparing Asians to blacks or Native Americans at the national level. In contrast, trends in human capital and earnings among the CA-born are more consistent with this perception, as shown in Appendix Figures A.4-A.5. Among the CA-born, Asians and blacks appear similarly disadvantaged in 1940, but Asians rapidly overtake both blacks and whites in education and earnings over subsequent decades. Unfortunately, these figures also confound effects of intergenerational group mobility with time-varying selective migration, now to an even greater extent due to inter-state migration of blacks and whites in addition to international migration of Asians.

[56] Only free blacks were asked about literacy by census enumerators through 1860, and only "taxed" Native Americans were asked about literacy up through 1870. I therefore drop these observations from the figure due to concerns about selection. A fire destroyed the 1890 census.

[57] I follow Smith (1984) and Margo (1990) and impute earnings back to 1860 based on earnings in occupations in 1940, allowing earnings to differ by native-born status and restricting to men ages 25-65. I do not allow earnings to differ by race within occupations in this imputation. By fixing earnings within occupation the imputation provides a simple index of occupational quality. To harmonize occupations across years I rely on the IPUMS variable OCC1950.

D. Testing Validity of Pseudo-Panels

I test the assumptions required to obtain valid pseudo-panels by testing for anomalous changes in the size and gender composition of cohorts defined by place of birth.[58] Appendix Figures A.6-A.7 plot log frequencies for these cohort-blocks born in the US and CA, respectively. In a truly balanced pseudo-panel, cohort size weakly declines over time due to death and out-migration. While I find this restriction is approximately satisfied in most cases, cohort size does increase between some censuses for some races. These violations may reflect inconsistencies in census sampling techniques or individuals' self-reported age, place of birth or race. However, the violations are typically small in comparison to the large changes in Asian population size and composition displayed in Figure A.1.[59]

I also assess the validity of these pseudo-panels by tracking their gender composition over time. Earlier cohorts of Asians reporting US birth exhibit "excess" males due to mass falsification of US nativity records by largely male Asian migrants after the destruction of immigration records in the 1906 San Francisco earthquake, and possibly due to widespread incentives to avoid restrictions on foreign-born Asians through false nativity papers (Bureau of the Census, 1914; Chang, 2004). If this "paper sons" phenomenon somehow continued into later cohorts we would expect to see excess men or excess volatility of gender ratios. Appendix Figures A.8 and A.9 plot the share of men in each of these cohorts and races for native-born and CA-born cohorts, respectively. The figures document a male share very close to 50%, falling slightly as cohorts age, which is exactly the pattern that would arise from valid pseudo-cohorts due to the greater longevity of women. While there are some anomalies for certain cohorts in certain years, the selected pseudo-cohorts appear reasonable based on both stable frequencies and gender balance over time.

[58] These tests are not perfect because consistent cohort size may conceal changes in the composition of the cohort from migration flows that cancel out on net.

[59] Reweighting the pseudo-cohorts to maintain an internally-consistent age distribution over time has no significant effect on the results.

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Study	Percentile of White Prejudice (1 = Most Prejudice) Black	Chinese	Japanese	Number Groups	Year	N	Sample	Method
Bogardus (1959)	0.87	0.93	0.77	30	1926	1,725	US college/adult students	Social Distance
Bogardus (1959)	0.97	0.70	1.00	30	1946	1,950	US college/adult students	Social Distance
Bogardus (1959)	0.90	0.83	0.87	30	1956	2,053	US college/adult students	Social Distance
Young (1927)	0.96	0.92	0.58	24	1927	221	U. Pennsylvania	Innate Ability
Young (1927)	1.00	0.83	0.67	24	1927	231	U. Pennsylvania	Innate Ability
Guilford (1931)	0.80	0.93	0.73	15	1931	198	U. Florida	Pairwise Comparisons
Guilford (1931)	0.87	0.93	0.80	15	1931	211	U. Kansas	Pairwise Comparisons
Guilford (1931)	0.73	0.93	0.60	15	1931	110	U. Nebraska	Pairwise Comparisons
Guilford (1931)	0.87	0.80	0.67	15	1931	100	New York U.	Pairwise Comparisons
Guilford (1931)	0.87	0.93	0.67	15	1931	208	Northwestern U.	Pairwise Comparisons
Guilford (1931)	0.73	0.87	0.80	15	1931	207	U. Washington	Pairwise Comparisons
Guilford (1931)	0.93	0.87	0.67	15	1931	62	Wells College	Pairwise Comparisons
Katz and Braly (1935)	0.87	0.93	0.67	15	1935	100	Princeton U.	Pairwise Comparisons
Chant & Freedman (1934)	1.00	0.86	0.77	22	1934	200	U. Toronto	Pairwise Comparisons
Thurstone (1928)	1.00	0.86	0.76	21	1928	239	U. Chicago	Pairwise Comparisons
Bogardus (1926)	0.75	0.83	0.92	12	1928	110	"Along West Coast"	Social Distance
Katz and Allport (1931)	1.00	0.77	0.77	31	1931	3,515	Syracuse U.	Social Distance[a]
Hartley (1946)	0.72	0.88	1.00	32	1938-39	132	Princeton U.	Social Distance[b]
Hartley (1946)	0.69	0.81	0.94	32	1938-39	86	Teachers College	Social Distance[b]
Hartley (1946)	0.38	0.94	1.00	32	1938-39	96	Normal School	Social Distance[b]
Hartley (1946)	0.81	0.94	1.00	32	1938-39	130	C.C.N.Y - Business	Social Distance[b]
Hartley (1946)	0.56	0.75	1.00	32	1938-39	144	Columbia U.	Social Distance[b]
Hartley (1946)	0.84	0.94	1.00	32	1938-39	39	Bennington College	Social Distance[b]
Hartley (1946)	0.03	0.81	0.94	32	1938-39	132	Howard U.	Social Distance[b]
Hartley (1946)	0.81	0.88	1.00	32	1938-39	35	C.C.N.Y - Arts	Social Distance[b]
Average[c]	0.83	0.87	0.83					
Weighted Average[c]	0.92	0.82	0.83					

Table I: Racial Prejudice Against Blacks and Asians, 1926-56

Notes: Table presents ranking of blacks, Chinese and Japanese in various published studies exploiting survey data on racial attitudes to construct measures of prejudice against groups. Ranking of 0 indicates minimum prejudice, and ranking of 1 indicates maximum prejudice. Where not otherwise noted, subjects in surveys are predominantly white Americans.

[a] Katz and Allport (1931) only include an abridged social distance survey reflecting willingness to accept various nationalities/ethnicities into one's fraternity/sorority at a college.

[b] Rankings for Hartley (1946) exclude fictional placebo nationalities (e.g. "Wallonian"), and groups that are not nationalities (e.g., "Nazis").

[c] Averages exclude New York University because sample is disproportionately Jewish American, and Howard University because sample is disproportionately Black.

Category of Discrimination	Discrimination			Relevant Laws and Court Cases
	Asians	Blacks	Dates	
Naturalized citizenship	✔		1790-1943 (Chinese) 1790-1952 (Japanese)	Naturalization Act of 1790 Act to Repeal the Chinese exclusion Acts 1943 Walter-McCarran Act 1952
Testifying against white in court	✔	✔	1853-73	*People v. Hall* 1953, overturned 1973 following federal Civil Rights Act of 1870
Immigration	✔		Chinese 1882-1965 Japanese 1907-1965	Chinese Exclusion Act 1882, Gentlemen's Agreement 1907, Immigration Act of 1917, National Origins Act of 1924, Immigration Act of 1965
Taxes and fees	✔		Various	Foreign Miner's Tax 1852, Commutation Tax 1852, Fishing License 1860, Police Tax 1862, "queue" ordinance 1870, sidewalk ordinance 1870, CA Fish and Game Code 1943 US Supreme Court extends equal protection to "aliens ineligible for citizenship," i.e. foreign-born Asians in *Takahashi v. California Fish and Game Commission*, 1948
Labor unions	✔	✔	? - 1959	1959 CA Fair Employment Practices Act
Employment	✔	✔	? - 1959	1942 Executive Order 8802 1959 CA Fair Employment Practices Act
Land ownership & extended leasing	✔		1913-52	Alien Land Laws 1913-23 Overturned by CA Supreme Court, Fujii v. California 1952
Marriage to whites	✔	✔	1850-1948	CA Civil Code of 1850 (blacks), CA Civil Code of 1901 (blacks and Asians), Expatriation Act 1907 (foreign-born Asians), Cable Act 1922 (foreign-born Asians) Anti-miscegenation laws overturned by CA Supreme Court, *Perez v. Sharp* 1948
WWII Internment & expropriation	✔		Japanese 1942-46	
Education (*de jure*)	✔		1890-1946	CA Supreme Court outlaws segregation of blacks, *Wysinger v. Crookshank* 1890 Governor Warren repeals laws permitting segregation of Asians and Indians, 1946
Education (*de facto*)	*	*	?	(See text)
Residential restrictions	✔	✔	? - 1948	US Supreme court invalidates restrictive covenants, *Shelley v. Kraemer*, 1948

Table II: Institutional Discrimination Against Asians and Blacks in California

Notes: See Appendix A for discussion and sources underlying this table.

	Average Years of Education											
	Chinese			Japanese			Black			White		
Year	In China	In U.S.	% Diff	In Japan	In U.S.	% Diff	In U.S.	In CA	% Diff	In U.S.	In CA	% Diff
1940	1.1	6.6	513%	5.7	8.7	53%	5.9	8.3	40%	9.1	10.2	12%
1950	1.5	7.0	378%	6.9	8.5	24%	6.7	8.5	27%	9.9	10.7	9%
1960	1.8	9.5	440%	8.4	9.7	15%	7.7	9.4	22%	10.3	11.0	7%
1970	3.1	11.4	273%	9.4	11.4	22%	9.0	10.5	17%	11.1	11.8	6%
1980	5.0	12.4	149%	10.1	12.6	26%	10.4	11.6	11%	12.0	12.6	6%
1990	6.5	13.1	100%	10.6	13.5	28%	11.6	12.4	7%	12.6	13.3	5%
2000	8.3	13.7	66%	10.5	14.1	34%	12.3	12.8	5%	13.1	13.7	5%

Table III: Educational Selection into Migration by Nationality/Race, 1940-2000

Notes: Numbers in table represent years of schooling rather than highest grade attained for both Chinese in China and Japanese in Japan. Education of Chinese in China taken from Table 3 of Gao (2016). Education of Japanese in Japan taken from Table A.7.1 of Leeuwen (2007). Education of all groups in US reflect highest grade attained. Chinese and Japanese "In US" restrict to foreign-born to identify migrants who likely received education in country of origin. Blacks and whites "In US" exclude residents of CA, while blacks and whites "In CA" include residents of CA who were born outside of CA in order to identify "migrants" to CA.

	OCCSCORE - Men in CA			OCCSCORE - Men in CA with Kids			Percent Difference			Percent of Men in CA with Kids		
Year	White	Black	Asian	White	Black	Asian	White	Black	Asian	White	Black	Asian
1900	20.4	15.7	12.7	21.6	16.1	25.8	5.9%	2.4%	103.5%	46.8%	39.2%	1.6%
1910	21.1	15.4	10.8	22.8	17.9	13.2	8.0%	16.7%	22.2%	41.9%	24.6%	5.1%
1920	21.8	14.9	12.2	23.0	15.0	14.4	5.6%	1.2%	18.3%	44.8%	30.6%	22.6%
1930	22.8	15.8	11.2	23.8	16.7	16.0	4.5%	5.6%	43.4%	47.7%	30.4%	29.0%
1940	22.9	15.2	10.7	23.5	16.4	17.7	2.7%	8.3%	64.9%	49.4%	26.4%	25.8%
1950	24.5	18.0	13.8	25.2	18.9	18.4	3.0%	5.2%	33.0%	55.6%	34.9%	34.4%
1960	25.5	19.1	20.0	26.4	20.0	22.1	3.2%	4.9%	10.5%	64.0%	47.4%	52.3%
1970	25.9	21.0	24.2	26.5	21.5	25.3	2.3%	2.5%	4.8%	63.3%	53.0%	53.3%
1980	26.4	23.0	26.2	26.9	23.5	27.3	1.8%	2.5%	4.3%	52.4%	48.1%	42.0%
1990	27.0	23.1	27.0	27.8	24.2	28.0	2.7%	4.9%	4.0%	46.0%	40.5%	40.8%
2000	28.1	24.5	28.8	29.0	25.8	29.7	3.3%	5.6%	3.3%	44.6%	36.9%	42.1%

Table IV: Occupational Selection into Fatherhood by Race, 1900-2000

Notes: Presents OCCSCORE for men living in CA, and men living in CA co-residing with their own children. "Percent Difference" indicates the percent difference in average OCCSCORE between these two groups of men within race and year. "Percent of Men in CA with Kids" indicates the share of men living in CA who are co-residing with own children.

	Next Gen - Actual			w/ Asian Education		w/ Asian Earnings		w/ Asian Parental Income	
	White	Black	Asian	White	Black	White	Black	White	Black
Year	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1940	9.78	9.21	9.35	9.80	9.23	9.35	9.33	9.76	9.22
1960	10.42	9.98	10.27	10.50	10.13	10.23	10.19	10.42	9.98
1970	10.61	10.16	10.64	10.67	10.28	10.50	10.44	10.61	10.17
1980	10.37	10.02	10.52	10.45	10.25	10.42	10.41	10.36	10.03
1990	10.47	10.08	10.66	10.59	10.32	10.55	10.53	10.48	10.14
2000	10.52	10.06	10.72	10.66	10.35	10.55	10.50	10.52	10.11

Table V: Implications of Intergenerational Decomposition for Next Generation, Born in CA

Notes: Presents estimated log household earnings in steady state using parameter estimates in Table (A.4) and equation (2). "Asian Education" assigns blacks the estimated intercept and slope of Asians' conditional expectation of children's education with respect to parental income. "Asian Earnings" assigns blacks the estimated intercept and slope of Asians' conditional expectation of children's earnings with respect to their education. "Asian Parental Income" refers to Asian mean parental income. Estimates based on sample restricted to children born in CA.

Education Level	White	Black	Asian
No High School	81.6	67.7	79.5
	(0.256)	(0.798)	(1.61)
	[4,942]	[353]	[88]
Some High School	96.4	80.3	91.8
	(0.191)	(0.713)	(1.73)
	[9,956]	[570]	[92]
High School Graduate	109	90.8	104
	(0.158)	(0.941)	(2.55)
	[10,576]	[322]	[86]
Any College	117	97.2	116
	(0.216)	(1.8)	(2.5)
	[5,540]	[126]	[48]

Table VI: Mean WWII Enlistee Test Scores by Race and Schooling in 1943, CA

Notes: Table presents raw means of WWII enlistment test scores by race and broad education category, restricting to enlistees reporting CA residence. Standard errors of means in parantheses, sample sizes in brackets.

Variables	(1) Pooled	(2) Pooled	(3) Pooled	(4) White	(5) White	(6) Black	(7) Black
Black	-0.633**	-0.392**	-0.360**				
	(0.0382)	(0.0281)	(0.0291)				
Age	0.0736**	0.0742**	0.0755**	0.0750**	0.0763**	0.0600**	0.0616**
	(0.00195)	(0.00177)	(0.00200)	(0.00163)	(0.00186)	(0.00498)	(0.00503)
AGCT		0.173**	0.0926**	0.175**	0.0938**	0.133**	0.0658**
		(0.00621)	(0.00695)	(0.00621)	(0.00747)	(0.0177)	(0.0228)
Education			0.0516**		0.0523**		0.0428**
			(0.00429)		(0.00499)		(0.00529)
Constant	6.962**	6.905**	6.357**	6.880**	6.324**	6.882**	6.438**
	(0.0365)	(0.0363)	(0.0423)	(0.0328)	(0.0469)	(0.154)	(0.148)
Observations	43,183	43,183	42,656	40,783	40,275	2,400	2,381
R-squared	0.166	0.202	0.228	0.181	0.208	0.110	0.137

Robust standard errors in parentheses
** p<0.01, * p<0.05

Table VII: Log Earnings Regressions on AGCT Scores in 1940

Notes: Dependent variable is log of annual earnings in all regressions. Sample matches AGCT data from 1943 WWII enlistment records to earnings data from 1940 census 100% sample. Restricts to men over age 22 in 1940; almost all men in sample between ages 22 and 35. Standard errors clustered at the state level.

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
					Ln(Earnings)					
Black	-0.590**	-0.524**	-0.399**	-0.204*	-0.590**	-0.524**	-0.201	-0.686**	-0.487**	-0.105
	(0.0443)	(0.0300)	(0.0249)	(0.0915)	(0.0444)	(0.0436)	(0.133)	(0.0581)	(0.0281)	(0.109)
AGCT			0.137**	0.136**			0.359*			0.444**
			(0.0123)	(0.0125)			(0.133)			(0.115)
AGCT_Market				0.218*						
				(0.0904)						
Constant	9.153**	9.327**	9.427**	9.572**	9.153**	9.327**	9.566**	9.461**	9.380**	9.602**
	(0.0462)	(0.00931)	(0.0146)	(0.0598)	(0.0463)	(0.0135)	(0.0871)	(0.0475)	(0.000929)	(0.0572)
Observations	35,311	35,311	35,311	35,311	209	209	209	354	354	354
R-squared	0.022	0.064	0.078	0.078	0.329	0.951	0.956	0.284	0.986	0.990
Market FE	No	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Data Level	Micro	Micro	Micro	Micro	Market	Market	Market	Market	Market	Market
Dataset	Matched	Matched	Matched	Matched	Matched	Matched	Matched	Separate	Separate	Separate

Robust standard errors in parentheses
** p<0.01, * p<0.05

Table VIII: Earnings Regressions on AGCT Scores for State-Education Aggregates in 1940

Notes: Dependent variable is log of annual earnings in all regressions. "Market FE" indicates whether market fixed effects are included in the regression, where "market" is defined by state of residence and broad educational category (no high school, some high school, high school graduate, any college). "Data Level" indicates whether regression is run on individual microdata or data that has been collapsed to the level of market × race. "Dataset" indicates whether earnings and AGCT scores taken from subsample of WWII enlistment records matched to 1940 100% census microdata, or whether earnings and AGCT scores taken from complete unmatched datasets separately. All regressions restricts to men over age 22 in 1940; almost all men in sample between ages 22 and 35. Standard errors clustered at the state level.

	Married			Num Kids Ever Born to Females			Urban		
Year	White	Black	Asian	White	Black	Asian	White	Black	Asian
1900	86.8%	92.9%	91.3%	4.9	6.7	2.4	54.7%	69.2%	78.5%
1910	87.5%	91.0%	97.1%	4.4	3.9	5.8	63.5%	73.5%	58.8%
1920	88.8%	85.0%	95.9%	.	.	.	65.7%	90.5%	68.7%
1930	91.3%	88.4%	94.2%	.	.	.	69.9%	89.1%	61.3%
1940	90.2%	86.6%	87.7%	3.8	5.5	5.3	68.1%	86.5%	67.7%
1950	93.9%	91.4%	85.8%	2.6	4.2	3.3	.	.	.
1960	94.5%	85.6%	91.2%	2.8	3.8	3.3	.	.	.
1970	91.5%	77.5%	93.0%	3.3	4.3	3.2	.	.	.
1980	86.0%	67.0%	91.2%	3.5	4.2	3.0	.	.	.
1990	81.6%	59.2%	88.5%	2.7	3.1	2.7	87.5%	97.8%	97.7%
2000	81.8%	59.8%	87.5%	.	.	.	.	.	.

	Owning Home			Self-Employed			Weeks Worked in Prior Year		
Year	White	Black	Asian	White	Black	Asian	White	Black	Asian
1900	0.476	0.392	0	.	.	.	.	.	.
1910	0.543	0.639	0.146	0.367	0.296	0.501	.	.	.
1920	0.503	0.401	0.119	.	.	.	.	.	.
1930	0.529	0.474	0.145	0.205	0.144	0.307	.	.	.
1940	0.507	0.381	0.219	0.174	0.103	0.331	40.733	38.951	43.663
1950	.	.	.	0.156	0.035	0.333	40.249	38.107	43.621
1960	0.733	0.492	0.651	0.1	0.041	0.211	41.028	39.183	43.21
1970	0.72	0.536	0.726	0.089	0.04	0.14	42.164	42.66	43.755
1980	0.747	0.57	0.779	0.109	0.033	0.111	43.088	43.429	44.683
1990	0.705	0.463	0.707	0.127	0.045	0.123	44.516	44.069	45.494
2000	0.705	0.457	0.704	0.125	0.053	0.121	45.516	44.665	45.934

	Hours Worked per Week			Total Family Income			Non-Labor Income > $50		
Year	White	Black	Asian	White	Black	Asian	White	Black	Asian
1900	.	.	.	.	.	.	.	.	.
1910	.	.	.	.	.	.	.	.	.
1920	.	.	.	.	.	.	.	.	.
1930	.	.	.	.	.	.	.	.	.
1940	41.0	39.4	45.1	.	.	.	22.0%	24.7%	28.8%
1950	40.4	38.0	45.3	$29,593	$19,352	$21,003	.	.	.
1960	38.7	37.3	39.9	$47,683	$30,888	$46,121	.	.	.
1970	38.2	38.4	38.4	$59,202	$42,468	$58,589	.	.	.
1980	38.5	39.1	39.2	$56,385	$43,810	$61,162	.	.	.
1990	39.5	40.1	40.2	$72,873	$53,908	$74,242	.	.	.
2000	.	.	.	$80,912	$57,263	$84,928	.	.	.

Table IX: Various Outcomes for Parents of CA-Born Children by Race, 1900-2000

Notes: Sample restricts to parents ages 25-55 co-residing with CA-born children. All cells reweighted within year to match age and sex distribution of black parents of CA-born children. Total family income deflated with CPI-Urban for 2000. Missing values indicate unavailability of variable in IPUMS census year.

	Racial Composition of School				School Inputs		Sample Size	
	% White	% Black	% Hispanic	% Asian	Class Size	Spending per Pupil	N Students	N Schools
Average White Student	88%	1%	8%	2%	27.7	$2,125	256,317	365
Average Black Student	29%	45%	22%	4%	27.1	$2,133	11,485	365
Average Hispanic Student	42%	5%	49%	4%	27.9	$2,014	48,658	365
Average Asian Student	62%	5%	19%	14%	27.8	$2,077	9,888	365

Table A.1: Average School Characteristics by Race in Los Angeles, 1938

Notes: Data on racial composition of schools obtained from 1938 survey described in text. Data on school inputs in 1938 obtained from Board of Education of the City of Los Angeles (1938). Spending per pupil converted into 2016 dollars using the Consumer Price Index - Urban.

	U.S. Residents					
	AGCT Sample		Census Sample		AGCT-Census Match	
Variable	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev
AGCT	97.681	22.707			99.058	22.228
Age	23.144	5.915	27.498	6.031	23.064	5.355
White	0.907	0.291	0.898	0.302	0.937	0.243
Black	0.068	0.251	0.096	0.294	0.062	0.241
Chinese	0.002	0.042	0.001	0.028	0.000	0.011
Japanese	0.000		0.001	0.033	0.000	
Less Than HS	0.254	0.435	0.436	0.496	0.243	0.429
Some HS	0.333	0.471	0.226	0.418	0.328	0.470
HS Graduate	0.308	0.462	0.217	0.412	0.318	0.466
Any College	0.106	0.308	0.121	0.326	0.111	0.314
N	525,792		19,975,888		211,103	

	California Residents					
	AGCT Sample		Census Sample		AGCT-Census Match	
Variable	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev
AGCT	100.561	21.503			103.293	20.678
Age	24.142	6.988	28.011	5.966	24.547	5.960
White	0.896	0.305	0.943	0.232	0.957	0.204
Black	0.040	0.195	0.018	0.131	0.041	0.199
Chinese	0.009	0.095	0.007	0.086	0.001	0.031
Japanese	0.000		0.014	0.119	0.000	
Less Than HS	0.176	0.381	0.257	0.437	0.168	0.374
Some HS	0.324	0.468	0.245	0.430	0.318	0.466
HS Graduate	0.328	0.470	0.304	0.460	0.329	0.470
Any College	0.172	0.377	0.193	0.395	0.185	0.389
N	34,604		1,186,305		8,509	

Table A.2: Summary Statistics

Notes: Table presents summary statistics for three samples for all US residents and CA residents. All samples restrict to men. "AGCT Sample" is the sample of WWII enlistment records from 1943. "Census Sample" is 100% IPUMS census microdata for 1940. "AGCT-Census Match" is a match of these two prior datasets on first name, last name, state of birth, race and year of birth plus or minus one year.

	White		Black	
Year	Top Occupation	Share	Top Occupation	Share
1860	Farmers (owners and tenants)	0.388	Laborers (nec)	0.290
1870	Farmers (owners and tenants)	0.354	Farm laborers, wage workers	0.473
1880	Farmers (owners and tenants)	0.349	Farmers (owners and tenants)	0.324
1900	Farmers (owners and tenants)	0.264	Farmers (owners and tenants)	0.371
1910	Farmers (owners and tenants)	0.224	Farmers (owners and tenants)	0.349
1920	Farmers (owners and tenants)	0.201	Farmers (owners and tenants)	0.322
1930	Farmers (owners and tenants)	0.153	Laborers (nec)	0.262
1940	Laborers (nec)	0.116	Laborers (nec)	0.333
1950	Operative and kindred workers (nec)	0.100	Laborers (nec)	0.224
1960	Operative and kindred workers (nec)	0.108	Laborers (nec)	0.203
1970	Operative and kindred workers (nec)	0.094	Operative and kindred workers (nec)	0.157
1980	Managers, officials, and proprietors (nec)	0.125	Operative and kindred workers (nec)	0.139
1990	Managers, officials, and proprietors (nec)	0.148	Operative and kindred workers (nec)	0.108
2000	Managers, officials, and proprietors (nec)	0.170	Operative and kindred workers (nec)	0.096
	Asian		Native American	
Year	Top Occupation	Share	Top Occupation	Share
1860	Mine operatives and laborers	0.763	Other non-occupation	0.543
1870	Mine operatives and laborers	0.468	Farmers (owners and tenants)	0.313
1880	Mine operatives and laborers	0.283	Laborers (nec)	0.291
1900	Laborers (nec)	0.224	Farmers (owners and tenants)	0.249
1910	Laborers (nec)	0.212	Farmers (owners and tenants)	0.367
1920	Farm laborers, wage workers	0.158	Farmers (owners and tenants)	0.392
1930	Farm laborers, wage workers	0.199	Farmers (owners and tenants)	0.348
1940	Farm laborers, wage workers	0.252	Laborers (nec)	0.327
1950	Farm laborers, wage workers	0.186	Laborers (nec)	0.168
1960	Cooks, except private household	0.083	Laborers (nec)	0.196
1970	Cooks, except private household	0.072	Laborers (nec)	0.115
1980	Managers, officials, and proprietors (nec)	0.105	Operative and kindred workers (nec)	0.086
1990	Managers, officials, and proprietors (nec)	0.127	Laborers (nec)	0.082
2000	Managers, officials, and proprietors (nec)	0.146	Managers, officials, and proprietors (nec)	0.105

Table A.3: Top Occupation by Race, 1860-2000

Notes: Occupation shares calculated for men age 25-65, excluding residents of Alaska and Hawaii. Each race reweighted to match age distribution of blacks in each year.

	θ = Education Mobility Intercept			γ = Education Mobility Slope			α = Earnings Intercept			β = Earnings Slope		
	White	Black	Asian	White	Black	Asian	White	Black	Asian	White	Black	Asian
Year	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
1940	10.653	10.263	10.901	0.691	1.015	0.732	9.059	8.397	8.824	0.066	0.077	0.048
	(0.321)	(0.445)	(0.312)	(0.186)	(0.272)	(0.186)	(0.038)	(0.03)	(0.028)	(0.004)	(0.003)	(0.003)
1960	11.856	11.435	13.352	0.386	0.004	0.286	9.898	9.481	9.938	0.061	0.068	0.034
	(0.243)	(0.71)	(0.4)	(0.138)	(0.577)	(0.203)	(0.028)	(0.115)	(0.148)	(0.004)	(0.015)	(0.019)
1970	12.116	11.701	14.428	0.434	0.436	-0.167	10.272	9.756	9.787	0.050	0.064	0.104
	(0.343)	(0.137)	(1.043)	(0.209)	(0.081)	(0.65)	(0.05)	(0.124)	(0.315)	(0.008)	(0.019)	(0.048)
1980	12.344	12.379	14.542	0.427	0.350	-0.006	10.187	9.644	10.219	0.058	0.133	0.067
	(0.238)	(0.257)	(0.525)	(0.146)	(0.171)	(0.373)	(0.044)	(0.057)	(0.052)	(0.011)	(0.014)	(0.012)
1990	12.367	12.356	14.119	0.328	0.313	-0.129	10.210	9.711	10.291	0.130	0.209	0.131
	(0.22)	(0.273)	(0.473)	(0.126)	(0.165)	(0.249)	(0.051)	(0.081)	(0.056)	(0.014)	(0.023)	(0.016)
2000	12.174	12.182	13.853	0.554	0.462	0.101	10.195	9.617	10.157	0.152	0.245	0.187
	(0.174)	(0.121)	(0.4)	(0.109)	(0.07)	(0.241)	(0.089)	(0.155)	(0.135)	(0.025)	(0.044)	(0.038)

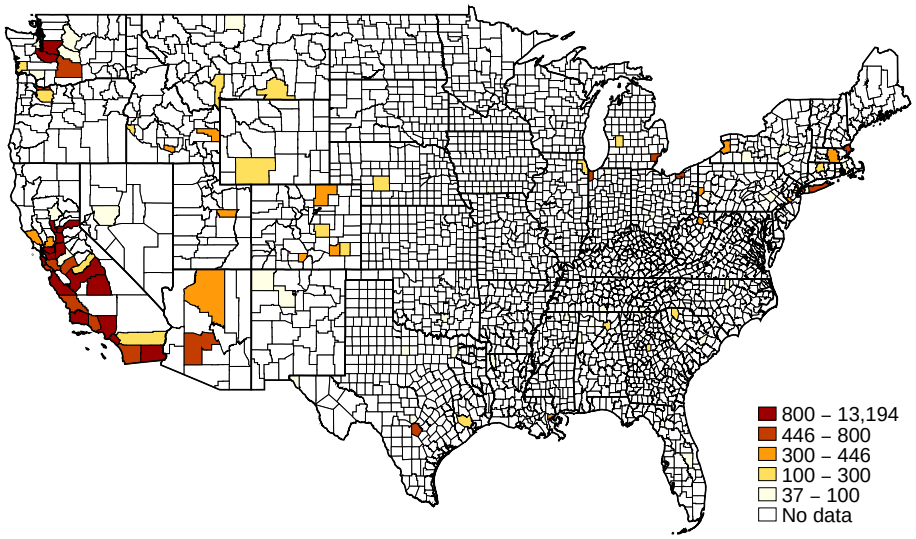
Table A.4: Linear Decomposition Estimates, Born in CA

Notes: "Education Mobility" intercepts and slopes estimated from linear regressions of children's highest grade attained by ages 22-29 on parental log income, using data grouped at the year by race by parental log income decile level. No adjustment is made for independent children. "Earnings" intercepts and slopes estimated from linear regressions of log household earnings for heads age 25-65 on highest grade of schooling attained in cells defined by year, race, and highest grade attained. Restricts to children born in CA. Probability weights are used to construct cell means, but no weights are used in the regressions. All races reweighted to age and sex distribution of CA-born blacks in each year. Earnings deflated to 2011 dollars using CPI-Urban before taking logs. "Earnings" regressions drop bottom 2% of education distribution by race and year. Intercepts reflect estimated values at minimum observed value of independent variable in collapsed, restricted sample, as opposed to estimated values at zero.

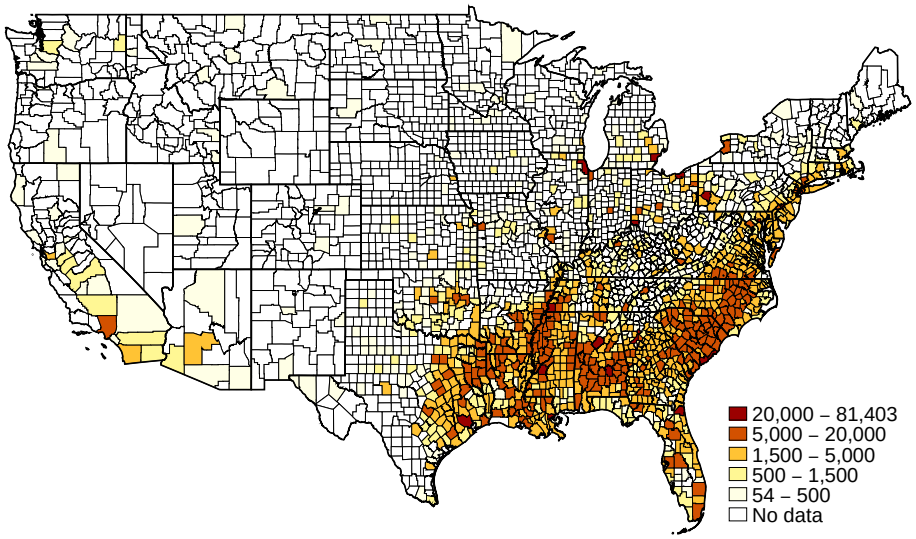
	Steady State - Actual			w/ Asian Education		w/ Asian Earnings	
	White	Black	Asian	White	Black	White	Black
Year	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1940	9.78	9.22	9.35	9.80	9.24	9.34	9.34
1960	10.42	9.98	10.28	10.50	10.13	10.23	10.19
1970	10.61	10.16	10.64	10.68	10.28	10.50	10.45
1980	10.36	10.01	10.52	10.45	10.25	10.42	10.41
1990	10.46	10.07	10.67	10.59	10.32	10.54	10.53
2000	10.49	10.03	10.72	10.65	10.35	10.52	10.51

Table A.5: Implications of Intergenerational Decomposition in Steady State, Born in CA

Notes: Presents estimated log household earnings in steady state using parameter estimates in Table (A.4) and equation (3). "Asian Education" assigns blacks the estimated intercept and slope of Asians' conditional expectation of children's education with respect to parental income. "Asian Earnings" assigns blacks the estimated intercept and slope of Asians' conditional expectation of children's earnings with respect to their education. Estimates based on sample restricted to children born in CA.



(a) Asian



(b) Black

Figure I: Population of Native-Born Children Across US Counties, 1940

Notes: Children age 0-18, excluding Alaska and Hawaii.

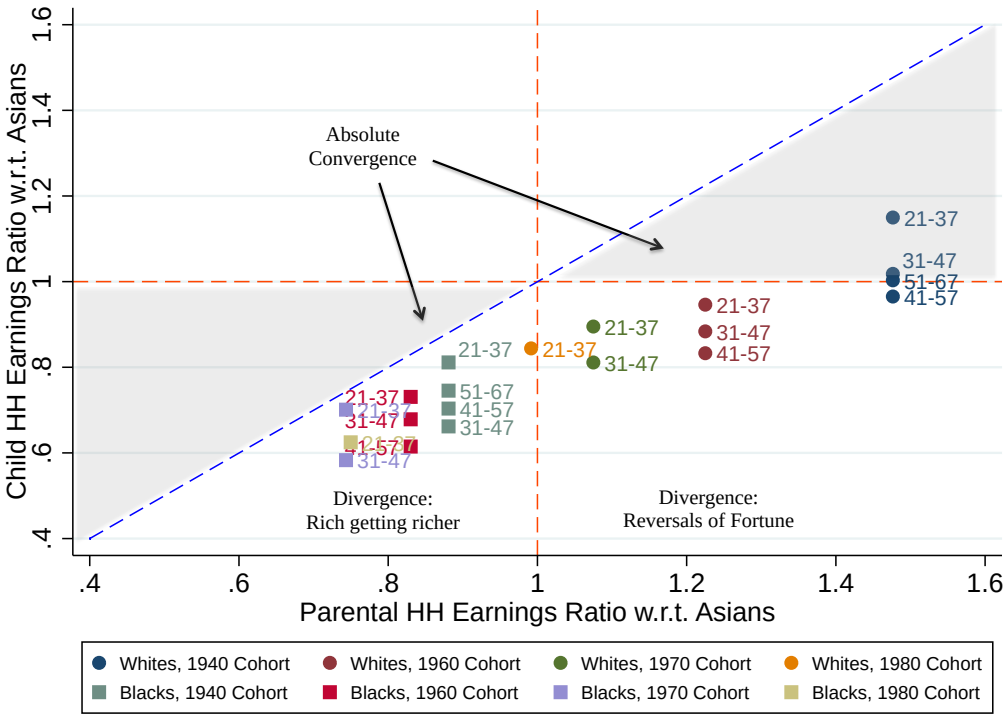
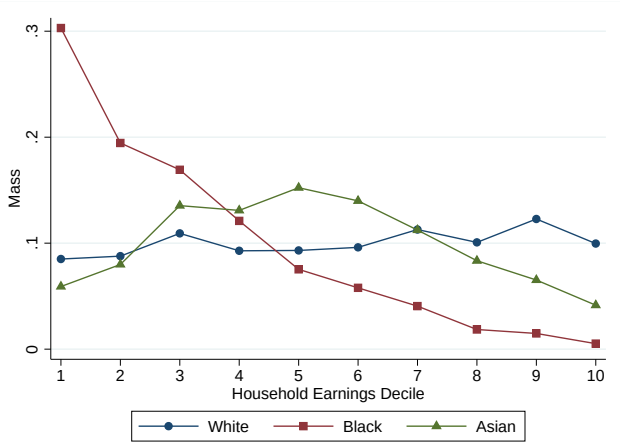
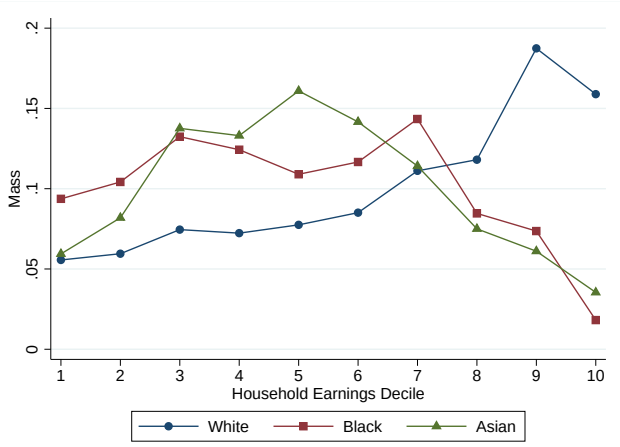


Figure II: Intergenerational Change in Household Earnings Ratios: Born in CA

Notes: Figure plots earnings ratios for parents of children age 1-17 in 1940, 1960, 1970 and 1980 on the x-axes, and earnings ratios for children in these 17-year cohort blocks at later ages in subsequent censuses starting 20 years in the future when children are ages 21-37, up to maximum ages of 51-67. All earnings ratios are plotted with respect to Asians of the same ages in the same parent and child groups. Household earnings plots earnings of head and spouse, counting absence of spouse as zero spousal earnings. Households with zero total earnings excluded from estimates. Points above 1 on the x-axis imply parents of age 1-17 year olds in a group are richer than Asian parents of age 1-17 year olds in the same year, and points above 1 on the y-axis imply a group's children in later censuses are richer than Asian children in later censuses. Points in the shaded area indicate that a group's children's income has converged toward Asian children's income from larger group income gaps of parents. Points below the shaded area indicate that a group is either falling further behind Asians intergenerationally ("Rich getting richer") or has been overtaken by Asians intergenerationally ("Reversal of fortune").



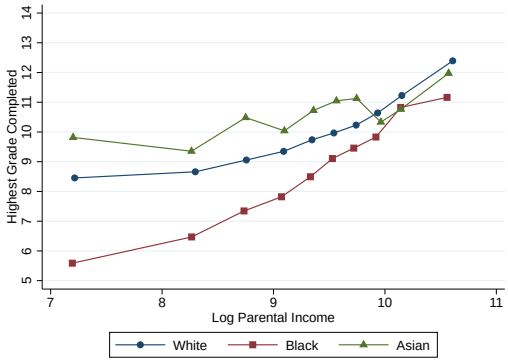
(a) Born in US



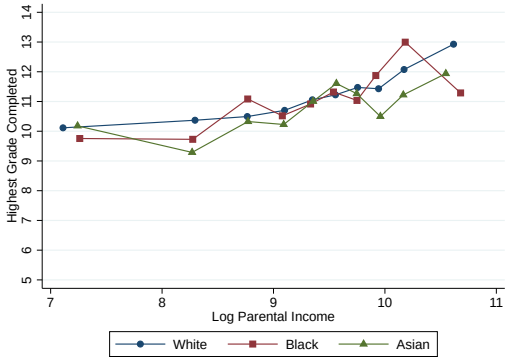
(b) Born in CA

Figure III: Parental Income Distribution for Native-Born by Race, 1940

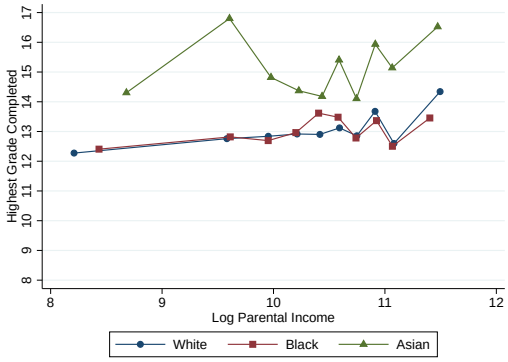
Notes: Figures plot the probability mass functions for total parental income deciles of native-born children under age 18 in 1940. Deciles calculated over full US population, and therefore held fixed across races and locations.



(a) Born in US, 1940



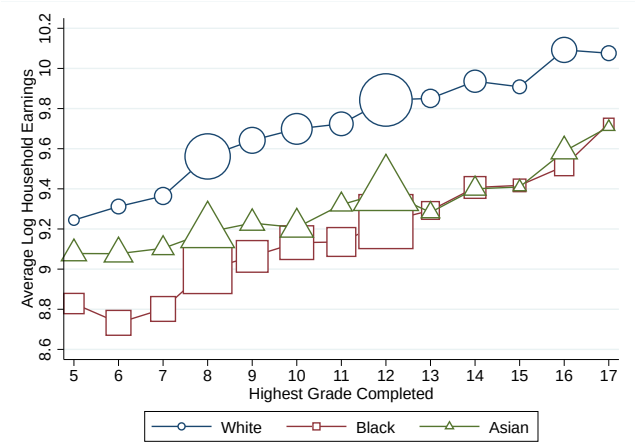
(b) Born in CA, 1940



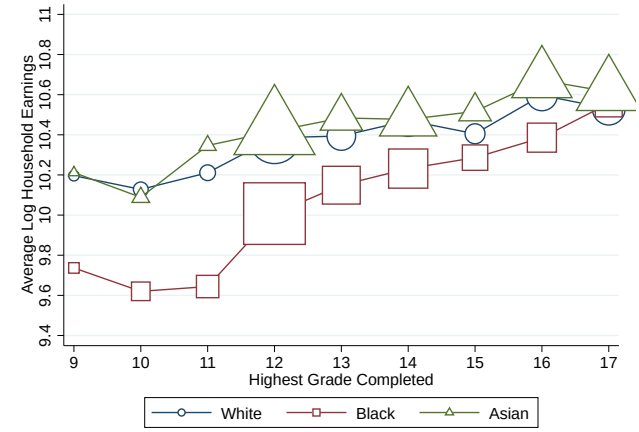
(c) Born in CA, 1980

Figure IV: Educational Attainment by Log Parental Income

Notes: Hawaii and Alaska excluded. Figure adjusts for independent children and pools ages 22-29. Log parental income calculated as sum of head and spouse earnings over full population age 25-65.



(a) 1940



(b) 1980

Figure V: Log Household Earnings by Highest Grade Attained: Born in CA

Notes: Restricts to CA-born ages 25-65. Reweights all groups to age and sex distribution of CA-born blacks in each year. Earnings deflated using CPI-Urban to 2011 dollars.

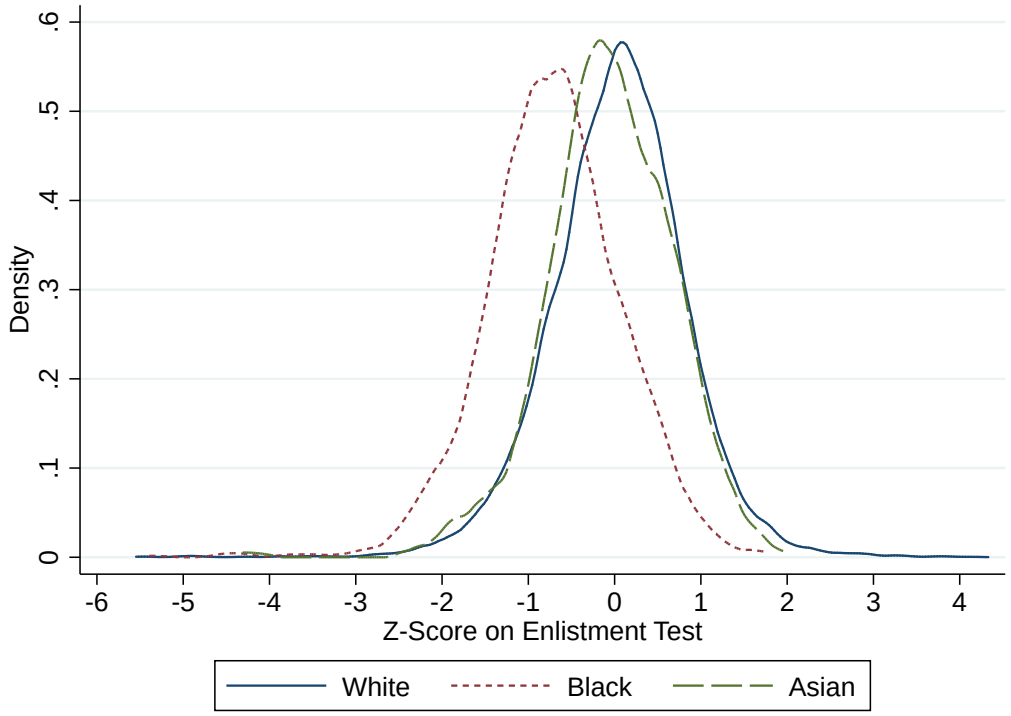
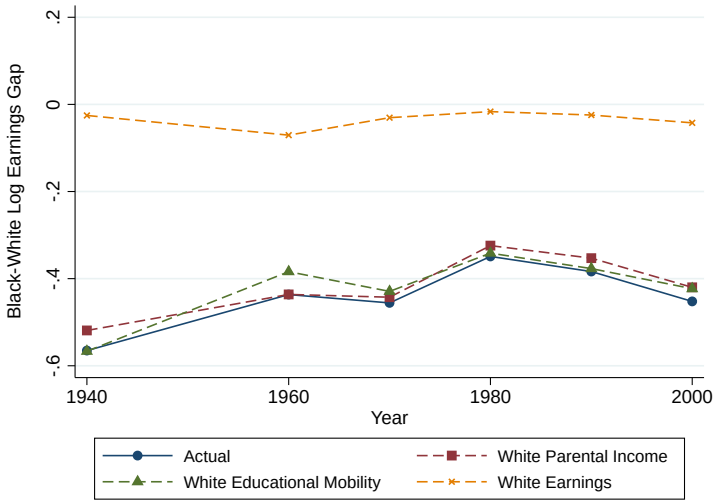
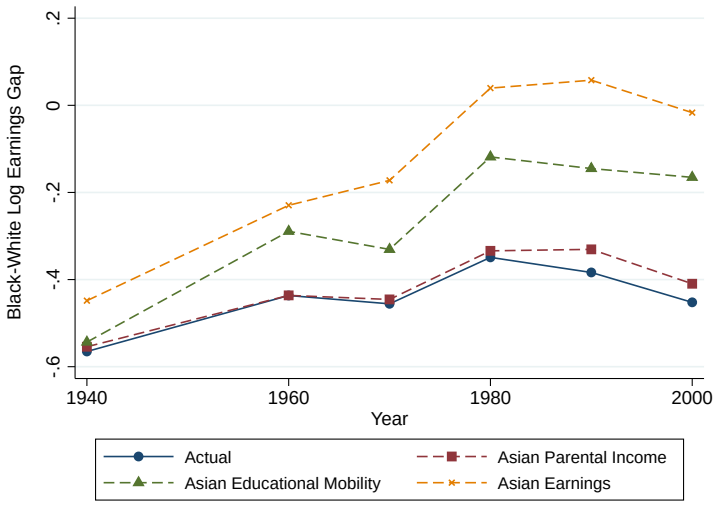


Figure VI: WWII Enlistment Test Score Distributions by Race in 1943, CA

Notes: Figure plots distributions of residuals from regression of normalized test scores on complete sets of education and age dummies. Restricts to native-born men ages 25-38 living in CA.



(a) Imputing White Earnings Components to Blacks



(b) Imputing Asian Earnings Components to Blacks

Figure VII: Counterfactual Black-White Log Earnings Gaps in CA, 1940-2000

Notes: Figure presents simulated black-white log earnings gaps using estimates of the four parameters in Equation (2) for each race r and each generation t, $\alpha_{r,t}, \beta_{r,t}, \gamma_{r,t}, \theta_{r,t}$ as shown in Table V, as well as mean parental income $E\left[y_{r,t-1}\right]$. "Earnings" refers to log of household earnings (head + spouse). "Actual" predicts black-white earnings gaps using estimated parameters for each racial group. "White Parental Income" assigns to blacks the white parental income distribution. "White Educational Investments" assigns to blacks the white conditional expectation of children's education with respect to parental income. "White Earnings" assigns to blacks the white expectation of household earnings condional on education. Panel (b) repeats this but assigns these respective components from Asians to blacks. All estimates restrict to "children" born in CA.

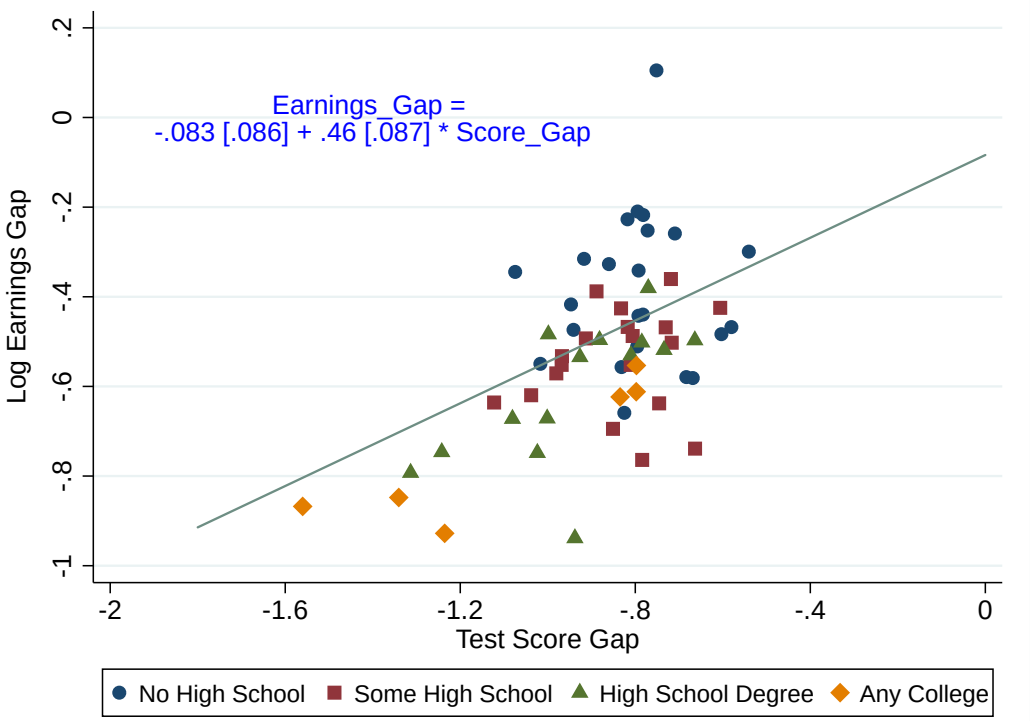


Figure VIII: Black-White Earnings and Skill Gaps by State and Education Level in 1940

Notes: Figure plots log earnings gaps by skill gaps at the level of broad educational group and state of residence for men ages 23-45. Earnings gaps defined as log earnings of whites minus log earnings of blacks. Cells with fewer than 30 individual blacks omitted from figure. Education groups are no high school, some high school, high school degree, and any college. Test scores normalized into z-score in microdata before construction of score gaps at the state-education level.

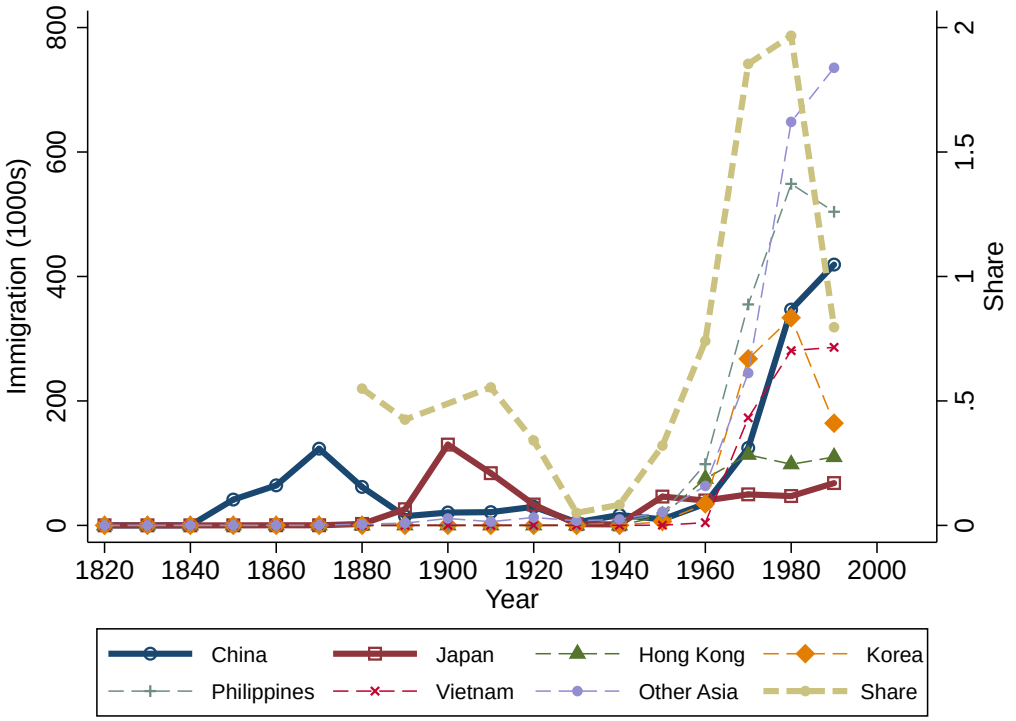
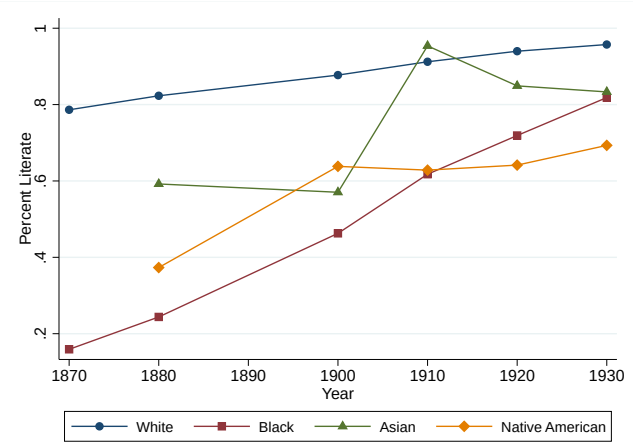
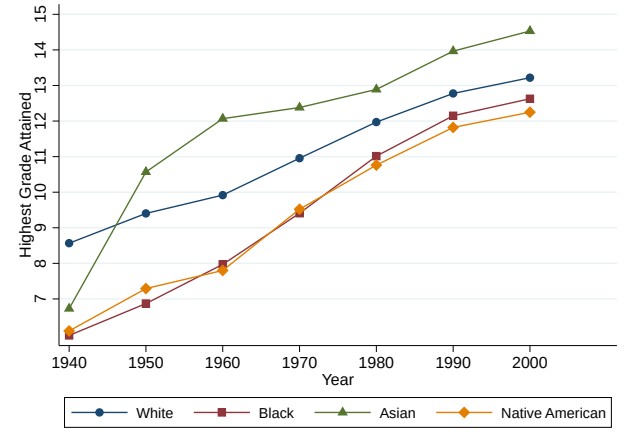


Figure A.1: Gross Immigration into US from Various Asian Countries, 1821-1991

Notes: Data on immigration flows taken from Department of Homeland Security, Yearbook of Immigration Statistics 2003. "Share" divides number of new Asian immigrants arriving between year T-10 and year T by total number of Asians present in the US in year T-10. Data on stock of Asians from census data, adjusted to include Japanese in Hawaii as reported in Table I in Nordyke and Matsumoto (1977). Immigration totals include "foreign nationals who, during a fiscal year, were granted lawful permanent residence (i.e., admitted as immigrants or became legal permanent residents), were admitted into the United States on a temporary basis (e.g., tourists, students, or workers), applied for asylum or refugee status, or were naturalized." No adjustment made for undocumented immigration.



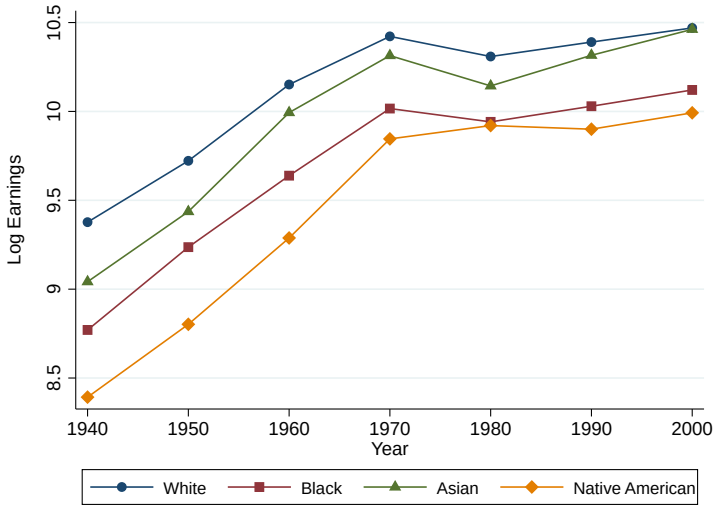
(a) Percent Literate, 1880-1930



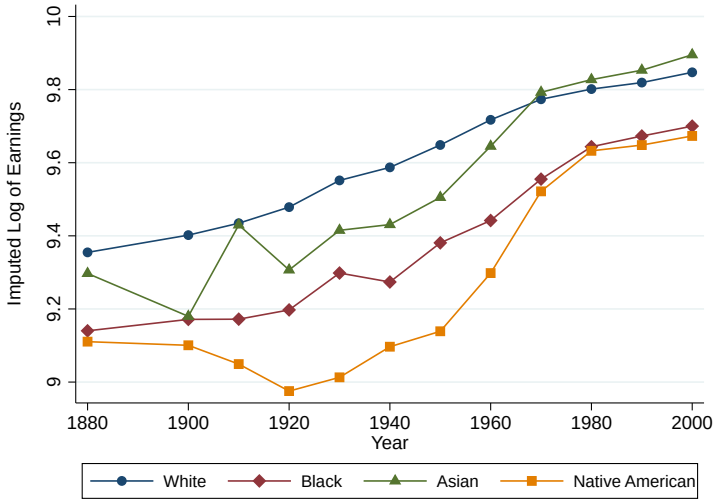
(b) Highest Grade Attained, 1940-2000

Figure A.2: Human Capital by Race, 1880-2000

Notes: Literacy defined as ability to read and write in any language. Figure restricts to ages 25-65 and excludes residents of Alaska and Hawaii. All races reweighted to match age and sex distribution of blacks in every year.



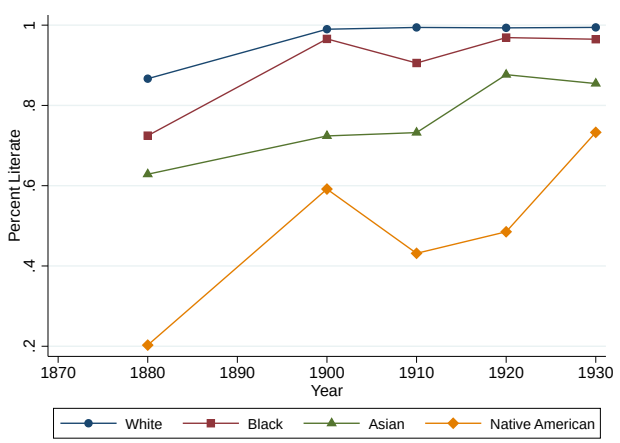
(a) Log Earnings, 1940-2000



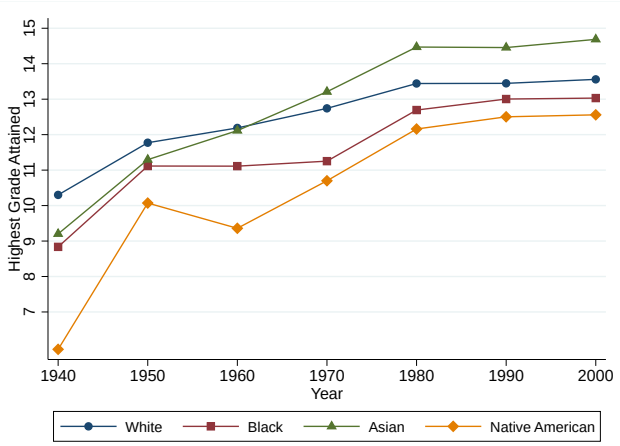
(b) Imputed Log Earnings, 1880-2000

Figure A.3: Log Earnings of Men, 1880-2000

Notes: Panel (a) plots average log male earnings age 25-65 by race and year. Panel (b) plots average imputed log male earnings age 25-65 by race and year, with imputation based on earnings in 1940 averaged by cells defined by OCC1950 and native-born status, excluding observations with zero earnings or missing occupation, and restricting to household heads. Residents of Hawaii and Alaska excluded and races reweighted to match age distribution of blacks in every year.



(a) Percent Literate, 1880-1930

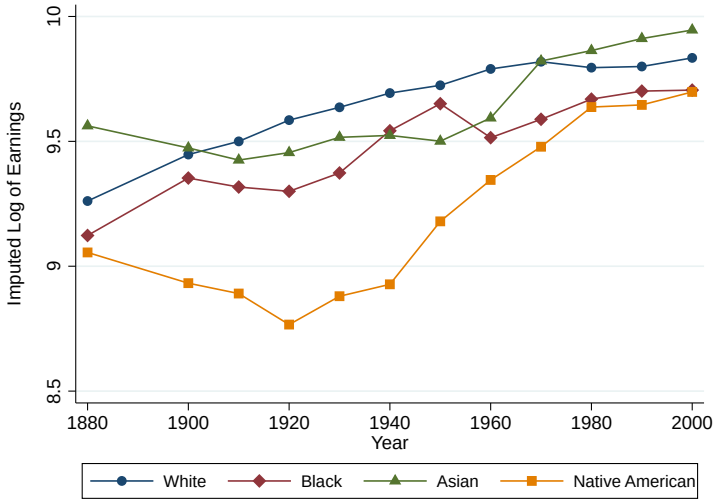


(b) Highest Grade Attained, 1940-2000

Figure A.4: Human Capital by Race, CA-Born 1880-2000

Notes: Restricting to individuals born in California. Literacy defined as ability to read and write in any language. Figure restricts to ages 25-65 and excludes residents of Alaska and Hawaii. All races reweighted to match age and sex distribution of blacks in every year.

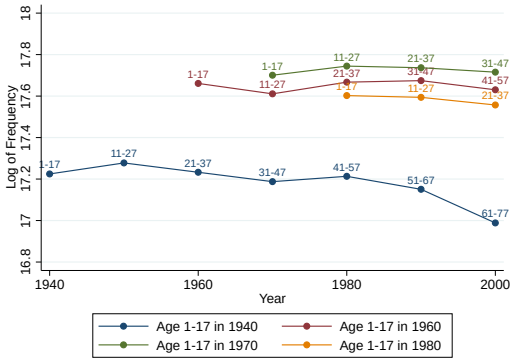
(a) Log Earnings, 1940-2000



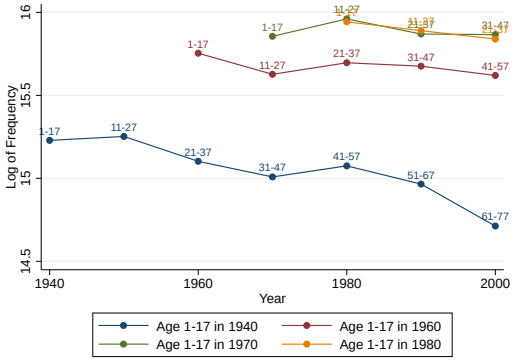
(b) Imputed Log Earnings, 1880-2000

Figure A.5: Log Earnings of Men, CA-Born 1880-2000

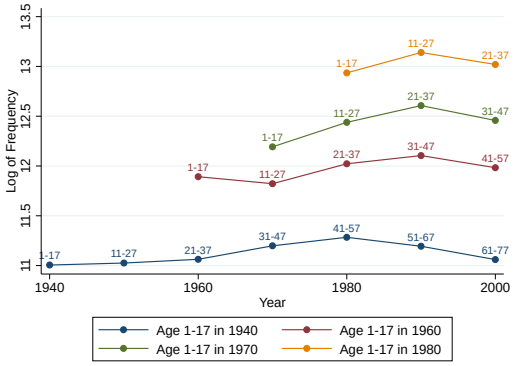
Notes: Restricting to individuals born in California. Panel (a) plots average log male earnings age 25-65 by race and year. Panel (b) plots average imputed log male earnings age 25-65 by race and year, with imputation based on earnings in 1940 averaged by cells defined by OCC1950 and native-born status, excluding observations with zero earnings or missing occupation, and restricting to household heads. Residents of Hawaii and Alaska excluded and races reweighted to match age distribution of blacks in every year.



(a) White



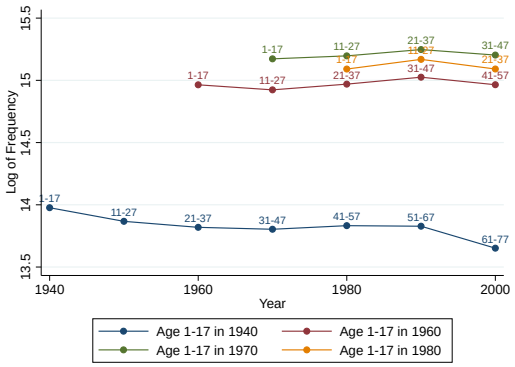
(b) Black



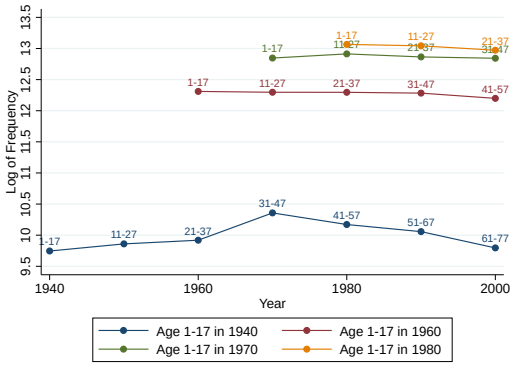
(c) Asian

Figure A.6: Log Frequencies of Pseudo-Cohorts: Born in US

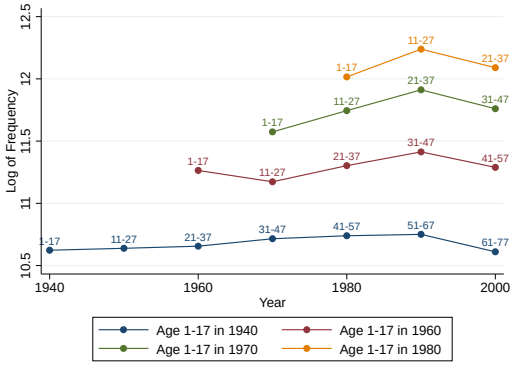
Notes: Figure plots log of frequencies by race for cohorts of native-born individuals age 1-17 in in 1940, 1960, 1970, 1980.



(a) White



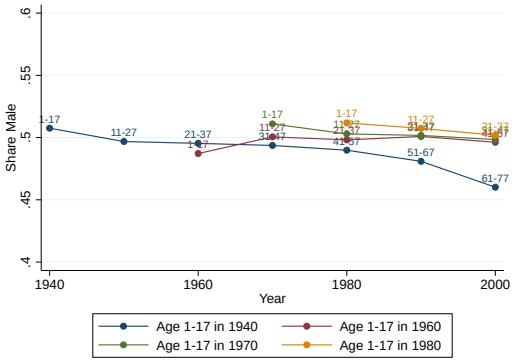
(b) Black



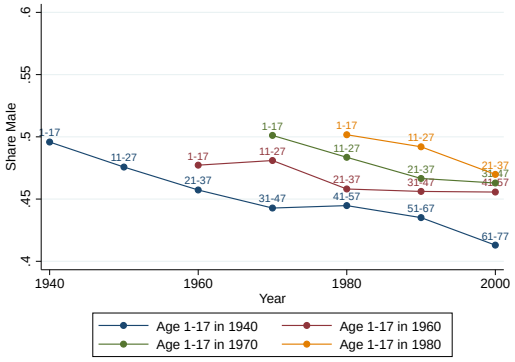
(c) Asian

Figure A.7: Log Frequencies of Pseudo-Cohorts: Born in CA

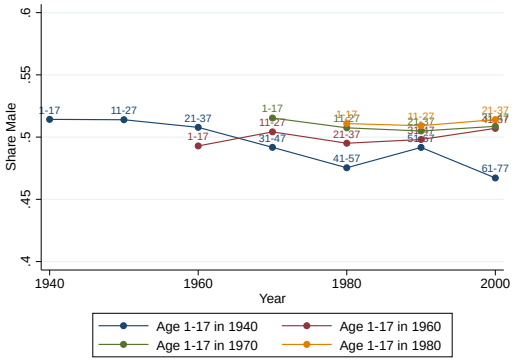
Notes: Figure plots log of frequencies by race for cohorts of individuals born in CA ages 1-17 in 1940, 1960, 1970, 1980.



(a) White



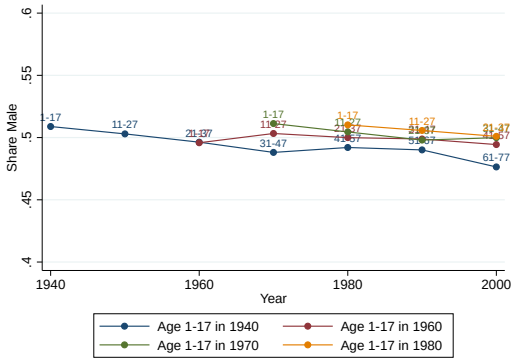
(b) Black



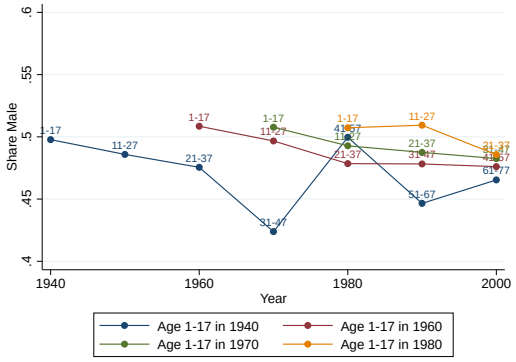
(c) Asian

Figure A.8: Male Share in Pseudo-Cohorts: Born in US

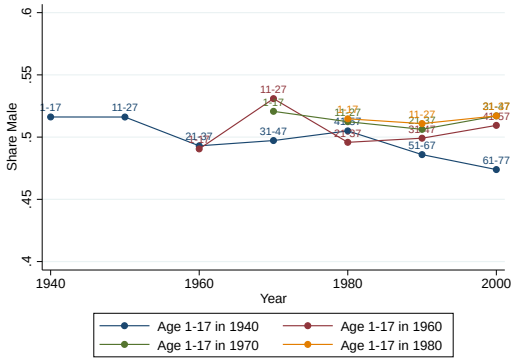
Notes: Figure plots male share by race for cohorts of native-born individuals age 1-17 in 1940, 1960, 1970, 1980.



(a) White



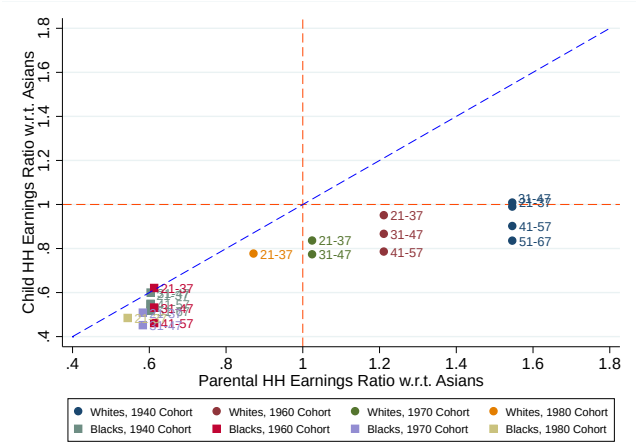
(b) Black



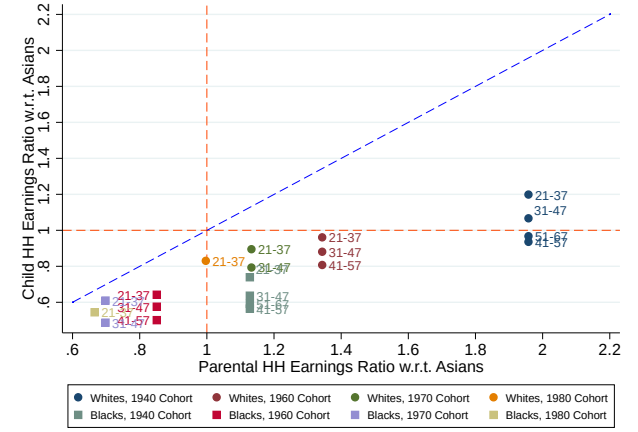
(c) Asian

Figure A.9: Male Share in Pseudo-Cohorts: Born in CA

Notes: Figure plots male share by race for cohorts of individuals born in CA ages 1-17 in 1940, 1960, 1970, 1980.



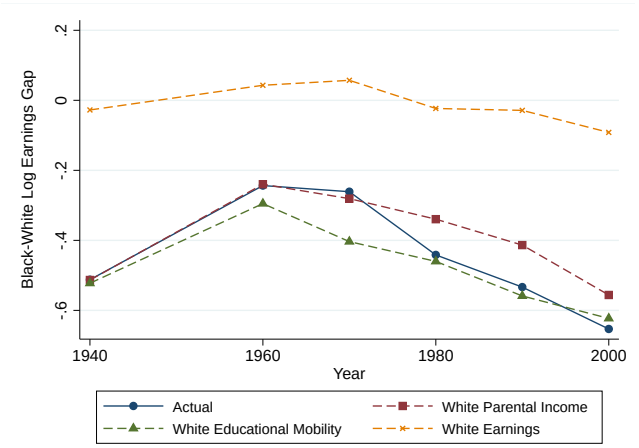
(a) Born in US



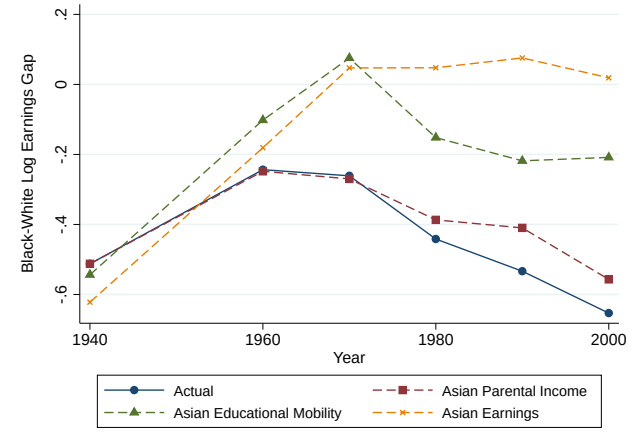
(b) Born in CA

Figure A.10: Intergenerational Change in Earnings Ratios, with Imputations

Notes: Replicates Figure II using household earnings with imputations for zero and missing values as described in text.



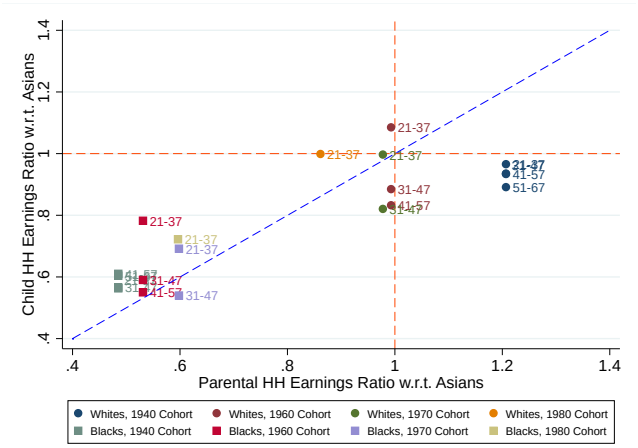
(a) Assign White Components to Blacks



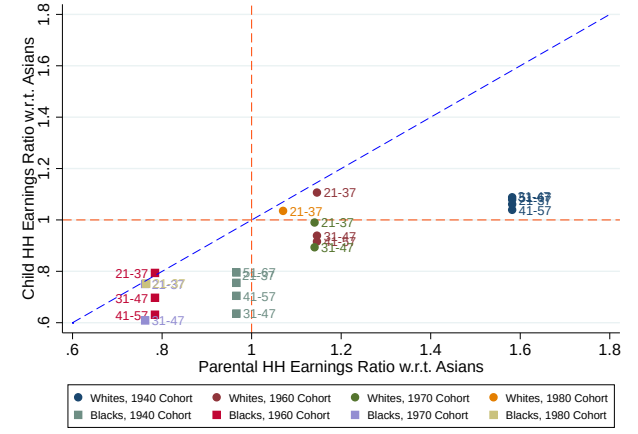
(b) Assign Asian Components to Blacks

Figure A.11: Counterfactual Black-White Log Earnings Gaps in CA, 1940-2000

Notes: Replicates Figure VII using household earnings with imputations for zero and missing values as described in text.



(a) Born in US



(b) Born in CA

Figure A.12: Intergenerational Change in Individual Earnings Ratios

Notes: Replicates Figure II using fathers' and sons' earnings rather than total household earnings.