Intergenerational Mobility of Immigrants in the US over Two Centuries

Ran Abramitzky
Stanford University and NBER

Leah Boustan
Princeton University and NBER

Elisa Jácome
Princeton University

Santiago Pérez
UC Davis and NBER

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Abstract: Using millions of father-son pairs spanning more than 100 years of US history, we find that children of immigrants from nearly every sending country have higher rates of upward mobility than children of the US-born. Immigrants' advantage is similar historically and today despite dramatic shifts in sending countries and US immigration policy. In the past, this advantage can be explained by immigrants moving to areas with better prospects for their children and by "under-placement" of the first generation in the income distribution. These findings are consistent with the "American Dream" view that even poorer immigrants can improve their children's prospects.

Keywords: Intergenerational mobility, immigration

1. Introduction

Immigrants aspire to offer a better future for their children in the US. Both today and in the past, many immigrants earn less than US-born workers upon first arrival and do not completely catch up in a single generation.[1] However, a defining feature of the "American Dream" is the view that even immigrants who come to the United States with few resources and little skills have a real chance at improving their children's prospects.

This paper studies the intergenerational mobility of the children of immigrants (the "second-generation"). We ask whether the sons of immigrants achieve earnings parity with the sons of the US-born, and how their relative intergenerational mobility changed during the last two centuries.[2] On the one hand, children of immigrants might be in a particularly good position to move up the ladder, given that their parents may earn less than their true talent or ability would suggest (for example if they had little exposure to US education or if they faced discrimination in the labor market). Immigrant families who have just arrived in the US might also be more footloose, thus allowing them to settle in areas with better prospects for their children. On the other hand, children of immigrants might grow up in segregated neighborhoods, suffer from discrimination themselves and otherwise enjoy more limited opportunities than the children of the US-born.

We find that, both historically and today, children of immigrants at the bottom of the income distribution have higher rates of upward mobility than children of the US-born and to a strikingly similar degree in each time period. Second-generation immigrants growing up at the 25th percentile of the income distribution end up 3–6 percentile rank points higher than the children of the US-born. Second-generation immigrants today exhibit a similar degree of upward mobility, despite notable shifts in countries of origin away from Europe toward Latin America and Asia, as well as major changes in US immigration policy from a regime of nearly open borders (to European immigrants) to one of substantial restriction. We find a smaller mobility gap between children of immigrants and children of the US-born at the top of the income distribution. Second-generation immigrants growing up at the 75th percentile of the income distribution end up 2–5 percentile rank points higher than the children of the US born in the past, and less than 2 percentiles higher today.

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[1] See Abramitzky, Boustan, and Eriksson (2014) for past immigrants and Lubotsky (2007) for more recent immigrants.
[2] In historical data, we are only able to link sons from their childhood homes into adulthood across census waves, given that daughters often change their names at marriage. Thus, for consistency, we focus on father-son pairs throughout our analysis.

Our analysis focuses on three cohorts of immigrants that span more than one hundred years of US history. The first two cohorts consist of four million first-generation immigrants observed with their children in the US in either the 1880 or 1910 Censuses. The 1880 cohort consists mostly of immigrants from Northern and Western Europe (e.g., Ireland, Germany, and the United Kingdom), whereas the 1910 cohort includes more immigrants from Southern and Eastern Europe thought to have faced greater initial disadvantages in the US labor market.[3] We follow their children to the 1910 and 1940 Censuses, respectively, using information on their name, year of birth and place of birth.

The third cohort includes first-generation immigrants observed around 1980 and their children who are participating in the contemporary labor market. Immigrants in this cohort entered the US during an era of substantial migration policy restrictions and came mainly from poorer countries in Latin America and Asia. For this cohort, we use two sources of data. First, we use publicly available administrative data linking parents and their 2.7 million sons using federal income tax returns from the Opportunity Insights project (Chetty et al. 2018a, 2018b). Second, we use data from the General Social Surveys (GSS), which have smaller sample sizes but includes some undocumented immigrants as well as self-reported information on occupations to facilitate comparison with the historical data. Note that, because we need sufficient time to observe children of immigrants in the labor market, we are unable to analyze the most recent cohorts of immigrant arrivals.

A key limitation of the historical cohorts is that the US Censuses of Population did not collect income data before 1940. Hence, our analysis of these cohorts relies on computing proxies for individual-level income ("income scores"). Our preferred income scores use the 1940 Census to predict income for an individual in earlier Censuses based on his detailed occupation, age, immigrant status, and location (results are robust to alternative approaches for predicting income, and for the treatment of farmers' earnings, which is harder to observe). Our results are qualitatively similar when we use more contemporary data sources to compute income scores (the 1900 Census of Agriculture and the 1901 Cost of Living Survey). Immigrants' mobility advantage is smaller when we use the *occscore* variable computed by IPUMS (which assigns occupations their median 1950 income) This finding is not surprising because *occscore* assigns identical income levels to

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[3] For more background on immigration during the Age of Mass Migration, see Abramitzky and Boustan (2017).

immigrants and the US-born in the same occupation, thereby possibly overestimating immigrant income and thus underestimating the mobility advantage of their children in the second generation.

We start by documenting (occupation-based) earnings gaps between first- and second-generation immigrants and US-born workers. In both the past and present, there is a wide variation in labor market outcomes among first-generation immigrants from different countries. Immigrants from countries like Finland and Norway in the past and Vietnam and the Dominican Republic today earn below the US-born on average, whereas immigrants from countries like England (historical) and India (today) out-earn their US-born counterparts. With a few exceptions, earnings differences for immigrant groups range between +20 and -40 log points. For most sending countries in which first-generation immigrants earned less than the US-born, we find that the second-generation immigrants catch up or even overtake the earnings of the US-born.

Our main analysis uses father-son links to compare the average rank that children can expect to reach in the national income distribution, conditional on their parent's income rank and immigration status (a similar approach to Chetty et al. 2014 and Chetty et al. 2018a). When analyzing the historical cohorts and the modern GSS data, our ranks are based on occupation-based earnings, whereas the Opportunity Insights results are based on individual-level income. In both the past and present, we find that the children of immigrants are more upwardly mobile than the children of the US-born: conditional on the rank of their parents, children of immigrants have a higher expected rank in adulthood. The higher level of upward mobility among children of immigrants is economically meaningful. The difference in outcomes for children of immigrants with parents in the 25th percentile relative to children of US-born individuals is about one fourth of the comparable difference between blacks and whites in the historical US (Collins and Wanamaker 2017), and about one half of the contemporaneous gap between blacks and whites (Chetty et al. 2018a). The estimated gaps imply that children of immigrants can expect to have similar outcomes to children of US-born individuals whose parents were ranked about 10–15 percentiles higher in the income distribution.

Importantly, our data also enable us to estimate rates of intergenerational mobility separately by an individual's country of origin, both in the historical and the modern cohorts. When doing so, we find that immigrants at the bottom of the income distribution from nearly every sending country, including those with a sizable negative earnings gap in the first generation, have higher

rates of upward mobility than the children of the US-born. This finding stands in contrast to the view that immigrants of certain countries of origin are not be able to integrate into the US economy.

In the last part of the paper, we explore the question of why children of immigrants were more upwardly mobile, focusing primarily on the historical data but comparing with the modern data whenever possible. We are more limited in our ability to investigate mechanisms in the modern data since the Opportunity Insights data are available only in aggregate form and the GSS has small sample sizes and contains limited information about parental background). First, we explore whether the higher observed mobility of the children of immigrants can be explained by the fact that their fathers' rank in the US income distribution did not fully reflect their ability or earnings potential (for example, due to a lack of US-specific human capital, English language ability, or labor market networks). Consistent with this explanation, we find the highest rates of upward mobility for children whose fathers immigrated to the US as adults, compared to those who arrived as children (and hence were in a better position to acquire US-specific human capital). Father's age of arrival is particularly important for immigrants from non-English-speaking countries, suggesting that fathers' lack of English ability is one reason why immigrant fathers' rank does not fully reflect their earnings potential.

Second, we consider the possibility that immigrant families invest more in the upward mobility of their children, either by encouraging educational attainment or by moving to geographic areas with higher mobility prospects for their children. Education does not explain the higher income mobility of second-generation immigrants. The children of immigrants were not more educated than the children of US-born of comparable family income (although it is important to note that immigrant fathers had lower literacy rates at every income level, suggesting higher rates of *educational mobility* within immigrant families). Geographic choices were important: first-generation immigrants were more likely to settle in areas with higher mobility prospects for their children. When we compare children growing up in the same US region, the intergenerational gap between immigrants and the US-born is reduced by 70%. When comparing children growing up in the same *county*, we no longer find an intergenerational gap between the children of immigrants and US-born individuals. In other words, immigrant children did not earn more than others who grew up in the same location. Rather, their parents chose to live in locations that offered high mobility prospects to all.

Our paper contributes to the understanding of immigrant assimilation and intergenerational mobility in the US more broadly. Most existing work on economic outcomes during the Age of Mass Migration focus on assimilation *within* a generation (see for instance, Abramitzky, Boustan, and Eriksson 2014; Ferrie 1997; Hatton 1997; and Minns 2000). Although immigrants do not fully catch up to the US-born within one generation, we document substantial progress for the second generation. Most closely related to our study is Ward (Forthcoming), which documents persistent outcomes by country of origin in the early 20th century even after controlling for own father and grandfather attainment.[4] We go beyond Ward by contrasting social mobility rates for the children of immigrants and the US-born and by comparing mobility rates in both the past and present. Our work also relates to a set of papers that focus on intergenerational progress of specific immigrant groups, including the Irish famine immigrants who arrived in the US in the mid-19th century (Collins and Zimran 2019), and Mexican-Americans in the early to mid-20th century (Kosack and Ward 2018; Duncan et al. 2017).

Second, we add to the broader empirical literature on intergenerational mobility in the US which, to date, has not emphasized immigrant families. A number of papers estimate contemporary levels of intergenerational mobility in the United States (e.g., Chetty et al. 2014, 2017; Davis and Mazumder 2017; Hilger 2016; Lee and Solon 2009; Mazumder 2015).[5] A series of related studies document historical rates of intergenerational mobility, and compare these historical rates to present-day levels (e.g., Card, Domnisoru, and Taylor 2018; Derenoncourt 2019; Feigenbaum 2015, 2018; Ferrie et al 2016; Long and Ferrie 2013; Olivetti and Paserman 2015; Olivetti, Paserman, and Salisbury 2018; Tan 2018). Borjas (1992) develops a theory of ethnic capital, which suggests that the social mobility process may differ between immigrants and the US-born.[6]

2. Data

A. *Historical Datasets for Studying Economic Mobility*

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[4] In earlier papers, Borjas (1993) and Card, DiNardo, and Estes (2000) compared the average outcomes by country of origin in the first and the second generations from Census cross-sections. Perlmann and Waldinger (1997) and Perlmann (2005) compare the outcomes of second-generation immigrants in the past and the present (similar as in our Figure 1) but do not have parent-child linkages to examine intergenerational mobility.

[5] Bhattacharya and Mazumder (2011), Chetty et al. (2018a) and Collins and Wanamaker (2017) focus on black-white differences in mobility, and Hilger (2017) focuses on Asian Americans.

[6] Outside of the US, Aydemir, Chen, and Corak (2009) focus on the intergenerational mobility of immigrants to Canada, Bolotnyy and Bratu (2018) on immigrants and refugees to Sweden, and Gielen and Webbink (2019) on immigrants from Surinam to the Netherlands.

Our main analysis estimates intergenerational mobility for the children of US-born parents and children of immigrants from 1880 to 2015. We measure historical mobility rates using two new datasets of linked Census records. The first dataset links children observed in the 1880 Census of Population to the 1910 Census, and the second links children observed in the 1910 Census to the 1940 Census.[7] These data allow us to observe an individual's own labor market outcomes during adulthood and his father's labor market outcomes during his childhood. Throughout the analysis, we focus on men; women cannot be systematically matched across Censuses because they typically change their last names after marriage. We define immigrant status based on the father's place of birth, but Section 6 shows that the results are similar when defining immigrant status using the mother's place of birth (or using both parents' birthplaces in the historical data when such information is available).

i. Linking Fathers and Sons

To create each linked sample, we first identified all males aged 0–16 in the childhood Census (that is, either in 1880 or in 1910). We then matched these individuals to a later Census using information on first and last names, age, and state of birth.[8] Our baseline samples use the linking algorithm in Abramitzky, Boustan, and Eriksson (2014), although in a later section we show that our findings are robust to alternative linking procedures.[9] We restrict the analysis to father-son pairs in which: (1) both the father and the son were white,[10] (2) the son was living with his father

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[7] For reasons of both data availability and historical interest, our analysis does not include immigrants in the 1940–1970 cohorts. First, the 1940 Census is the last Census for which information on names is publicly available, allowing for backward but not forward links from 1940. Second, neither of the two sources that we use to study the modern period include immigrants in these mid-20th-century cohorts: the GSS started collecting data in 1972 and the Opportunity Insights data covers children of immigrants born between 1978 and 1983. We also note that these cohorts coincide with a period of relatively limited migration into the US: in 1970, only 4.7% of the US population was born abroad (compared to nearly 15% in the past [1880–1920] and today).

[8] The fact that the linking is based on names could be problematic if the likelihood of an individual changing his name was correlated with rates of intergenerational upward mobility. We find this argument unlikely for two reasons. First, all matched individuals are born in the US and so do not go through the name Americanization process that often took place at Ellis Island for immigrant arrivals. Second, we show that names of second-generation immigrants were very unlikely to change over time. To do so, we use the cross-sectional data from 1880, 1910 and 1940 and show that the proportion of a cohort with a given name is very stable across census years. Moreover, names of second-generation immigrants do not appear to become less foreign-sounding in later census years. We provide further details on this issue in Section 1 of the Online Appendix.

[9] For more details on the linking strategy, we refer the reader to Section 2 of the Online Appendix. An extended comparison of linking algorithms can be found in Abramitzky et al. (2019).

[10] More than 95 percent of immigrants in this time period were white. Focusing on US-born whites as the comparison group ensures that the higher mobility of second-generation immigrants that we observe is not driven by black-white differences in intergenerational mobility. When including African Americans in the sample, immigrant mobility advantage is even higher.

at the time of the earliest Census (so that we can observe a father's labor market outcomes),[11] (3) the father was born in the US or in one of the most common immigrant sending countries during this time period,[12] and (4) both the father and the son were aged 30–50 by the time we measure their labor market outcomes.[13] Finally, we exclude father-son pairs with missing information on occupation or income, although we show that our main findings are similar when we assign an income of zero to those with missing occupation or income (see Appendix Figure A22).

Appendix Table A1 shows the changing sample size of the cohorts as we impose each restriction. In our baseline samples, we match 23% of individuals in the 1880 Census to 1910 and 29% of individuals in the 1910 Census to 1940, standard match rates for historical samples given the presence of common names and various causes of non-matches (mortality, return migration, under-enumeration, transcription error; see Abramitzky et al. 2019). After imposing the sample restrictions, our baseline sample of linked men in the 1880–1910 cohort includes around 1.2 million men, of whom 28 percent are classified as second-generation immigrants. Germany, Ireland, and England are the largest countries of origin for immigrant fathers in the sample. The 1910–1940 cohort has information on roughly 2.7 million individuals, 24 percent of whom are sons of immigrants.[14] The largest countries of origin in this cohort are Germany, Russia, and Canada. Appendix Table A2 shows the sample sizes for each of the cohorts, disaggregated by the father's place of birth.

An important concern with Census links based on the available information on names, age, and place of birth is the potential for linking children to the wrong adults ("false positives"). As our main focus is on differences between immigrants and the US-born, false positives are a concern only if our linking algorithm is systematically less accurate for the children of immigrants than for children of US-born individuals (or vice versa). Such a pattern might arise, for instance, if

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[11] Most children in this age group were living with their father regardless of immigration status. 88 and 90 percent of children with a US-born father lived with their father in the 1880 and 1910 Census, respectively, which is similar to 89 and 90 percent of children with a foreign-born father.

[12] The seventeen source countries we consider are: Austria, Belgium, Canada, Denmark, England, Finland, France, Germany, Ireland, Italy, Norway, Portugal, Russia, Scotland, Sweden, Switzerland, and Wales. These countries are the largest source of immigrants in the 1850–1910 period, accounting for 93 and 88 percent of the foreign-born population in the 1880 and 1910 Censuses, respectively. We restrict the analysis to the relatively large sending countries so that we have enough observations to estimate our country-by-country results.

[13] We restrict our sample to men ages 30–50 in order to measure fathers and sons at the same moment in the earnings lifecycle, and to avoid measuring income when children or parents are too young or old (Mazumder 2005).

[14] Even though roughly 14 percent of the population was foreign-born in 1880 and 1910, immigrants were over-represented in the prime-age adult population. For example, among adult men ages 30–50 who have a child present in the household, 31 and 27 percent of them are foreign-born in the 1880 and 1910 Censuses, respectively.

immigrants had names that were less culturally familiar and thus harder for Census enumerators to transcribe. Linking a child to the wrong adult would lead to attenuation bias in the relationship between childhood background and adult outcomes; these errors would tend to bias all adults to the 50th percentile (the population average), thus overstating upward mobility for children whose parents were at the bottom of the income distribution and overstating downward mobility for children whose parents were at the top. In the robustness section of the paper, we show that our results are robust to the use of more conservative linking algorithms designed to minimize the rate of false positives (at the expense of trading off on sample size).

A second concern with the linking procedure is the extent to which we are able to generate representative samples. It is well-known that linked samples are not fully representative of the population, as individuals with uncommon names and other attributes are more likely to match between Census waves (Abramitzky et al. 2019).[15] Appendix Table A3 compares the sons in our linked samples to the relevant population of US-born men in the 1910 and 1940 Censuses.[16] Our 1880–1910 sample of linked sons has roughly the same share of second-generation immigrants as the full population (26 vs. 27 percent), and has an income score (as described in the next section) that is roughly 3 percent higher than the population. Our 1910–1940 linked sample has fewer second-generation immigrants than the full population (22 vs. 24 percent), and again has an income score that is 5 percent higher than the population. We address the non-representativeness of our linked data by running a weighted version of our main specification that matches the population on observable attributes.

ii. Assigning Income Measures in Historical Data

Because the 1940 Census is the first US Census to include information on individual earnings, we need to construct proxies of individual income for fathers and sons in our historical samples (we sometimes refer to these proxies as "income scores"). Our preferred approach is to use a statistical model to predict income from a rich set of covariates for white men ages 30–50 in non-agricultural occupations in the 1940 Census and use this model to predict income for men in earlier years. In particular, we regress log income in 1940 on a number of fixed effects and complete set

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[15] Appendix Table A2 shows the algorithm's match rate by the father's country of origin. The match rate for second-generation immigrant sons tends to be slightly lower than for sons of US-born fathers.
[16] That is, we focus on white men aged 30 to 50 whose fathers were either born in the US or in one of the source countries of interest.

of interaction terms using 3-digit occupation, age, current state of residence, and country of origin as our explanatory variables (in all interaction terms, we interact covariates with Census region, instead of state). This method for assigning income is similar to the machine-learning approach for calculating occupational scores proposed by Saavedra and Twinam (2018).[17]

The 1940 income variable excludes income from self-employment and hence it is missing or zero for most farmers. We thus use a different approach to predict the earnings of farm owners, managers, and laborers. Following Collins and Wanamaker (2017, hereafter CW), we multiply the known income of farm laborers in 1940 by the ratio of earnings for farmers versus farm laborers in the 1960 Census by region and immigration status to impute the income of farmers in 1940 (the 1950 Census only asked the income question to a small subset of the population and so it is not useful for this exercise).[18] This measure places the average farmer father in the 40th and 36th percentile of the income distribution in 1880 and 1910, respectively, although this placement varies by immigrant status.[19]

We combine predicted income for non-agricultural occupations with these farming adjustments to create our preferred "income score." One concern with this strategy is that there is an asymmetry between the way we assign income for non-farmers (which is solely based on the 1940 Census data) and the way we assign income for farmers (which combines information from the 1940 and 1960 Censuses). Hence, we also test the robustness of our results to using the IPUMS variable *occscore,* which corresponds to median earnings in a given occupation in the 1950 Census. While this measure uses less information (ignoring, for instance, any immigrant penalty within the first generation), it is computed in a symmetric way for farmers and non-farmers. In addition, we check the robustness of our results to alternative measures of income (for both farmers and non-farmers) in Section 5. Our main qualitative conclusions are unaffected by the specific proxy for income that we use for the historical samples, although we tend to find larger intergenerational gaps when using the more complete set of characteristics to predict income.

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[17] The predicted earnings we estimate are very similar when we use the machine-learning approach (i.e., the lasso algorithm) to choose the most important predictors of earnings in the initial regression; the correlation between the predicted earnings and the lasso-estimated predicted earnings for fathers in the 1910–1940 cohort is 0.99.

[18] CW use a ratio of farmers to farm laborers by region; we add an additional adjustment by immigration status. We further follow CW by scaling up the earnings of farm laborers and farm managers to account for non-cash (in kind) earnings. Throughout these calculations, we restrict the sample to US-born whites and immigrants from the most common sending countries during our historical time period. For more details, see Section 3 in the Online Appendix.

[19] US-born fathers who are farmers are on average around the 40th and 36st percentile of the income distribution in 1880 and 1910, respectively. Immigrant fathers who are farmers are on average around the 38th and 32th percentile of the income distribution, respectively.

For sons observed in 1940, we conduct our analysis using two income measures. First, we use our predicted income for these sons so as to use a consistent income measure across all historical samples and Census years. As an alternative approach, we use individual income data from the 1940 Census. Note that this measure includes only wage and salary income, and does not include capital income or income from self-employment (including farm income). We therefore also use the CW approach for adjusting the income of farmers and all other self-employed individuals described above. In this case, we calculate the ratio of mean earnings for self-employed non-wage workers in an occupation to the mean earnings of wage workers in the same occupation from the 1960 Census and then use this ratio to scale wage earnings of the self-employed in the 1940 Census.

One limitation of using the 1940 Census to compute income scores for earlier Censuses is that we rely on the relative rank between our income cells to be stable from 1880 to 1940. This is especially a concern for our 1880–1910 cohort. To address this, we show the robustness of the results to an alternative data source that measures earnings in an earlier period, namely the 1901 Cost of Living Survey. We also note that Saavedra and Twinam (2018) show that earnings ranks across occupations are fairly stable for later cohorts covering the course of the 20th century.

B. *Modern Datasets for Studying Economic Mobility*

Our linked Census data cannot be extended beyond 1940 because confidentiality restrictions dictate that individuals' names are only released to the public 72 years after a Census is taken. Instead, we rely on two sources of data to follow modern father-son pairs in the labor market. First, we use publicly available aggregate data from the Opportunity Insights project, which was originally constructed by linking US Census and American Community Survey data with federal income tax returns and is based on large samples (Chetty et al. 2018a).[20] Second, to address the discrepancies between historical and modern data in the use of occupation versus income measures, we use the General Social Survey (GSS), a smaller, survey-based dataset that asks respondents about their own occupation and the occupations of their parents.

Our sample from the Opportunity Insights project is based on nearly 3 million male children born between 1978 and 1983, out of which 160,000 have an immigrant father born in one the

twenty-one largest sending countries to the US.[21] These data are built by the Opportunity Insights team in two steps: In the first step, the 2000 US Census long form and the 2005-2015 American Community Survey (ACS) are linked to federal income tax returns (using a unique person identifier assigned by the Census Bureau staff). This step enables us to observe an individual's income from the tax records as well as his or her race and place of birth from the Census or the ACS. In the second step, we obtain information on family income during childhood. To do so, an individual's parent is defined as the person who first claims him or her as a dependent in a federal income tax return at some point between 1994 and 2015. Note that as a result of this procedure for linking parents to children, we are not able to observe pairs for which either the child or the parents lack a Social Security Number. As a result of this limitation, the sample is restricted to children who are either US citizens or authorized immigrants who came to the US during childhood, and whose parents are also US citizens or authorized immigrants.

Adult income for our childhood cohort is measured as the average of annual income in 2014 and 2015, when these children were between the ages of 31 and 37, whereas parental income is measured as the average household income from 1994 to 2000 (fifteen to twenty years before the children are observed in the labor market). We used the publicly available version of the data, which reports information collapsed by ventile bin in the national income distribution. Hence, for each parental ranking, we observe the average income rank of children whose parents fall into that ventile, by a father's country of origin.[22] We also show results when we instead use information on children of foreign-born and US-born *mothers*. Using mothers instead of fathers allows us to show results separately by race and by percentile rather than ventile bins (but in that case the data do not allow us to show results by country of origin).[23]

These data have several attractive features for the study of the intergenerational mobility of immigrants: It is very large relative to other panel datasets (no other longitudinal dataset would

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[21] This sample is smaller than the baseline sample in Chetty et al. (2018a) because the question on parental place of birth is only included in the ACS 2005–2015 and the Census 2000 long form (which covers a random sample of approximately one-sixth of US households). For this modern cohort, the 21 source countries are Canada, China, Colombia, Cuba, the Dominican Republic, Ecuador, El Salvador, Germany, Greece, Guatemala, Haiti, India, Israel, Italy, Jamaica, Japan, Mexico, the Philippines, South Korea, the United Kingdom, and Vietnam.

[22] These data correspond to the "Non-Parametric Estimates of Income Ranks for Second Generation Immigrant Children by Parent Income, Country of Origin, and Gender" file available on the Opportunity Insights website at https://opportunityinsights.org/data/.

[23] Specifically, we use the data in the "National Statistics by Parent Income Percentile, Gender, and Race" file available on the Opportunity Insights website at https://opportunityinsights.org/data/.

enable us to look at mobility differences by country of origin in the modern period),[24] and includes administrative data on income in both the parents' and the children's generation.[25] However, the dataset has two limitations for our purposes. First, it does not include information on individual-level occupations—the main labor market outcome we observe in the historical data—thus complicating our past-present comparisons of intergenerational mobility. Second, because unauthorized immigrants do not have a Social Security Number (SSN), these data exclude the children of unauthorized immigrants, a sizable fraction of the immigrants in the modern period. This limitation affects Hispanic immigrants more than other groups. Specifically, Chetty et al. (2018a) compares these data to the American Community Survey and reports that it includes about 79% of Hispanics, whereas the coverage is close to 100% for other ethnic groups. We conduct subsample analysis by ethnicity and race (Hispanic, Asian and White), as well as by country of origin, and concerns about coverage of the undocumented would not affect results for many of these country-of-origin groups. Furthermore, we add linked data from the General Social Surveys and cross-sectional data from the Current Population Survey (both of which include unauthorized immigrants) to partially address this concern.

As we mentioned, we supplement the Opportunity Insights data with survey data from the General Social Survey. Although the GSS has substantially smaller sample sizes, it includes questions on occupation and covers unauthorized immigrants, both of which facilitate comparison with the historical data. The survey includes information on a respondent's occupation, as well as parents' place of birth (in the US or abroad) and retrospective questions on parents' occupations when the respondent was 16 years old. To make this sample as comparable as possible to the historical data, we focus on respondents who: (1) are males, (2) lived in the US by age 16, (3) were 30 to 50 years old at the time of the survey (which implies an average gap of approximately 24 years between parents' and sons' occupations), and (4) have available information on his and his father's occupation. We attempt to maximize comparability with the Opportunity Insights sample while retaining enough observations by restricting the analysis to survey years 2000 to 2018. After

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[24] For instance, the PSID (which includes information on parental income) started in 1968 and thus does not have much coverage of immigrant families who arrived to the US after the border reopened to immigration in 1965. The sample has been updated in recent years and now includes about 500 immigrant families, although the survey documentation warns that "it is important to note that the size of the immigrant refresher sample was driven by budget constraints and is not designed for immigrant-focused subgroup analysis."

[25] Other panel datasets (for instance, the National Longitudinal Surveys of Youth used in Borjas 1993) include retrospective questions (asked of the children) about the occupation and education in the parent's generation, but do not contain information on parental income.

imposing these sample restrictions, our GSS sample includes about 3,100 observations, out of which about 9% are second-generation immigrants.

To assign income proxies in the GSS data, we implemented an analogous procedure to the creation of the historical proxy, with minor adjustments to fit the available variables.[26] Specifically, we used the 2006–2015 Current Population Surveys and regressed logged total earned income on a number of fixed effects and complete set of interaction terms using occupation, age, region, and immigrant status (and their interaction terms) as our explanatory variables. We then used this regression to predict income scores for respondents and their fathers.

3. Preliminary Evidence: Earning Gaps between Immigrants and US-born since 1880

We start by estimating earning gaps between US-born men and first- and second-generation immigrants by country of origin. For this exercise, we use cross-sectional samples, rather than father-son pairs. Our interest is in documenting the earnings disadvantage faced by first-generation immigrants and to ask whether the children of immigrants are able to erase some or all of these gaps by the next generation.

We estimate the following equation, first for the father's generation and then for the son's:

$$(1)\ Y_{iac} = \alpha + \sum_{c=1}^{N} \beta_c\,\text{Country}_c +\ \delta_a + \epsilon_{iac}.$$

where Y_{iac} is the logged income score of father or son i of age a from sending country c.[27] The β_c coefficients on the country-of-origin fixed effects reveal the average income-score difference between US-born individuals and immigrants from country c. All regressions include a quadratic in father's or son's age δ_a.

Figure 1 plots the β_c coefficients for first-generation (in black) and second-generation (in gray) immigrants in each cohort.[28] For most countries-of-origin and time periods, the gaps in income

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[26] The GSS reports parental immigrant status but does not record country of origin. The most precise measure of geography in the GSS is region. In addition, the GSS does not include information on parental age when the respondent was 16 years old (when parental occupations are measured) or at any other time.

[27] We note that the results are very similar when use actual (rather than predicted) income for the 1940 sons as well as for individuals in the modern cohort (See Appendix Figure A1).

[28] In particular, we use the 1980 Census for the fathers' generation and the Current Population Survey (CPS)'s Annual Social and Economic Supplement for 2006–2015 for the sons (Flood et al. 2018, Ruggles et al. 2018). We restrict the 1980 Census sample (fathers) to men who are aged 30–50, who have a son present in the household, and who were born in the US or in one of the top sending countries identified in the Opportunity Insights sample. We restrict the CPS sample (sons) to US-born men who are aged 30–50 and whose fathers were either born in the US or in one of the top sending countries. For both of these datasets, we construct occupation-based income scores using an analogous procedure to the one that we use in both the GSS and the historical data, but we also show the results from using actual income.

scores between first-generation immigrants and US-born men range between -20 log points and +20 log points. In the modern cohorts, four countries faced larger gaps of nearly -60 log points (the Dominican Republic Haiti, Mexico, and Vietnam). In the past, immigrants from Scandinavian countries faced the largest earnings penalties, along with immigrants from Russia and Italy (1880) and from Portugal and Italy (1910). In all cohorts, immigrants from a set of sending countries outperform the US-born in the labor market. Today, these high-earning countries include Germany, Canada, the United Kingdom, Japan, and India, whereas in the past the highest-earning immigrants were from the England, Scotland, Germany, and France.

In each of the three cohorts, second-generation immigrants from countries in which first-generation immigrants earned less than the US-born close or even reverse the corresponding earnings gap in the second generation (so that children of immigrants begin to out-earn children of US-born individuals). There are only a few cases in which the gap remained above 5 log points by the second generation (Norwegians in 1910 and 1940, Finish in 1940, and Jamaicans, Haitians, and Mexicans in the modern data), but, for most sending countries, the earnings gap is close to zero by the second generation. Appendix Figure A2 shows the same pattern when we consider the daughters of immigrants. In this case, because historically many women were not in the labor force, we assign to women the sum of their own incomes (if she was employed) and the incomes of their husbands (if she was married); the earnings gaps are, again, either closed or reversed by the second generation in each of the three cohorts.

For countries whose first-generation immigrants already out-earned US-born individuals in the labor market, the pattern is more mixed, with the corresponding earnings advantage becoming smaller for some countries, remaining similar in size for others, or even growing by the second generation in some cases. Although earnings gaps for countries that start below the US-born diminish substantially across generations, it is still the case that the children of low-earning immigrants tend to earn less than the children of high-earning immigrants, consistent with the persistence results in Abramitzky, Boustan, and Eriksson (2014) and Ward (Forthcoming).[29]

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[29] The cross-sectional samples in Figure 1 have three main advantages: they are constructed to be nationally representative, they do not rely on linking and they are highly comparable over time. However, the drawback of cross-sectional analysis is that it does not allow for a direct comparison of fathers with their sons. In addition, cross-sectional data will include first-generation immigrants who might have returned to their home country before having children or with their families (so that their sons would not be in the subsequent sample thirty years later). Because return migrants tend to be negatively selected (Abramitzky, Boustan, and Eriksson 2014, 2018; Lubotsky 2007), this figure might over-state the degree of intergenerational improvement by the second generation. Appendix Figure A3 shows that the same pattern holds in our linked father-son samples, namely the sons of immigrants are on average more

4. Main Results: Intergenerational Mobility of Immigrants since 1880

We have so far considered average earnings gaps, without any regard for the parent's rank in the income distribution. The earnings growth for the children of immigrants relative to the children of US-born parents in Figure 1 could be driven by higher rates of upward mobility from the bottom of the income distribution, lower rates of downward mobility from the top of the income distribution, or both. The essence of the American Dream is that even immigrants at the bottom of the income distribution can have children that succeed. Thus, we turn to the linked data, both historical and modern, to study intergenerational mobility of immigrants and US-born individuals whose parents had comparable labor market outcomes as measured by their rank in the national income distribution (following Chetty et al. 2014 and Chetty et al. 2018a). We first rank each son based on his income score (or actual income when using the Opportunity Insights data), relative to other sons born in the same year. Similarly, we rank fathers based on their income score relative to all other fathers with sons born in the same year.[30]

In particular, we regress a son's rank on his father's rank[31], allowing both the slope and intercept to differ for sons of immigrants and US-born individuals:

(2) $\quad Rank\ Son = \alpha + \beta_0 2nd\ Gen. + \beta_1 Rank\ Father + \beta_2 2nd\ Gen. \times Rank\ Father\ + \epsilon.$

In the terminology of Chetty et al. (2014), the constant term α measures *absolute* rank mobility for the children of the US-born, that is, the expected rank of children of US-born individuals with fathers at the very bottom of the income distribution. The parameter β_0 captures the degree to which this expected rank is different for the children of immigrants. The parameter β_1 measures the rate of *relative* mobility of children of US-born individuals, or the association between the

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upwardly mobile than the sons of US-born individuals. We also re-run this specification but excluding individuals living in the South in either generation in order to estimate more-comparable earnings gaps (since 95 percent of foreign-born individuals lived outside of the South). Appendix Figure A4 displays the results, showing that the main findings of this section are preserved.

[30] If there are individuals in the sample who have the same father, we assign the father the average rank across his sons. Due to the GSS's much more limited sample size compared to the historical linked data and the Opportunity Insights data, we pool all survey years (2000 to 2018) and include a survey year fixed effect in the regressions.

[31] In the Opportunity Insights data, we use family income rank because we do not have separate information on a father's income rank.

ranks of children and those of their fathers. Finally, β_2 measures the degree to which this association is different for children of immigrants.[32]

We compare the economic mobility of the sons of immigrants to the sons of the US-born in Figure 2, which plots these regression lines estimated in equation (2), as well as a binned scatterplot showing the mean income rank of the children of immigrants and of the US-born by parental income rank. Figure 2 contains four panels, two for the historical cohorts and two for the modern cohort using the GSS and Opportunity Insights data, respectively. In each case, second-generation immigrants were more upwardly mobile than the children of the US-born: conditional on the father's rank (or family's rank when using the Opportunity Insights data), children of immigrants achieve a higher expected rank than the children of the US-born. The mobility patterns of the historical cohorts, shown in panels (a) and (b), suggest that, in the past, the sons of immigrants on average out-earned comparable sons of US-born individuals throughout the income distribution, and particularly in its bottom half. Second-generation immigrant children with fathers at the 25th percentile in 1880 and 1910 reached an average income rank that was 3–4 percentiles above the average rank reached by children of the US-born with similar fathers' incomes.[33]

Panels (c) and (d) of Figure 2 show the mobility patterns for the modern cohort when using the GSS and Opportunity Insights data, respectively. Today, the children of immigrants remain more upwardly mobile than their counterparts with US-born parents, but this pattern mainly holds in the bottom half of the income distribution. The children of the US-born in the 25th percentile rank at the 4th percentile.[34] Similar to the historical data, sons of immigrants in the 25th percentile rank about 5 percentile points higher than children of US-born individuals, regardless of whether we use the GSS or the Opportunity Insights data.[35] In Table 1, we report the estimated values of the

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[32] A negative β_0 implies a lower expected rank for children of immigrants relative to children of US-born individuals with parents at the very bottom of the income distribution. Note, however, that even if β_0 was negative, the cross-sectional data could show convergence by the second generation for groups that started below the US-born (due to mean reversion). By a similar logic, immigrant groups that started above the US-born might lose some of their advantage by the second generation even if β_0 was positive.

[33] Appendix Figure A5 shows that the mobility advantage of the children of immigrants continues into the next generation. That is, the children of US-born individuals with foreign-born grandfathers are more mobile than the those with US-born grandfathers.

[34] Our calculation is very similar but not identical to Chetty et al. (2018a, Figure 3), since we define immigrant status using the father's place of birth and they define it using the mother's.

[35] Appendix Figure A6 shows the same rank-rank results but using actual (instead of predicted) income when it is available (i.e., for the 1940 sons and for the sons in the GSS cohort). This figure shows that replacing predicted with actual income does not alter the main findings for the 1910–1940 and GSS cohorts, and therefore suggests that our finding of higher upward mobility of children of immigrants is not driven by the use of predicted rather than actual income.

intercepts and slopes for each of the samples. For all three cohorts, we find a higher intercept for the children of immigrants relative to the children of the US-born, indicating higher levels of absolute mobility (these differences are statistically significant). The difference in intercept range from 4 percentiles in the 1910–1940 cohort to 7 percentiles in the modern Opportunity Insights data. The slopes for the children of immigrants range from 0.21 to 0.37 and are in most cases smaller in magnitude than the slopes for US-born individuals, also suggesting a weaker association between a father's rank and his son's rank for immigrant families.

In Figure 3, we allow the intercept and the slope of the rank-rank relationship to differ by country of origin, both in the historical and the modern data. We then use these estimates to compute the expected income rank for children born at the 25th percentile for each country of origin.[36] The figure shows that children from nearly all sending countries in the past and the present (except Norway and Belgium in 1880, Norway and Germany in 1910, and Haiti and Jamaica in the modern cohort) had a higher expected rank than the children of US-born individuals with parents at the 25th percentile of the income distribution.[37]

Figure 4 shows that the children of immigrants and the US-born appear more similar when looking at the 75th percentile of the income distribution.[38] In the past, children of immigrants had slightly higher expected ranks, and today the two groups achieve the same expected rank. Children of immigrants from some sending countries like Portugal and Belgium in the past and Jamaica, El Salvador and Mexico today did worse than the children of US-born, and those from other countries like Russia and Ireland in the past and India and China today did better.

We next consider differences in mobility patterns by immigrant ethnicity or race (white, Hispanic, and Asian) within the modern cohort, again using the Opportunity Insights data. Consistent with our country-by-country results, Figure 5 shows that immigrants from all of these groups are more upwardly mobile than US-born individuals (where the data for US-born individuals pools all races), particularly in the bottom half of the income distribution.[39] White and

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[36] In this exercise, we focus on the Opportunity Insights for the modern data because of its large sample size, which facilitates an analysis of sub-samples, and because the GSS data does not record parent's country of origin or ethnicity.

[37] Appendix Figure A7 shows the same figure, but weighting observations in the historical cohorts to account for selection into the linked sample using the individual's childhood characteristics (like father's birthplace and occupation, state of residence, etc.). Appendix Table A4 shows the intercept and slope for each country of origin in the two historical cohorts.

[38] The modern data do not include information on the children of families at the 50th percentile by country of origin.

[39] We note that in this case we cannot restrict the sample to the 21 largest sending countries since the data is only disaggregated by race and not by country of origin. We also note that in this case second-generation status is defined based on the birthplace of the *mother*.

Hispanic immigrants perform similarly to US-born individuals in the top half of the distribution (panels (a) and (b)). By contrast, second-generation Asian immigrants can expect to reach higher ranks than US-born individuals, even at the top of the income distribution.[40]

Overall, we conclude that second-generation immigrants are on average more upwardly mobile than the sons of US-born individuals. This advantage is not driven by immigrants from countries with higher mean earning than the US-born in the first generation: there is higher upward mobility even among immigrants from countries that start significantly below the US-born in the first generation. In both the past and present, sons of immigrants move out of the bottom of the income distribution at higher rates than the sons of US-born parents, with differences in absolute mobility ranging between 3 and 6 percentiles. The similarities are striking especially given that in the past, immigrants hailed from more-comparable economies (i.e., European countries) and today they hail from poorer regions (i.e., Latin America and Asia).[41]

Section 4 of the Online Appendix documents mobility patterns in more detail using occupational transition matrices. Overall, the analysis suggests that the children of immigrants were more likely than the children of the US born to use urban routes to upward mobility. The sons of unskilled immigrant fathers moved into white-collar and skilled blue-collar jobs at higher rates than the sons of unskilled US-born fathers, who were more likely to transition into farming. In the modern period, children of immigrants whose fathers were employed as blue-collar or service workers were more likely to become professionals than the children of the US-born.

5. Why are children of immigrants more upwardly mobile?

This section explores why the children of immigrants were more upwardly mobile than the children of the US-born. Whenever possible, we compare the historical and modern cohorts. However, we often focus on the historical data for which we have a set of rich covariates because, in the modern case, we only have access to aggregate cells in the Opportunity Insights data and a limited sample size in the GSS. We consider two potential explanations: first, a "mismatch" between an immigrant father's full potential and his earnings rank—due, for example, to a lack of

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[40] This result echoes Chetty et al. (2018a)'s finding that exceptional outcomes of Asian children are driven by immigrants (i.e., individuals whose parents were not born in the United States).

[41] US GDP per capita was more than 7 times higher than Mexico or China when migration flows from these countries began in 1970, whereas the US had GDP per capita that was only 2–3 times higher than European sending countries circa 1900.

US-specific skills. Such "mismatch" allows immigrant children more scope for upward mobility. Second, differences in parental investments, including education and location choices.

A. *Father's income not reflecting earnings potential*

One possible explanation for the higher upward mobility of immigrants is that the earnings rank of an immigrant father in the US income distribution might not fully reflect his ability or earnings potential. In other words, if immigrant fathers are ranked lower in the distribution than their skills or ability would suggest (e.g., due to a lack of US-specific human capital, language ability or labor market networks), then the children of these immigrants are expected to perform better than their fathers' outcomes would predict. We consider various aspects of the data to see whether this underperformance in the US labor market might play a role in explaining immigrants' higher levels of upward mobility.

i. *Parental Age of Arrival in the United States*

We first consider the age at which immigrant fathers arrived in the United States. Immigrant fathers who arrived as children to the US would likely assimilate into the labor market more easily (for instance, by being exposed to US education since an early age), so that their observed income would be closer to their potential earnings. Moreover, an earlier age of arrival to the US might benefit immigrants coming from less developed countries if they are exposed to better schools, health facilities, etc. in the US (which would then increase their earnings ability as adults). Indeed, Ward and Alexander (2018) shows that age of arrival was a key driver of immigrant earnings during the Age of Mass Migration, with immigrants arriving at younger ages out-earning those arriving later in life. If lack of US-specific human capital is driving our results, then we should observe higher levels of upward mobility for children of immigrants who arrived in the US as adults and thus may have been placed too low in the income distribution relative to their underlying ability.

Figure 6 calculates the intergenerational gap at the 25th percentile of the income distribution for three groups of immigrants: those whose fathers arrived to the US before age 7, those whose fathers arrived between the ages of 8 and 16, those whose fathers arrived at age 17 or older. We focus this analysis on the 1910–1940 cohort because the 1880 Census did not include information on year of arrival to the US. Parental age of arrival to the US is also not available in the GSS. We find that the intergenerational mobility gap between the children of immigrants and the US-born

grows with fathers' age of arrival, so that the gap is more than twice as large for the children of immigrants who arrived as adults than for the children of immigrants who arrived as children.[42] The children of immigrants who arrived before schooling age and thus likely received all of their schooling in the US exhibit no mobility gap relative to the children of the US-born. This result suggests that part of the difference in upward mobility is driven by immigrant fathers not earning up to their potential in the labor market.

ii. Parental English Ability

One important aspect of US-specific human capital is English language ability. If immigrant fathers end up lower in the income distribution than their potential would predict due to an imperfect command of English, then we should expect to see high levels of upward mobility for their children, most of whom would have been educated in schools that used English as the primary language of instruction.

To test this hypothesis, we compare the association between upward mobility and father's age of arrival for fathers from English- versus non-English-speaking countries; this method is similar in spirit to Bleakley and Chin (2010). All immigrants will have greater exposure to American culture and networks if they arrive in the country at a younger age. Immigrants from non-English speaking countries will additionally benefit from a greater command of the English language. If English language ability can partially explain fathers' mismatch in the income distribution, we should find a stronger relationship between father's age of arrival and upward mobility for the children of immigrants from non-English speaking countries. Indeed, Figure 7 shows that, while the intergenerational mobility gap grows with fathers' age of arrival for both groups, the age gradient is steeper for individuals with fathers from non-English-speaking countries. This result suggests that lack of English ability partially contributes to the misplacement of immigrant fathers in the income distribution. We note, however, that individuals with English-speaking immigrant fathers still have significant intergenerational gaps (of at least 5 percentage points), implying that lack of English ability cannot fully explain immigrants' higher levels of upward mobility in the past.

B. *Did immigrants invest more in the upward mobility of their children?*

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[42] We also include the corresponding rank-rank figure (i.e., Appendix Figure A8).

i. Investment in Education

We first study the possibility that children of immigrants achieved higher levels of educational attainment, which then served as a vehicle toward achieving better labor market outcomes in adulthood. Figure 8 considers the 1910–1940 cohort—which is the first cohort for which we have data on completed years of schooling for the sons—and plots the average educational attainment of the sons of immigrants and of US-born individuals relative to their fathers' income rank. Panels (a) and (b) of this figure show that, if anything, sons of US-born fathers were more likely to graduate high school and reach higher grades in school. In the same vein, panel (c) focuses on linked sons aged 12–16 in 1910 to show that the sons of US-born fathers were indeed more likely to be attending school in 1910 than the sons of immigrant fathers.[43] Hence, higher educational investments among immigrant families are unlikely to be the explanation for their higher upward mobility.

The fact that educational differences do not explain the intergenerational mobility gap is not entirely surprising because, as Goldin (1998) shows, the returns to schooling in 1940 were lower than in recent years. The children of immigrants also enjoyed higher income mobility because they earned a higher income at any given level of education (panel (d)). However, we also note that the children of immigrants enjoyed a faster rate of *educational mobility*, even if they did not achieve higher levels of educational attainment. That is, for a given level of father's education, the children of immigrants in the bottom half of the distribution tended to achieve more years of schooling than the children of the US-born, consistent with the finding by Card, Domnisoru, and Taylor 2018 (see panel (e)).[44]

ii. Location Choices

We next consider the role of location choices in explaining immigrants' higher levels of upward mobility. Our analysis of location choices is motivated by two facts. First, rates of intergenerational mobility both historically and today vary greatly by region (Chetty et al. 2017, Tan 2018, Connor 2019). Second, previous research shows that first-generation immigrants are

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[43] Similarly, using the 10% sample of the 1880 Census, we see that sons of immigrant fathers who are aged 12–16 in the earlier cohort are 8 percentage points less likely to be attending school than sons of US-born fathers (57 versus 65 percent).

[44] Panel (e) is based on father-son pairs for whom we could link the father to the 1940 Census and thus have a measure of father's education (22 percent of the sample).

more responsive than the US-born to wage differentials across regions (Borjas 2001, Cadena and Kovak 2016), which raises the possibility that they might also be more likely to move to areas with better prospects for their children.

As motivation, Figure 9 presents maps that indicate the share of children who are second-generation immigrants in 1880 and 1910 by State Economic Areas (SEAs). Immigrant families typically settled in the Northeast, the upper Midwest, and some parts of the West, and were very unlikely to settle in the South (see panels (a) and (c)). Panels (b) and (d) then depict the share of each SEA's population that was upwardly mobile, focusing on the sons of US-born fathers (to avoid a mechanical relationship between upward mobility and the fraction of immigrants).[45] Our measure of upward mobility is similar in spirit to that of Chetty et al. (2018b): we calculate the share of sons who reach the top third of the income distribution, conditional on having had a father who was in the bottom third of the corresponding national distribution. The maps show that the areas in which immigrants settled tended to have overall higher levels of upward economic mobility.

The final two panels of Figure 9 indicate the share of the population who is foreign-born in 1980 by county (using data from Manson et al. (2019)), and the share of each county's white non-Hispanic male population that was upwardly mobile using data from Chetty et al. (2018b).[46] Immigrants settled in the Northeast and the West, as well as in Florida, but were less likely to live in the Midwest or the South. As for earlier cohorts, immigrants choose to settle in areas with high levels of upward economic mobility.

We summarize the information in these maps in Figure 10, in which we plot the share of each SEA's population that is a second-generation immigrant, against the share of sons of the *US-born* raised in that SEA who achieved upward mobility. This figure confirms that first-generation immigrant parents were more likely to settle in areas with higher mobility prospects, both in the historical and in the modern data.[47] These figures therefore suggest that immigrants might exhibit

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[45] Appendix Figure A9 shows the share of each SEA's population that was upwardly mobile, separately for the sons of US-born and foreign-born fathers.

[46] We are not able to compute the fraction of upwardly mobile sons separately for the children of US-born and foreign-born parents at the commuting zone level in the modern data. Instead, we used publicly available data indicating the fraction of non-Hispanic white males who reach the top 20 percent of the income distribution, conditional on having parent income in the 25th percentile of the income distribution (Chetty et al. (2018b)).

[47] The first two panels of Appendix Figure A10 reproduce these figures at the state level for the historical cohorts. The third panel reproduces this figure at the commuting zone level for the modern cohort. All of these graphs reinforce the positive relationship between upward mobility and immigrant location choices. Appendix Figure A11 plots the share of sons of the US-born who are upwardly mobile in a state or SEA against the corresponding share of second-

higher levels of intergenerational mobility because they tended to migrate to areas that had overall higher degrees of upward mobility.

We now explicitly test the hypothesis that differences in the geographic distribution of immigrants and US-born individuals might explain mobility gaps between the two groups. Specifically, we re-run our rank-based specification from equation (2), and sequentially add region, state, state-by-urban status, and county fixed effects (based on an individual's childhood location). These specifications allow us to compare immigrants and US-born individuals with similar parental incomes *and* who grew up in the same location.

Figure 11 plots the baseline intergenerational gap between the children of immigrants and the US-born at the 25th percentile for each cohort and how the gap changes as we incorporate location controls. The second bar of panels (a) and (b) shows that including childhood region fixed effects diminishes the intergenerational gaps by roughly 70% in both historical cohorts. The intergenerational gaps are further reduced when adding childhood state fixed effects (third bar of each graph). Finally, when we further include either childhood state-by-urban status fixed effects (fourth bar) or childhood county fixed effects (fifth bar) the gap between the children of immigrants and the US-born fully closes. Hence, these results suggest that location choices are an important source of difference in upward mobility for the children of immigrants versus children of the US-born.[48]

The GSS data enable us to explore the role of location choices in the modern period. While the survey does not include detailed childhood occupation as in the historical data, it includes a question on a respondent's region of residence at age 16. Panel (c) of Figure 11 shows that the intergenerational gap is unchanged once comparing children growing up in similar locations. Relative to the historical data, the choice of region appears to be less important in this cohort, but

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generation immigrant sons in that same state or SEA who achieved upward mobility in the historical cohorts. Because many SEAs have small populations in the linked sample, the SEA estimates in these plots are much less precise. Nevertheless, we notice that the same places that are typically associated with upward mobility for immigrants seem to have comparable levels of mobility for US-born individuals (as evidenced by the clustering of the estimates around the 45-degree line) and that the Northeast and West are areas with higher levels of upward mobility.

[48] Appendix Figure A12 plots the intergenerational gap between the children of immigrants and the US-born at the 50th and 75th percentile for each cohort and how the gap changes as we incorporate location controls. These results highlight the importance of first-generation immigrants' location choices throughout the income distribution. Our baseline income scores use state of residence to predict income, so we were concerned that adding state fixed effects will mechanically have a strong predictive power. However, Appendix Figure A13 shows that the results are similar when using income scores that do not use state to predict incomes.

it is possible that county or neighborhood choice (which we cannot capture) are still important today.

We also consider the potential role of enclaves in boosting or hindering mobility of the second generation. To do so, we classify a second-generation immigrant as growing up in an enclave if at least 10 percent of the adult population in his childhood enumeration district came from the same country as his father (enumeration districts are the smallest level of Census geography in this period and are roughly the same size as Census tracts today). We then calculate the intergenerational gap separately for those who do and do not grow up in immigrant enclaves. Appendix Figure A14 shows that in the historical cohorts, immigrant children who did not grow up in an enclave had higher rates of upward mobility than children growing up in enclaves. Because living in an enclave is likely correlated with other characteristics that might matter for mobility, we emphasize that this evidence is only suggestive of the potential role of enclaves.

A useful comparison group to shed light on the relative roles of geographic choices and human capital is the children of US-born fathers who migrated internally within the US. On the one hand, these families were less likely to suffer an "immigrant" penalty in the first generation (due to discrimination or a lack of US-specific human capital). On the other hand, they were likely to sort into areas with better prospects for their children. Indeed, Appendix Figure A15 shows that the upward mobility of children of US-born fathers who migrated internally falls between children of immigrants and children of the US-born fathers who remained in their state of birth, suggesting an important role for geographic choice.

Finally, we consider the location choices of the second generation to explore whether the sons of immigrants are themselves more likely to move as adults. Appendix Figure A16 shows that sons with immigrant fathers throughout the income distribution were *less* likely to move away from their childhood county than sons with US-born fathers. This pattern is consistent with the idea that second-generation immigrants were already living in areas with relatively better prospects, and thus might have felt less compelled to move as adults.

6. Robustness

This section assesses the robustness of our main rank-rank mobility estimates to the choice of Census linking procedure, the method of assigning income by occupation and other attributes, and the details of sample construction.

A. Sensitivity of Results to Linking Procedure

Our baseline Census linking strategy uses a standard algorithm based on Abramitzky, Boustan and Eriksson (2012, 2014), which standardizes first and last names into phonetic equivalents to account for transcription errors and allows ages to differ by up to two years to account for age misreporting. We consider the robustness of our main finding to alternatives for processing name and age data, and to choice of algorithm itself. Specifically, we re-run the rank-based specifications using three matching strategies that are more conservative than our baseline strategy. First, we restrict the sample to *exact* matches by full (non-standardized) name and age. Second, we restrict the sample to individuals whose first and last names are unique within a five-year age band. Third, we require matches to be both exact *and* unique within a five-year age band. Because each of these linking procedures is more conservative than our baseline one, the samples from these approaches will be smaller, but likely contain fewer matching errors.

Appendix Figures A17 and A18 show the rank-based results using each of the three more-restrictive matching strategies. Regardless of the linking procedure we use, the main result that immigrants are more upwardly mobile than US-born individuals throughout the income distribution remains unchanged. Moreover, the magnitude of the intergenerational gaps is also very close to the magnitude in the baseline sample for both cohorts, at roughly 3–4 percentile points for children with parents in the 25th percentile. Appendix Table A5 shows the estimated values of the intercept and slope coefficients in these more conservatively linked samples for both cohorts. In all cases, the values are close to those that we obtain in the baseline sample and confirm our conclusion of higher upward mobility among children of immigrants.

Finally, we consider the possibility that our result could be explained by selection into the linked sample. Specifically, we re-estimate the rank-rank specification after reweighting the matched data by characteristics such as age, state of residence, birthplace, and occupation, thereby accounting for selection into the matched sample, at least with respect to observable characteristics.[49] Appendix Figure A19 shows that the results are very similar when using the reweighted data.

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[49] In this exercise, weights represent the inverse probability that an individual can be linked across Censuses based on his observable characteristics. For each individual, we can construct the weights using either observable characteristics from childhood (which include his father's characteristics, like birthplace and occupation) or from adulthood (which include his own occupation). We cannot combine the two sets of characteristics into a single weighting function because we only know both sets of characteristics for individuals who are successfully linked. For more details on the construction of these weights, see Section 3 in the Online Appendix.

Overall, these exercises indicate that our main finding – namely, that children of immigrants are more upwardly mobile than children of US-born individuals – is robust to various features of the linking procedure.

B. Sensitivity of Results to Income Assignment

In this section, we check the robustness of our historical results to various proxies of income. First, we produce alternative measures of income for farmers, a large portion of the economy for which historical income data is less accurate. Second, we drop fathers and sons who were farmers from the sample. Third, we replace our income proxy, which is based on the 1940 Census, with information collected closer to the years in which the fathers in our sample would have been in the labor market. Finally, we create different income predictions from the 1940 Census that are based on more and less information about individuals. These results are summarized in Appendix Tables A6 and A7, which show—for our baseline measure and for our various robustness measures—the slope and intercept from the rank-rank specification for the children of US-born individuals and the children of immigrants from each country.

We first consider how our estimates change when we use an alternative measure of farmer's income using the 1900 Census of Agriculture. In particular, we assign all farmers a measure of income based on revenues and expenditures from the 1900 Census of Agriculture at the county level to account for the wide variation in crops and farm size by location.[50] This measure does not allow farmers' income to differ by immigration status, which may overstate the income of first-generation immigrant farmers and thus understate the mobility of their sons. The Census of Agriculture adjustment, on average, places farmer fathers in the 48th percentile of the income distribution in 1880 and 1910, which is higher than the average ranks using our preferred Collins and Wanamaker (CW) method. The first panel of Appendix Figures A20 and A21 show the rank-rank specifications using this adjustment for farmer income. Similar to our results above, the figure indicates that in both cohorts, immigrants can on average expect to reach a higher rank in the earnings distribution than US-born individuals growing up with comparable incomes.

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[50] Specifically, we use the 1900 Census of Agriculture to calculate net earnings for farmers at the county level and adjust these calculations to 1940 dollars. This calculation follows a similar approach to that in Goldenweiser (1916) and Mitchell et al. (1922), and then later used in Abramitzky, Boustan, and Eriksson (2012). For more details, see Section 3 in the Online Appendix.

Second, given the prominence of farming and the difficulty in assigning farmers income, we consider how our main results change when we drop fathers and sons who are farmers from the sample. Panel (b) of both figures display the results from re-running equation (2) with ranks from the non-farming national income distribution. We see that the higher degree of upward mobility that we find for sons of immigrants, especially in the bottom of the income distribution, is not driven by individuals in farming occupations alone. Of course, moving into or out of farming was by itself an avenue for mobility, which is why we prefer to include farmers in our baseline sample despite the challenges in measuring farm income.

Third, for individuals in the 1880 and 1910 Censuses, we replace our baseline income measure, which is based on the 1940 Census, with information from the 1901 Cost of Living Survey (Preston and Haines 1991).[51] Unlike our baseline measure—which varies by occupation, region, state, age, and country of origin—the income measure from the 1901 survey varies only by occupation and was collected exclusively in urban areas. The benefit of this survey is that it was conducted closer to the years in which our sample was in the labor market (1880 and 1910). Panels (c) of Appendix Figure A20 and A21, which combine data from the 1901 Cost of Living Survey for non-agricultural occupations with the 1900 Census of Agriculture measures of farm income, also show that the children of immigrants remain more upwardly mobile than the children of US-born individuals.

Fourth, we consider the sensitivity of the results to the variables included in the income prediction in the 1940 Census. In our preferred approach, we use the relevant individual-level information available in the Census to predict a person's income. We next show the sensitivity of the results to progressively using less information in the prediction. Panels (d) of the same figures re-run the specifications using a measure of income for the fathers that does not incorporate an immigrant penalty. Analogously, panel (e) of the same figures incorporates the father's country of origin into the son's income prediction. We see that in both cases, sons of immigrant fathers continue to be more upwardly mobile than comparable children of US-born fathers, with the exception of panel (e) in the 1880–1910 cohort where there is no immigrant advantage at the very bottom.

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[51] The 1901 Cost of Living Survey is closer in time to the earlier Censuses but less detailed than our baseline measure (based on the 1940 Census): it includes roughly 150 non-agricultural occupations, whereas the 1950 occupational classification in our linked sample has around 220 occupations.

The final panels in these figures instead assign individuals the most widely-used income score in the literature: the IPUMS variable *occscore* (which is solely based on an individual's occupation). Relative to the other measures, this approach has the advantage that the income assignment is symmetric for farmers and non-farmers. However, it is a very coarse measure as it does not allow for an immigrant penalty in the first generation (which would tend to dampen measured mobility). Yet, we still see that sons of immigrants can expect to reach a higher rank in the earnings distribution than US-born individuals growing up with comparable income scores, particularly in the 1880–1910 cohort.[52]

Overall, although the exact size of the intergenerational gaps varies as we consider different proxies for individual-level income, in all cases we find higher levels of upward mobility among children of immigrants.

C. *Sensitivity of Results to Sample Construction*

As noted above, we define a son's immigrant status using his father's birthplace. In Section 5 of the Online Appendix, we replicate all the main figures and tables using mother's birthplace instead and show that results remain unchanged.[53] Among individuals who had at least one foreign-born parent, two thirds had both parents born abroad. Our main finding is unchanged in Appendix Figure A27, which defines a son's immigrant status using *both* his mother's and his father's birthplace (i.e., classifying sons as children of immigrants if both the mother and father are born in one of the 17 countries of interest). Appendix Figure A28 separates the sample further into sons with immigrant mothers only, immigrant fathers only, and two immigrant parents. Although sample sizes get smaller, we find that the social mobility of all three groups of children are above their counterparts with US-born parents.

In the past, immigrants were overwhelmingly white, and so we compare immigrants to the white US-born population in the historical data. Today, in contrast, immigrants are more ethnically diverse. Thus, our main specification for the modern period compares immigrants to the entire US-born population. We note, however, that results are similar when comparing white immigrants to the white population in the modern period, as we do in the historical data (panel (a) of Appendix

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[52] Appendix Figures A23 and A24 show that the cross-sectional results presented in Section 3 are robust to using the alternative income scores discussed in this section.

[53] We show the main rank-rank correlations as well as the average ranks for children born to the 25th and 75th percentile of the income distribution by father's country of origin in Appendix Figures A25 and A26, respectively.

Figure A.29), or all immigrants to the white population in the modern period (panel (b) of Appendix Figure A.29).[54]

Finally, in Section 6 of the Online Appendix we explore how our past-present comparisons differ when we construct the historical samples to match the characteristics of the Opportunity Insights sample. More precisely, we restrict the analysis to sons ages 31–37, we loosen the restriction on father's age, and we use a measure of family income (as opposed to father's) that assigns predicted income to working mothers. Section 6 in the Online Appendix replicates the main figures and tables using this alternative sample. The main findings of this exercise continue to suggest that second-generation immigrants growing up at the 25th percentile of the income rank end up 4–7 percentiles higher in the income rank than comparable children of US-born individuals.

7. Conclusions

We use newly-constructed father-son linked datasets to study whether the children of immigrants achieve earnings parity with the children of the US-born, and how the intergenerational mobility of immigrants has changed over the last two centuries. We find that, both in the past and today, children of immigrants had greater chances of moving up in the income distribution relative to the children of US-born parents with comparable family income or occupation score. Second generation immigrants growing up in the 25th percentile end up 5–8 percentiles higher in the income rank than the children of the US born. The children of immigrants achieve similar rates of upward mobility despite large changes in country of origin (immigrants hailed from Europe in the past, and from Latin America and Asia today), initial income levels (immigrants today starting from lower levels), and US immigration policy over the last century (the ending of open borders for European immigrants and the imposition of additional regulations for immigrant entry).

Our finding that children of immigrants have on average higher upward mobility is not driven by immigrants from any particular ethnic origin. Rather, when estimating rates of intergenerational mobility separately for each country of origin, we find that children of immigrants from nearly every sending country have higher rates of upward mobility than the children of the US-born.

Using the historical data to dig deeper into why children of immigrants were more upwardly mobile, we find that immigrant families were more likely than the US born to move to areas that offered better prospects for their children. Furthermore, immigrant parents were "under-placed" in

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[54] As discussed above, we note that in this case we define second-generation status based on the mother's birthplace.

the income distribution, thus allowing their children who were native English speakers and educated in the US more scope for upward mobility.

The success of second-generation immigrants gives a more optimistic view of immigrant assimilation than previous studies that have focused only on the first generation. Indeed, we find that second generation immigrants overtake, rather than just catch up with the children of the US-born with comparable family incomes. Although some politicians have a short-term perspective on immigrant assimilation, our findings suggest that this view might underestimate the long-run success of immigrants. Our findings are more consistent with the idea of the "American Dream," by which even immigrants who come to the United States with few resources and little skills have a real chance at improving their children's prospects.

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Figures

Figure 1: Cross-Sectional Earning Gaps for First- and Second-Generation Immigrants relative to US-Born, by Country of Origin
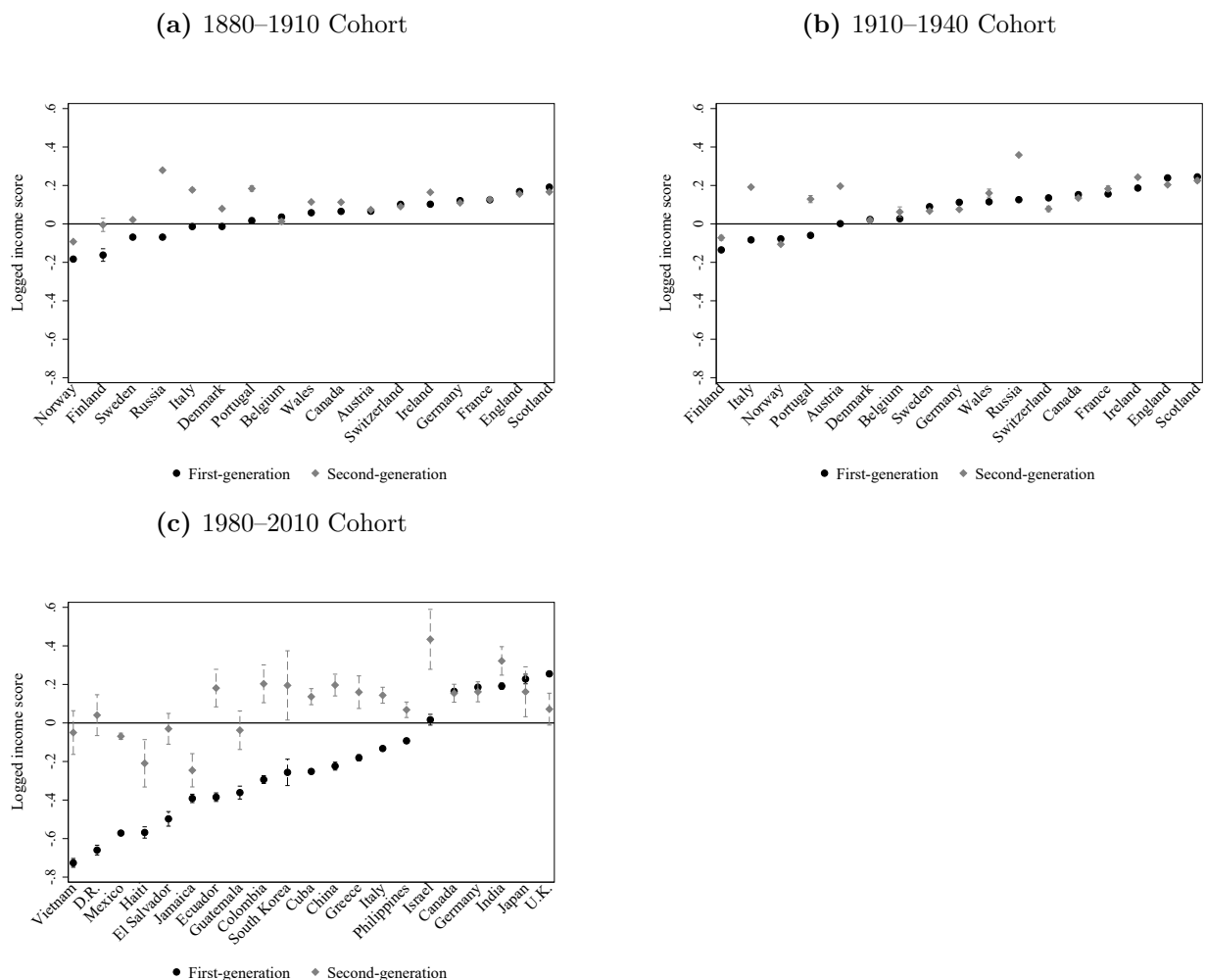
(a) 1880–1910 Cohort

(b) 1910–1940 Cohort

(c) 1980–2010 Cohort

NOTE: The historical samples use the 1880, 1910, and 1940 Censuses. The historical samples of first-generation immigrants and the US born are restricted to white men in the earlier Census who are aged 30–50, who have a child in the household, and who were either born in the US or in one of the 17 source countries. The second-generation samples are restricted to white men in the later Census who are aged 30–50 and whose fathers were either born in the US or in one of the 17 source countries. For the most recent cohort, we use the 1980 Census and the 2006–2015 Current Population Survey (CPS)'s Annual Social and Economic Supplement. We restrict the CPS sample of second-generation immigrants and their counterparts to men aged 30–50 whose fathers were either born in the US or in one of the top sending countries. We restrict the 1980 sample of first-generation immigrants and their counterparts to men aged 30–50, who have a child present in the household, and who were born in the US or in one of the top sending countries identified in the Opportunity Insights sample. For all of these cohorts, we use predicted income as the measure of income.

1

Figure 2: Intergenerational Mobility of Immigrants and the US born, Rank-Rank Correlations

(a) 1880–1910 Cohort
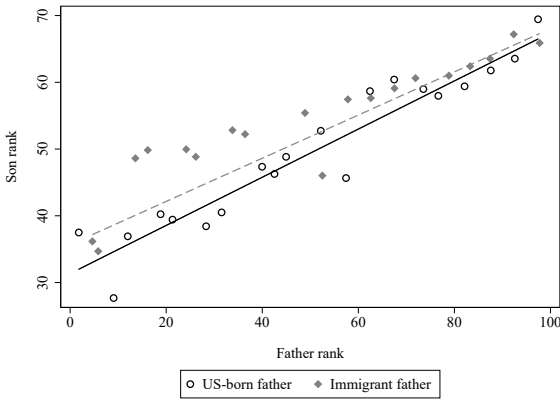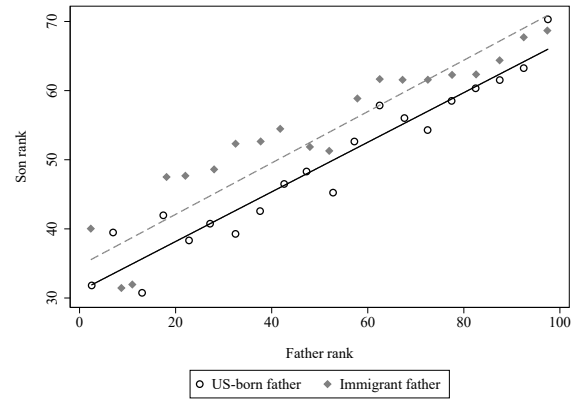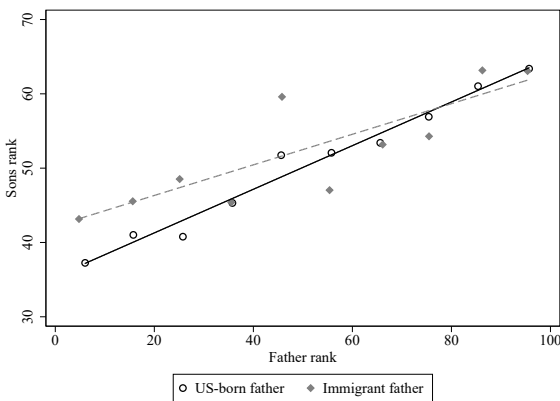
US-born father ○   Immigrant father ◆

(b) 1910–to 1940 Cohort

US-born father ○   Immigrant father ◆

(c) GSS: 1984–2006 Cohort

US-born father ○   Immigrant father ◆

(d) Opportunity Insights: 1997–2015 Cohort

US-born father ○   Immigrant father ◆
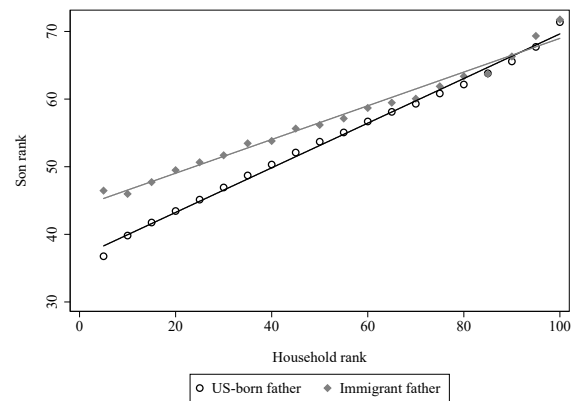
NOTE: Sons are assigned percentile ranks relative to all other respondents born in the same birth year. Fathers are ranked relative to all fathers with children in the same birth year. The figures plot the mean income rank of children by father's income rank, for sons with and without foreign-born fathers, as well as the corresponding regression lines using equation (2). In the GSS sample, the outcomes for sons are measured between 2000 and 2018 (with the median year being 2006). The outcomes for parents are measured via a retrospective question about parents' occupations when the respondent was 16 years old; the data therefore correspond to parental outcomes between 1966 and 2004 (with the median year being 1984). The Opportunity Insights Data comes from Chetty et al. (2018a); son's income is measured in 2014–2015 and parental income is measured in 1994–2000.

Figure 3: Average Income Rank for Children Born to 25th Percentile, by Father's Birthplace

(a) 1880–1910 Cohort
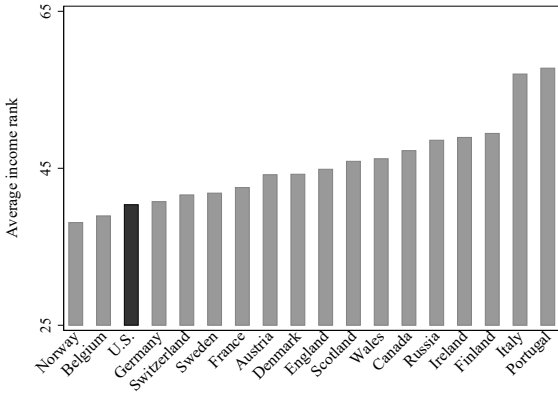
(b) 1910–1940 Cohort
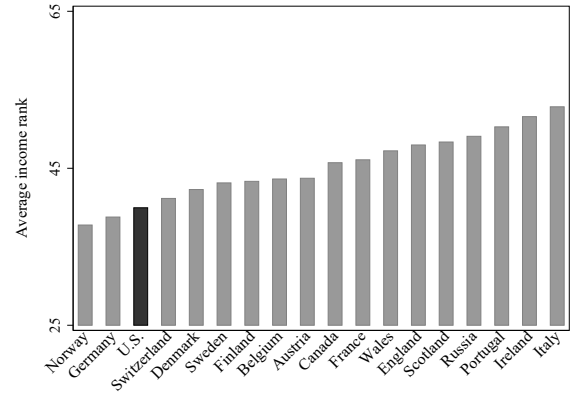
(c) Opportunity Insights: 1997–2015 Cohort
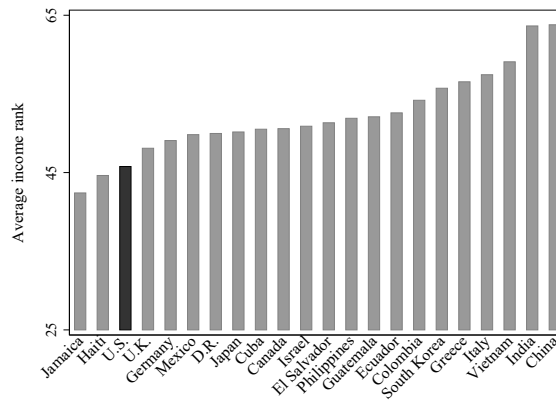
NOTE: This figure plots the average income rank for children born to the 25th percentile of the parent income distribution. Data for the Opportunity Insights cohort come from Chetty et al. (2018a); son's income is measured in 2014–2015 and parental income is measured in 1994–2000.

Figure 4: Average Income Rank for Children Born to 75th Percentile, by Father's Birthplace
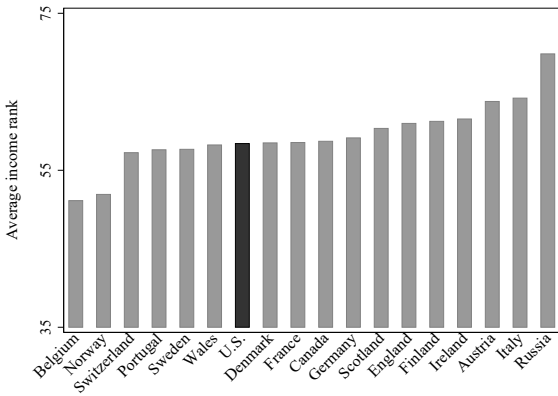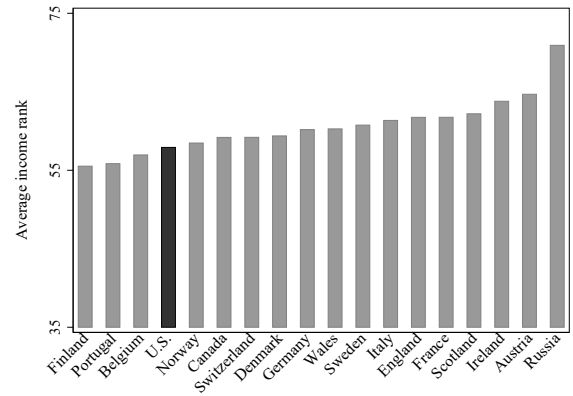
(a) 1880–1910 Cohort

(b) 1910–1940 Cohort

(c) Opportunity Insights: 1997–2015 Cohort
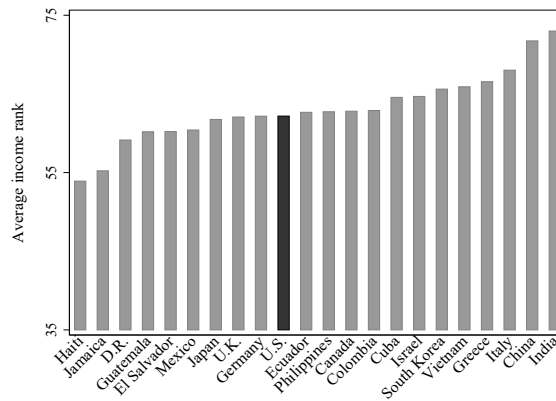
NOTE: This figure plots the average income rank for children born to the 75th percentile of the parent income distribution. Data for the Opportunity Insights cohort come from Chetty et al. (2018a); son's income is measured in 2014–2015 and parental income is measured in 1994–2000.

4

Figure 5: Intergenerational Mobility of Immigrants and the US born, Rank-Rank Correlations by Immigrant Group (Modern Cohort)
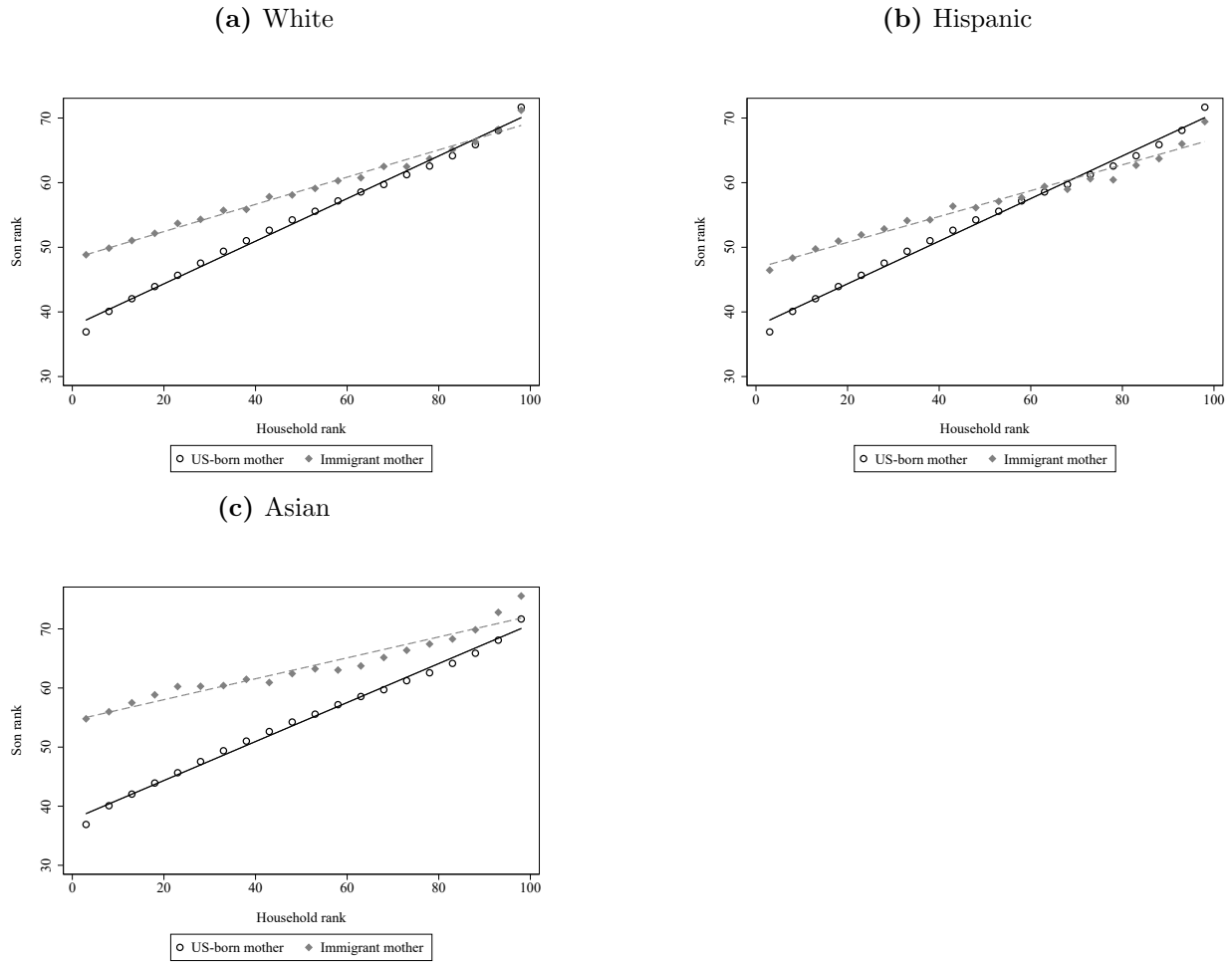
(a) White

(b) Hispanic

(c) Asian

NOTE: Data come from Chetty et al. (2018b). Sons are assigned percentile ranks relative to all other respondents born in the same birth year. Parents are also ranked relative to all fathers with children in the same birth year. The figures plot the mean income rank of children by their household's income rank, for sons with and without foreign-born mothers, as well as the corresponding regression lines. The figures include individuals of all races among those with a US-born mother, and individuals of the specified race among those with a non-US-born mother.

Figure 6: Intergenerational Gap at the 25th percentile for 1910–1940 Cohort, by Father's Age of Arrival
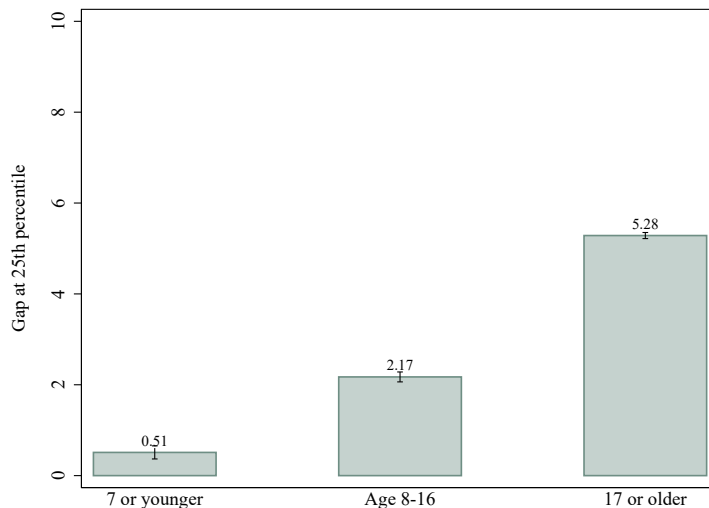
NOTE: This graph plots the intergenerational gap between children of immigrants and children of US-born men, for children born to the 25th percentile of the income distribution. Sons of immigrants are divided into groups based on their father's age of arrival to the United States.

Figure 7: Intergenerational Gap at the 25th percentile for 1910–1940 Cohort, by Father's Age of Arrival and Language in Sending Country
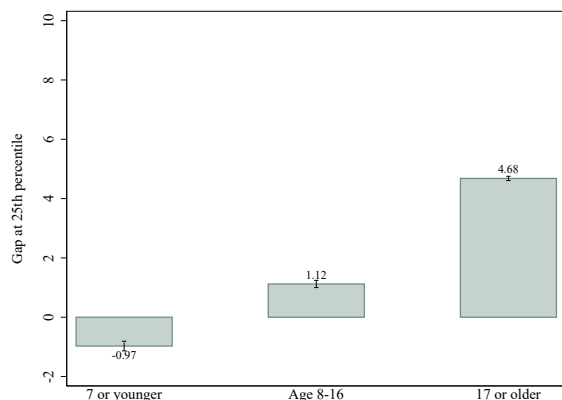
(a) Non-English-Speaking Countries   **(b)** English-Speaking Countries
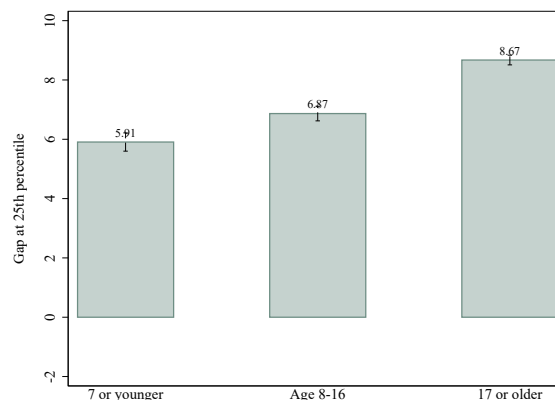
NOTE: This graph plots the intergenerational gap between children of immigrants and children of US-born men, for children born to the 25th percentile of the income distribution. The figures first separate sons based on the language spoken in the father's sending country (where English-speaking countries are Canada, England, Ireland, Scotland, and Wales). Then, sons of immigrants are divided into groups based on their father's age of arrival to the United States.

6

Figure 8: Educational Attainment, 1910–1940 cohort

(a) Son graduated high school
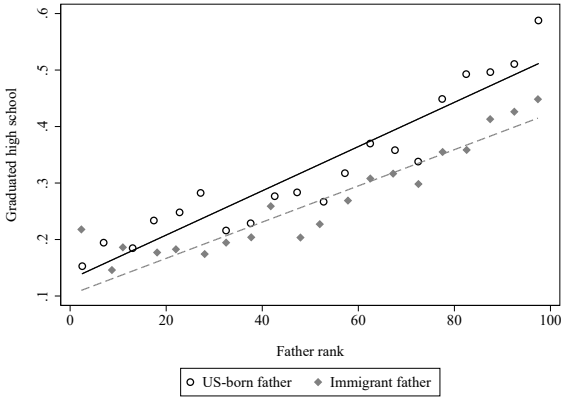
(b) Son's highest grade in school
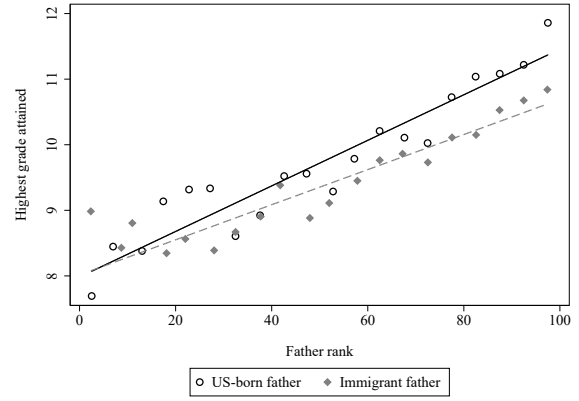
(c) Son's school attendance in 1910
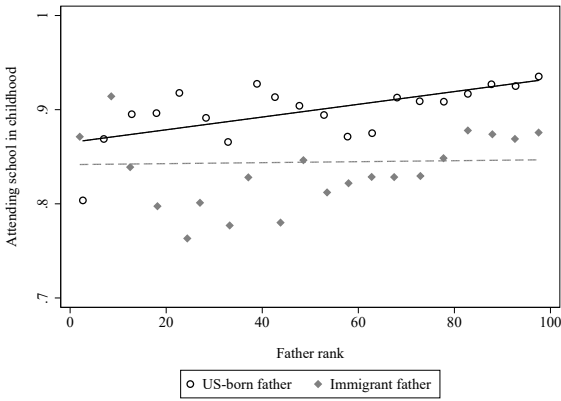
(d) Son's income rank and educational attainment
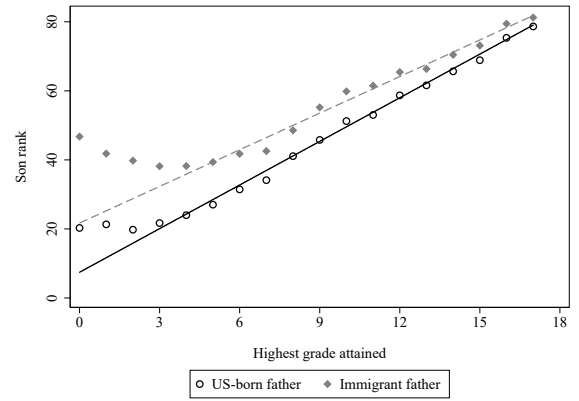
(e) Son's and father's educational attainment
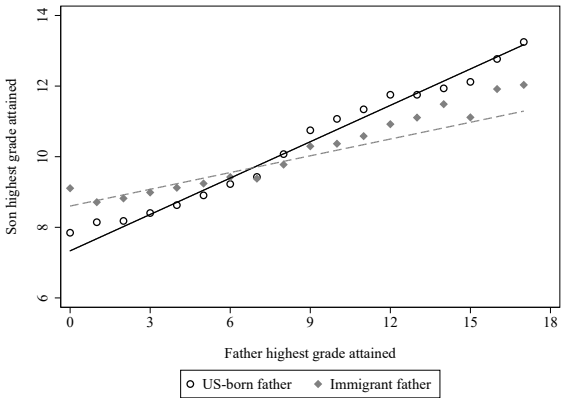
NOTE: Fathers are ranked relative to all fathers with children in the same birth year. Panels (a) and (b) plot the mean educational attainment of children by their father's income rank, for sons with and without foreign-born fathers, as well as the corresponding regression lines. Panel (c) considers linked sons aged 12–16 in the earlier Census and plots school attendance as a function of his father's income rank (after controlling for age fixed effects). Panel (d) plots a son's mean income rank as a function of completed years of schooling. Panel (e) plots a son's mean years of completed schooling as a function of father's years of schooling (for fathers who can be linked to the 1940 Census).

Figure 9: Share of Immigrants and Upward Mobility, by State Economic Area or Commuting Zone

(a) Share of sons that are second-generation (1880–1910)
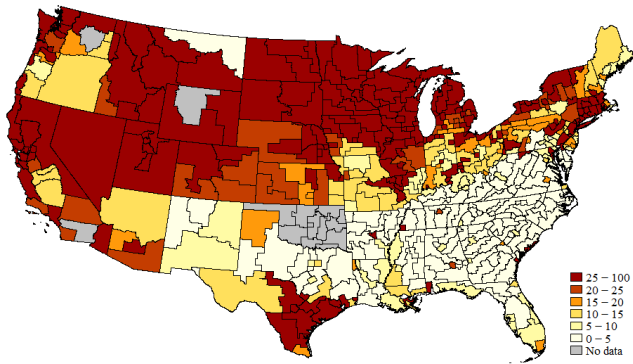
(b) Upward mobility of sons of US-born fathers (1880–1910)
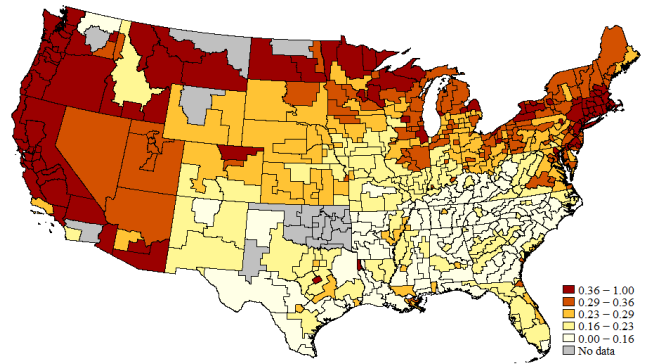
(c) Share of sons that are second-generation (1910–1940)
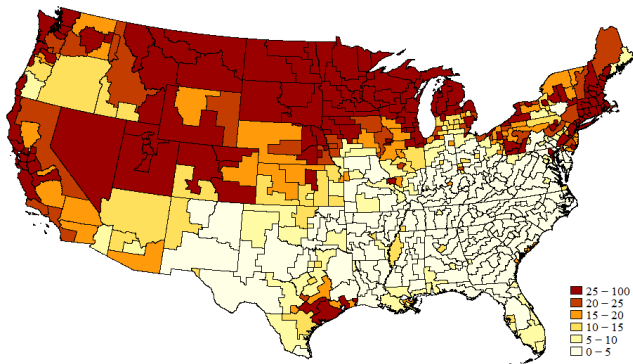
(d) Upward mobility of sons of US-born fathers (1910–1940)
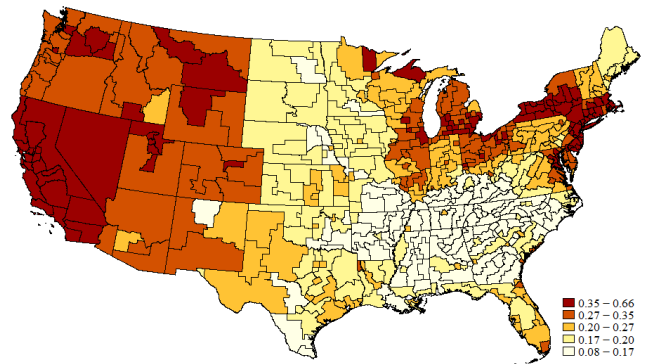
(e) Share of population that is foreign-born, 1980
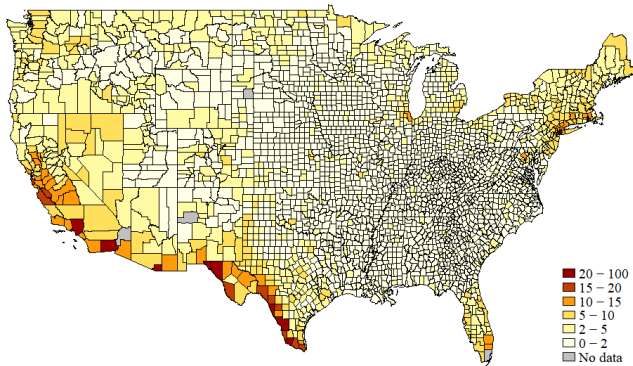
(f) Upward mobility of Opp. Insights cohort
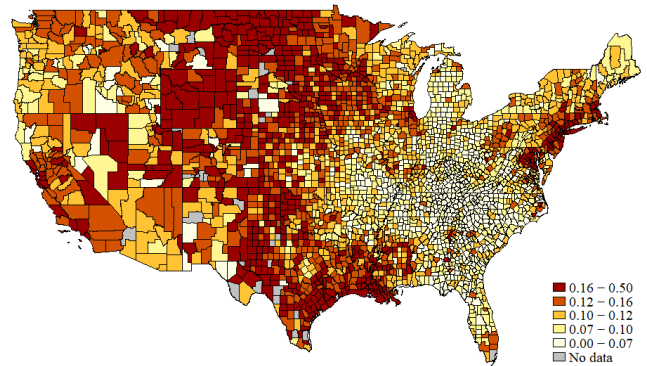
NOTE: Panels (a) and (c) show the share of the individuals in our linked sample that are second-generation immigrants in each 1880 or 1910 state economic area, respectively. In panels (b) and (d), upward mobility is measured as the share of sons in each state economic area that reached the top third of the national income distribution, conditional on having had a father in the bottom third of the national income distribution. Panel (e) shows the share each of each 1980 county's population that is foreign-born. Panel (f) shows the share of white sons who are upwardly mobile using data from Chetty et al. (2018b); upward mobility is measured as the share of sons in the top 20 percent of the income distribution, conditional on having had household income in the 25th percentile of the income distribution.

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Figure 10: Share of Immigrants and Upward Mobility, by State Economic Area or County

(a) 1880–1910 Cohort
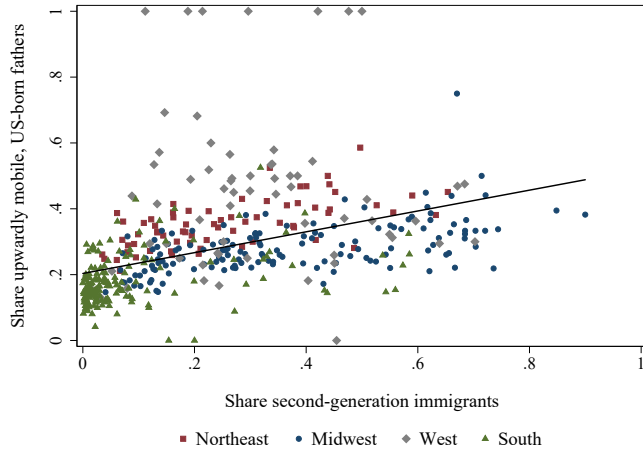
(b) 1910–1940 Cohort
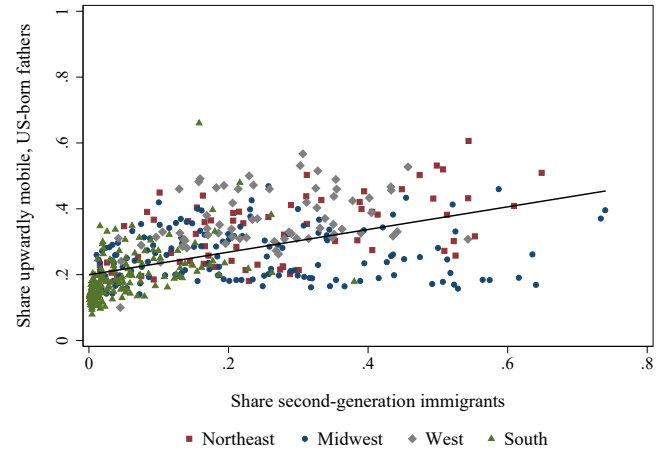
(c) 1980 Census and Opp. Insights Cohort
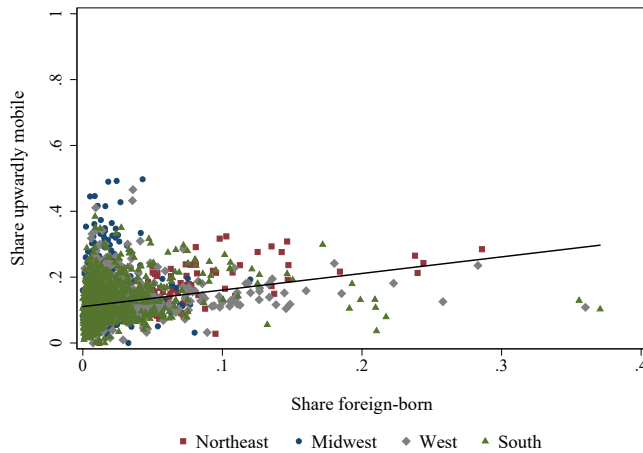
NOTE: The first two panels use the linked samples to plot the share of a childhood SEA population that is a second-generation immigrant against the corresponding share of children with US-born fathers who were upwardly mobile. Upward mobility is measured as the share of sons in each SEA that reached the top third of the national income distribution, conditional on having had a father in the bottom third of the corresponding national income distribution. The third panel plots the share of foreign-born individuals in each 1980 county against the share of sons that were upwardly mobile in that county. Data on upward mobility come from Chetty et al. (2018b); mobility is measured as the share of white sons in the top 20 percent of the income distribution, conditional on having had household income in the 25th percentile of the income distribution. Data on county-level foreign-born shares from the 1980 Census come from Manson et al. (2019). Each graph includes a line of best fit.

Figure 11: Intergenerational Gap at the 25th percentile, Comparing Children in Similar Childhood Locations

(a) 1880–1910 Cohort
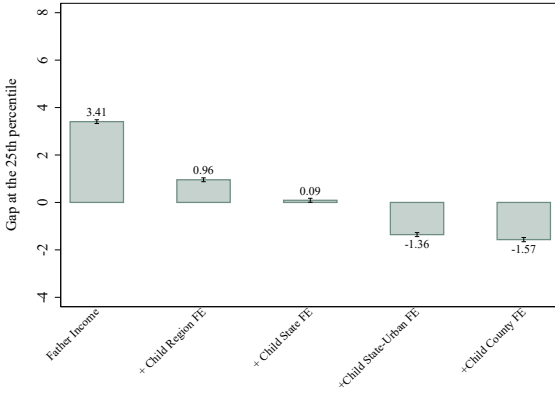
(b) 1910–1940 Cohort
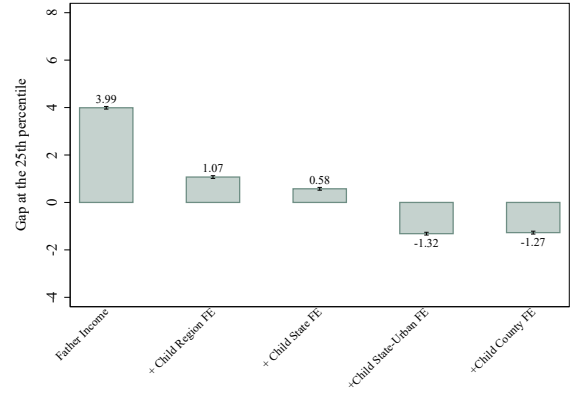
(c) GSS: 1984–2006 Cohort
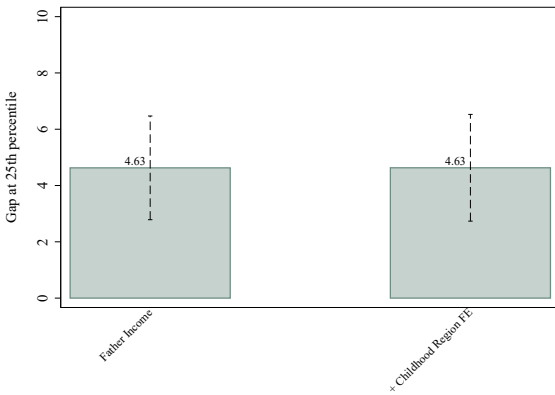
NOTE: This graph plots the intergenerational gap between children of immigrants and children of US-born men, for children born to the 25th percentile of the income distribution. The first bar for each cohort is estimated by regressing son's income ranks on their fathers' ranks, an indicator for having a foreign-born father, and the interaction of these two variables. The second bar for each cohort plots the gap after including childhood region fixed effects. In the historical cohorts, the third bar plots the gap after including childhood state fixed effects and the fourth bar plots the gap after including state × urban fixed effects. Finally, the fifth bar plots the gap after including childhood county fixed effects.

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Tables

Table 1: Intergenerational Mobility Estimates, by Cohort

	Intercept α			Slope β		
	US-born father	Immigrant father	T-statistic	US-born father	Immigrant father	T-statistic
1880–1910 Cohort	31.34	35.68	36.49	0.36	0.32	19.35
1910–1940 Cohort	31.00	34.67	43.57	0.36	0.37	9.16
GSS Cohort	35.42	42.18	2.52	0.29	0.21	1.58
Opp. Insights Cohort	36.64	44.05	12.46	0.33	0.25	8.13

NOTE: This table reports the slope and intercept from regressions of son's rank on father's rank, by cohort. The third and sixth columns correspond to the test of the hypothesis that both estimates are equal to each other. Data for the Opportunity Insights cohort come from Chetty et al. (2018a).

Appendix Figures and Tables

Figure A1: Average Earnings Gaps Using Actual Income, by Sending Country and Generation
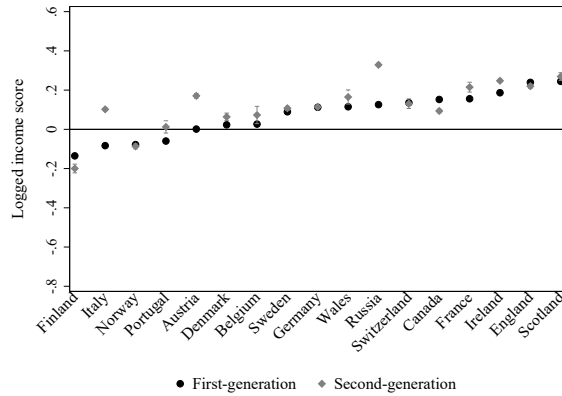
(a) 1910–1940 Cohort   (b) 1980–2010 Cohort
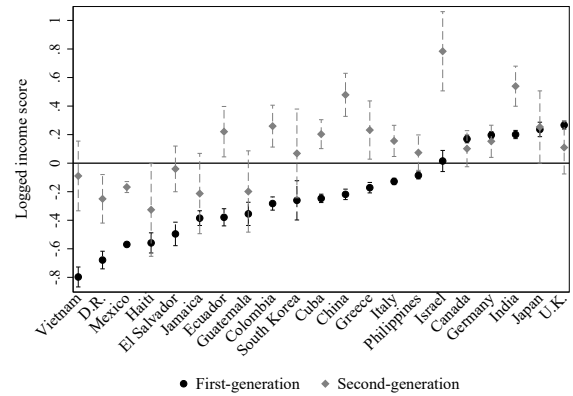
NOTE: Similar to figure 1, the historical sample uses the 1910 and 1940 Censuses and the modern cohort uses the 1980 Census and the 2006–2015 Current Population Survey (CPS)'s Annual Social and Economic Supplement. However, instead of using predicted income, we use income from wages (adjusted for self-employed and farmer income) for the 1940 sons and total family income for the fathers and sons in the modern cohort.

Figure A2: Cross-Sectional Earnings Gaps for First-Generation Fathers and Second-Generation Daughters relative to US-Born, by Country of Origin
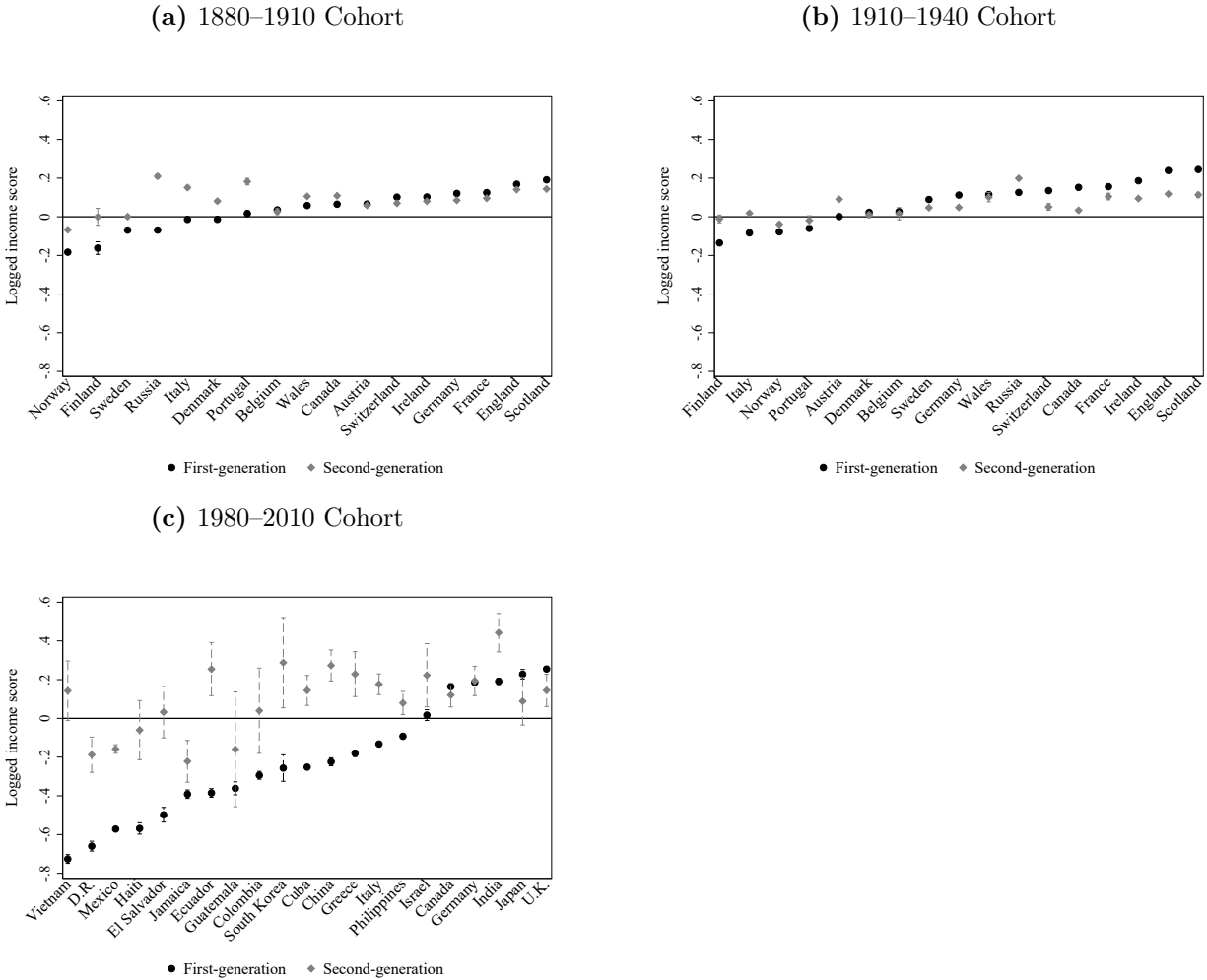
(a) 1880–1910 Cohort

(b) 1910–1940 Cohort

(c) 1980–2010 Cohort

NOTE: The historical samples use the 1880, 1910, and 1940 Censuses. The historical samples of first-generation immigrants and their US-born counterparts are white men in the earlier Census who are aged 30–50, who have a child in the household, and who were either born in the US or in one of the 17 source countries. The historical samples of second-generation immigrants and their counterparts are US-born white women in the later Census who are aged 30–50 and whose fathers were either born in the US or in one of the 17 source countries. For the most recent cohort, we use the 1980 Census and the 2006–2015 Current Population Survey (CPS)'s Annual Social and Economic Supplement. We restrict the CPS sample of second-generation immigrants and their counterparts to US-born women who are aged 30–50 and whose fathers were either born in the US or in one of the top sending countries. We restrict the 1980 sample of first-generation immigrants and their counterparts to men who are aged 30–50, who have a child present in the household, and who were born in the US or in one of the top sending countries identified in the CPS sample. For all of these cohorts, we use predicted income as the measure of income; for the second generation, we calculate predicted income for a woman as the sum of her income (if she is employed) and her spouse's income (if she is married).

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Figure A3: Average Earnings Gaps in Linked Sample, by Sending Country and Generation
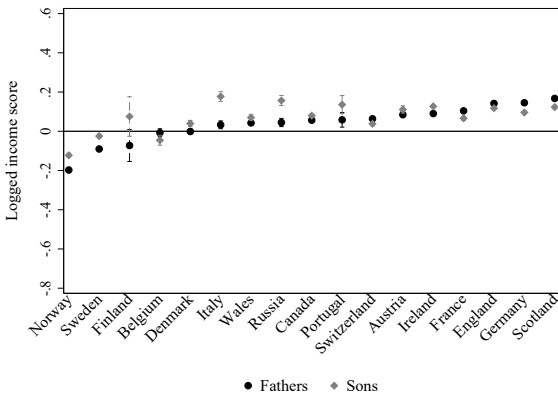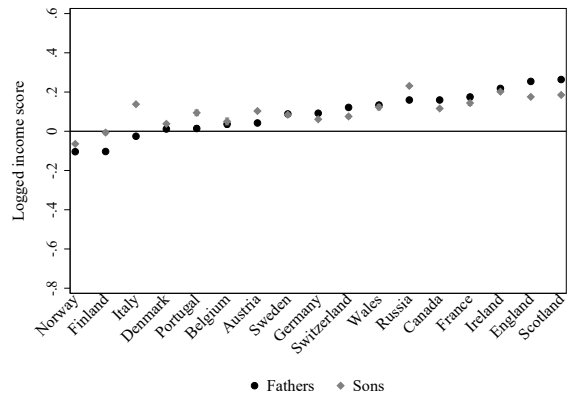
(a) 1880–1910 Cohort

(b) 1910–1940 Cohort

NOTE: Both of these figures use our baseline linked samples, classifying immigrant sons using the father's birthplace. For all individuals, we use our measure of predicted income in conjunction with CW adjustments for farmer income.

Figure A4: Average Earnings Gaps Excluding US South in Linked Sample, by Sending Country and Generation
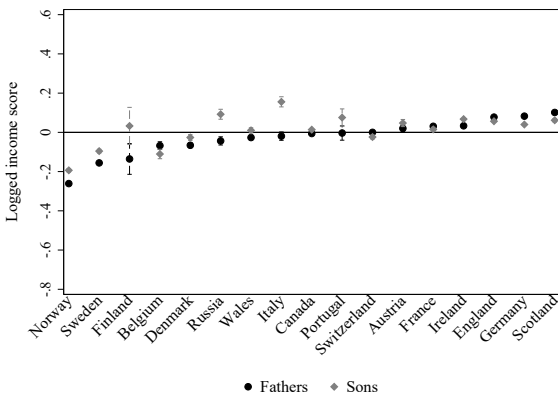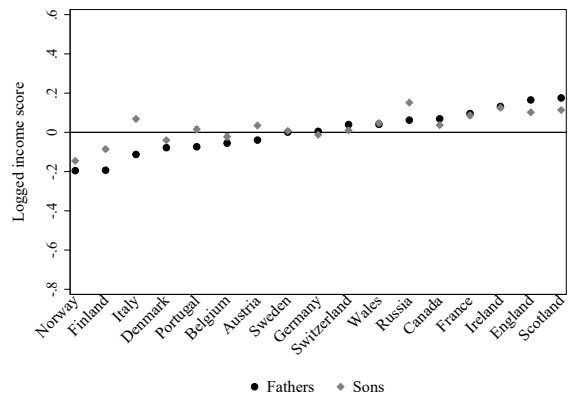
(a) 1880–1910 Cohort

(b) 1910–1940 Cohort

NOTE: Both of these figures use our baseline linked samples, classifying immigrant sons using the father's birthplace. We exclude father-son pairs who lived in the South in either the earlier or later Census. For all individuals, we use our measure of predicted income in conjunction with CW adjustments for farmer income.

Figure A5: Rank-rank Correlations, by Grandfather's Birthplace

(a) 1880–1910 Cohort: Rank-rank
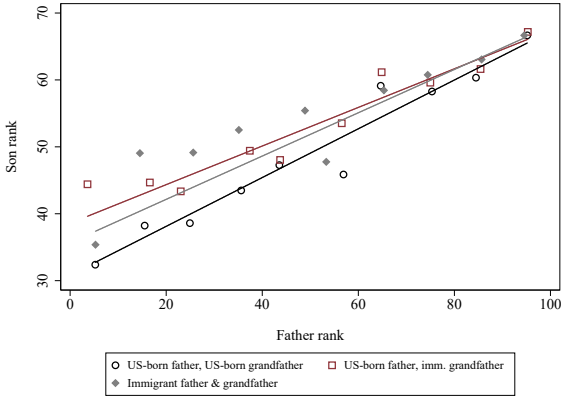
(b) 1910–1940 Cohort: Rank-rank
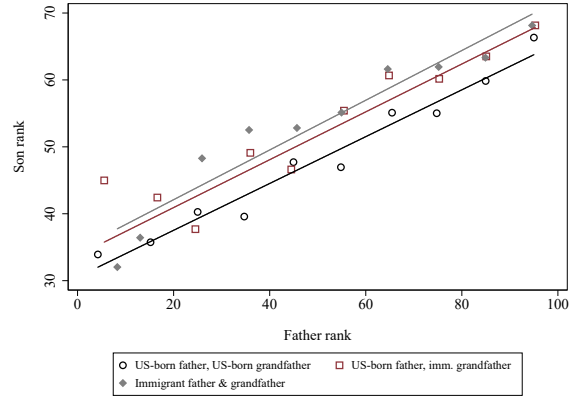
NOTE: This figure divides sons with US-born fathers into two groups based on their grandfather's place of birth: those whose father's father was born in the US and those whose father's father was born abroad. Sons are assigned percentile ranks relative to all other respondents born in the same birth year. Fathers are also ranked relative to all fathers with children in the same birth year. The figures plot the mean income rank of children by father's income rank for each group as well as the corresponding regression lines.

Figure A6: Rank-rank Correlations Using Actual Income

(a) 1910–1940 Cohort
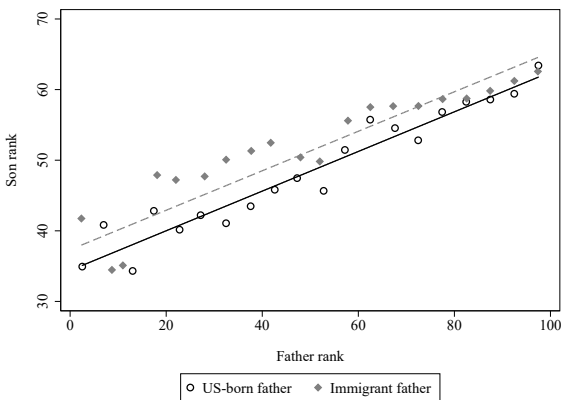
(b) GSS Cohort
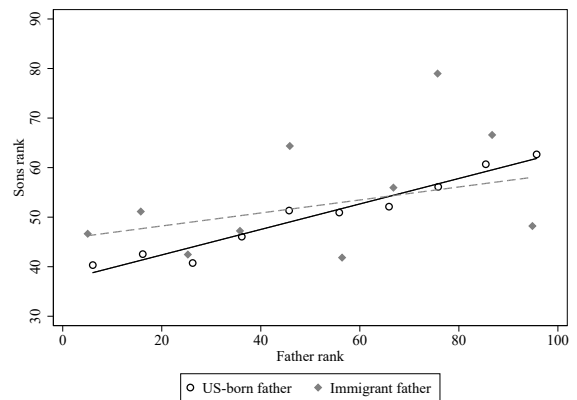
NOTE: This figure uses actual income for the 1940 sons (adjusted for self-employed and farm income) and for sons in the GSS cohort. Sons are assigned percentile ranks relative to all other respondents born in the same birth year. Fathers are also ranked relative to all fathers with children in the same birth year. The figures plot the mean income rank of children by father's income rank, for sons with and without foreign-born fathers, as well as the corresponding regression lines.

Figure A7: Weighted Average Income Rank for Children Born to 25th Percentile, by Cohort and Father's Birthplace
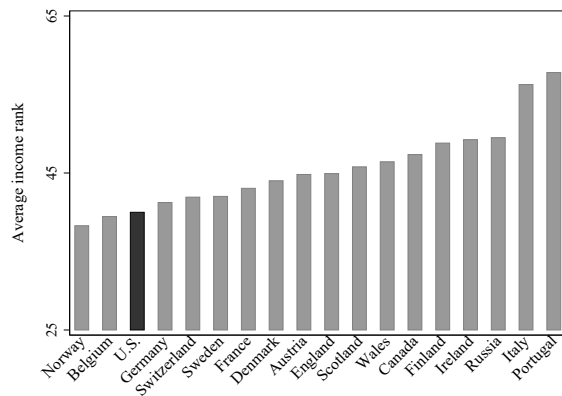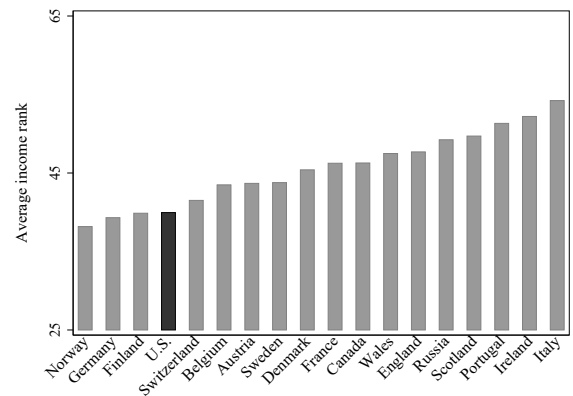
(a) 1880–1910 Cohort   **(b)** 1910–1940 Cohort

NOTE: This figure plots the average income rank for children born to the 25th percentile of the parent income distribution. Each observation is weighted by the inverse probability of being a linked individual using the individual's childhood characteristics.

Mechanisms: Additional Results

Figure A8: Rank-rank Correlations for 1910–1940 cohort, by Father's Age at Arrival

(a) 7 or younger
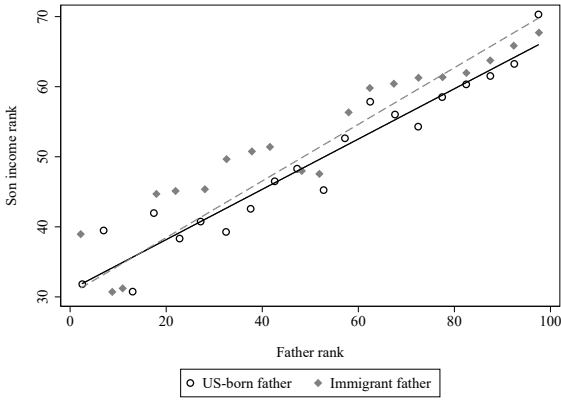
(b) Ages 8–16
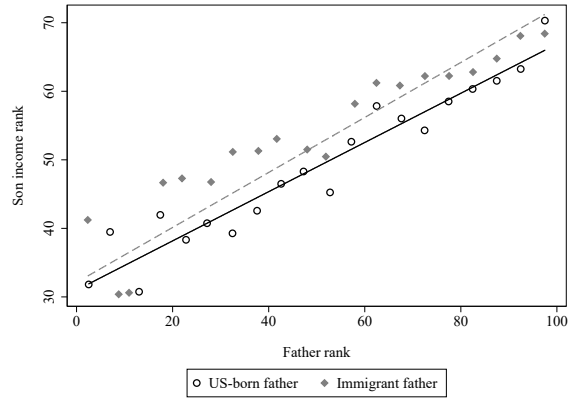
(c) 17 or older
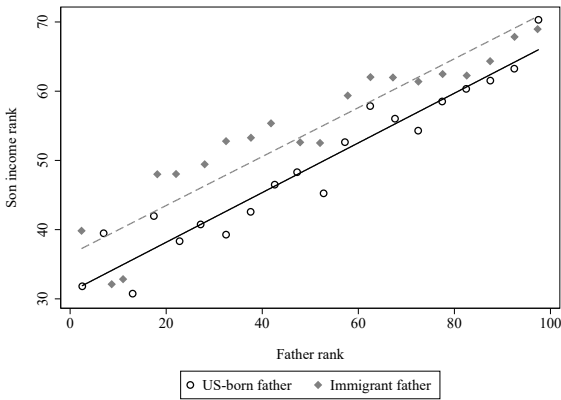
NOTE: Sons are assigned percentile ranks relative to all other respondents born in the same birth year. Fathers are ranked relative to all fathers with children in the same birth year. The figures plot the mean income rank of children by father's income rank, for sons with and without foreign-born fathers, as well as the corresponding regression lines. Sons of immigrants are divided into groups based on their father's age of arrival to the United States.

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Figure A9: Upward Mobility for Historical Cohorts, by State Economic Area and Father's Birthplace

(a) Sons of US-born fathers (1880–1910)
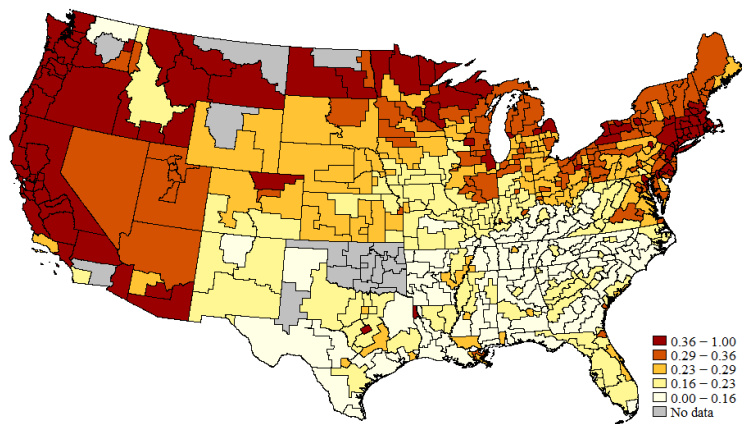
(b) Sons of immigrant fathers (1880–1910)
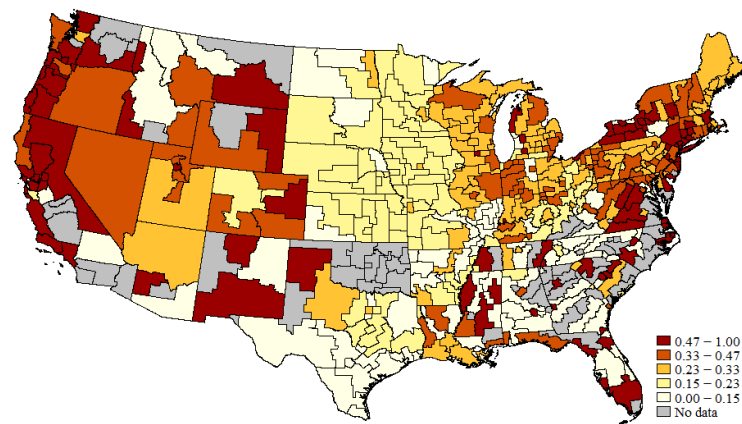
(c) Sons of US-born fathers (1910–1940)
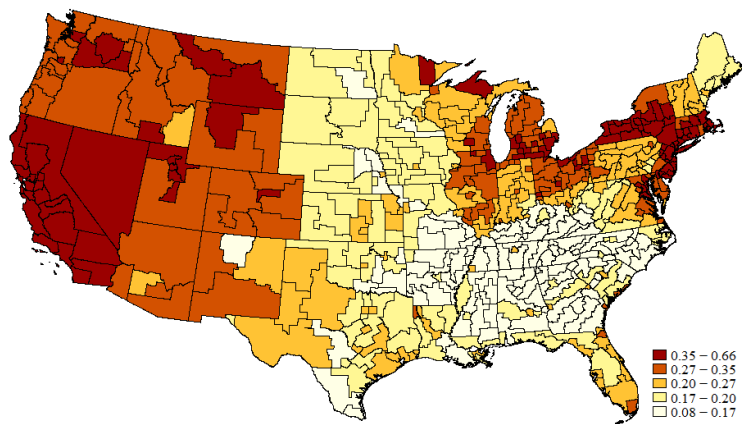
(d) Sons of immigrant fathers (1910–1940)
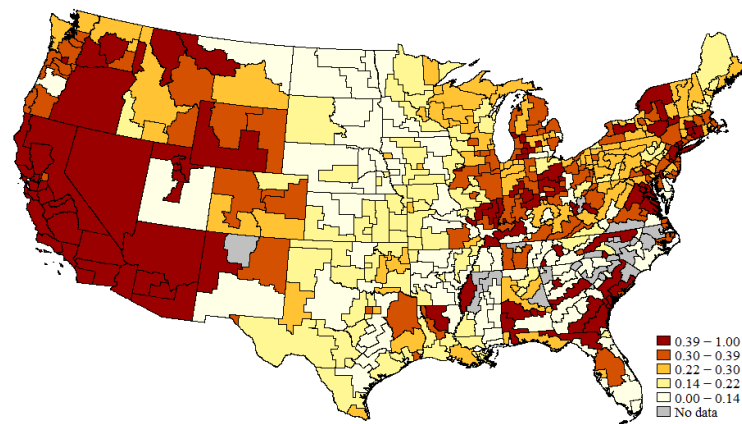
NOTE: Upward mobility is measured by the share of sons in each state that reached the top third of the national income distribution, conditional on having had a father in the bottom third of the corresponding national income distribution.

Figure A10: Share of Immigrants and Upward Mobility, by Locality

(a) 1880–1910 Cohort, State
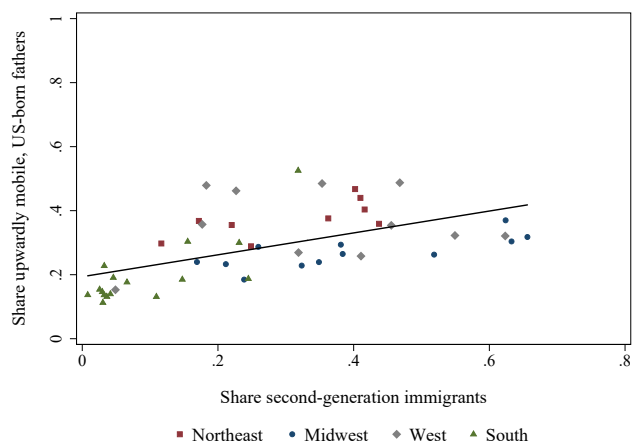
(b) 1910–1940 Cohort, State
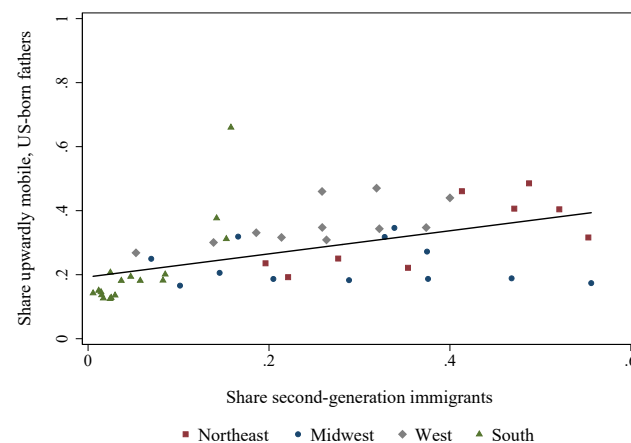
(c) 1980 Census and Opp. Insights Cohort, Commuting Zone
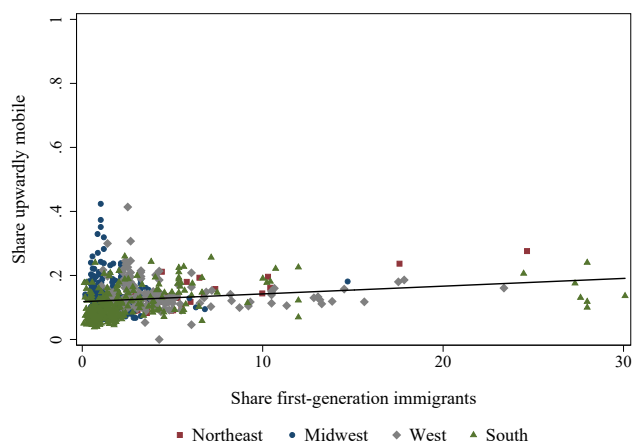
NOTE: The first two panels of this graph use the linked samples to plot the share of a childhood state's population that is a second-generation immigrant against the corresponding share of children with US-born fathers who are upwardly mobile. Upward mobility is measured by the share of sons in each state that reached the top third of the national income distribution, conditional on having had a father in the bottom third of the national income distribution. Mobility data in the modern cohort come from Chetty et al. (2018b); upward mobility is measured as the share of white sons in the top 20 percent of the income distribution, conditional on having had household income in the 25th percentile of the income distribution. Data on immigrant shares comes from the 1980 Census and is calculated as the share of men ages 30–50 who are foreign-born. Each graph includes a line of best fit.

Figure A11: Upward Mobility of Sons of Immigrant and US-born Men, by SEA or State

(a) 1880–1910 Cohort, SEA
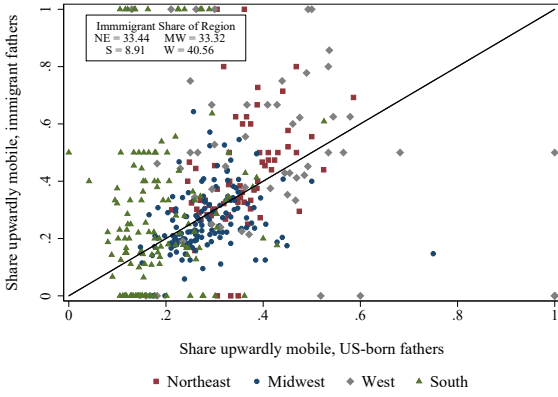
(b) 1880–1910 Cohort, State
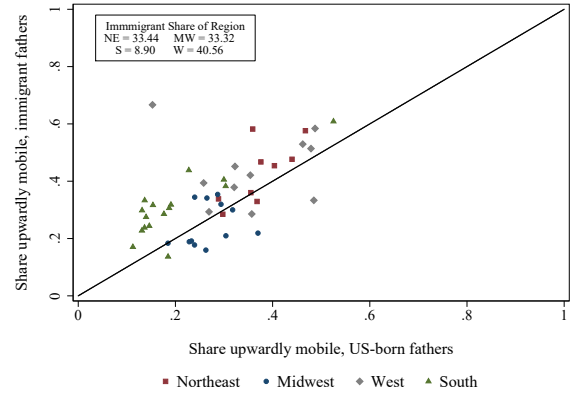
(c) 1910–1940 Cohort, SEA
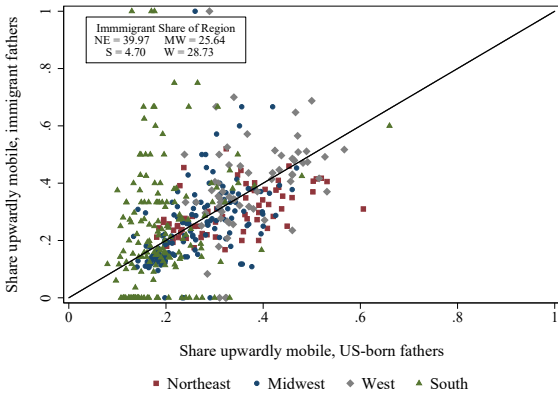
(d) 1910–1940 Cohort, State
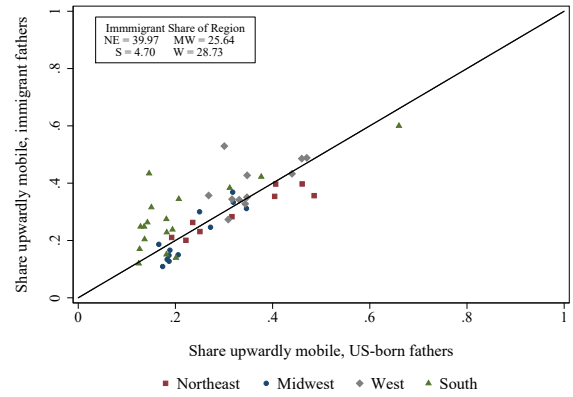
NOTE: Upward mobility is measured by the share of sons in each state that reached the top third of the national income distribution, conditional on having had a father in the bottom third of the corresponding national income distribution. Each graph includes the 45 degree line.

Figure A12: Intergenerational Gap, with Location Fixed Effects

(a) 1880–1910: Gap at 50th percentile
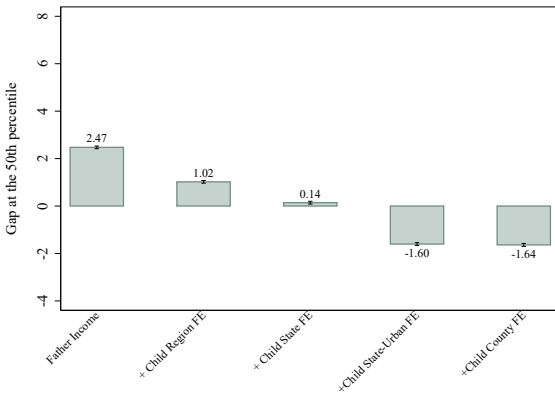
(b) 1880–1910: Gap at 75th percentile
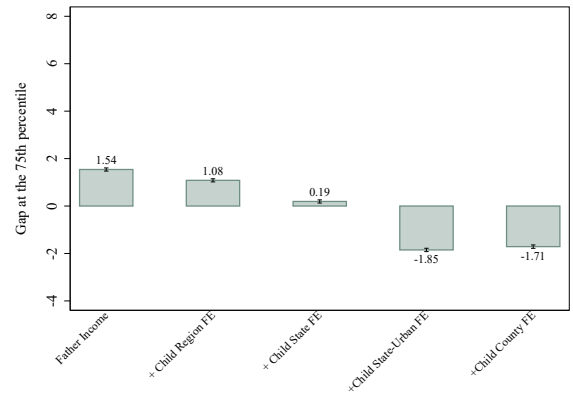
(c) 1910–1940: Gap at 50th percentile
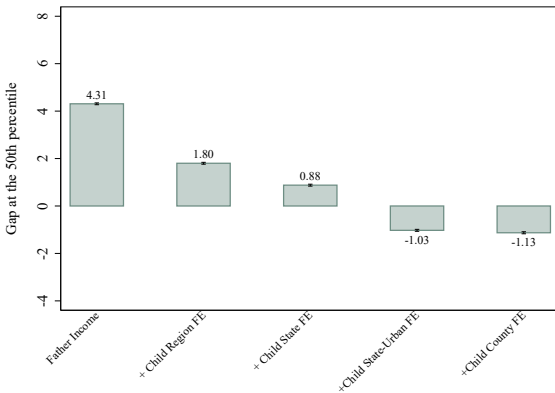
(d) 1910–1940: Gap at 75th percentile
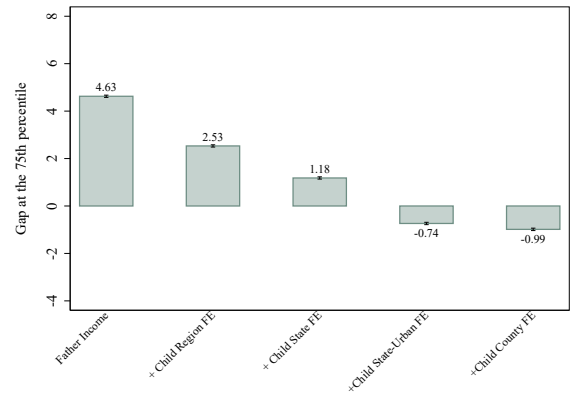
NOTE: This graph plots the intergenerational gap between children of immigrants and children of US-born men, for children born to the 50th and 75th percentile of the income distribution. The first bar for each cohort is estimated by regressing son's income ranks on their fathers' ranks, an indicator for having a foreign-born father, and the interaction of these two variables. The second bar for each cohort plots the gap after including childhood region fixed effects. The third bar plots the gap after including childhood state fixed effects and the fourth bar plots the gap after including state × urban fixed effects. Finally, the fifth bar plots the gap after including childhood county fixed effects.

Figure A13: Intergenerational Gap Including County Fixed Effects, with Alternative Income Measures for 1910–1940 Cohort
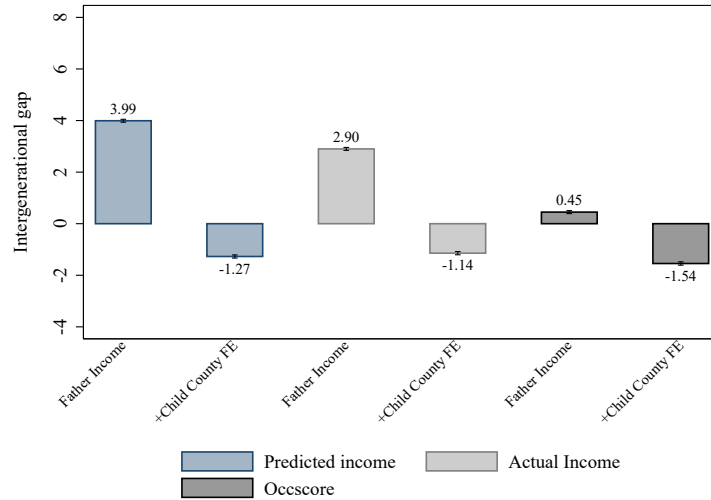

NOTE: This graph plots the intergenerational gap between children of immigrants and children of US-born men, for children born to the 25th percentile of the income distribution. For each income measure, the first bar in each group shows the intergenerational gap (estimated by regressing sons' income ranks on their fathers' ranks, an indicator for having a foreign-born father, and the interaction of these two variables). The second bar plots the gap after including childhood county fixed effects. "Predicted income" refers to our baseline measure of income for 1940 sons. "Actual income" refers to using the 1940 variable for income from wages for the sons. "Occscore" refers to using the IPUMS occupational score for the sons.

Figure A14: Intergenerational Gap, by Enclave Status

(a) 1880–1910 Cohort   **(b)** 1910–1940 Cohort
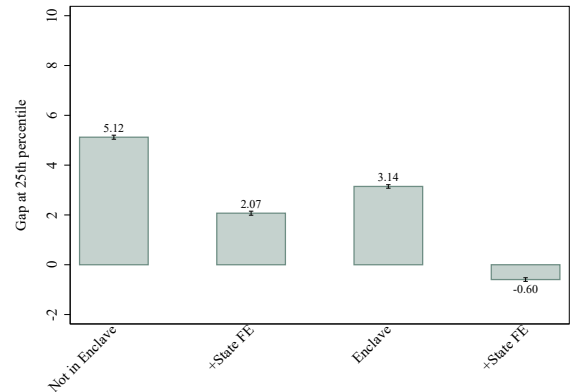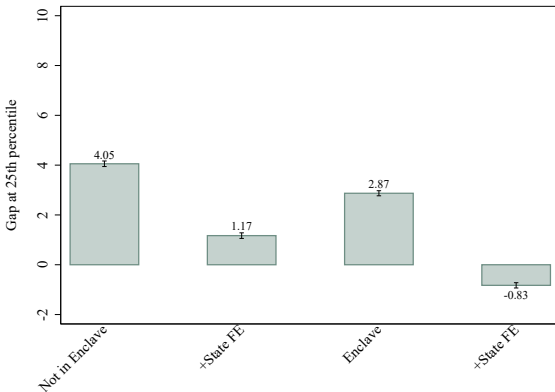
NOTE: This graph plots the intergenerational gap between children of immigrants and children of US-born men, for children born to the 25th percentile of the income distribution. Sons of immigrants are divided into two groups based on whether they grew up an immigrant enclave. An individual is classified as growing up in an enclave if at least 10 percent of his childhood enumeration district's adult population was from his father's same country of origin (calculated using the 1880 and 1910 cross-sectional Censuses, respectively). For each group, we show the intergenerational gap before and after controlling for childhood state FE.

Figure A15: Rank-rank Correlations, by US-born Father's Migrant Status

(a) 1880–1910 Cohort: Rank-rank

**(b)** 1910–1940 Cohort: Rank-rank
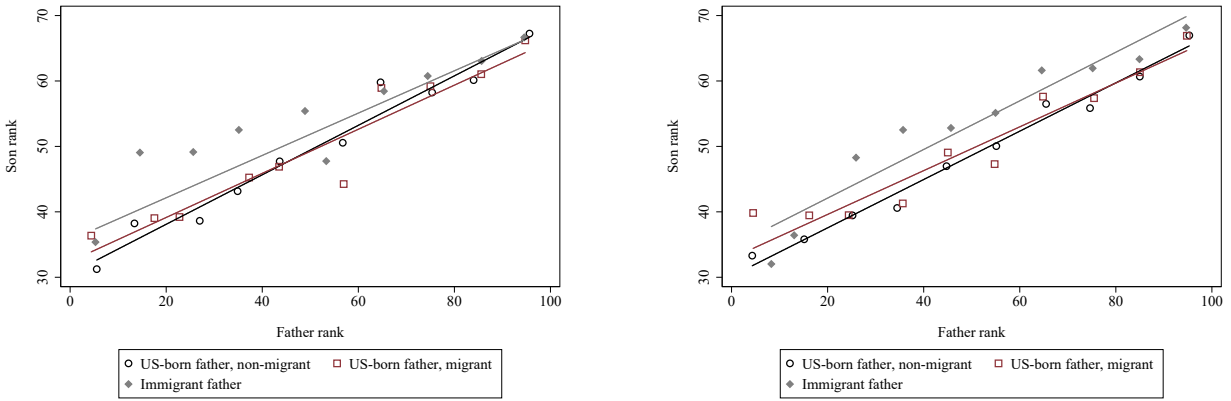
NOTE: This figure divides sons with US-born men into two groups based on the father's migrant status: those whose fathers internally migrated (i.e., their state of residence differs from their state of birth) and those who did not internally migrate. Sons are assigned percentile ranks relative to all other respondents born in the same birth year. Fathers are also ranked relative to all fathers with children in the same birth year. The figures plot the mean income rank of children by father's income rank for each group as well as the corresponding regression lines.

Figure A16: Likelihood of Moving from Childhood County

(a) 1880–1910 Cohort

(b) 1910–1940 Cohort
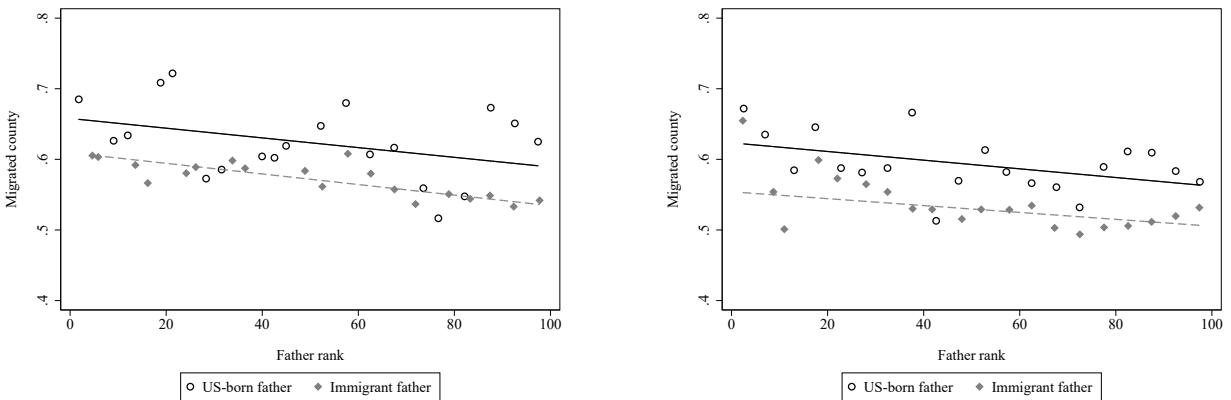
NOTE: Sons are classified as having moved if the county that they reside in in the later Census is different from the county where they lived in the earlier Census. Fathers are ranked relative to all fathers with children in the same birth year. The figures plot the likelihood of moving by father's income rank, for children with and without a foreign-born father, as well as the corresponding regression lines.

Robustness to Linking Procedure

Figure A17: Rank-rank Correlations for 1880–1910 Cohort with Alternative Linking Strategies
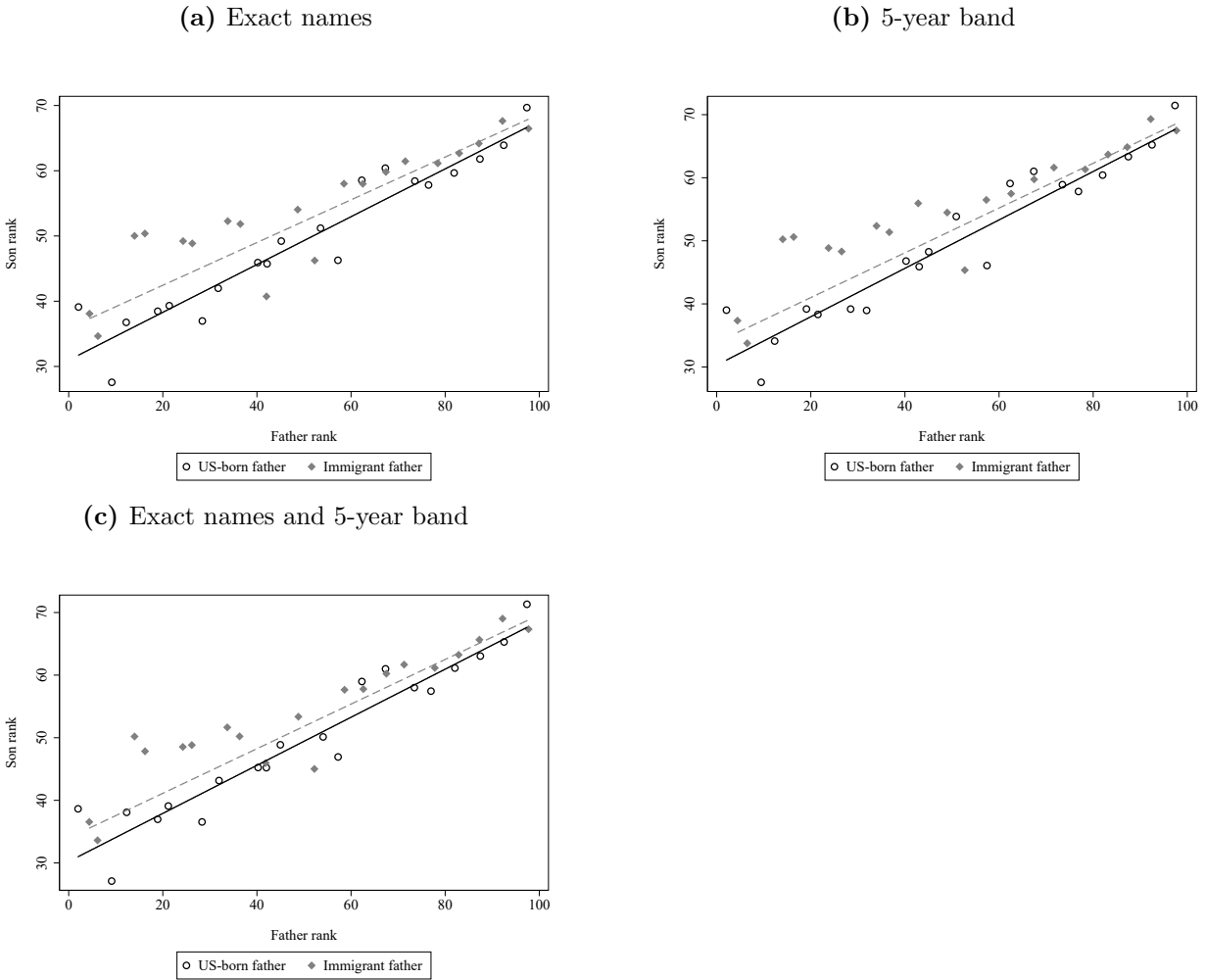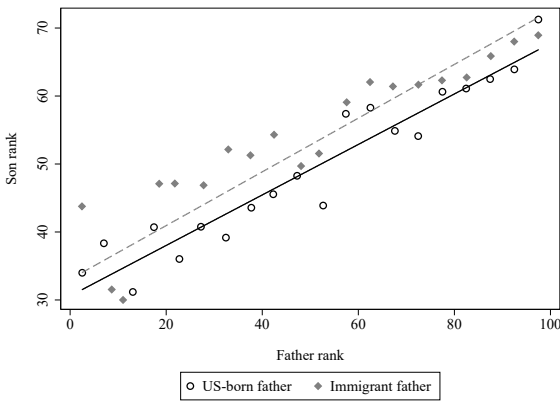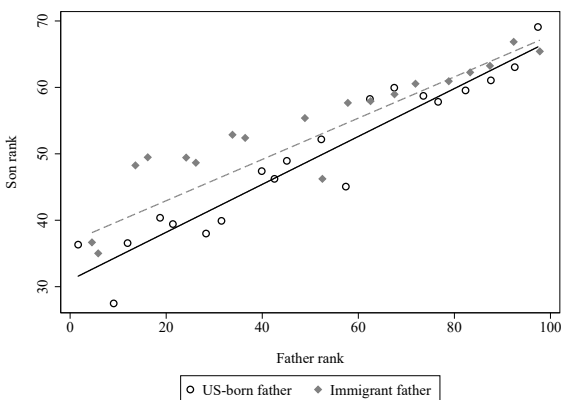
(a) Exact names

(b) 5-year band

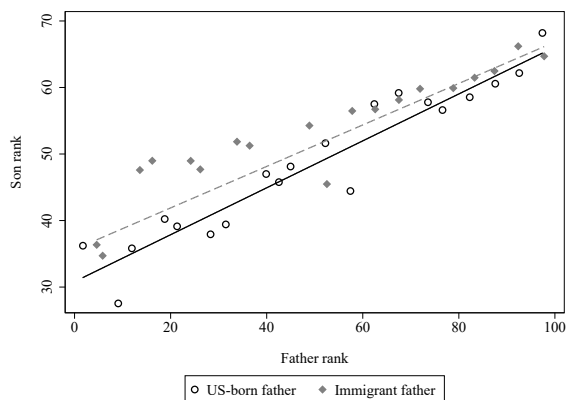**(c)** Exact names and 5-year band

NOTE: Sons are assigned percentile ranks relative to all other respondents born in the same birth year. Fathers are also ranked relative to all fathers with children in the same birth year. The figures plot the mean income rank of children by father's income rank, for sons with and without foreign-born fathers, as well as the corresponding regression lines. Each panel shows the results for the rank-based specification using alternative strategies for linking fathers and sons across the 1880 and 1910 Censuses.

Figure A18: Rank-rank Correlations for 1910–1940 Cohort with Alternative Linking Strategies
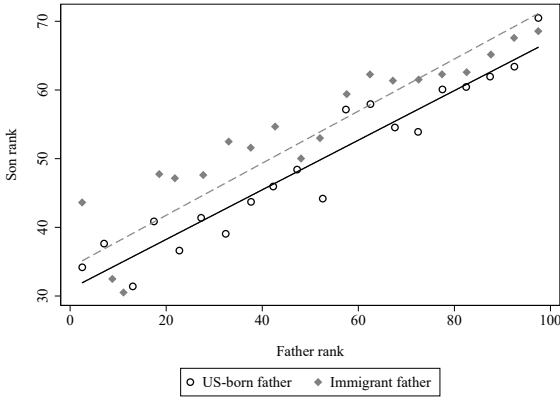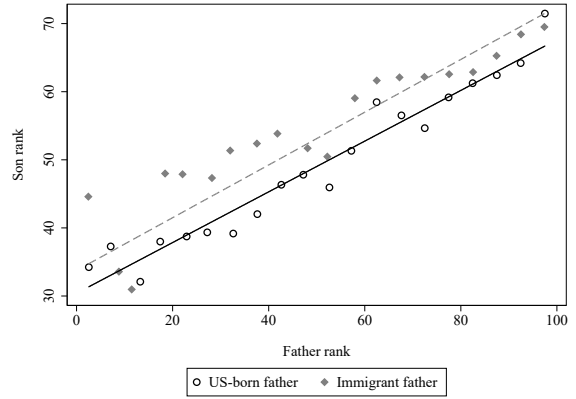
(a) Exact names

(b) 5-year band

(c) Exact names and 5-year band

NOTE: Sons are assigned percentile ranks relative to all other respondents born in the same birth year. Fathers are also ranked relative to all fathers with children in the same birth year. The figures plot the mean income rank of children by father's income rank, for sons with and without foreign-born fathers, as well as the corresponding regression lines. Each panel shows the results for the rank-based specification using alternative strategies for linking fathers and sons across the 1910 and 1940 Censuses.

Figure A19: Rank-rank Correlations, Weighted Data

(a) 1880–1910 Cohort, 1880 weight

(b) 1880–1910 Cohort, 1910 weight

(c) 1910–1940 Cohort, 1910 weight
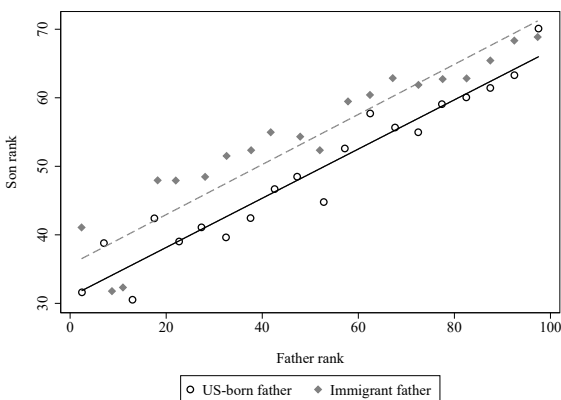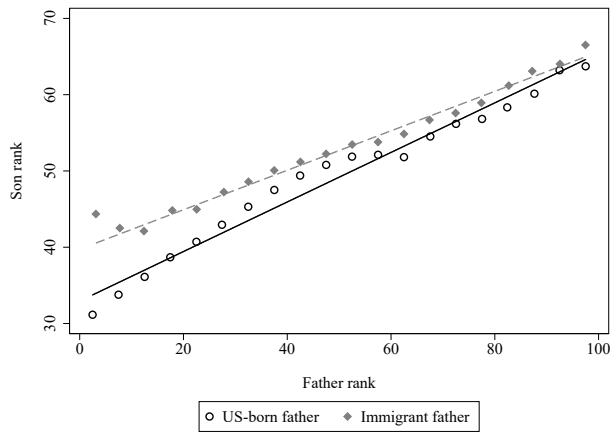
(d) 1910–1940 Cohort, 1940 weight
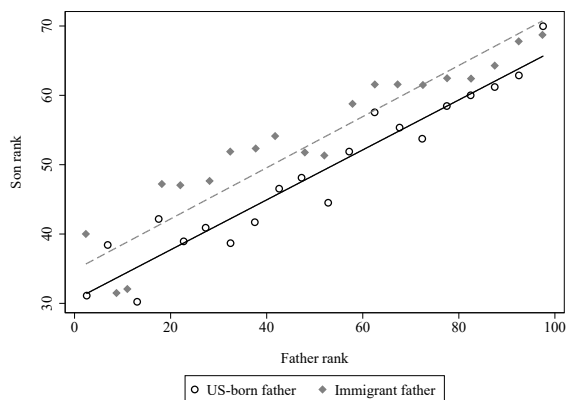
NOTE: This figure weights observations by the inverse probability of being a linked individual. Each cohort has two possible weights: one that uses childhood characteristics and the earlier cross-sectional Census, and one that uses adult characteristics and the later cross-sectional Census. Sons are assigned percentile ranks relative to all other respondents born in the same birth year. Fathers are also ranked relative to all fathers with children in the same birth year. The figures plot the mean income rank of children by father's income rank, for sons with and without foreign-born fathers, as well as the corresponding regression lines. For more details on the construction of the weights, see Section 3 in the Online Appendix.
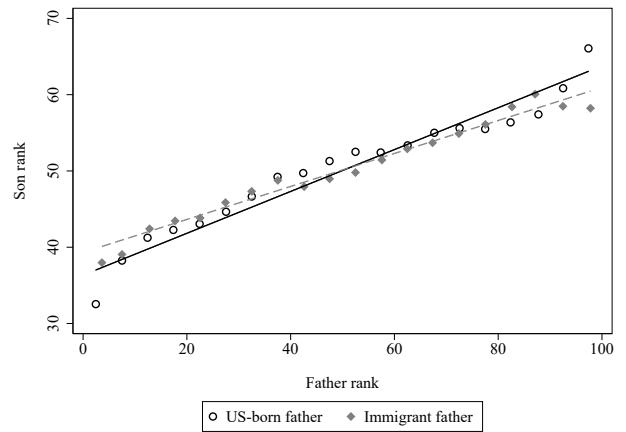
Robustness to Alternative Income Measures

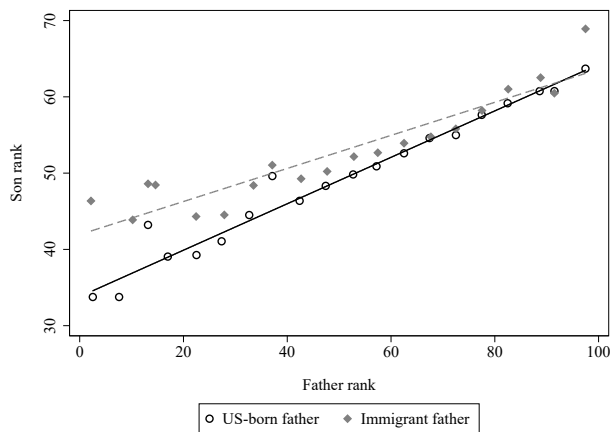**Figure A20:** Rank-rank Correlations for 1880–1910 Cohort Using Alternative Income Measures
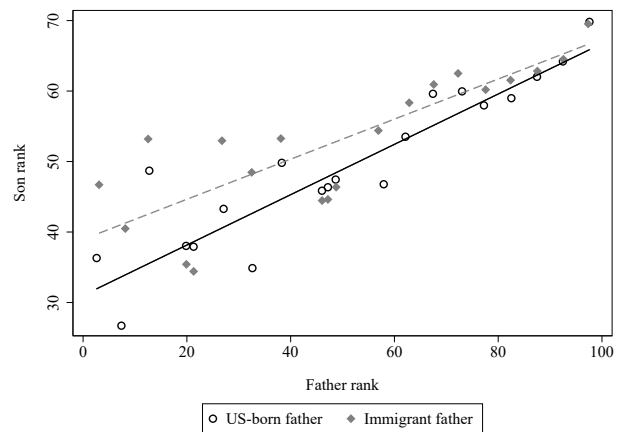
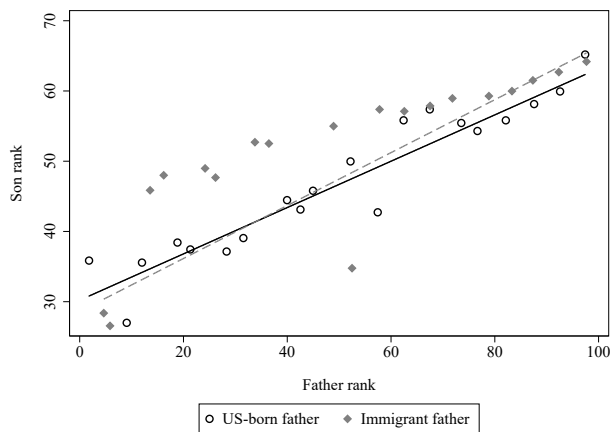**(a)** 1900 Census of Agriculture

(b) No farmer fathers or sons

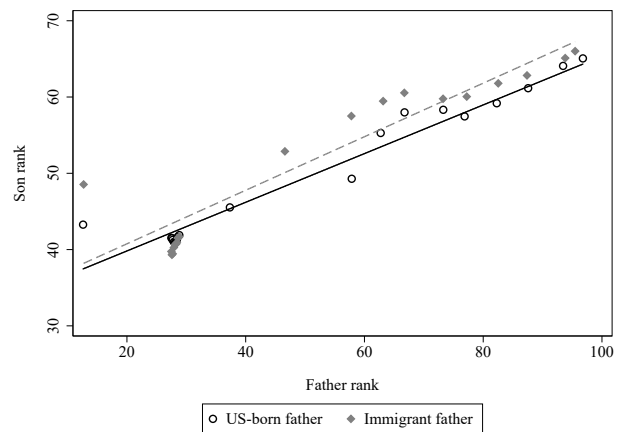**(c)** 1901 Cost of Living, 1900 Census of Ag.

(d) Fathers, No Immigrant Penalty
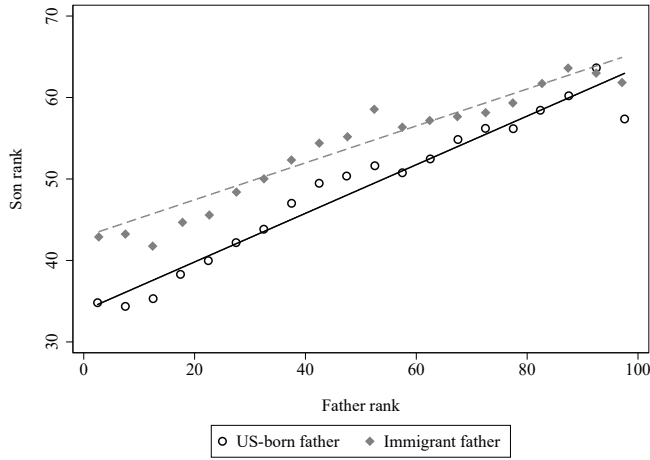
(e) Sons, Immigrant Penalty
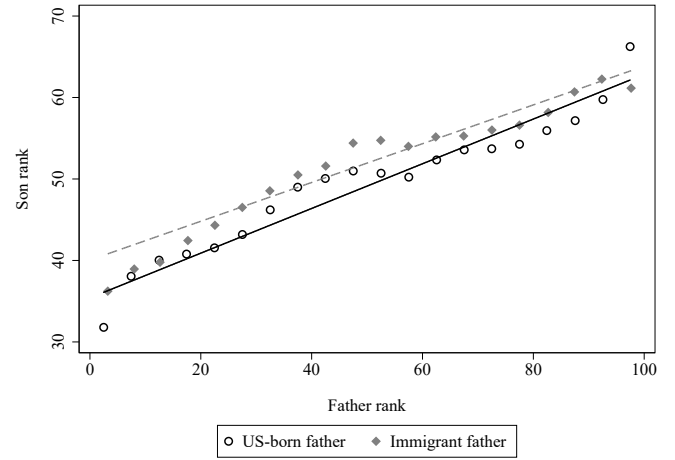
(f) IPUMS 1950 Occscore

NOTE: The figures plot the mean income rank of children by father's income rank, for sons with and without foreign-born fathers, as well as the corresponding regression lines. Panel (a) keeps predicted income for non-farming occupations, but adjust farmers' income using county-level measures derived from the 1900 Census of Agriculture. Panel (b) drops fathers and sons who are farmers from the sample and re-runs the specification using ranks from the non-farming income distribution. Panel (c) keeps the farmer adjustments from panel (a), and also adjusts non-farmer income using the average earnings in a person's occupation from the 1901 Cost of Living Survey. Panel (d) adjusts father's predicted income to not incorporate their country of origin in the prediction. Panel (e) adjusts son's predicted income to incorporate the father's country of origin into the prediction (or father's immigrant status for farmers). Panel (f) uses the 1950 IPUMS occscore measure.

Figure A21: Rank-rank Correlations for 1910–1940 Cohort Using Alternative Income Measures
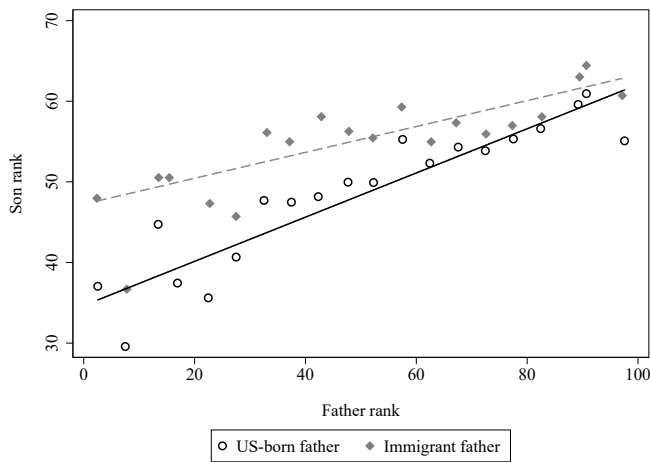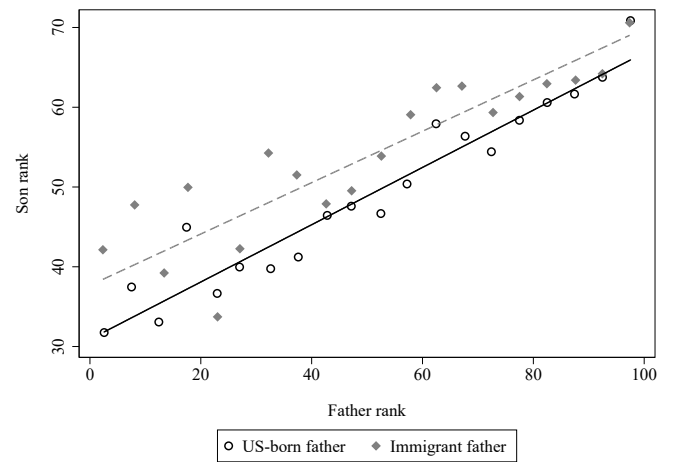
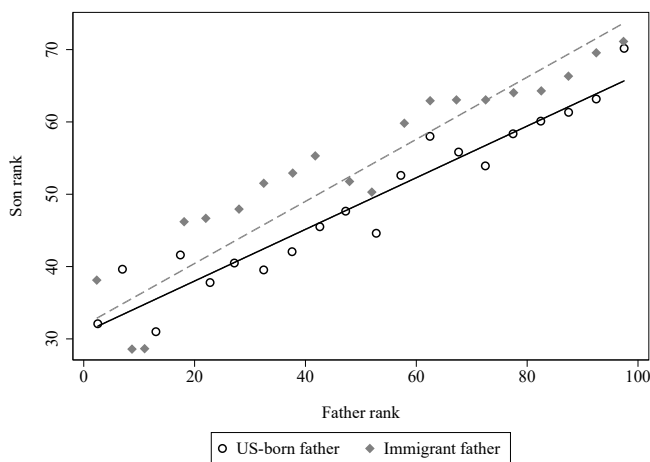**(a)** 1900 Census of Agriculture

(b) No farmer fathers or sons

(c) 1901 Cost of Living, 1900 Census of Ag.
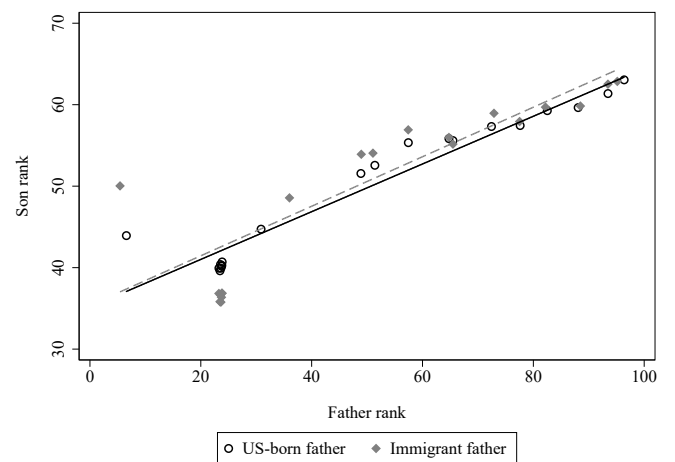
(d) Fathers, No Immigrant Penalty

(e) Sons, Immigrant Penalty

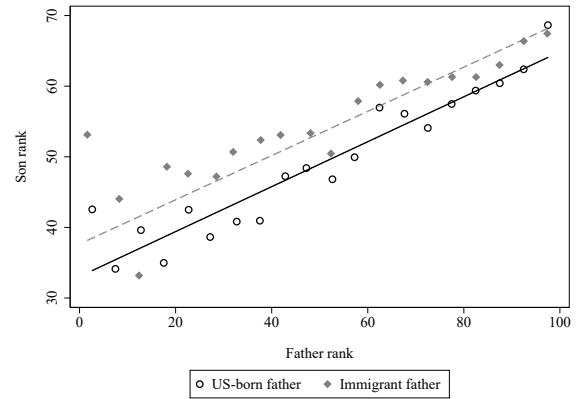**(f)** IPUMS 1950 Occscore

NOTE: The figures plot the mean income rank of children by father's income rank, for sons with and without foreign-born fathers, as well as the corresponding regression lines. Panel (a) keeps predicted income for non-farming occupations, but adjust farmers' income using county-level measures derived from the 1900 Census of Agriculture. Panel (b) drops fathers and sons who are farmers from the sample and re-runs the specification using ranks from the non-farming income distribution. Panel (c) keeps the farmer adjustments from panel (a), and also adjusts non-farmer income for fathers using the average earnings in a person's occupation from the 1901 Cost of Living Survey. Panel (d) adjusts father's predicted income to not incorporate their country of origin in the prediction. Panel (e) adjusts son's predicted income to incorporate the father's country of origin into the prediction (or father's immigrant status for farmers). Panel (f) uses the 1950 IPUMS occscore measure.

Figure A22: Rank-rank Correlations Including Missing Income

(a) 1880–1910 Cohort

(b) 1910–1940 Cohort

NOTE: This figure assigns zero income to fathers and sons with missing occupation or income. Sons are assigned percentile ranks relative to all other respondents born in the same birth year. Fathers are also ran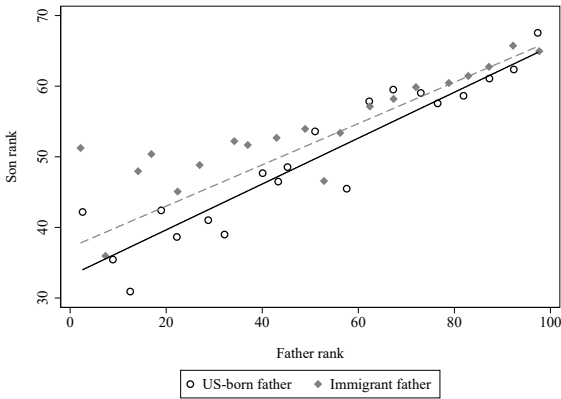ked relative to all fathers with children in the same birth year. The figures plot the mean income rank of children by father's income rank, for sons with and without foreign-born fathers, as well as the corresponding regression lines.

Figure A23: Country-by-Country Estimates for 1880–1910 Cohort Using Alternative Income Measures

(a) 1900 Census of Agriculture

(b) No farmer fathers or sons

(c) 1901 Cost of Living, 1900 Census of Ag.

(d) 1st generation, no Immigrant Penalty

(e) 2nd generation, Immigrant Penalty

(f) IPUMS 1950 Occscore

NOTE: All of these figures use our baseline linked samples, classifying immigrant families using the father's birthplace. Each panel plots the country-of-origin coefficients from equation (1), using alternative income measures for the fathers and sons. Panel (a) keeps predicted income for non-farming occupations, but adjust farmers' income using county-level measures derived from the 1900 Census of Agriculture. Panel (b) drops fathers and sons who are farmers from the sample. Panel (c) keeps the farmer adjustments from panel (a), and also adjusts non-farmer income using the average earnings in a person's occupation from the 1901 Cost of Living Survey. Panel (d) adjusts son's predicted income to incorporate their father's country of origin into the prediction. Panel (e) adjusts father's predicted income to not incorporate their country of origin in the prediction. Panel (f) uses the 1950 IPUMS occscore measure.

Figure A24: Country-by-Country Estimates for 1910–1940 Cohort Using Alternative Income Measures

(a) 1900 Census of Agriculture

● Fathers ◆ Sons

(b) No farmer fathers or sons

● Fathers ◆ Sons

(c) 1901 Cost of Living, 1900 Census of Ag.

● Fathers ◆ Sons

(d) 1st generation, no Immigrant Penalty

● Fathers ◆ Sons

(e) 2nd generation, Immigrant Penalty

● Fathers ◆ Sons

**(f)** IPUMS 1950 Occscore

● Fathers ◆ Sons

NOTE: All of these figures use our baseline linked samples, classifying immigrant families using the father's birthplace. Each panel plots the country-of-origin coefficients from equation (1), using alternative income measures for the fathers and sons. Panel (a) keeps predicted income for non-farming occupations, but adjust farmers' income using county-level measures derived from the 1900 Census of Agriculture. Panel (b) drops fathers and sons who are farmers from the sample. Panel (c) keeps the farmer adjustments from panel (a), and also adjusts non-farmer income using the average earnings in a person's occupation from the 1901 Cost of Living Survey. Panel (d) adjusts son's predicted income to incorporate their father's country of origin into the prediction. Panel (e) adjusts father's predicted income to not incorporate their country of origin in the prediction. Panel (f) uses the 1950 IPUMS occscore measure.

Robustness to Sample Construction

Figure A25: Rank-rank Correlations Using Mother's Birthplace

(a) 1880–1910 Cohort   **(b)** 1910–1940 Cohort
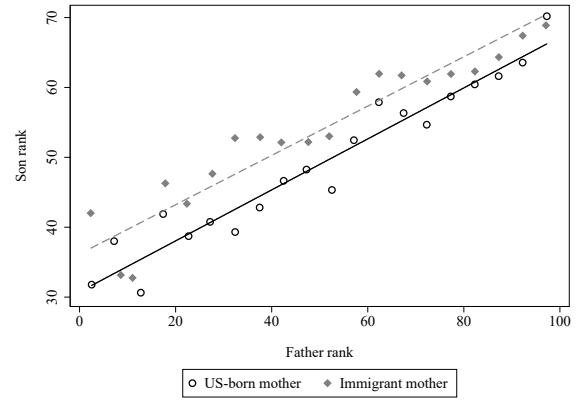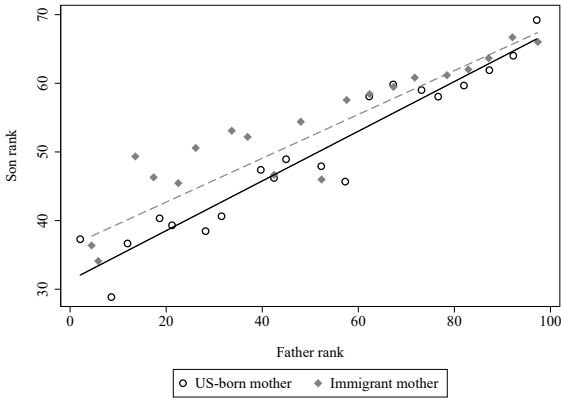
NOTE: This figure uses mother's birthplace to classify men as sons of immigrants. Sons are assigned percentile ranks relative to all other respondents born in the same birth year. Fathers are also ranked relative to all fathers with children in the same birth year. The figures plot the mean income rank of children by father's income rank, for sons with and without foreign-born mothers, as well as the corresponding regression lines.

Figure A26: Average Income Rank for Children Born to 25th and 75th Percentile, by Cohort and Mother's Birthplace

(a) 1880–1910 Cohort: 25th Percentile
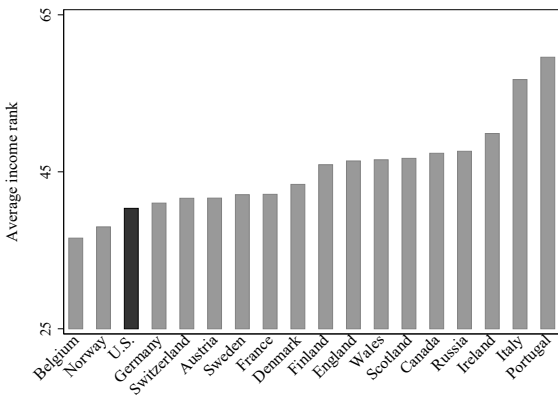
(b) 1910–1940 Cohort: 25th Percentile
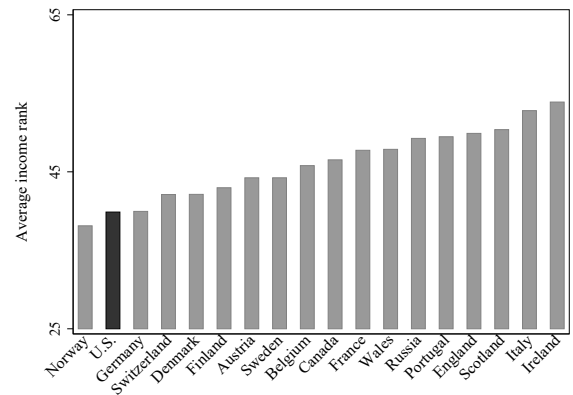
(c) 1880–1910 Cohort: 75th Percentile
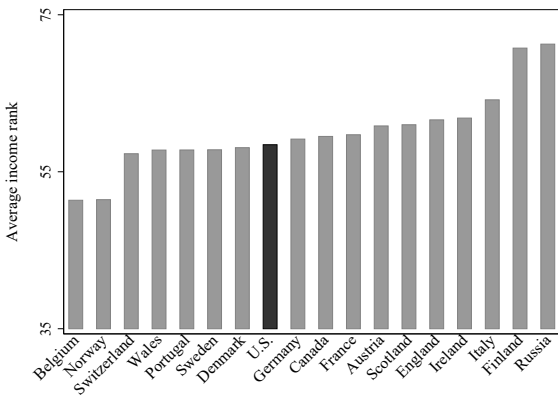
(d) 1910–1940 Cohort: 75th Percentile
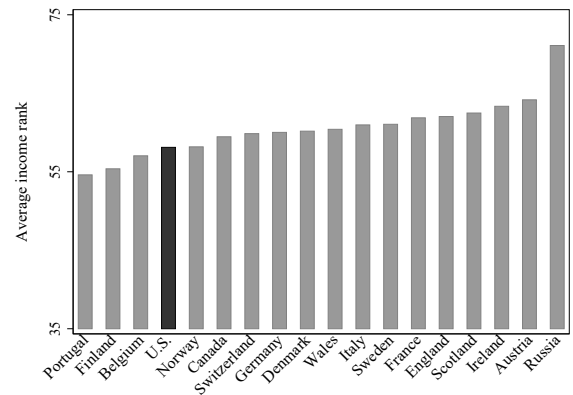
NOTE: This figure plots the average income rank for children born to the 25th and 75th percentile of the parent income distribution. Individuals are classified as sons of immigrants using their mother's birthplace.

Figure A27: Rank-rank Correlations for Sons with Immigrant Parents

(a) 1880–1910 Cohort

(b) 1910–1940 Cohort
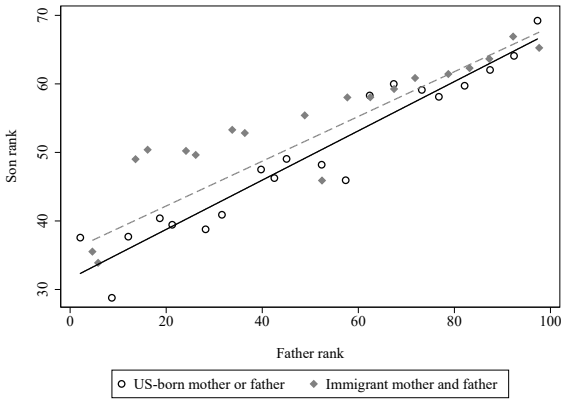
NOTE: This figure classifies individuals as immigrants if both their mother and father were not born in the United States. Sons are assigned percentile ranks relative to all other respondents born in the same birth year. Fathers are also ranked relative to all fathers with children in the same birth year. The figures plot the mean income rank of children by father's income rank, for sons with and without foreign-born parents, as well as the corresponding regression lines.

Figure A28: Rank-rank Correlations, Using Mother's and Father's Birthplace
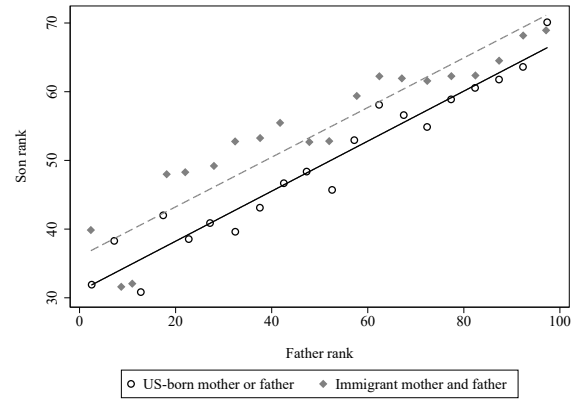
(a) 1880–1910 Cohort

(b) 1910–1940 Cohort
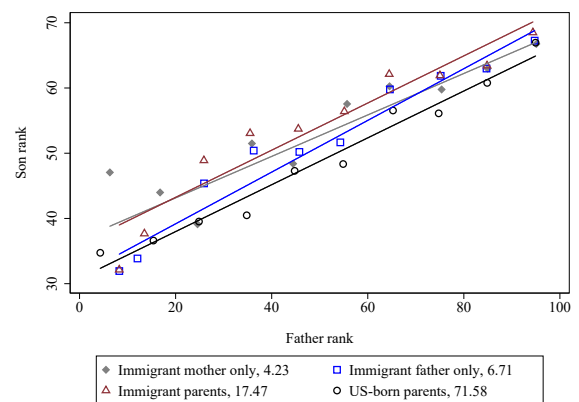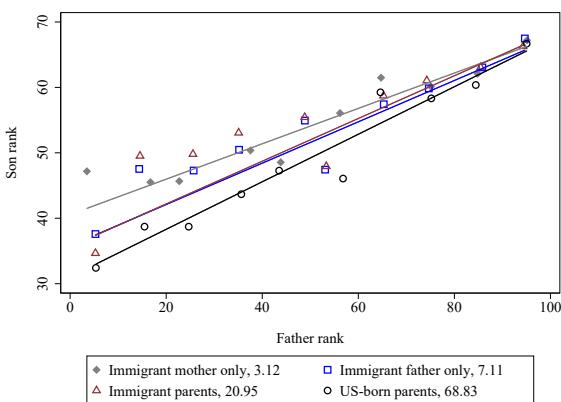
NOTE: This figure uses mother's and father's birthplace to classify sons into groups. The numbers in the legend represent the share of the sample that falls into that group. Sons are assigned percentile ranks relative to all other respondents born in the same birth year. Fathers are also ranked relative to all fathers with children in the same birth year. The figures plot the mean income rank of children by father's income rank as well as the corresponding regression lines.

Figure A29: Intergenerational Mobility of Immigrants and the US born, Rank-Rank Correlations by Race

(a) White immigrants, white natives
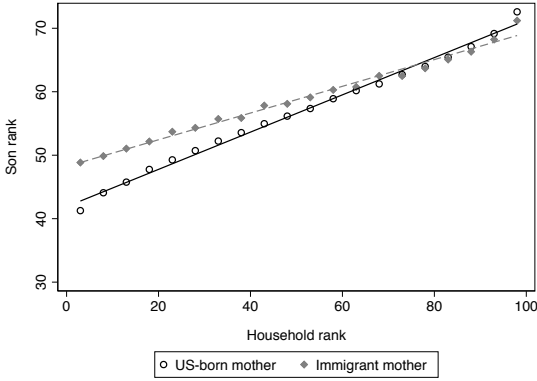
(b) All immigrants, white natives
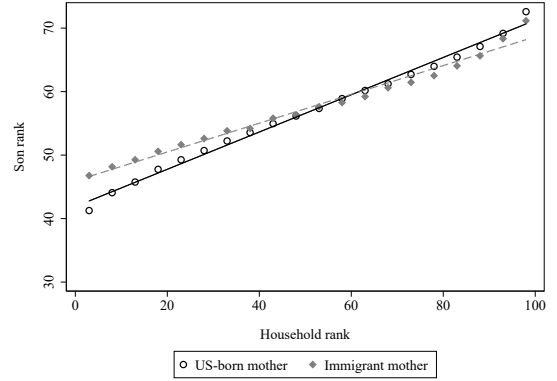
NOTE: Data come from Chetty et al. (2018b). Sons are assigned percentile ranks relative to all other respondents born in the same birth year. Parents are also ranked relative to all fathers with children in the same birth year. The figures plot the mean income rank of children by their household's income rank, for sons with and without foreign-born mothers, as well as the corresponding regression lines.

Construction of Linked Samples: Additional Tables

Table A1: Sample Size, by Cohort

	1880–1910	1910–1940
White men, age 0–16	8,999,129	14,572,217
Linked men	2,035,587	4,292,642
living with father	1,831,450	3,897,409
white father, age 30–50	1,346,687	2,915,989
US-born or immigrant father	1,329,068	2,871,182
non-missing labor market outcomes	1,241,588	2,710,918
Share of white men age 0–16 in final sample	13.80	18.60

NOTE: The first row refers to the number of white men ages 0–16 in the earlier Census. Rows 2 through 6 show the sample size as we restrict the sample based on the fathers' and sons' characteristics. "Immigrant father" refers to sons whose fathers were born in one of the 17 source countries in our sample.

Table A2: Sample Size and Match Rate, by Father's Country of Origin

	1880–1910 cohort		1910–1940 cohort	
	Sample	Match Rate	Sample	Match Rate
US-born father	891,461	24.6	2,053,821	31.9
Immigrant father	350,127	22.6	657,097	27.1
Canada	25,647	27.7	65,912	29.9
Denmark	2,820	21.8	11,961	27.0
Finland	67	17.2	5,976	21.9
Norway	7,959	19.4	27,164	31.1
Sweden	6,917	20.8	41,113	28.8
England	37,383	24.5	47,018	32.3
Scotland	8,634	21.8	13,301	30.9
Wales	3,443	15.9	3,703	23.9
Ireland	86,761	18.1	49,457	23.9
Belgium	1,059	22.1	2,387	24.4
France	5,918	23.6	4,207	28.7
Switzerland	6,010	26.0	8,764	34.4
Italy	1,112	19.1	57,798	21.4
Portugal	320	21.4	3,437	23.5
Austria	1,970	24.3	56,951	23.4
Germany	153,084	25.3	178,880	32.3
Russia	1,023	26.1	79,068	21.2

NOTE: This table shows the sample size of the linked samples as well as the share of white men ages 0–16 in the earlier Census who can be linked to the later Census using our baseline linking procedure, calculated separately by the father's country of origin.

Table A3: Comparison of Cross-Sectional and Linked Sample of Sons

(a) Sons of US-born Fathers

	1880-1910 cohort		1910-1940 cohort	
	Non-Linked	Linked	Non-Linked	Linked
Age	37.11	37.27	36.28	37.44
Farmer	0.24	0.25	0.30	0.33
White-collar	0.32	0.33	0.14	0.14
Skilled	0.25	0.25	0.32	0.34
Unskilled	0.19	0.17	0.24	0.19
Income	1,048.19	1,079.86	1,066.10	1,142.46
South	0.35	0.29	0.33	0.31

(b) Sons of Immigrant Fathers

	1880-1910 cohort		1910-1940 cohort	
	Non-Linked	Linked	Non-Linked	Linked
Immigrant (full sample)	0.26	0.27	0.22	0.24
Age	37.28	37.44	36.10	38.09
Farmer	0.27	0.28	0.36	0.37
White-collar	0.19	0.22	0.08	0.10
Skilled	0.34	0.32	0.35	0.36
Unskilled	0.20	0.18	0.21	0.17
Income	1,165.81	1,170.74	1,206.34	1,261.74
South	0.08	0.08	0.05	0.06

NOTE: In this table, the linked sample has not yet been restricted based on the fathers' characteristics (i.e., whether the father is white, aged 30–50, living with the child in the early Census, and without missing labor market outcomes).

Additional Results

Table A4: Intergenerational Mobility Estimates, by Cohort and Country of Origin

	1880–1910 Cohort		1910–1940 Cohort	
	Intercept	Slope	Intercept	Slope
US-born father	31.34	0.36	31.00	0.36
Immigrant father	35.68	0.32	34.67	0.37
Canada	41.52	0.23	38.97	0.27
Denmark	37.12	0.28	33.75	0.34
Finland	43.55	0.24	37.24	0.24
Norway	31.16	0.28	27.42	0.41
Sweden	33.91	0.32	34.33	0.35
England	36.82	0.32	41.08	0.28
Scotland	38.66	0.29	41.42	0.28
Wales	40.21	0.24	40.69	0.26
Ireland	42.63	0.25	45.47	0.24
Belgium	32.83	0.24	36.98	0.27
France	34.55	0.32	38.24	0.31
Switzerland	33.79	0.31	32.14	0.36
Italy	53.41	0.14	48.57	0.17
Portugal	57.83	0.00	47.49	0.11
Austria	34.38	0.39	33.25	0.42
Germany	31.56	0.37	28.09	0.43
Russia	37.95	0.43	38.15	0.44

NOTE: This table reports the slope and intercept from regressions of son's rank regressed on father's rank, by cohort and father's country of origin.

Robustness to Linking Procedure

Table A5: Comparison of Rank-Rank Slopes and Intercepts, by Linking Algorithm

(a) 1880–1910 Cohort

	US-born father		Immigrant father	
	Intercept	Slope	Intercept	Slope
Baseline	31.34	0.36	35.68	0.32
Exact names	30.97	0.37	35.89	0.33
5-year band	30.29	0.38	33.90	0.35
Exact names, 5-year band	30.23	0.38	33.99	0.36

(b) 1910–1940 Cohort

	US-born father		Immigrant father	
	Intercept	Slope	Intercept	Slope
Baseline	31.00	0.36	34.67	0.37
Exact names	31.02	0.36	34.17	0.38
5-year band	30.40	0.37	33.75	0.39
Exact names, 5-year band	30.59	0.37	33.04	0.40

NOTE: This table reports the slope and intercept from regressions of son's rank on father's rank, using samples derived using alternative linking algorithms.

Robustness to Alternative Income Measures

Table A6: 1880–1910 Cohort: Rank-Rank Slopes and Intercept, by Income Measure and Immigrant Status

	US-born father		Immigrant father	
	Intercept	Slope	Intercept	Slope
Baseline	31.34	0.36	35.68	0.32
1900 Census of Ag.	32.94	0.32	39.74	0.26
1901 Survey, 1900 Census of Ag.	33.81	0.30	41.94	0.22
No farmers	36.34	0.27	39.32	0.22
No immigrant penalty	31.01	0.36	38.96	0.28
2nd generation penalty	30.21	0.33	28.62	0.38
IPUMS occscore	33.44	0.32	33.73	0.35

NOTE: This table shows the slope and intercept of the rank-rank regressions using alternative income measures. The first measure adjusts farmers' income using the 1900 Census of Agriculture. The second adjusts non-farmer income using the average earnings in a person's occupation from the 1901 Cost of Living Survey. The third drops farmer fathers and sons from the sample and re-runs the specification using ranks from the non-farming income distribution. The fourth adjusts father's predicted income to not incorporate the country of origin into the prediction. The fifth adjusts son's income to incorporate the father's country of origin into the prediction. The sixth uses the 1950 IPUMS occscore measure.

Table A7: 1910–1940 Cohort: Rank-Rank Slopes and Intercept, by Income Measure and and Immigrant Status

	US-born father		Immigrant father	
	Intercept	Slope	Intercept	Slope
Baseline	31.00	0.36	34.67	0.37
1900 Census of Ag.	33.85	0.30	42.92	0.23
1901 Survey, 1900 Census of Ag.	39.02	0.19	54.49	0.02
No farmers	35.41	0.27	40.05	0.24
No immigrant penalty	30.91	0.36	37.67	0.32
2nd generation penalty	30.86	0.36	31.84	0.43
IPUMS occscore	35.15	0.29	35.38	0.30

NOTE: This table shows the slope and intercept of the rank-rank regressions using alternative income measures. The first measure adjusts farmers' income using the 1900 Census of Agriculture. The second adjusts non-farmer income using the average earnings in a person's occupation from the 1901 Cost of Living Survey. The third drops farmer fathers and sons from the sample and re-runs the specification using ranks from the non-farming income distribution. The fourth adjusts father's predicted income to not incorporate the country of origin into the prediction. The fifth adjusts son's income to incorporate the father's country of origin into the prediction. The sixth uses the 1950 IPUMS occscore measure.