Immigration and Native Intergenerational Mobility in the United States

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Abstract

Immigration continues to shape the economic and political debate in the United States. Yet, we surprisingly know little about the impact of immigration on the economic mobility of native children. Using recent data on changes in mobility and an identification strategy based on initial settlement patterns of immigrants, I study whether the wave of immigration that started around the 1970s had an impact on native intergenerational mobility. Despite concerns about immigration hurting native children, I find that the impact of immigration on native mobility is statistically insignificant. Moreover, I can rule out economically large effects. I show that this result can be explained by the insignificant impact of immigration on socioeconomic mechanisms previously associated with intergenerational mobility, such as parental employment or incarceration rates.

JEL Codes: F22, J62, J15, R23
Keywords: immigration, intergenerational mobility

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1 Introduction

Immigration has been one of the key factors shaping the public debate in the United States for decades. Concerns about immigration take various forms, and its potential impact on children continues to be among the perceived negative effects. A news article nearly twenty years ago cited complaints that schools were using their resources for non-English-speaking students at the expense of native children. (The Wall Street Journal 2005). Headlines in 2024 mirrored those from two decades earlier, with reports describing immigration as hitting America's classrooms (The Wall Street Journal 2024).

In addition to the public concerns about immigrants reducing resources available for native children in the school, recent academic research has shown how major demographic shifts can be detrimental for intergenerational mobility. The importance of childhood location in shaping later-life outcomes has been studied extensively (see Chyn and Katz 2021 for a review), and it is well-known that the intergenerational mobility of poor children varies substantively across space (Chetty and Hendren 2018). Yet, Derenoncourt (2022) has shown in the context of the Great Migration (1940-1970) that large waves of migration can have significant negative impacts on intergenerational mobility in destination locations. Similar to the Great Migration of Black Americans from the South to the North, where the share of Black people in Northern commuting zones studied by Derenoncourt (2022) increased from 4.3% to 8.8%, the wave of immigration that started around the 1970s also represents a profound demographic change, with the share of foreign-born population rising from 4.7% to 11.1% in a timespan of thirty years.

As Zimmerman (2008) explained in a policy review, despite the large literature on the economic impacts of immigration, there remains a gap in our understanding of how immigrants affect native intergenerational mobility. This paper seeks to address this gap in the literature. I bring together data on changes in intergenerational mobility recently made available by Opportunity Insights (2024), immigration, local public finances, crime statistics, parental employment rates, and racial composition of schools to assess the impact of immigration on native intergenerational mobility.

My empirical strategy relies on a version of the shift-share design commonly used in the immigration literature to isolate plausibly exogenous variation in the exposure to the 1970-2000 wave of immigration across US commuting zones. More specifically, I predict immigrant inflows to a commuting zone by interacting the initial settlement patterns of immigrants from different countries of origin with subsequent flows from each country, excluding the flows to the commuting zone itself. This is in line with the "leave-out" approach in Tabellini (2020). The identifying assumption, following Goldsmith-Pinkham, Sorkin, and Swift (2020), will be interpreted as the exogeneity of the

initial settlement patterns with respect to the unobserved determinants of changes in intergenerational mobility, conditional on the set of observables I include in the model.

I find that increased exposure to immigration does not have a statistically significant impact on changes in intergenerational mobility. Admittedly, failure to reject the null of no effects does not rule out the existence of an effect. Through comparisons to the case of the Great Migration studied by Derenoncourt (2022), which represents a demographic change of comparable magnitude, I argue that the economic significance of the effects that I fail to reject are small.

In order to establish the validity and robustness of my results, I take several steps. My initial set of controls includes the baseline foreign-born population in a commuting zone, and thus the effects are identified from compositional differences within the immigrant population across commuting zones (see Tabellini 2020, Borusyak, Hull, and Jaravel 2021, and Boustan, Cai, and Tseng 2024). In addition to my baseline controls, I follow the procedure in Abramitzky et al. (2023) and Boustan, Cai, and Tseng (2024), and search for additional correlates of initial settlement patterns of large immigrant groups among a broad set of variables using Lasso. I then include the covariates selected by this procedure in an alternative specification to test robustness. As an additional check, I use all covariates, including those not in my baseline covariates and not chosen by Lasso. The results remain qualitatively unchanged across specifications. I also check the sensitivity of my results to alternative choices of sample, functional form, and variable definitions. The main conclusions continue to hold across a broad set of robustness exercises. My results also highlight the value of using changes in intergenerational mobility instead of its levels: Using the intergenerational mobility levels of 1978 and 1992 birth cohorts, rather than the changes between them, I show that immigrants settle in places that initially had lower levels of intergenerational mobility for White children.

Given the conclusion that immigration does not have a statistically significant impact on native intergenerational mobility, I investigate whether this can be rationalized by an absence of an effect on socioeconomic mechanisms that have previously been associated with changes in intergenerational mobility. Chetty et al. (2024a) suggest that increasing parental employment rates leads to increases in children's earnings. I show that immigration does not significantly affect parental employment rates.

Similarly, immigration does not have a statistically significant impact on most mechanisms identified in Derenoncourt (2022) as drivers of the decline in intergenerational mobility following the Great Migration. Specifically, I find no significant effects of immigration on incarceration rates, murder rates, police spending, or private school enrollment at the commuting zone level. However, I do find that immigration leads to increased per-pupil spending. This might align with the news evidence presented earlier, which suggests that immigration increases the financial burden on schools. It could also indicate that the schools increase their spending instead of shifting

resources away from natives to immigrants.

To the best of my knowledge, this is the first paper documenting the impact of international migrants on the intergenerational mobility of natives in the context of the United States. Hoen, Markussen, and Røed (2022) examine the effect of immigration on native mobility in the context of Norway, and find negative effects. This paper differs from theirs both in terms of the context, but also in terms of the empirical strategy and the variation that is used.

Abramitzky et al. (2021) focus on the intergenerational mobility of immigrants relative to that of natives, and find that both in the past and today, immigrants from nearly all countries have higher intergenerational mobility. This paper shows that the higher intergenerational mobility of immigrants is not coming at the expense of native children.

By exploring whether immigrants have an impact on mechanisms associated with intergenerational mobility, my paper also contributes to the literature on the effects of immigration on local public finances, crime, and segregation. Spenkuch (2014) found that immigration leads to increases in non-violent crimes, but not in violent crimes. In recent work, Abramitzky et al. (2024) showed that, contrary to popular perceptions, immigrants actually have lower incarceration rates than natives. This finding may help explain the lack of an association between immigration and crime statistics in this paper.

As part of the mechanisms studied, I also investigate whether immigration leads to increased school segregation. The previous literature has found evidence of native/white flight in the context of schooling (see, e.g., Betts and Fairlie 2003 or Farre, Ortega, and Tanaka 2018 for the effects of immigrants as a whole; Cascio and Lewis 2012 for the effects of Hispanics; and Boustan, Cai, and Tseng 2024 for the effects of Asians). In this paper I do not find a statistically significant impact in terms of flight to private schools. Several potential reasons could explain this difference, such as variations in empirical strategy (e.g., whether commuting zones compared are within the same Census division) and differences in the exact research question (e.g., private school enrollment rates versus movements across school districts, which I do not address here).

The remainder of the paper is organized as follows. In Section 2, I summarize my data sources. In Section 3 I briefly describe the historical context, and provide comparisons to the case of Great Migration which I later use as a benchmark. In Section 4, I outline my empirical strategy. In Section 5, I present the results. In Section 6, I investigate the impact of immigration on economic and social mechanisms associated with intergenerational mobility. Section 7 concludes.

2 Data

I combine data from IPUMS, Opportunity Insights, Derenoncourt (2022), and National Center for Education Statistics (NCES). From IPUMS NHGIS, I obtain data on the number of immigrants

from a given birth country for all the counties across the US in 1970, 1980, and 2000, and then aggregate them at the commuting zone level which is the unit of analysis throughout the paper. I also obtain data on the baseline characteristics of commuting zones from IPUMS NHGIS, including the share of employment in different industries, age structure, family composition, racial composition, education levels, urbanization rates, housing markets, and the total numbers of native and foreign-born populations.

From Opportunity Insights, I obtain data on intergenerational mobility changes between the 1978 and 1992 birth cohorts for children born to parents at different percentiles of the income distribution. Throughout the analysis, I focus on the changes in intergenerational mobility for children born to parents at the 25th percentile of the income distribution, but I also present results for children born to parents at the 50th and 75th percentiles of the distribution. The data I obtain also include information on parental employment rate changes between these two cohorts. [1]

I obtain data on private school enrollment rates, incarceration rates, crime statistics, and local public finances from Derenoncourt (2022). Data on private school enrollment rates are originally from IPUMS NHGIS, and I use data on changes in the total, White, and Black private school enrollment rates between 1970 and 2000. Data on incarceration rates and murder rates were originally sourced from In Our Backyards Database of Vera Institute of Justice, and I use changes in incarceration rates between 1970-2000, and changes in murder rates between 1977 and 2000 due to data availability. Finally, data on local public finances are originally from surveys of states and sub-state level governments conducted by the US Census Bureau. For public finance variables, I focus on changes between 1972 and 2002 also because of data availability.

I use data from the NCES Public School Universe Survey to analyze the racial composition of public schools. These data start from the 1987–1988 academic year. I use these data to show that children from the 1978 birth cohort had significantly fewer classmates of Hispanic and Asian origin compared to children from the 1992 birth cohort in areas more exposed to increased migration between 1970 and 2000. I detail the crosswalks used to map different geographical units to commuting zones in the Appendix.

3 Migration to the United States Between 1970-2000

The United States experienced a dramatic increase in the number and share of immigrants between 1970 and 2000. The number of foreign-born people increased from 9.6 to 31.1 million, and their

[1] The changes are estimates of the predicted intergenerational mobility differences between 1978 and 1992 birth cohorts. In addition to providing estimates for changes, Opportunity Insights also provides an accompanying reliability estimate. This reliability measure is not available for estimates that are based on limited data and/or high standard error. Throughout my analysis, I drop commuting zones where a reliability estimate is not provided for the outcome of interest.

share in the population went up from 4.7% to 11.1% (US Census Bureau 2024). The rise in the share experienced over a span of thirty years is unprecedented since 1850 (US Census Bureau 2024).

In order to interpret the magnitudes of my estimates in Section 5, I will draw on similarities with the Great Migration explored in Derenoncourt (2022). As described in Section 1, the increase in the share of foreign-born population in the US from 1970 to 2000 is slightly larger than the increase in the share of Black population during Great Migration in commuting zones studied by Derenoncourt (2022). As another point of comparison, the average share of the black population in Derenoncourt (2022)'s sample of commuting zones was around 2.4% in 1940 and went up to 4.2% in 1970. In the context the recent wave of immigration, the average share of the foreign-born population rose from 1.97% in 1970 to 4.1% in 2000 across commuting zones in the US. These numbers suggest that both shocks are similar in magnitude, and the results reported in Derenoncourt (2022) offer a useful benchmark for interpreting my estimates.

In the main analysis, I focus on the effects of this major episode of immigration on the intergenerational mobility of children born to parents at the 25th percentile of the national income distribution in 1978 and 1992 birth cohorts. One might be concerned about the fact that the time windows for available data on changes in mobility and immigration do not perfectly overlap. However, this approach can still be reasonable, if the children from birth cohort 1992 were more exposed to immigrants relative to the 1978 cohort in places that had a higher increase in the share of immigrants between 1970 and 2000. It is natural to expect that the difference in exposure would primarily occur during childhood, as the number of immigrants was still rising rapidly during early ages of the 1978 cohort. Figure 1 shows that for the 1992 birth cohort, the average share of Hispanic and Asian students during their school years was much higher than for the 1978 birth cohort in areas more exposed to immigration between 1970 and 2000, supporting the link between my dependent and independent variables.

4 Empirical Strategy

As my main goal is to understand the relationship between exposure to immigration during 1970–2000 and intergenerational mobility changes, I estimate the following equation:

$$\Delta\bar{y}_{CZ}^{1978-1992} = \alpha + \beta Immigration_{CZ}^{1970-2000} + \gamma X_{CZ}^{1970} + \varepsilon_{it} \tag{1}$$

where $\Delta\bar{y}_{CZ}^{1978-1992}$ is the estimated change in average adulthood household income rank between 1978 and 1992 birth cohorts for children born to parents at the 25th percentile of the income distribution[2]. $Immigration_{CZ}^{1970-2000}$ is the percentile of change in the share of foreign-born resi-

[2]I also provide results in Section 5 where I use individual income rank of the children instead of their household

dents in a commuting zone between 1970 and 2000 relative to the 1970 population. Finally, X_{CZ}^{1970} represents the baseline characteristics of the commuting zone in 1970. I control for a comprehensive set of baseline characteristics, including the share of employment in different industries, employment-to-population ratio and unemployment rate, income per capita, share of college graduates, share of the population aged 65 and older, total population, and total foreign-born population. The vector of controls also includes Census division fixed effects, and hence the effects are estimated through comparisons to other commuting zones in the same division. [3]

A key concern with equation 1 is that the change in the share of foreign-born residents might be correlated with unobserved factors that affect intergenerational mobility. For instance, immigrants might be choosing places with improving economic conditions, which might also positively impact intergenerational mobility. One can think of other forms of endogeneity that might go in the opposite direction, such as the immigrants locating in declining areas, say, due to lower rents.

In order to address these concerns, I adopt the shift-share design, as applied to the immigration setting in Card (2001). The instrument relies on the fact that incoming immigrants are more likely to settle in locations where their ethnic community is larger. As a result, commuting zones with larger initial shares of high-inflow groups receive more immigration. I use a leave-out version of this instrument, as in Tabellini (2020). Specifically, I instrument for the percentile of change in the share of foreign-born residents between 1970 and 2000 using the percentiles of the following variable:[4]

$$Z_{CZ} = \frac{1}{P_{CZ}^{1970}} \sum_{j} \alpha_{j,CZ}^{1970} \Delta O_{j,-CZ}^{1970-2000} \tag{2}$$

where $\alpha_{j,CZ}^{1970}$ is the share of individuals in the US born in country j who were living in commuting zone CZ in 1970; $\Delta O_{j,-CZ}^{1970-2000}$ refers to the change in the number of individuals born in country j between 1970 and 2000, excluding commuting zone CZ; and P_{CZ}^{1970} represents the population of commuting zone CZ in 1970.

I estimate equation 1 separately for non-Hispanic White and Black residents, using the changes in their intergenerational mobility as the dependent variable. Data on mobility changes that I obtain from Opportunity Insights does not have a breakdown of upward mobility measures by whether the parents were born in the United States or outside. In order to measure intergenerational mobility among natives, I rely on the mobility numbers provided for non-Hispanic White and Black populations. This approach is reasonable since most immigration to the United States between

income rank as well as results where I focus on changes for children born to parents at different percentiles of the income distribution.

[3] Additional details about the construction of the variables can be found in the Appendix.

[4] I focus on percentiles of changes instead of the changes themselves as the distribution of exposure to immigrants is highly right-skewed, following Sequeira, Nunn, and Qian (2020) and Derenoncourt (2022). In Section 5 I also present results where I use the changes directly instead.

1970 and 2000 came from Latin America and Asia, and these immigrants are unlikely to self-identify as non-Hispanic White or Black.[5]

As will be shown in Section 5, the relevance condition for the instrument is satisfied as in most of the literature, since historical settlement patterns are strong predictors of later immigrant flows. For exogeneity, following the interpretation in Goldsmith-Pinkham, Sorkin, and Swift (2020), it is assumed that the initial settlement patterns, conditional on the controls, are uncorrelated with unobserved determinants of changes in intergenerational mobility, i.e., ε_{it} in equation 1. The controls I include capture key characteristics influencing a location's attractiveness to immigrants, such as income levels and employment structure. Moreover, as in Tabellini (2020), I control for the total number of immigrants in 1970, which can be thought of as accounting for historical forces that made a location attractive to the immigrants as a whole, and thus the effects will be identified off the compositional differences within the immigrant population across commuting zones.

The instrument can still be violated, if, for instance, the historical settlement patterns of groups with a high growth rate after 1970 are correlated with unobserved determinants of future changes in intergenerational mobility; even after accounting for the rich set of baseline characteristics that I include in the model. I conduct further robustness checks to address these concerns. In the spirit of Goldsmith-Pinkham, Sorkin, and Swift (2020), I search for groups of immigrants driving most of the change in the foreign-born population in the US..[6] Then, as in Abramitzky et al. (2023) and Boustan, Cai, and Tseng (2024), I search for additional covariates among a large set of variables detailed in the Appendix using Lasso to find the correlates of the shares of these largest immigrant groups, and include those covariates among my set of controls. Finally, I include all the baseline location characteristics that I have collected. As explained in Section 5, the results are remarkably similar across all specifications. Although one can not claim to control for all unobservables with this approach, the stability of the estimates can reduce concerns about the importance of remaining unobservables following Altonji, Elder, and Taber (2005) and Oster (2019).

5 Results

Figure 2 graphically shows the relationship between changes in intergenerational mobility and changes in foreign-born population. The first row corresponds to OLS estimation of equation 1. The second row corresponds to the reduced form of IV estimation of equation 1. In both rows, it is difficult to visually detect any meaningful relationship.

[5] In Section 5, I provide additional results where I use percentiles of the change in the share of population born in Latin America and Asia as the main independent variable as a further check, and obtain similar outcomes.

[6] Immigrants from the categories Mexico, China, "Other Asia", and "Other America" collectively account for 92% of the absolute changes among all immigrant groups. This number is obtained by dividing the increase in the number of immigrants from these places by the sum of absolute changes in the number of foreign-born population across all groups included in my analysis (I describe these groups in the Appendix).

Table 1 shows the results from estimating equation 1.[7] Panel A shows the first stage results from IV estimation of equation 1. As expected, the shift-share instrument is highly relevant, though it is less powerful for commuting zones where we have estimates available for changes in Black intergenerational mobility for children born to poor parents. Panel B presents OLS estimates, and Panel C presents IV estimates. Both sets of results point to a lack of a statistically significant relationship between exposure to immigration between 1970 and 2000 and changes in intergenerational mobility, in line with the graphical evidence presented earlier.

The failure to reject the null hypothesis does not imply rejecting the possibility of either positive or negative effects. However, the effects that I fail to reject (taking those to be the ones in 95% credible intervals) are fairly small. For comparison, a 1-percentile increase in exposure to the Great Migration between 1940 and 1970 is estimated to reduce intergenerational mobility by approximately -0.125 percentile points (Derenoncourt 2022). In my context, the largest negative impact of a 1-percentile increase in exposure to immigration between 1970 and 2000 that is included in the 95% credible interval for White children in Table 1 is -0.0585, while for Black children it is around -0.02; both of which are significantly smaller than the estimates reported in Derenoncourt (2022).

In Table 2, I present results where I focus on changes in foreign-born population from 1980 onwards instead of 1970. An advantage of using 1980 as the baseline year is that the 1980 Census provides a more detailed classification of origin locations than the 1970 Census, making the instrument more powerful, as explained in the Appendix. The results are qualitatively very similar to my baseline specification, and they become more precise.

As explained in Section 4, I check the sensitivity of my results to additional covariates. Appendix Table 1 presents the results where I add two covariates chosen by Lasso that are not present among my baseline controls (the number of Black people and the share of female-headed households with children between ages 6 to 18). Appendix Table 2 presents results where I include all covariates mentioned in the Appendix. The estimates are remarkably similar across all specifications, which is further reinforcing the robustness of the results as explained in Section 4.

In my main estimates, I used percentiles of the changes in the share of foreign-born population following Sequeira, Nunn, and Qian (2020) and Derenoncourt (2022) as the distribution of changes is highly right-skewed. Appendix Table 3 shows the results where I use changes directly instead of percentiles. In this specification, the coefficient for Black children becomes statistically significantly negative. However, the worst effect contained in the 95% credible-interval is still small. Multiplying the lower bound of the interval for Black children with the change in the share

[7] It is worth emphasizing that my dependent variable is also an estimate, and in all tables I report credible intervals obtained from a Bayes bootstrap as they retain a useful interpretation even in cases where inference based on local asymptotically normal approximation is not valid (Andrews and Shapiro 2024).

of foreign-born population in the entire US (which is around 6.5 percentage points per Section 3) suggests an effect smaller than -0.65 percentile ranks for Blacks. Moreover, this specification is highly sensitive to the exclusion of commuting zones at the top of the distribution of changes in foreign-born population. Appendix Table 4 shows that just excluding the top five commuting zones with the largest change in the share of foreign-born population renders the results statistically insignificant, highlighting why it might be preferable to use percentiles.

A concern with equation 1 is that, although most of the immigration to the United States between 1970 and 2000 was from Latin America and Asia as I document in Section 4, changes in the intergenerational mobility of White and Black children might still reflect compositional effects due to immigrants from other locations who are more likely to identify themselves as White or Black. In Appendix Table 5 I focus on changes in the share of foreign-born individuals from Latin America and Asia. The results are similar to the baseline specification using all origin locations. In Appendix Table 6, I examine changes in the number of foreign-born individuals specifically from Mexico, the top origin country for immigration to the US during this period. The results for this group are qualitatively similar to those for the full sample.

In Appendix Table 7 I analyze the effects separately by gender. The table shows small, but statistically significantly negative effects on White male children. This might be in line with the findings in Derenoncourt (2022) showing greater responsiveness of male intergenerational mobility to the Great Migration, though even the largest negative effect I fail to rule out is still smaller than the point estimates presented in that paper. It is also worth noting that this result is sensitive to the choice of functional form. I use changes directly instead of its percentiles in Appendix Table 8, where it can be seen that the effects become statistically insignificant under this specification. This result might also highlight the importance of reporting results with both functional forms commonly found in the immigration literature.

Appendix Table 9 shows that the results are not sensitive to using individual income rank instead of household income rank when defining the dependent variable. Throughout the paper the focus was on changes in intergenerational mobility for children born to parents at the 25th percentile of the income distribution. Appendix Tables 10 and 11 show that qualitative conclusions hold when examining changes in intergenerational mobility for children born to parents at the 50th and 75th percentiles.

It is also important to document whether immigrants self-select into destination locations based on the intergenerational mobility of the natives. Appendix Tables 12 and 13 show that the locations where immigrants settled had lower levels of intergenerational mobility for White children for both birth cohorts. Abramitzky et al. (2021) showed that immigrants tend to settle in locations offering better prospects for their children. The results here imply that the immigrants in the most recent wave of immigration do not settle in locations that offer better prospects for native children. They

also highlight the importance of using a specification in differences, as the traditional shift-share design does not seem to address fixed unobserved location characteristics affecting intergenerational mobility.

6 Mechanisms

As can be seen above, the large wave of immigration to the United States between 1970 and 2000 does not have a statistically significant impact on the intergenerational mobility of natives. This finding is perhaps surprising, given the widespread media coverage of public concerns about immigration harming native children. It also contrasts with the negative effects of a demographic shock of similar magnitude, the Great Migration between 1940 and 1970, on intergenerational mobility, as documented in Derenoncourt (2022). In order to better understand the results in this paper, it is useful to explore the relationship between this recent wave of immigration and mechanisms commonly associated with changes in intergenerational mobility.

Figure 3 shows the impact of immigration on several socioeconomic outcomes that have been considered important for mobility. The coefficients depict the results from regressions where I replace the dependent variable in equation 1with the variables in the plot, and standardize both the dependent and independent variables to have zero mean and unit variance.

Chetty et al. (2024b) demonstrate that changes in parental employment rates serve as a significant proxy for changes in intergenerational mobility and establish positive causal effects of growing up in an environment with rising parental employment rates on children's outcomes. The first two rows of the Figure 3 show the effect of immigration on parental employment rates of Black and White children. The effects are statistically indistinguishable from zero, suggesting that immigration did not change parental employment rates between 1978 and 1992 birth cohorts for children born to parents at the 25th percentile of the income distribution. The lack of a significant impact on one of the most important proxies for factors associated with improved mobility can explain the results that were presented in Section 5.

Next, I move on to investigating a set of factors that were examined by Derenoncourt (2022) as potential determinants of changes in intergenerational mobility. In the context of the Great Migration, Derenoncourt (2022) argues that the potential mechanisms underlying the declines in intergenerational mobility were increases in violent crime, incarceration rates, residential and school segregation.

Figure 3 shows that immigration does not have a statistically significant impact on incarceration or murder rates at the 95% level. Spenkuch (2014) found previously that immigration is associated with increases in non-violent crimes, but not with increases in violent crimes. Contrary to popular perceptions, Abramitzky et al. (2024) show that immigrants have lower incarceration rates than

natives, and the findings in that paper might help rationalize why I do not find an association between immigration and higher incarceration or murder rates.

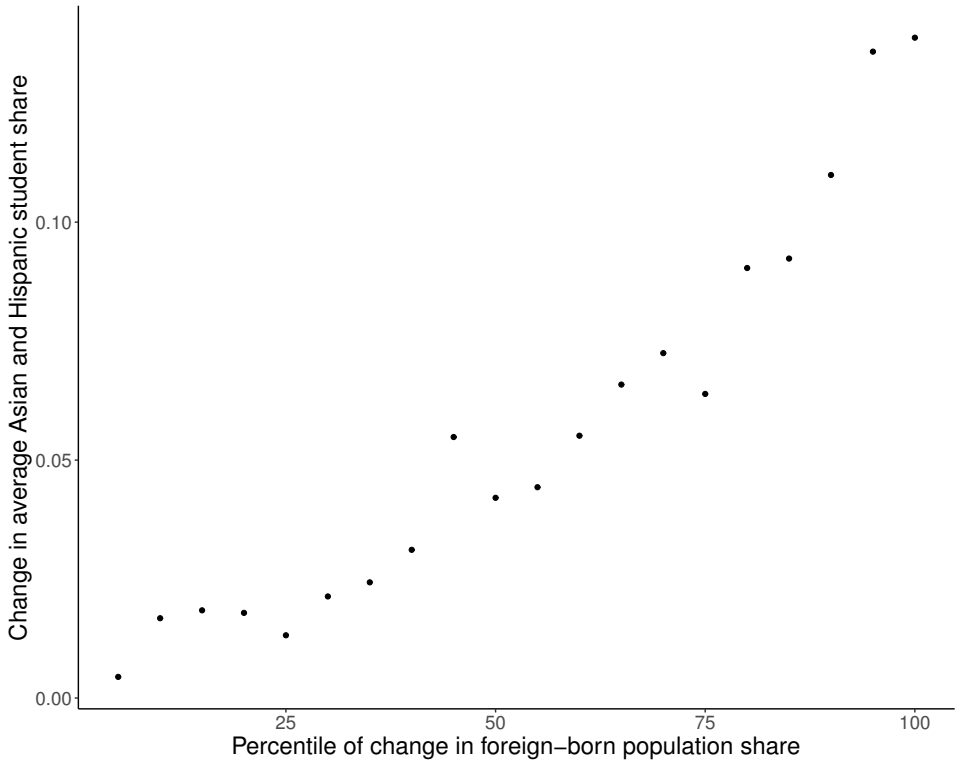
I also do not find a statistically significant impact of immigration on private school enrollment rates. Betts and Fairlie (2003) previously found that immigration causes native flight to private schools. It is worth highlighting that the time frame, the unit of analysis, and the choices about the empirical strategy differ between the two works. It is also worth emphasizing that flight into private schools is not the only form of native/white flight. Boustan, Cai, and Tseng (2024), for instance, report that White flight in the context of Asian immigration primarily takes the form of departure from districts with increasing Asian presence instead of substitution to private schools.

Overall, immigration appears to have little impact on most socioeconomic mechanisms associated with changes in intergenerational mobility, helping to explain the findings of this paper. There is one exception: Immigration increases education expenditure per pupil. This can be explained by the higher cost of immigrant children, for example, due to their language needs, as recently documented in the news (The Wall Street Journal 2024). It also means that immigrant children are not necessarily causing a shift of resources from natives, but rather, they can be leading to an increase in overall education spending.

7 Conclusions

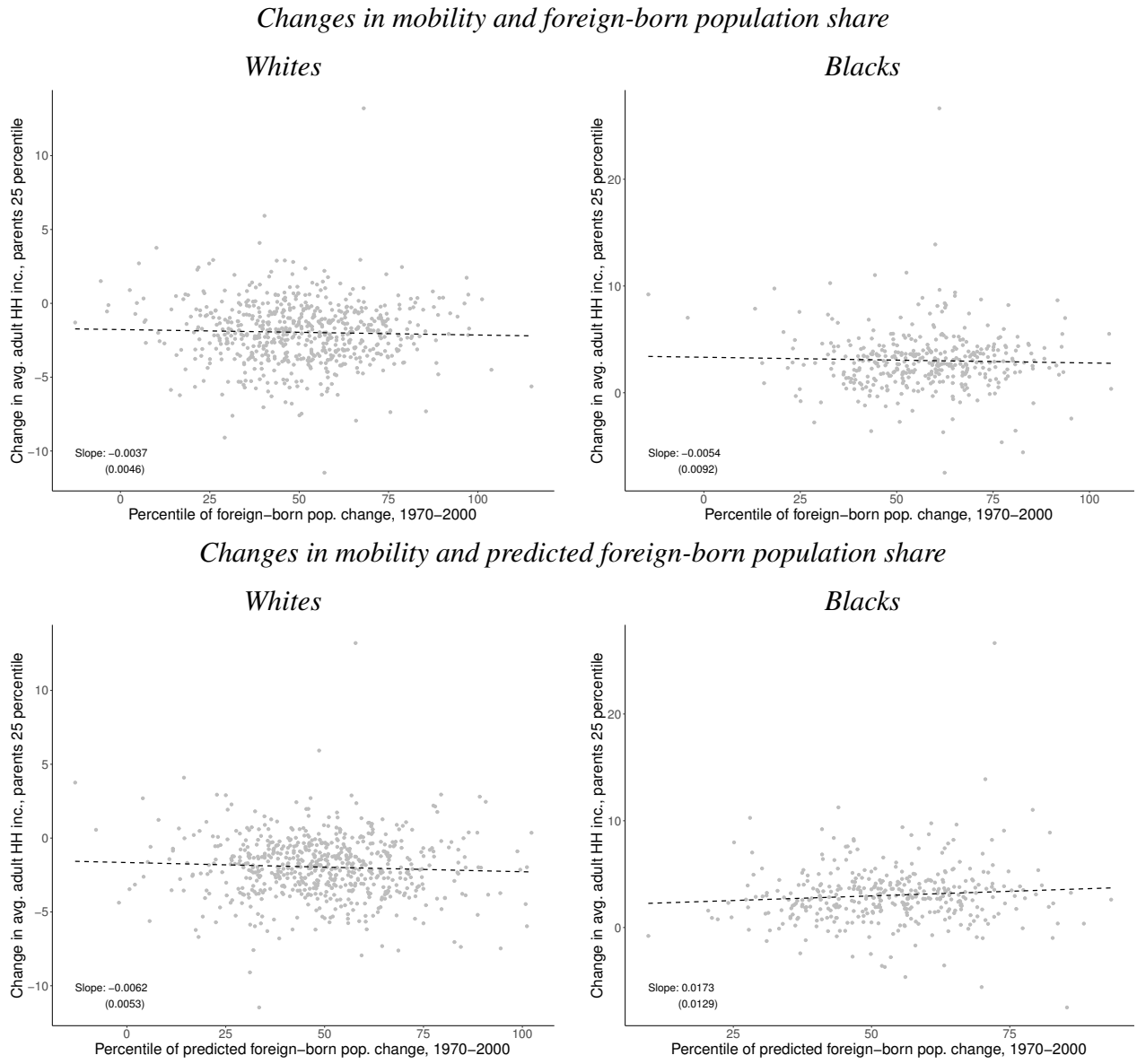
Immigration continues to be among the most salient factors shaping policy discussions in the United States. Despite public concerns about immigration harming native children in schools and recently documented negative impacts of large demographic changes on mobility in the context of the Great Migration, I find no evidence of a statistically significant decline in native intergenerational mobility attributable to immigration and show that large impacts can be ruled out. Further analysis reveals that immigration does not significantly affect important mechanisms associated with intergenerational mobility in the literature, which helps explain the findings in this paper.

Figure 1: Changes in average share of Asian and Hispanic students during school ages of 1978 and 1992 cohorts



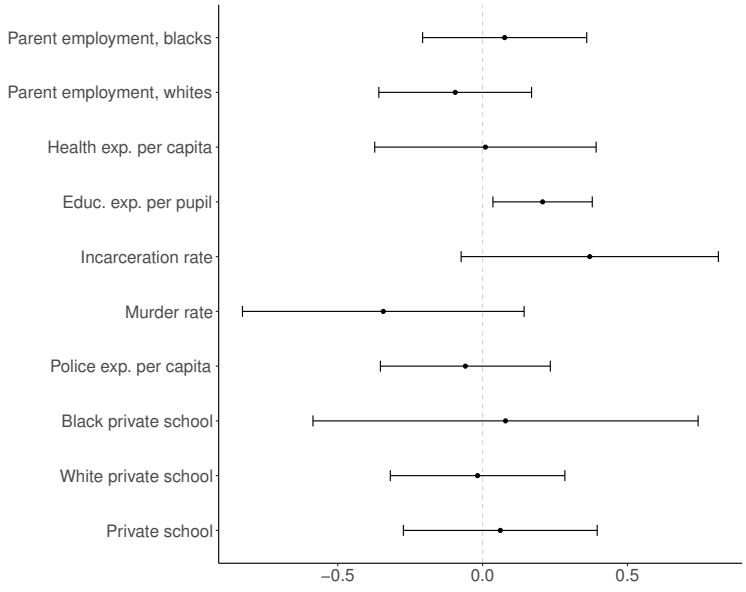
Notes: The figure displays the percentiles of change in the share of the foreign-born population between 1970 and 2000 on the x-axis, and the change in the average share of Asian and Hispanic students in public schools during the years when the 1978 and 1992 birth cohorts were in school on the y-axis for commuting zones across the United States. Since data on racial composition is available starting with the 1987–1988 school year when the 1978 birth cohort was in fourth grade, I plot changes in the average shares of Asian and Hispanic students between the 1987/88–1995/96 and 2001/02–2009/10 school years. This approach enables a comparison of exposure to Asian and Hispanic students from fourth to twelfth grade for both cohorts. The data is grouped into 20 bins of equal size, and averages within each bin are plotted.

Figure 2: Impact of immigration on the intergenerational mobility of natives



Notes: The figure shows scatter plots where the y-axis represents the estimated change in average adulthood household income rank between 1978 and 1992 birth cohorts for children born to parents at the 25th percentile of the income distribution, and the x-axis corresponds to percentiles of changes (or predicted changes) in the share of foreign-born population between 1970 and 2000. The units are commuting zones. In the first row, the x-axis variable is the percentile of change in the share of foreign-born population between 1970-2000. In the second row, the x-axis variable corresponds to the percentiles of the leave-out shift-share instrument described in Section 4. In all plots, both axes are residualized with respect to the share of employment in different industries, employment-to-population ratio and unemployment rate, income per capita, share of college graduates, share of the population above 65, total population, total foreign-born population, and Census division fixed effects. Plots on the left represent changes in the outcome for White children, and the plots on the right represent changes for Black children.

Figure 3: Impact of immigration on social and economic outcomes



Notes: The figure shows the impact of immigration on economic and social outcomes. In all specifications, I standardize the outcome variable of interest and the independent variable (percentiles of the change in the share of foreign-born population between 1970 and 2000) to have zero mean and unit variance. Changes in parental employment rates are measured between 1978 and 1992 birth cohorts for children born to parents at the 25th percentile of the income distribution using data from Opportunity Insights (2024). Changes in overall, White, and Black enrollment rates to private schools, and incarceration rates are measured between 1970 and 2000. Changes in health expenditure per capita, police expenditure per capita, and education expenditure per capita are measured using data from 1972 and 2002, and changes in murder rates are measured between 1977 and 2000 due to data availability. All regressions include controls for the share of employment in different industries, employment-to-population ratio and unemployment rate, income per capita, share of college graduates, share of the population above 65, total population, and total foreign-born population in 1970, as well as Census division fixed effects. The bars depict 95% confidence intervals based on robust standard errors.

Table 1: Changes in upward mobility from 1978 to 1992 birth cohorts and immigration between 1970-2000

	$\Delta HouseholdIncomeRank$	
	White	Black
Panel A. First stage		
$\widehat{Immigration}$	0.3132	0.2956
	(0.0421)	(0.0656)
	[0.232, 0.3901]	[0.1645, 0.4143]
F-stat	55.41	20.30
Panel B. OLS		
Immigration	-0.0037	-0.0054
	(0.0046)	(0.0095)
	[-0.012, 0.0049]	[-0.0231, 0.012]
Panel C. IV		
Immigration	-0.0199	0.0585
	(0.0176)	(0.0484)
	[-0.0585, 0.0115]	[-0.0219, 0.1947]
N. obs	632	378
Mean rank for 1992 cohort	47.02	36.37

Notes: The table reports the impact of immigration between 1970 and 2000 on changes in upward mobility from 1978 to 1992 birth cohorts. The unit of analysis is a commuting zone. The dependent variable is the estimated change in the average adulthood household income rank between 1978 and 1992 birth cohorts for children born to parents at the 25th percentile of the income distribution, taken from Opportunity Insights (2024). The independent variable is the percentile of the change in the share of foreign-born population between 1970 and 2000, relative to 1970 population. The instrument is the percentile of the predicted change in the share of foreign-born population, constructed by interacting the 1970 shares of foreign-born population from different countries of origin with leave-out aggregate changes in the sizes of these populations between 1970 and 2000. In all specifications I control for the shares of employment in different industries, employment-to-population ratio and unemployment rate, income per capita, share of college graduates, share of the population above 65, total population, and total foreign-born population in 1970, as well as Census division fixed effects. Below each coefficient I report heterogeneity-robust asymptotic standard errors in parentheses, and 95% Bayes bootstrap credible intervals based on 500 replicates in brackets. Mean rank for 1992 cohort refers to the mean of the household income rank of children from 1992 birth cohort born to parents at the 25th percentile of the income distribution across commuting zones.

Table 2: Changes in upward mobility from 1978 to 1992 birth cohorts and immigration between 1980-2000

	$\Delta HouseholdIncomeRank$	
	White	Black
Panel A. First stage		
$\widehat{Immigration}$	0.4753	0.5533
	(0.0473)	(0.0746)
	[0.3904, 0.5639]	[0.424, 0.6867]
F-stat	101.08	55.04
Panel B. OLS		
Immigration	-0.0045	-0.0034
	(0.0048)	(0.0086)
	[-0.0136, 0.0038]	[-0.0182, 0.012]
Panel C. IV		
Immigration	-0.0038	-0.0107
	(0.0121)	(0.0190)
	[-0.0267, 0.0182]	[-0.0437, 0.0332]
N. obs	632	378
Mean rank for 1992 cohort	47.02	36.37

Notes: The table reports the impact of immigration between 1980 and 2000 on changes in upward mobility from 1978 to 1992 birth cohorts. The unit of analysis is a commuting zone. The dependent variable is the estimated change in average adulthood household income rank between 1978 and 1992 birth cohorts for children born to parents at the 25th percentile of the income distribution, taken from Opportunity Insights (2024). The independent variable is the percentile of the change in the share of foreign-born population between 1980 and 2000, relative to 1980 population. The instrument is the percentile of the predicted change in the share of foreign-born population, constructed by interacting the 1980 shares of foreign-born population from different countries of origin with leave-out aggregate changes in the size of these populations between 1980 and 2000. In all specifications I control for the share of employment in different industries, employment-to-population ratio and unemployment rate, income per capita, share of college graduates, share of the population above 65, total population, and total foreign-born population in 1970, as well as Census division fixed effects. Below each coefficient I report heterogeneity-robust asymptotic standard errors in parentheses, and 95% Bayes bootstrap credible intervals based on 500 replicates in brackets. Mean rank for 1992 cohort refers to the mean of the household income rank of children from 1992 birth cohort born to parents at the 25th percentile of the income distribution across commuting zones.

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Appendix

Construction of the instrument

In order to construct my instrument, I need initial shares of foreign-born people from different countries of origin in each commuting zone in a baseline year (for instance, in 1970 for my baseline analysis), and I also need aggregate changes in the number of people born in that country between the baseline and end years across the United States.

Possible answers to country of origin questions are not consistent across Censuses. A large number of countries that were among the options for the birthplace question in the 2000 Census do not exist among the possible answers to the corresponding question in the 1970 Census. In order to deal with this problem, some aggregation is necessary.

As documented in the paper, most of the immigration to the United States from 1970s onwards is from Asia and Americas. Countries from Asia in the 1970 Census are China, Japan, "Southwest Asia" and "Other Asia". Since there is not a corresponding category for "Southwest Asia" in the 2000 Census, I combine Southwest Asia and Other Asia categories in the 1970 Census together, and map all Asian countries except China and Japan in the 2000 Census to this aggregate category. Countries from Americas in the 1970 Census are Canada, Mexico, Cuba, and "Other America". I create a corresponding "Other America" category in the 2000 Census by aggregating all countries in Americas except the three countries already included in the 1970 Census. In addition to these aggregated "Other Asia" and "Other America" categories, I keep countries that are consistently defined in the 1970 and 2000 Censuses, and drop others.

I also face a similar challenge when constructing the mapping between countries of origin that are available between the 1980 and 2000 Censuses that I use in my robustness checks. The 1980 Census has relatively finer categories compared to the 1970 Census. I define "Other Asia" similarly, by aggregating across all Asian countries in 2000 Census except those that are defined in the 1980 Census (in addition to Japan and China, 1980 Census also includes India, Korea, Philippines, and Vietnam). I also define "Other West Indies", "Other North and Central America" and "South America" by aggregating across countries in the 2000 Census that are in these regions, excluding those that are consistently defined between both Censuses.

Other Census variables

In all my specifications, I control for the baseline total population and the foreign-born population in each commuting zone. I also obtain data on initial racial composition, and include the number of black people in my robustness checks.

I define consistent groups of industries for 1970 and 1980 Censuses as I include these shares

as control variables in both my main analyses using 1970 Census and in robustness analyses using 1980 Census. The categories I include are "manufacturing", "agriculture and mining", "finance", "retail", "construction", "wholesale", "transportation", and "other services". I also obtain data on employment levels of people above the age of 16. I calculate the share of employed people above 16, which I call employment-to-population ratio, and I also include the unemployment rate.

The data I use for the age structure of commuting zones include share of population under 18, above 35, and above 65. I also obtain data on educational attainment. I calculate the share of population above 25 that has completed a four-year college or more, the share between one to three years of college education, the share that completed four years of high school, and the share between one to three years of high school education.

Individual income data in 1970 Census is provided in bins. In order to calculate a proxy for income per capita, I take the mid-point of each bin, multiply these mid-points with the number of individuals falling in each bin, and then divide the resulting sum of incomes by total population. For the 1980 Census, I directly take the income per capita variable. Rent data is also provided in bins, both in the 1970 and 1980 Censuses. When calculating the median rents, I take the mid-point of the bins.

I obtain data on family composition as well. The data include the share of husband-wife families with children under the age of 6, between ages 6 and 18, and no children; and corresponding shares for single-father and single-mother families. I also calculate, for each commuting zone, the share of people living in rural areas.

Crosswalks

In order to map different geographies to commuting zones, I rely on several crosswalks. I use the crosswalk kindly provided by Peter Rich (2024) to map school districts to census tracts, and then use NHGIS data to map tracts to counties.

I map counties to commuting zones using data provided by Opportunity Insights (2016). I map counties to Census divisions using data obtained from David Dorn's webpage.

Appendix Table 1: Changes in upward mobility from 1978 to 1992 birth cohorts and immigration between 1970-2000, with additional covariates chosen by Lasso

	$\Delta HouseholdIncomeRank$	
	White	Black
Panel A. First stage		
$\widehat{Immigration}$	0.3132	0.2965
	(0.0418)	(0.0667)
	[0.2362, 0.3883]	[0.1632, 0.4216]
F-stat	56.04	19.76
Panel B. OLS		
Immigration	-0.0039	-0.0060
	(0.0047)	(0.0093)
	[-0.0122, 0.0047]	[-0.0235, 0.01]
Panel C. IV		
Immigration	-0.0215	0.0522
	(0.0175)	(0.0467)
	[-0.0586, 0.0101]	[-0.022, 0.1792]
N. obs	632	378
Mean rank for 1992 cohort	47.02	36.37

Notes: The table reports the impact of immigration between 1970 and 2000 on changes in upward mobility from 1978 to 1992 birth cohorts. The unit of analysis is a commuting zone. The dependent variable is the estimated change in average adulthood household income rank between 1978 and 1992 birth cohorts for children born to parents at the 25th percentile of the income distribution, taken from Opportunity Insights (2024). The independent variable is the percentile of the change in the share of foreign-born population between 1970 and 2000, relative to 1970 population. The instrument is the percentile of the predicted change in the share of foreign-born population, constructed by interacting the 1970 shares of foreign-born population from different countries of origin with leave-out aggregate changes in their sizes between 1970 and 2000. In addition to the baseline controls consisting of the share of employment in different industries, employment-to-population ratio and unemployment rate, income per capita, share of college graduates, share of the population above 65, total population, and total foreign-born population in 1970, I also control for the number of Black people and the share of female-headed households with a child between 6-18 years old in 1970 as covariates chosen by Lasso among a rich set of variables I describe in the Appendix. Controls also include Census division fixed effects. Below each coefficient I report heterogeneity-robust asymptotic standard errors in parentheses, and a 95% Bayes bootstrap credible interval based on 500 replicates in brackets. Mean rank for 1992 cohort refers to the mean of the household income rank of children from 1992 birth cohort born to parents at the 25th percentile of the income distribution across commuting zones.

Appendix Table 2: Changes in upward mobility from 1978 to 1992 birth cohorts and immigration between 1970-2000, including all covariates

	$\Delta HouseholdIncomeRank$	
	White	Black
Panel A. First stage		
$\widehat{Immigration}$	0.2462	0.1785
	(0.0437)	(0.0672)
	[0.1638, 0.3201]	[0.0533, 0.2838]
F-stat	31.74	7.07
Panel B. OLS		
Immigration	-0.0033	-0.0124
	(0.0049)	(0.0106)
	[-0.0117, 0.0055]	[-0.0322, 0.0068]
Panel C. IV		
Immigration	-0.0314	0.0647
	(0.0241)	(0.0753)
	[-0.0813, 0.0095]	[-0.0607, 0.3661]
N. obs	632	378
Mean rank for 1992 cohort	47.02	36.37

Notes: The table reports the impact of immigration between 1970 and 2000 on changes in upward mobility from 1978 to 1992 birth cohorts. The unit of analysis is a commuting zone. The dependent variable is the estimated change in average adulthood household income rank between 1978 and 1992 birth cohorts for children born to parents at the 25th percentile of the income distribution, taken from Opportunity Insights (2024). The independent variable is the percentile of the change in the share of foreign-born population between 1970 and 2000, relative to 1970 population. The instrument is the percentile of the predicted change in the share of foreign-born population, constructed by interacting the 1970 shares of foreign-born population from different countries of origin with leave-out aggregate changes in their sizes between 1970 and 2000. In all specifications I control for a large set of commuting zone baseline characteristics described in the Appendix. These are related to employment shares in different industries, age structure, family composition, racial composition, education levels, urbanization rates, housing markets, as well as total native and foreign-born population in 1970. I also control for Census division fixed effects. Below each coefficient I report heterogeneity-robust asymptotic standard errors in parentheses, and 95% Bayes bootstrap credible intervals based on 500 replicates in brackets. Mean rank for 1992 cohort refers to the mean of the household income rank of children from 1992 birth cohort born to parents at the 25th percentile of the income distribution across commuting zones.

Appendix Table 3: Changes in upward mobility from 1978 to 1992 birth cohorts and immigration between 1970-2000 (uses changes instead of percentiles)

	$\Delta HouseholdIncomeRank$	
	White	Black
Panel A. First stage		
$\widehat{Immigration}$	34.3346	43.0532
	(3.4595)	(6.6774)
	[30.0714, 42.4312]	[33.0847, 55.182]
F-stat	98.50	41.57
Panel B. OLS		
Immigration	-0.0030	-0.0385
	(0.0086)	(0.0159)
	[-0.0191, 0.0146]	[-0.0717, -0.0046]
Panel C. IV		
Immigration	0.0078	-0.0501
	(0.0140)	(0.0228)
	[-0.0241, 0.033]	[-0.0975, -0.0028]
N. obs	632	378
Mean rank for 1992 cohort	47.02	36.37

Notes: The table reports the impact of immigration between 1970 and 2000 on changes in upward mobility from 1978 to 1992 birth cohorts. The unit of analysis is a commuting zone. The dependent variable is the estimated change in average adulthood household income rank between 1978 and 1992 birth cohorts for children born to parents at the 25th percentile of the income distribution, taken from Opportunity Insights (2024). The independent variable is the percentage point change in the share of foreign-born population between 1970 and 2000, relative to 1970 population. The instrument is the predicted change in the share of foreign-born population, constructed by interacting the 1970 shares of foreign-born population from different countries of origin with leave-out aggregate changes in the sizes of these populations between 1970 and 2000. In all specifications I control for the share of employment in different industries, employment-to-population ratio and unemployment rate, income per capita, share of college graduates, share of the population above 65, total population, and total foreign-born population in 1970, as well as Census division fixed effects. Below each coefficient I report heterogeneity-robust asymptotic standard errors in parentheses, and 95% Bayes bootstrap credible intervals based on 500 replicates in brackets. Mean rank for 1992 cohort refers to the mean of the household income rank of children from 1992 birth cohort born to parents at the 25th percentile of the income distribution across commuting zones.

Appendix Table 4: Changes in upward mobility from 1978 to 1992 birth cohorts and immigration between 1970-2000 (uses changes instead of percentiles, drops 5 CZs)

	$\Delta HouseholdIncomeRank$	
	White	Black
Panel A. First stage		
$\widehat{Immigration}$	34.3083	34.7431
	(3.3924)	(4.0192)
	[28.6208, 42.7378]	[29.397, 49.4131]
F-stat	102.28	74.72
Panel B. OLS		
Immigration	-0.0072	-0.0329
	(0.0117)	(0.0256)
	[-0.028, 0.0168]	[-0.0794, 0.0148]
Panel C. IV		
Immigration	-0.0157	-0.0410
	(0.0283)	(0.0417)
	[-0.0694, 0.0485]	[-0.1334, 0.0181]
N. obs	627	373
Mean rank for 1992 cohort	47.05	36.37

Notes: The table reports the impact of immigration between 1970 and 2000 on changes in upward mobility from 1978 to 1992 birth cohorts. The unit of analysis is a commuting zone. The dependent variable is the estimated change in average adulthood household income rank between 1978 and 1992 birth cohorts for children born to parents at the 25th percentile of the income distribution, taken from Opportunity Insights (2024). The independent variable is the percentage point change in the share of foreign-born population between 1970 and 2000, relative to 1970 population. In each specification, I drop the five commuting zones with the highest value of the independent variable. The instrument is the predicted change in the share of foreign-born population, constructed by interacting the 1970 shares of foreign-born population from different countries of origin with leave-out aggregate changes in sizes of these populations between 1970 and 2000. In all specifications I control for the share of employment in different industries, employment-to-population ratio and unemployment rate, income per capita, share of college graduates, share of the population above 65, total population, and total foreign-born population in 1970, as well as Census division fixed effects. Below each coefficient I report heterogeneity-robust asymptotic standard errors in parentheses, and 95% Bayes bootstrap credible intervals based on 500 replicates in brackets. Mean rank for 1992 cohort refers to the mean of the household income rank of children from 1992 birth cohort born to parents at the 25th percentile of the income distribution across commuting zones.

Appendix Table 5: Changes in upward mobility from 1978 to 1992 birth cohorts and immigration from Latin America and Asia between 1970-2000

	$\Delta HouseholdIncomeRank$	
	White	Black
Panel A. First stage		
$\widehat{Immigration}$	0.3315	0.3063
	(0.0447)	(0.0680)
	[0.2474, 0.4158]	[0.1648, 0.4183]
F-stat	54.92	20.28
Panel B. OLS		
Immigration	-0.0027	-0.0128
	(0.0045)	(0.0092)
	[-0.0104, 0.0052]	[-0.0293, 0.003]
Panel C. IV		
Immigration	-0.0178	0.0460
	(0.0174)	(0.0457)
	[-0.0542, 0.0144]	[-0.0285, 0.1791]
N. obs	632	378
Mean rank for 1992 cohort	47.02	36.37

Notes: The table reports the impact of immigration from Latin America and Asia between 1970 and 2000 on changes in upward mobility from 1978 to 1992 birth cohorts. The unit of analysis is a commuting zone. The dependent variable is the estimated change in average adulthood household income rank between 1978 and 1992 birth cohorts for children born to parents at the 25th percentile of the income distribution, taken from Opportunity Insights (2024). The independent variable is the percentile of the change in the share of foreign-born population from Latin America and Asia between 1970 and 2000, relative to 1970 population. The instrument is the percentile of the predicted change in the share of foreign-born population, constructed by interacting the 1970 shares of foreign-born population from different countries of origin with leave-out aggregate changes in the sizes of these populations between 1970 and 2000. In all specifications I control for the share of employment in different industries, employment-to-population ratio and unemployment rate, income per capita, share of college graduates, share of the population above 65, total population, and total foreign-born population in 1970, as well as Census division fixed effects. Below each coefficient I report heterogeneity-robust asymptotic standard errors in parentheses, and 95% Bayes bootstrap credible intervals based on 500 replicates in brackets. Mean rank for 1992 cohort refers to the mean of the household income rank of children from 1992 birth cohort born to parents at the 25th percentile of the income distribution across commuting zones.

Appendix Table 6: Changes in upward mobility from 1978 to 1992 birth cohorts and immigration from Mexico between 1970-2000

	$\Delta HouseholdIncomeRank$	
	White	Black
Panel A. First stage		
$\widehat{Immigration}$	0.2721	0.2337
	(0.0472)	(0.0667)
	[0.188, 0.3532]	[0.1108, 0.338]
F-stat	33.20	12.27
Panel B. OLS		
Immigration	-0.0041	-0.0121
	(0.0041)	(0.0081)
	[-0.0107, 0.0036]	[-0.0263, 0.0017]
Panel C. IV		
Immigration	-0.0263	0.0359
	(0.0207)	(0.0445)
	[-0.0693, 0.0078]	[-0.0397, 0.1704]
N. obs	632	378
Mean rank for 1992 cohort	47.02	36.37

Notes: The table reports the impact of immigration from Mexico between 1970 and 2000 on changes in upward mobility from 1978 to 1992 birth cohorts. The unit of analysis is a commuting zone. The dependent variable is the estimated change in average adulthood household income rank between 1978 and 1992 birth cohorts for children born to parents at the 25th percentile of the income distribution, taken from Opportunity Insights (2024). The independent variable is the percentile of the change in the share of foreign-born population from Mexico between 1970 and 2000, relative to 1970 population. The instrument is the percentile of the predicted change in the share of foreign-born population, constructed by interacting the 1970 shares of foreign-born population from different countries of origin with leave-out aggregate changes in the sizes of these populations between 1970 and 2000. In all specifications I control for the share of employment in different industries, employment-to-population ratio and unemployment rate, income per capita, share of college graduates, share of the population above 65, total population, and total foreign-born population in 1970, as well as Census division fixed effects. Below each coefficient I report heterogeneity-robust asymptotic standard errors in parentheses, and 95% Bayes bootstrap credible intervals based on 500 replicates in brackets. Mean rank for 1992 cohort refers to the mean of the household income rank of children from 1992 birth cohort born to parents at the 25th percentile of the income distribution across commuting zones.

Appendix Table 7: Changes in upward mobility from 1978 to 1992 birth cohorts and immigration between 1970-2000

	$\Delta HouseholdIncomeRank$			
	Female		Male	
	White	Black	White	Black
Panel A. First stage				
$\widehat{Immigration}$	0.3211	0.2107	0.3338	0.2640
	(0.0429)	(0.0667)	(0.0434)	(0.0600)
	[0.2415, 0.4014]	[0.0949, 0.3365]	[0.2563, 0.4114]	[0.157, 0.3692]
F-stat	56.12	9.98	59.08	19.38
Panel B. OLS				
Immigration	-0.0080	0.0142	-0.0069	0.0217
	(0.0061)	(0.0090)	(0.0058)	(0.0126)
	[-0.0195, 0.003]	[0.0002, 0.0315]	[-0.0165, 0.0055]	[-0.001, 0.0444]
Panel C. IV				
Immigration	0.0127	-0.0258	-0.0555	0.0669
	(0.0211)	(0.0798)	(0.0219)	(0.0526)
	[-0.0299, 0.0544]	[-0.2656, 0.1041]	[-0.1021, -0.0188]	[-0.0235, 0.2032]
N. obs	625	327	622	327
Mean rank for 1992 cohort	47.33	37.63	46.63	34.32

Notes: The table reports the impact of immigration between 1970 and 2000 on changes in upward mobility from 1978 to 1992 birth cohorts separately by race and gender. The unit of analysis is a commuting zone. The dependent variable is the estimated change in average adulthood household income rank between 1978 and 1992 birth cohorts for children born to parents at the 25th percentile of the income distribution, taken from Opportunity Insights (2024). The independent variable is the percentile of the change in the share of foreign-born population between 1970 and 2000, relative to 1970 population. The instrument is the percentile of the predicted change in the share of foreign-born population, constructed by interacting the 1970 shares of foreign-born population from different countries of origin with leave-out aggregate changes in the sizes of these populations between 1970 and 2000. In all specifications I control for the share of employment in different industries, employment-to-population ratio and unemployment rate, income per capita, share of college graduates, share of the population above 65, total population, and total foreign-born population in 1970, as well as Census division fixed effects. Below each coefficient I report heterogeneity-robust asymptotic standard errors in parentheses, and 95% Bayes bootstrap credible intervals based on 500 replicates in brackets. Mean rank for 1992 cohort refers to the mean of the household income rank of children from 1992 birth cohort born to parents at the 25th percentile of the income distribution across commuting zones.

Appendix Table 8: Changes in upward mobility from 1978 to 1992 birth cohorts and immigration between 1970-2000 (uses changes instead of percentiles)

	$\Delta HouseholdIncomeRank$			
	Female		Male	
	White	Black	White	Black
Panel A. First stage				
$\widehat{Immigration}$	39.8667	34.6663	38.8552	35.5351
	(3.8614)	(3.3181)	(3.8403)	(3.3605)
	[32.5866, 49.2704]	[28.3374, 44.3345]	[32.4925, 46.8925]	[29.378, 45.7885]
F-stat	106.59	109.16	102.37	111.82
Panel B. OLS				
Immigration	-0.0101	-0.0197	-0.0058	-0.0262
	(0.0108)	(0.0233)	(0.0099)	(0.0298)
	[-0.0305, 0.0088]	[-0.0609, 0.0286]	[-0.0256, 0.0152]	[-0.0817, 0.0305]
Panel C. IV				
Immigration	-0.0185	0.0180	-0.0325	-0.0631
	(0.0273)	(0.0369)	(0.0213)	(0.0517)
	[-0.1023, 0.0193]	[-0.0837, 0.0778]	[-0.0804, 0.0074]	[-0.1633, 0.0274]
N. obs	625	327	622	327
Mean rank for 1992 cohort	47.33	37.63	46.63	34.32

Notes: The table reports the impact of immigration between 1970 and 2000 on changes in upward mobility from 1978 to 1992 birth cohorts separately by race and gender. The unit of analysis is a commuting zone. The dependent variable is the estimated change in average adulthood household income rank between 1978 and 1992 birth cohorts for children born to parents at the 25th percentile of the income distribution, taken from Opportunity Insights (2024). The independent variable is the percentage point change in the share of foreign-born population between 1970 and 2000, relative to 1970 population. The instrument is the predicted change in the share of foreign-born population, constructed by interacting the 1970 shares of foreign-born population from different countries of origin with leave-out aggregate changes in the sizes of these populations between 1970 and 2000. In all specifications I control for the share of employment in different industries, employment-to-population ratio and unemployment rate, income per capita, share of college graduates, share of the population above 65, total population, and total foreign-born population in 1970, as well as Census division fixed effects. Below each coefficient I report heterogeneity-robust asymptotic standard errors in parentheses, and a 95% Bayes bootstrap credible interval based on 500 replicates in brackets. Mean rank for 1992 cohort refers to the mean of the household income rank of children from 1992 birth cohort born to parents at the 25th percentile of the income distribution across commuting zones.

Appendix Table 9: Changes in upward mobility from 1978 to 1992 birth cohorts and immigration between 1970-2000 (uses individual income rank)

	$\Delta IndividualIncomeRank$	
	White	Black
Panel A. First stage		
$\widehat{Immigration}$	0.3138	0.2465
	(0.0432)	(0.0661)
	[0.2337, 0.3909]	[0.1227, 0.3641]
F-stat	52.72	13.91
Panel B. OLS		
Immigration	-0.0043	-0.0022
	(0.0046)	(0.0096)
	[-0.0118, 0.0045]	[-0.0205, 0.0149]
Panel C. IV		
Immigration	-0.0327	0.0623
	(0.0185)	(0.0571)
	[-0.0715, 0.0004]	[-0.026, 0.2267]
N. obs	633	379
Mean rank for 1992 cohort	44.29	39.37

Notes: The table reports the impact of immigration between 1970 and 2000 on changes in upward mobility from 1978 to 1992 birth cohorts. The unit of analysis is a commuting zone. The dependent variable is the estimated change in average adulthood individual income rank between 1978 and 1992 birth cohorts for children born to parents at the 25th percentile of the income distribution, taken from Opportunity Insights (2024). The independent variable is the percentile of the change in the share of foreign-born population between 1970 and 2000, relative to 1970 population. The instrument is the percentile of the predicted change in the share of foreign-born population, constructed by interacting the 1970 shares of foreign-born population from different countries of origin with leave-out aggregate changes in the sizes of these populations between 1970 and 2000. In all specifications I control for the share of employment in different industries, employment-to-population ratio and unemployment rate, income per capita, share of college graduates, share of the population above 65, total population, and total foreign-born population in 1970, as well as Census division fixed effects. Below each coefficient I report heterogeneity-robust asymptotic standard errors in parentheses, and 95% Bayes bootstrap credible intervals based on 500 replicates in brackets. Mean rank for 1992 cohort refers to the mean of the household income rank of children from 1992 birth cohort born to parents at the 25th percentile of the income distribution across commuting zones.

Appendix Table 10: Changes in upward mobility from 1978 to 1992 birth cohorts and immigration between 1970-2000 (children born to parents at the 50th percentile)

	$\Delta HouseholdIncomeRank$	
	White	Black
Panel A. First stage		
$\widehat{Immigration}$	0.3191	0.2708
	(0.0424)	(0.0642)
	[0.2381, 0.3968]	[0.1575, 0.3881]
F-stat	56.60	17.80
Panel B. OLS		
Immigration	-0.0080	0.0001
	(0.0037)	(0.0113)
	[-0.0141, -0.0007]	[-0.0224, 0.0219]
Panel C. IV		
Immigration	-0.0123	0.0841
	(0.0133)	(0.0673)
	[-0.0393, 0.0159]	[-0.0315, 0.2359]
N. obs	632	378
Mean rank for 1992 cohort	54.61	41.16

Notes: The table reports the impact of immigration between 1970 and 2000 on changes in upward mobility from 1978 to 1992 birth cohorts. The unit of analysis is a commuting zone. The dependent variable is the estimated change in average adulthood household income rank between 1978 and 1992 birth cohorts for children born to parents at the 50th percentile of the income distribution, taken from Opportunity Insights (2024). The independent variable is the percentile of the change in the share of foreign-born population between 1970 and 2000, relative to 1970 population. The instrument is the percentile of the predicted change in the share of foreign-born population, constructed by interacting the 1970 shares of foreign-born population from different countries of origin with leave-out aggregate changes in the sizes of these populations between 1970 and 2000. In all specifications I control for the share of employment in different industries, employment-to-population ratio and unemployment rate, income per capita, share of college graduates, share of the population above 65, total population, and total foreign-born population in 1970, as well as Census division fixed effects. Below each coefficient I report heterogeneity-robust asymptotic standard errors in parentheses, and a 95% Bayes bootstrap credible interval based on 500 replicates in brackets. Mean rank for 1992 cohort refers to the mean of the household income rank of children from 1992 birth cohort born to parents at the 50th percentile of the income distribution across commuting zones.

Appendix Table 11: Changes in upward mobility from 1978 to 1992 birth cohorts and immigration between 1970-2000 (children born to parents at the 75th percentile)

	$\Delta HouseholdIncomeRank$	
	White	Black
Panel A. First stage		
$\widehat{Immigration}$	0.3079	0.2739
	(0.0414)	(0.0649)
	[0.2302, 0.38]	[0.1549, 0.3847]
F-stat	55.28	17.82
Panel B. OLS		
Immigration	-0.0131	-0.0095
	(0.0040)	(0.0161)
	[-0.02, -0.005]	[-0.0369, 0.0201]
Panel C. IV		
Immigration	0.0211	0.0964
	(0.0170)	(0.1034)
	[-0.0104, 0.0575]	[-0.0858, 0.3162]
N. obs	632	378
Mean rank for 1992 cohort	61.90	46.84

Notes: The table reports the impact of immigration between 1970 and 2000 on changes in upward mobility from 1978 to 1992 birth cohorts. The unit of analysis is a commuting zone. The dependent variable is the estimated change in average adulthood household income rank between 1978 and 1992 birth cohorts for children born to parents at the 75th percentile of the income distribution, taken from Opportunity Insights (2024). The independent variable is the percentile of the change in the share of foreign-born population between 1970 and 2000, relative to 1970 population. The instrument is the percentile of the predicted change in the share of foreign-born population, constructed by interacting the 1970 shares of foreign-born population from different countries of origin with leave-out aggregate changes in the sizes of these populations between 1970 and 2000. In all specifications I control for the share of employment in different industries, employment-to-population ratio and unemployment rate, income per capita, share of college graduates, share of the population above 65, total population, and total foreign-born population in 1970, as well as Census division fixed effects. Below each coefficient I report heterogeneity-robust asymptotic standard errors in parentheses, and 95% Bayes bootstrap credible intervals based on 500 replicates in brackets. Mean rank for 1992 cohort refers to the mean of the household income rank of children from 1992 birth cohort born to parents at the 75th percentile of the income distribution across commuting zones.

Appendix Table 12: Upward mobility of 1978 birth cohort and immigration between 1970-2000

	HouseholdIncomeRank	
	White	Black
Panel A. First stage		
$\widehat{Immigration}$	0.3132	0.2956
	(0.0421)	(0.0656)
	[0.232, 0.3901]	[0.1645, 0.4143]
F-stat	55.41	20.30
Panel B. OLS		
Immigration	-0.0203	0.0125
	(0.0046)	(0.0084)
	[-0.0295, -0.0116]	[-0.0023, 0.0281]
Panel C. IV		
Immigration	-0.0738	-0.0228
	(0.0186)	(0.0382)
	[-0.118, -0.0422]	[-0.114, 0.0397]
N. obs	632	378
Mean rank for 1978 cohort	48.99	33.35

Notes: The table reports the relationship between the upward mobility of 1978 cohort and immigration between 1970 and 2000. The unit of analysis is a commuting zone. The dependent variable is the estimated mean household income rank of children from 1978 birth cohort born to parents at the 25th percentile of the income distribution, taken from Chetty et al. (2024). The independent variable is the percentile of the change in the share of foreign-born population between 1970 and 2000, relative to 1970 population. The instrument is the percentile of the predicted change in the share of foreign-born population, constructed by interacting the 1970 shares of foreign-born population from different countries of origin with leave-out aggregate changes in the sizes of these populations between 1970 and 2000. In all specifications I control for the share of employment in different industries, employment-to-population ratio and unemployment rate, income per capita, share of college graduates, share of the population above 65, total population, and total foreign-born population in 1970, and Census division fixed effects. Below each coefficient I report heterogeneity-robust asymptotic standard errors in parentheses, and 95% Bayes bootstrap credible intervals based on 500 replicates in brackets. Mean rank for 1978 cohort refers to the mean of the household income rank of children from 1978 birth cohort born to parents at the 25th percentile of the income distribution across commuting zones.

Appendix Table 13: Upward mobility of 1992 birth cohort and immigration between 1970-2000

	HouseholdIncomeRank	
	White	Black
Panel A. First stage		
$\widehat{Immigration}$	0.3132	0.2956
	(0.0421)	(0.0656)
	[0.232, 0.3901]	[0.1645, 0.4143]
F-stat	55.41	20.30
Panel B. OLS		
Immigration	-0.0240	0.0071
	(0.0048)	(0.0070)
	[-0.0337, -0.015]	[-0.0057, 0.0194]
Panel C. IV		
Immigration	-0.0937	0.0358
	(0.0198)	(0.0309)
	[-0.1444, -0.0611]	[-0.0135, 0.1115]
N. obs	632	378
Mean rank for 1978 cohort	47.02	36.37

Notes: The table reports the relationship between the upward mobility of 1992 cohort and immigration between 1970 and 2000. The unit of analysis is a commuting zone. The dependent variable is the estimated mean household income rank of children from 1992 birth cohort born to parents at the 25th percentile of the income distribution, taken from Chetty et al. (2024). The independent variable is the percentile of the change in the share of foreign-born population between 1970 and 2000, relative to 1970 population. The instrument is the percentile of the predicted change in the share of foreign-born population, constructed by interacting the 1970 shares of foreign-born population from different countries of origin with leave-out aggregate changes in the sizes of these populations between 1970 and 2000. In all specifications I control for the share of employment in different industries, employment-to-population ratio and unemployment rate, income per capita, share of college graduates, share of the population above 65, total population, and total foreign-born population in 1970, as well as Census division fixed effects. Below each coefficient I report heterogeneity-robust asymptotic standard errors in parentheses, and a 95% Bayes bootstrap credible interval based on 500 replicates in brackets. Mean rank for 1992 cohort refers to the mean household income rank of children from 1992 birth cohort born to parents at the 25th percentile of the income distribution.

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