Population Research and Policy Review (2025) 44:51
https://doi.org/10.1007/s11113-025-09973-z

ORIGINAL RESEARCH

Demographic and Economic Implications of Alternative U.S. Immigration Policies

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Received: 17 April 2024 / Accepted: 25 August 2025 / Published online: 12 September 2025
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Abstract

Due to the United States' decades-long stalemate in federal immigration policy-making, major institutional forecasts of the U.S. population have not included assumptions about changes in immigration policy. However, the 2016 election of President Donald Trump and the COVID-19 pandemic demonstrated just how much policy shifts can affect immigration flows, with substantial implications for the country's demographic future. We created national-level population and economic projections through 2060 using nine different immigration policy scenarios, reflecting differences in both the scale of immigration allowed and the mix of immigrant visas issued (family reunification versus economic and labor visas). The projections highlight the dramatically divergent outcomes associated with different immigration policy choices. Although even very high levels of immigration do not fully offset population aging, higher levels of immigration are associated with substantial increases in GDP and significant reductions in Social Security deficits. The family-emphasis scenarios produce greater population and economic growth, compared to the labor-emphasis scenarios at similar levels of immigration. Immigration is not the only way to address labor shortages and population aging, but our projections show that immigration restriction, or even the maintenance of moderate levels of immigration, will produce serious social and economic challenges in the future. Although the situation is unfolding, our findings are especially important given that the 2024 re-election of President Trump has resulted in widespread efforts to restrict immigration.

Keywords Immigration · Policy · Population projection · Economy · Population aging

Extended author information available on the last page of the article

Introduction

U.S. demographers have exerted great effort to precisely estimate national population change and the effects of migration across the country's borders. In these estimates, public policy has historically been treated as a wild card—a variable of great consequence but also great uncertainty. Over half of U.S. population growth since 1970, along with a substantial change in the country's racial and ethnic makeup, can be attributed to the immigrants who arrived after the passage of the Immigration and Nationality Act of 1965, but there have been remarkably few developments in immigration law since (Pew Research Center, 2015). Given the stalemate in immigration policymaking since 1986, demographic forecasts of the U.S. population typically assume the continuation of present policy and immigration rates into the indeterminate future. For several reasons, demographers and political scientists have argued that substantially changing U.S. immigration rates through policy would be nearly impossible (Freeman & Birrell, 2001; Hirschman, 2005; Massey, 1995, 1999).

Despite an absence of legislative reforms, the last decade has seen remarkable changes in U.S. immigration policies through executive orders that created a wide range of new immigration outcomes. The first Trump administration employed hundreds of executive orders that substantially reduced immigration between 2017 and 2021. By 2019, the number of foreign-born residents in the United States was already one million people lower than expectations reflected in forecasts made just 3 years prior (U.S. Census Bureau, 2018, 2019). The COVID-19 pandemic saw freezes on most immigrant and non-immigrant admissions that lasted for much of 2020. The number of both types of visas issued by the State Department was cut in half compared to 2019, and the number of refugee admissions dropped by 61 percent (Gelatt & Chishti, 2022).

After the worst of the COVID-19 pandemic had passed, renewed surges in international migrants seeking entry to the United States, combined with more generous interpretation of asylum laws, led to immigration levels increasing rapidly under the Biden administration. Expanded programs for temporary protected status also increased legal pathways to immigration. The U.S. Congressional Budget Office (2024) estimated that between 2022 and 2024, average net migration reached 2.9 million per year, the most rapid spike in immigration flows in U.S. history.

This surge abruptly ended when the second Trump administration took office. Committed to a program of rigorous border enforcement, rejecting almost all claims to asylum, and dramatically increasing deportations, the new administration suppressed net migration. The administration has claimed that the United States will experience negative net migration in 2025 (Schneid, 2025). Although this claim is debated, and many recent executive orders on migration policy are being challenged in the courts, it is abundantly clear that 2025 net migration levels will be only a fraction of those experienced under the Biden administration (Duzhak & New-Schmidt, 2024). These wild swings in migration flows have shown the power of partisan politics to alter demographic trends without legislative action. As the United States may experience immigration levels ranging from near zero to tens of millions of immigrants per decade, it is vitally important to assess the likely consequences of immigration policies across a wide range of outcomes.

The stark contrast between the policies advocated by the two major political parties reflects two primary points of contention in U.S. immigration politics. First, voters are divided about the scale of immigration flows—the desired number of immigrants that the government should admit annually. Second, policymakers disagree about the composition of the visa mix—the relative distribution of immigrants admitted for purposes of family reunification, skilled and unskilled labor, study, and humanitarian protection (Boucher & Gest, 2018; Gest & Boucher, 2021). The Democratic Party favors higher levels of immigration and maintaining the traditional emphasis on family visas, which accounted for nearly two thirds of permanent track admissions for most of the twenty-first century (Robertson, 2023). The Republican Party favors substantially lower levels of immigration, and some Republican leaders also support a reform of the admissions system to substantially limit family and other visa types in favor of employment- or skills-based visas (Mac & Bensinger, 2024; Miao, 2021).

In order to understand the long-term demographic and economic effects of policy choices along these two different axes, we simulated the effects of varying immigration policies on the U.S. population through 2060. We developed a novel cohort component population method based on projections by the U.S. Census Bureau (2018), and expanded on these projections in two critical ways. First, although the U.S. Census Bureau projections assumed the persistence of current migration trends and made no explicit assumptions about U.S. policy, our projections accounted for nine distinct policy scenarios related to the scale and composition of immigrant admissions. Second, we used these population projections to project a series of social and economic outcomes.

Background

Migration is shaped by social, economic, and demographic trends that fall beyond the reach of any nation's policies, and the actual consequences of immigration policy often differ from the policy's intended effects (de Haas et al., 2019; Massey & Pren, 2012). Nevertheless, immigration policy has played a large role in U.S. demographic change. Post-1965 immigration dramatically reshaped the country's racial and ethnic makeup. According to Pew Research Center (2015), 51% of all immigrants entering since 1965 have been Latin American and 25% have been of Asian descent. The Asian population of the United States has in turn increased from less than 1% of the total population in 1965 to 6% by 2015, while the Hispanic population has grown from 4 to 19% (Lichter & Johnson, 2020; Parrado, 2011). As the national origins of immigrants have evolved, so have other characteristics like population aging, religion, education levels, and cultural norms (Bélanger et al., 2020).

Since 2008, fertility rates among both immigrants and natives have been in decline. U.S. fertility rates fell during the COVID-19 pandemic (Wu & Mark, 2023) and have hovered between 1.6 and 1.7 children per woman since 2019. Low fertility is partly driven by postponing of childbearing among young women (Du & Chan, 2023); however, absent a dramatic and unlikely increase in fertility, the U.S. is on a path to rapid population aging. The most recent population projections from the U.S. Census Bureau (2023) predict an eventual population decline, a first in U.S. history.

Very low fertility rates and increasing life expectancy pose substantial economic challenges in high-income countries (Demeny, 2003; Devriendt & Heylen, 2020; Lee & Mason, 2010). Population aging and declining worker/retiree ratios diminish workforces and productivity (Coleman & Rowthorn, 2011). Population aging also lowers consumption growth (Börsch-Supan, 2003; Kuhn & Prettner, 2018), economic growth (Coleman & Rowthorn, 2011; Devriendt & Heylen, 2020), and welfare return (Ludwig et al., 2012), and it increases pension expenditures (Bongaarts, 2004; Devriendt & Heylen, 2020).

Immigration does not reverse population aging (Craveiro et al., 2019). Nevertheless, the combined primary effects (the immigrants themselves) and secondary effects (the descendents of immigrants) of immigration can allevieate or slow the process of population aging, particularly when immigrants have higher rates of fertility than natives, as they historically have in the United States (Lichter & Johnson, 2020; Parrado, 2011). Because they enlarge, enhance, and rejuvenate the labor force (Lutz, 2019), the sheer number and human capital of immigrants has positive effects on GDP (Borjas, 2019; Brunow et al., 2015). Highly educated immigrants increase innovation and productivity, the key drivers of economic growth, without crowding out natives (Hunt & Gauthier-Loiselle, 2010; Peri, 2012). Low-skilled immigrants also increase total factor productivity as a result of task specialization by immigrants and native workers (Peri, 2012; Storm, 2022).

Estimates of immigration's fiscal impact vary substantially by assumptions, methods, and the data employed (Coppel et al., 2001; S. P. Kerr & Kerr, 2011; Orrenius, 2017; Rowthorn, 2008). Some studies find the overall fiscal impact of immigration to be quite small (S. P. Kerr & Kerr, 2011; Rowthorn, 2008). Others suggest that, in the long run, the fiscal impact of immigration increases could be more positive than that of native population growth (Orrenius, 2017). By rebalancing population age structure, immigrant admissions offset Social Security expenditures (Anderson, 2005; Lee & Miller, 2000).

However, across all studies, there is an emerging acknowledgment that the characteristics of immigrants affect their macroeconomic impact (Cortes, 2008; Cortes & Tessada, 2011; Czaika & Parsons, 2017; Lin, 2011; Lin & Weiss, 2019). Immigrant workers contribute significantly to entrepreneurship and technological progress (Boubtane et al., 2013; Peri et al., 2015), economic growth (Borjas, 2019; Wadhwa, 2009), and the tax base (Cortes, 2008; Lee & Miller, 2000; Orrenius, 2017). The sex distribution and national origins of immigrants also affect economic outcomes because they influence cultural norms around women's work and employer discrimination (Dustmann et al., 2016; Marois et al., 2020; Rephann & Holm, 2004).

A number of scholars have sought to project future population size and characteristics under different immigration scenarios (Coleman, 2010; Murphy, 2021; Rees et al., 2011, 2012; Wilson & Rees, 2005). However, these scenarios do not account for variation in the visa mix: the ratio of employment versus family and other types of visas. The most recent projections to do so were prepared by the U.S. Census Bureau in 1999 (Hollmann et al., 2000). Neither do existing projections connect the population effects of each immigration scenario with a set of germane economic consequences.

Data and Methods

In order to model the population compositional and economic impact of immigration policies, we developed a novel projection model. We estimated age-, sex-, and race-specific net migration rates under nine different migration policy scenarios. We modeled and projected mortality and fertility rates from 2022 to 2060. We then projected education levels of the immigrant and native populations under the different immigration policy scenarios. Finally, we combined the results of the cohort-component projection with the results of the skills projection to project GDP and Social Security costs/contributions through 2060. The methods used and the assumptions behind them are summarized below and discussed in greater detail in the Online Supplement.

Data

The population projections drew on a number of data sources. Population estimates by age, race, sex, and nativity for 2021 came from the American Community Survey (ACS). Birth rates from 1990 to 2020 and death rates from 1990 to 2019 were published in the annual National Vital Statistics Reports by the U.S. Centers for Disease Control and Prevention. Estimated age-, sex-, and race-specific net migration and emigration rates for 2018 were calculated from the Main Series dataset of the National Population Projections (U.S. Census Bureau, 2018). Data on age, sex, and national origins of immigrant visa recipients came from the 2015–2019 annual Report of the Visa Office published by the U.S. Department of State. Economic projections were based on the 2021 ACS for estimates of employment, education, and wages by age, sex, race, and nativity, and on the 2022 Current Population Survey's Annual Social and Economic Supplement (CPS ASES) for similar estimates of income from Social Security benefits. Finally, projections of the educational composition of the U.S. population were produced by the Wittgenstein Center (Samir et al., 2024).

Population Projections

We used the cohort-component method to project the U.S. population by age, sex, race/ethnicity, and nativity from 2021 to 2060 (Smith et al., 2013). We broke each age/sex group into two groups by nativity (native-born or foreign-born [i.e., immigrant]) and five racial/ethnic groups using federal reporting categories: non-Hispanic White, non-Hispanic Black; non-Hispanic American Indian or Alaskan Native (AIAN); non-Hispanic Asian or Pacific Islander (API), and Hispanic (of any race).

To forecast birth and death rates for the cohort-component projection, we used age- and sex-specific death rates for the total U.S. population from 1990 to 2019, and birth rates from 1990 to 2020. We excluded 2020 death rates from modeling, considering the COVID-19 pandemic an outlier. Estimated rates were then fitted in a Lee-Carter model, using the extensions proposed by Li and Lee (2005), to ensure consistency between multiple mortality and fertility forecasts by race/ethnicity. In projecting the population by race/ethnicity, we assigned all children born to the

racial/ethnic group of the mother (Day, 1992). The birth and death rate projections are discussed in greater detail Online Supplement Section A.

Immigration Policy Scenarios

To create the age-, race-, and sex-specific net migration rates required for the cohort component projection, we first developed nine immigration policy scenarios. These scenarios were subdivided according to whether the U.S. government continues to emphasize family reunification in its visa mix (family-emphasis scenarios) or shifts to a new regime that prioritizes people immigrating for employment and economic reasons instead (labor-emphasis scenarios). Within each subtype, we estimated four different scenarios at different levels of migration: low, medium, high, and very high. The final scenario is a zero immigration scenario. The scenarios are summarized in Table 1.

The family-emphasis scenarios are based on 2018 estimated net migration rates by age, race, and sex (U.S. Census Bureau, 2018). We chose to model rates from 2018 as a baseline because immigration levels have been volatile since 2020, whereas 2018

Table 1 Summary of the nine different immigration policy scenarios

Family-emphasis scenarios	
Medium	Net migration rates for each age/race/sex group set equal to the rate for that group in 2021
Low	Net migration rates for each age/race/sex group set equal to 50% of the rate for that group in 2021
High	Net migration rates for each age/race/sex group set equal to 150% of the rate for that group in 2021
Very high	Net migration rates for each age/race/sex group set equal to 200% of the rate for that group in 2021
Labor-Emphasis Scenarios	
Medium	Net migration rates for each age/race/sex group based on an assumption of 65% employment and 35% family immigrants
Low	Net migration rates for each age/race/sex group set equal to 50% of the rate for that group in the medium labor scenario
High	Net migration rates for each age/race/sex group set equal to 150% of the rate for that group in the medium labor scenario
Very High	Net migration rates for each age/race/sex group set equal to 200% of the rate for that group in the medium labor scenario
Zero Immigration Scenario	
	Immigration set to 0 for all groups, emigration rates for each age/race/sex group taken from U.S. Census Bureau estimates of emigration rates for long-term immigrants

For technical details on the immigration scenarios, see Online Supplement Section B

represents a roughly "average" year in U.S. immigration since 2000. In the medium family scenario, 2018 rates are held constant from 2022 to 2060. To create the "low" family scenario, we took the age-, sex, and race/ethnicity-specific net migration rates used in the medium scenario, decreased them by 50%, and held them constant from 2021 to 2060. The "high" family scenario increased each group's net migration rates by 50%, relative to the medium scenario, and the "very high" family scenario doubled the net migration rates in the medium scenario (see Online Supplement Section B.1).

The labor-emphasis scenarios expect the United States to resemble Canada, where approximately 65 percent of all new, permanent-track immigrants enter through employment visas and labor migration programs. For the "medium labor" scenario, we used U.S. Department of State data on visa recipients between 2015 and 2019 to create an average breakdown by age, race, and sex for all employment visa recipients and all other visa recipients. We applied the visa breakdowns to calculate the expected number of immigrants each projection year in each age, sex, and race group if 65% of immigrants followed the employment visa pattern and the remaining 35% followed the pattern for all other visas.

We then calculated immigration rates by dividing the expected number of immigrants in each subgroup by the estimated population in that same subgroup. We assumed that emigration rates for employment-based migrants will be higher than for family migrants, both because employment migrants would have weaker ties to the United States and because employment visas are typically time- or job-limited (Van Hook & Zhang, 2011). Net migration rates are the difference between the estimated immigration and emigration rates for each subgroup. As in the family-emphasis scenarios, the "low labor" scenario was created by decreasing net migration rates for the medium scenario by 50%, the "high labor" scenario by increasing rates by 50%, and the "very high labor" scenario by increasing rates by 100%. Compared to the family-emphasis scenarios, the labor-emphasis scenarios predict that immigration will be more concentrated in the prime working ages and include more Asian and European immigrants, and fewer Latin Americans. Further detail on the labor-emphasis scenarios are provided in Online Supplement Section B.2.

The U.S. Census Bureau estimates of 2018 immigration and net migration rates that form the baseline for all of our scenarios do not differentiate immigrants by legal status. They therefore include some undocumented immigration, although by 2018 levels of unauthorized immigration had already declined substantially from their peak in the 1990s and early 2000s (Passel & Cohn, 2018). Our scenarios do not distinguish between unauthorized or authorized immigrants.

With the exception of the zero immigration scenario (described in the Online Supplement section B.3), the scenarios all fall within the historical range of U.S. annual immigration flows. The medium scenarios assume an overall net migration rate of about 3 migrants per 1,000 people, similar to the net migration rates used in latest population projections by the U.S. Census Bureau (2023) and by the U.S. Congressional Budget Office (2024). Overall net migration rates across all scenarios range from a low of 1.5 migrants per 1000 (equivalent to actual net migration rates in the late 1960s) to a high of 6.5 migrants per 1000 (equivalent to actual net migration rates in the late 1990s). Although our policy scenarios were derived from different preferences for immigration policy, we varied net migration rates instead of immi-

gration rates only because policies that are intended to influence immigration have historically had consequences for emigration as well (Massey et al., 2002). In all nine scenarios, net migration rates were projected to 2060 and afterward held constant.

GDP Projections

Economic projections were built on the demographic projections, combined with a projection of the share of the working-age population who have post-secondary education. We projected GDP in constant U.S. dollars from 2021 to 2060 using the multi-nest Constant Elasticity of Substitution (CES) framework (Borjas, 2003; Docquier et al., 2014; Ottaviano & Peri, 2012). The CES model allows for imperfect substitution across similar types of workers between better- and lower-educated workers, as well as between immigrant and native-born workers within an education group. The classifications of workers by education level (less than college, or some college or greater) and by nativity into immigrants and natives account for most of the wage effects of immigration. The CES model is described in greater depth in Online Supplement Section C.1.

We stratified employment and wages by age, sex, race/ethnicity, and nativity from the 2021 ACS (see Online Supplement Section C.2). Total labor supply is the product of the population in each group and the average weighted fraction of employment in that group in the 2021 ACS, where employment is determined by working at least one week in the past year, weighted by hours worked. Wages are based on positive wage income, excluding the self-employed. Weekly wages were calculated by education level and nativity from the ratio of total wage income to weeks worked in a year, scaled by hours worked. Our theoretical framework was based on a Cobb–Douglas production function with constant returns to scale. We assumed that the long-run capital stock is proportional to the size of the productivity-adjusted labor supply and annual technological progress takes on an exogenous rate.

To project shares of workers by education within each race-age-sex-nativity group, we tested a variety of approaches that are described in detail in Online Supplement Section C.3 Projections of the educational composition of the native-born population come from the Wittgenstein Center (Samir et al., 2024). To create education projections for the foreign-born population in the family migration scenarios, we calculated the education of foreign-born adults by race-, age-, and sex in 2021 and project those shares through 2060. We applied the projected educational distribution to all subsequent cohorts of immigrants. For the foreign-born population in the labor-emphasis scenarios, we used the same projection methods as for the family-emphasis scenarios, but added an inflation factor to the projected education shares among foreign-born Hispanic adults (implicitly, assuming that new immigration policies will increase education levels among new Hispanic immigrants, but not among new non-Hispanic White, Black, or API immigrants as their average education is already high).

Social Security Projections

Social Security program cash flow reflects the structural gap between expenditures on benefit payments and revenue from both the payroll tax and income taxation of ben-

efits. We calculated tax contributions and benefit payouts from Social Security, using the 2022 CPS ASEC. The CPS data includes wage income and income from Social Security benefits by age, sex, race, and nativity. We estimated payroll tax contributions to the Social Security Trust Fund by multiplying individual wage income (up to $142,800) by 12.4 percent, which is the combined employee and employer Social Security contribution of the Federal Insurance Contributions Act (FICA) tax.[1] To obtain total Social Security contributions and benefits, the average tax contributions and benefit payouts from Social Security for each of the age, race, sex, and nativity groups were multiplied by the population in that group. Social Security contribution rates and benefits per capita were held constant across the nine scenarios from 2021 to 2060. Social Security benefits and contributions per capita were scaled by the total population. The projected values are in constant 2021 dollars. Further detail on the Social Security projection is available in Online Supplement Section C.4.

Projection Caveats

There are several caveats to both the demographic and economic projections based on underlying assumptions or data limitations. In the demographic projections, we assumed that recent fertility declines will continue, rather than reverse, and that racial/ethnic fertility differentials will not trend toward zero. We tested the sensitivity of our projections using the U.S. Census Bureau's pre-COVID-19 pandemic fertility rate projections, which assumed higher fertility and a convergence between racial/ethnic groups, and found that the differences between immigration scenarios were still substantial.

Our immigration scenarios assumed that the United States can attract an effectively unlimited number of immigrants and that the total flow is constrained primarily by policy conditions. However, as population aging becomes increasingly common across both high- and middle-income countries, young skilled workers will become more scarce and harder to recruit despite policy efforts. Global events such as wars or economic depressions could also substantially affect immigration. The labor-emphasis scenarios assumed employment visas would continue to draw immigration primarily from Asia. If work visas went increasingly immigrants from higher-fertility regions such as Africa, our projections may over-state the differences between the family- and labor-emphasis immigration policy scenarios.

Additional limitations affect the economic projections. First, there is a mismatch between the available data on new immigration that we used distinguish between employment-based and other types of immigration (which come from the U.S. Departments of State and of Homeland Security), and the data that we used for demographic and education-level and employment projections (which come from

[1] The U.S. Social Security program as enacted by the 1935 Social Security Act and subsequent amendments is comprised of a number of separate programs that provide income and health care coverage to beneficiaries under different eligibility criteria. In common usage, however, the term "Social Security" is used to refer to the *Old-Age and Survivors Insurance* (OASI) and *Disability Insurance* (DI) programs that provide income benefits to covered workers (or surviving dependents). We retain that usage as the CPS data we use does not separate OASI and DI income. For consistency we refer to the singular Social Security Trust Fund, even though there is an OASI Trust Fund and a DI Trust Fund.

the ACS). The ACS measures nativity rather than immigration status or visa type; the State Department and DHS data do not include education, and include only partial data on employment. We were forced to rely on assumptions about national origin, race, and education in order to incorporate both data sources.

The Social Security Trust Fund projections are also limited by a lack of detailed demographic categories. The CPS does not collect information on Social Security payments to individuals under 15 years of age, nor can we distinguish between income from old-age and survivors insurance (OASI), disability insurance (DI), or other programs (e.g., Supplemental Security Income [SSI]; see relevant discussion in in Online Supplement Section C.4). The projections rely on the assumption that both the FICA tax rate and the benefit rate remain constant. Another limitation is that our model accounted for changes in Social Security balance sheets solely from population and demographic changes, while increases in real wages over time are not accounted for (U.S. Bureau of Labor Statistics, 2024). In recent years, wage increases have gone mainly to the lowest and highest income quartiles. These wage increases have limited effect on Social Security revenues because lower income groups contribute little while higher income groups have earnings above the ceiling for contributions.

The Social Security Trust Fund projections address only one of the many possible fiscal impacts of immigration. The potential fiscal impacts of immigration are complex and occur at the national, state, and local levels. Although several recent studies have found that the fiscal impacts of immigration depend on the characteristics of the immigrants (Blau & Mackie, 2017; Kerr & Kerr, 2011; Orrenius, 2017) the overall fiscal effects of immigration to date have been relatively small (Blau & Mackie, 2017; Hanson, 2009; Kerr & Kerr, 2011; Lee & Miller, 2000).

Results

Our projections indicate substantial long-term demographic and economic effects of varying immigration policy scenarios. Both immigration volume and preference for family vs. labor immigration significantly shape future population dynamics.

Demographic Projections

Figure 1 shows the U.S. population from 2000 to 2021 and the projected population through 2060 across all nine immigration policy scenarios, demonstrating that different scenarios can have a tremendous effect on population size. Family-emphasis policy scenarios produce much greater population growth, compared to the corresponding labor-emphasis policy scenarios. In the medium- and low-labor scenarios, the population is projected to decline (to 316 million and 296 million, respectively, by 2060). High labor migration results in a relatively stable population size, and only at very high rates of immigration does labor migration produce much projected population growth (403 million people by 2060). In the family-emphasis scenarios, the U.S. population remains relatively stable only at low levels of immigration, and reaches 446 million in 2060 (a 35% increase) in the high scenario and 524 million (58% increase) in the very high scenario.

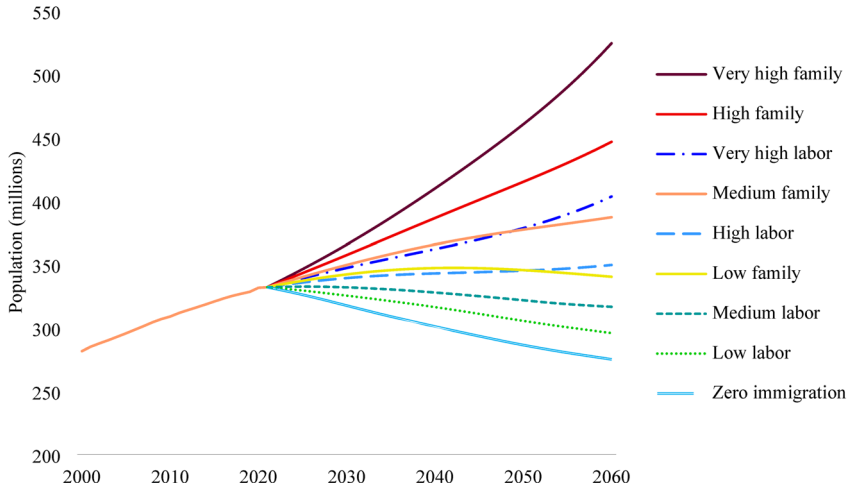


Fig. 1 Projected population by immigration policy scenario, 2000–2060 (Legend items are sorted in order of largest to smallest value in 2060)

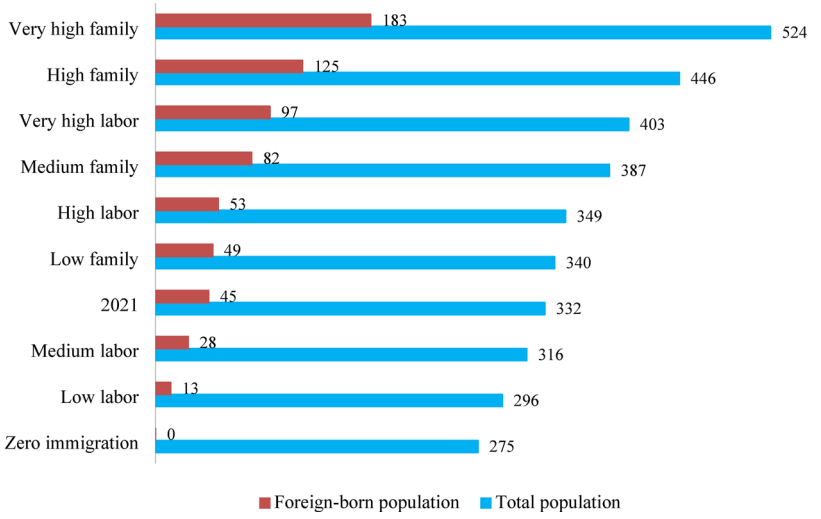


Fig. 2 Total and foreign-born population in 2060 vs. 2021 by immigration policy scenario (millions)

Population growth is higher in the family-emphasis policy scenarios than in the corresponding labor-emphasis policy scenarios for two reasons. First, the labor-emphasis scenarios assume higher rates of emigration (see Online Supplement Section B.2). As shown in Fig. 2, these differences become substantial over time. In the medium labor scenario, the projected foreign-born population is 28 million in 2060, substantially lower than the estimated 45 million foreign-born living in the United States in 2021. In the medium family scenario, the projected foreign-born popula-

tion grows to 82 million by 2060. Second, the different immigration policy scenarios have different consequences for fertility, leading to large differences in secondary population growth (the native-born second and third generation descendants of immigrants). Immigrants on employment visas tend to be younger than immigrants on family visas, concentrated in the prime working and childbearing ages. However, this upward pressure on fertility in the labor-emphasis scenarios is counteracted by the assumption that employment migrants spend less time in the United States and are more likely to come from Asia or Europe and therefore exhibit lower fertility than Latin American immigrants who make up a larger proportion of family and other immigrants.

Both the primary and secondary effects of immigration have important implications for population growth, as Fig. 2 shows. In 2021, the estimated immigrant population is 45 million, or about 15% of the population. The immigration policy scenarios with the greatest overall population growth also see the greatest increase in the share of immigrants in the population. In the very high family scenario, immigrants comprise nearly 35% of the 2060 population, while in the low labor scenario, immigrants are only 4.4% of the population.

The growing older adult population in all immigration policy scenarios contributes to a higher old-age dependency ratio (OADRs), i.e., the ratio of the population aged 65 years or older to the working-age population (16–64 years old). Compared to the 2021 ratio of 0.26 (Fig. 3), the OADR increases rapidly until the mid-2030s in all scenarios. This growth corresponds to the last of the baby boom cohorts reaching retirement age, a trend that even very high levels of immigration will not counteract. After 2035, the immigration policy scenarios sharply diverge, with the OADR growing more slowly in high immigration scenarios. In the very high family scenario, old-age dependency declines slightly after 2035, then stabilizes at around 0.3. In all other scenarios, the OADR increases every year, although the rate of increase varies.

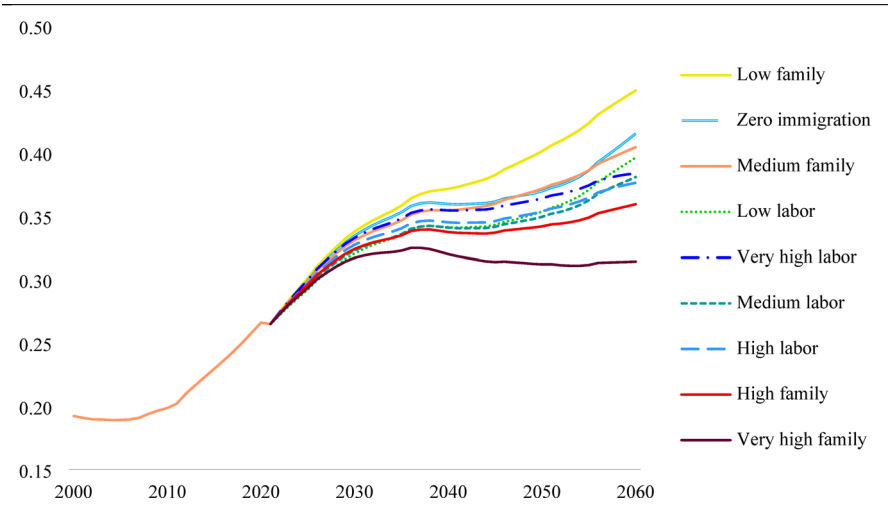


Fig. 3 Projected Old-Age Dependency Ratio (OADR) by immigration policy scenario, 2000–2060 (Legend items are sorted in order of largest to smallest value in 2060)

The projections indicate that high levels of immigration can slow, but do not stop, the process of population aging.

The family- and labor-emphasis immigration policy scenarios are quite different in their effects on population aging. The labor-emphasis scenarios produce relatively similar OADRs, regardless of immigration level (Fig. 3). In 2060, the projected dependency ratios across the different labor-emphasis scenarios range from 0.38 to 0.40. In contrast, the family-emphasis scenarios diverge dramatically based on level of immigration: high and very high levels of immigration result in the lowest OADRs, while low levels of immigration produce projected OADRs even higher than the zero immigration scenario. To identify the factors behind these divergent results, we performed a decomposition analysis on the change in OADR from 2030 to 2060, using the method developed by Scott and Canudas-Romo (2024). As shown in Fig. 4, survivorship leads to increases on the OADR consistently across immigration policy scenarios. Births have a minimal impact on the OADR in most policy scenarios, except the high and very high family scenarios, in which births increase enough to exert notable downward pressure on the OADR. Working-age immigration decreases the OADR, but the effect is small, especially at low levels of immigration. This finding may seem unexpected, given that working-age immigrants are in prime childbearing ages. However, any increase in births related to working-age immigration would take at least 16 years to affect the OADR. In the labor-emphasis scenarios, immigration of older adults is expected to be minimal, so old-age migration has little effect. In the family-emphasis scenarios, however, the current pattern of foreign-born adults supporting the immigration of their aging parents through family reunification visas is expected to continue, which exerts notable upward pressure on the OADR across the family-emphasis scenarios.

The U.S. population is projected to become more racially/ethnically diverse, though varying by both immigration volume and preferences (see Fig. 5). The decrease in the share of the non-Hispanic White population is more pronounced in

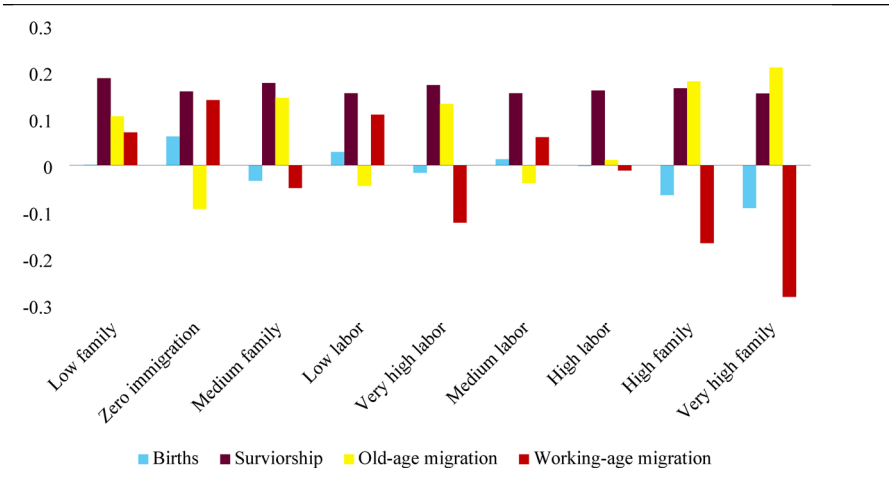


Fig. 4 Decomposition of change in the old-age dependency ratio by immigration policy scenario, 2030–2060

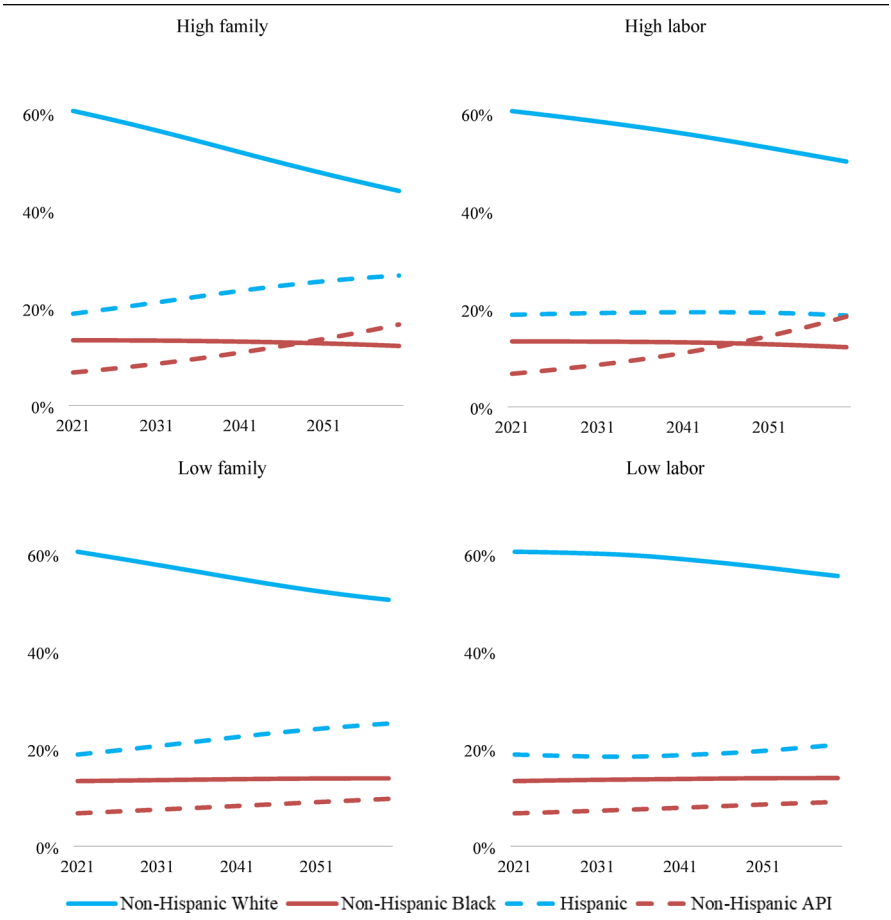


Fig. 5 Projected share of major racial/ethnic groups in the U.S. population by selected immigration policy scenarios, 2021–2060

the high immigration or family-emphasis scenarios than in the low or labor-emphasis scenarios. For instance, the non-Hispanic White population share drops by 27% from 2021 to 2060 in the high family scenario, more dramatically than both the 17% decline in the high labor scenario and the 16% decrease in the low family scenario. In the family-emphasis scenarios, the non-Hispanic White population share under the high immigration assumption declines sharply to 44% in 2060 but remains slightly the majority in the low immigration scenario. In the labor-emphasis scenarios, non-Hispanic White population shares are above 50% in 2060, even with the high immigration assumption.

The Hispanic population, still the largest minority group, rises more in the family-emphasis scenarios than in the labor-emphasis scenarios, while the non-Hispanic API population grows more in the high immigration policy scenarios, whether labor-emphasis or high family-emphasis (Fig. 5). The difference demonstrates that the Hispanic population primarily grows through family-based immigration, whereas

the non-Hispanic API population is more sensitive to immigration volume restrictions. However, the dramatic growth in non-White populations predicted by our projections is built on the assumption that only children born to non-Hispanic White women identify as non-Hispanic White. Racial/ethnic identity is also assumed not to vary over the projection years, even as there is evidence that concepts have evolved over the course of U.S. history and may continue to do so (Alba, 2020; Gest, 2022). Although mixed-race people who have a non-Hispanic White father and a non-White mother are not regarded as non-Hispanic White in our projections, children of mixed Asian/White and Hispanic/White parents frequently identify as White and account for a growing share of Americans (Alba, 2020).

In sum, differences in population size and composition across the immigration policy scenarios are substantial. The population grows faster and older for the next four decades if continuing the current family-based immigration rather than increasing labor immigration. Reducing immigration to zero accelerates population aging, though with the smallest total population size. Greater immigration flows increase the working-age population and total population, which is particularly remarkable with the family-emphasis assumptions.

Economic Projections

Because we assume that all workers contribute to GDP, the long-term projections for GDP size are fairly closely tied to population size (see Fig. 6). The higher immigration scenarios result in higher GDP, with the highest GDP in the very high family scenario nearly doubling the lowest in the zero immigration scenario by 2060. Family-emphasis scenarios yield higher GDP than their labor-emphasis counterparts throughout the projection period due to larger working-age and total population sizes.

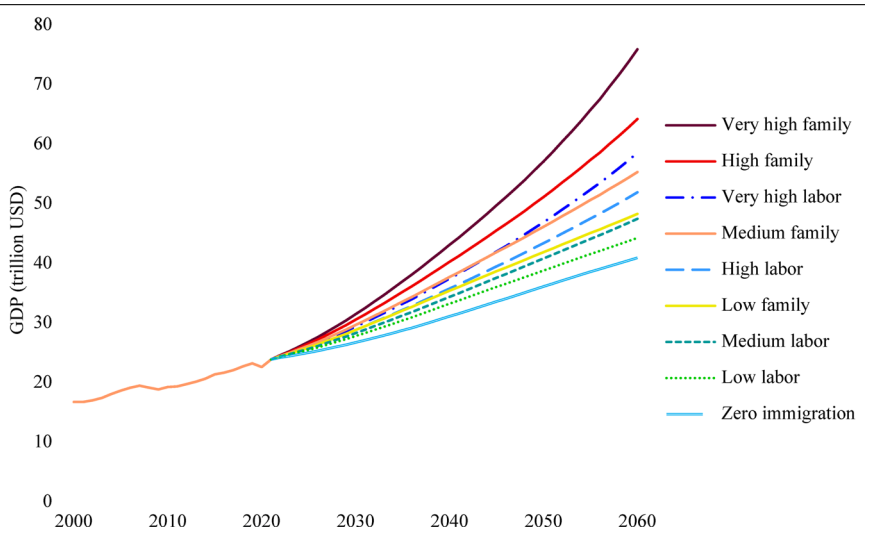


Fig. 6 Projected GDP in constant 2021 dollars by immigration policy scenario, 2000–2060 (Legend items are sorted in order of largest to smallest value in 2060)

Immigration volume is more critical to GDP growth than preferences for family- or labor-emphasis. GDP grows faster in policy scenarios with higher immigration, whether family- or labor-emphasis. The very high and high family scenarios that bring the largest population increase produce the largest GDP growth between 2021 and 2060 at 223% and 173%, respectively, while the zero immigration scenario produces the smallest GDP growth at 73% (Fig. 6). Meanwhile, family-emphasis scenarios demonstrate higher GDP growth compared to corresponding labor-emphasis scenarios, fueled by larger working-age populations.

The picture is very different when we consider GDP per capita. The substantial variations in GDP growth across the immigration policy scenarios are flattened in GDP per capita growth, which ranges from 100% in the low family scenario to 111% in the medium labor scenario (Fig. 7). Despite relatively small differences, labor preferences, along with smaller population sizes in lower immigration volume policy scenarios, have a more positive impact on GDP per capita growth than their counterparts. All family-emphasis scenarios experience slower GDP per capita growth compared to both their labor counterparts and the zero immigration scenario, primarily due to larger population sizes and lower supplies of working-age populations.

The potential effects of different immigration policies on the Social Security system are complex. Across all immigration policy scenarios, the Social Security Trust Fund value, defined as the difference between annual contributions from payroll taxes and annual payouts, is projected to follow a similar overall trend (see Fig. 8). The Trust Fund is projected to continue its current sharp decline until around 2033, corresponding to a substantial increase in the older adult population. The Trust Fund then rebounds for more than a decade, before beginning another, more gradual decline. Although the extent of the Trust Fund deficit varies widely across years and immigration policy scenarios, it is projected to remain in deficit through 2060 in all scenarios except for the very high family-emphasis scenario, which turns to a surplus after 2044.

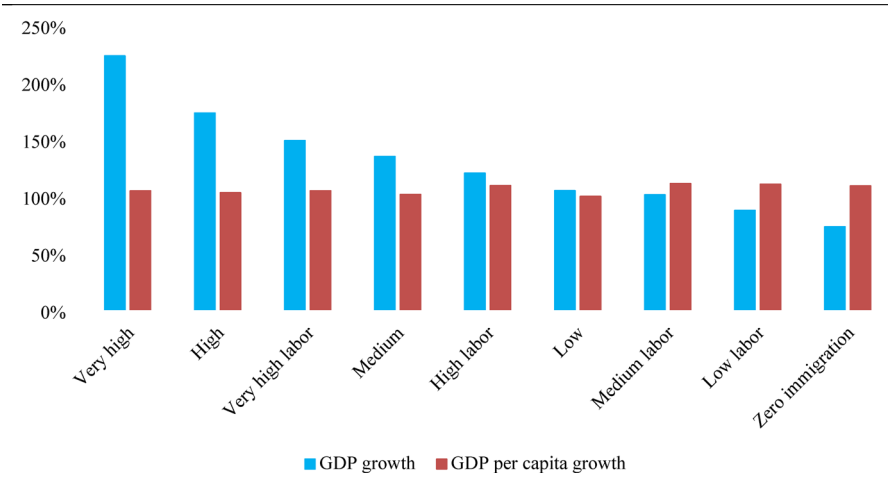


Fig. 7 Growth in GDP and GDP per capita by immigration policy scenario, 2021–2060

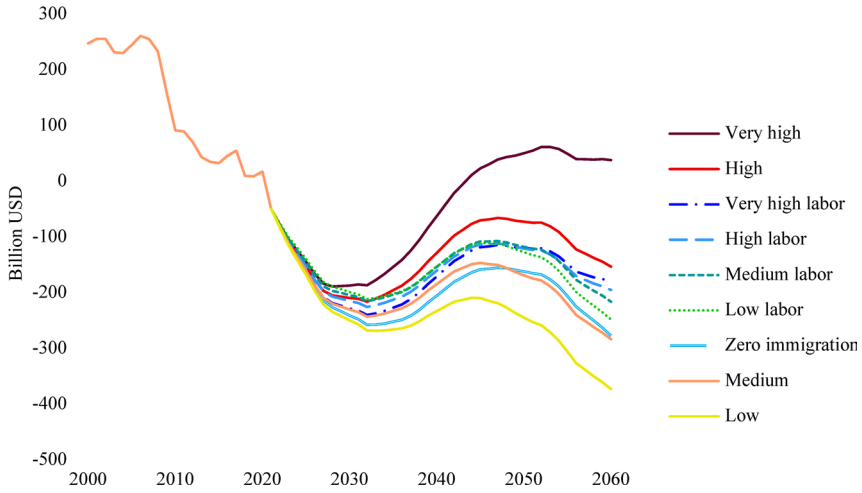


Fig. 8 Social Security Trust Fund in constant 2021 dollars by immigration policy scenario, 2000–2060 (Legend items are sorted in order of largest to smallest value in 2060)

The reduction of Social Security Trust Fund deficits in the 2030s and 2040s is most pronounced in higher immigration policy scenarios compared to lower ones. Having the least decline followed by the largest increase in the working-age population share, the very high family scenario achieves surpluses in the Social Security Trust Fund after 2044. In other scenarios, high immigration also helps to reduce Social Security Trust Fund deficits while low immigration scenarios result in higher deficits. The low family scenario stands out with markedly higher Social Security deficits compared to the other scenarios, including the zero immigration scenario, throughout the projection period.

Although the labor-emphasis scenarios show more similarity in Social Security Trust Fund deficits between 2022 and 2060, the family-emphasis scenarios diverge. The very high and high family scenario experiences lower Social Security Trust Fund deficits than other immigration policy scenarios, in contrast to the highest deficits in the low family scenario. This trend corresponds to the polarization in working-age population shares projected in the family-emphasis scenarios over this period. The larger working-age population in the higher immigration scenarios plays a key role in reducing Social Security Trust Fund deficits.

Figure 9 shows projected Social Security Trust Fund income and costs across all immigration policy scenarios for selected years. Income and interest in Social Security are higher in the scenarios with higher immigration and thus a larger working-age population, as well as in family-emphasis scenarios compared to their corresponding labor-emphasis scenarios over the years. Social Security Trust Fund costs (i.e., benefit outlays) also increase in policy scenarios with higher immigration and family-emphasis scenarios due to the larger population. Notably, all the family-emphasis scenarios consistently rank highest in Social Security Trust Fund costs throughout the four decades, except for the low scenario, which has lower costs than the very high labor scenario after 2043. The Social Security costs are significantly lower in

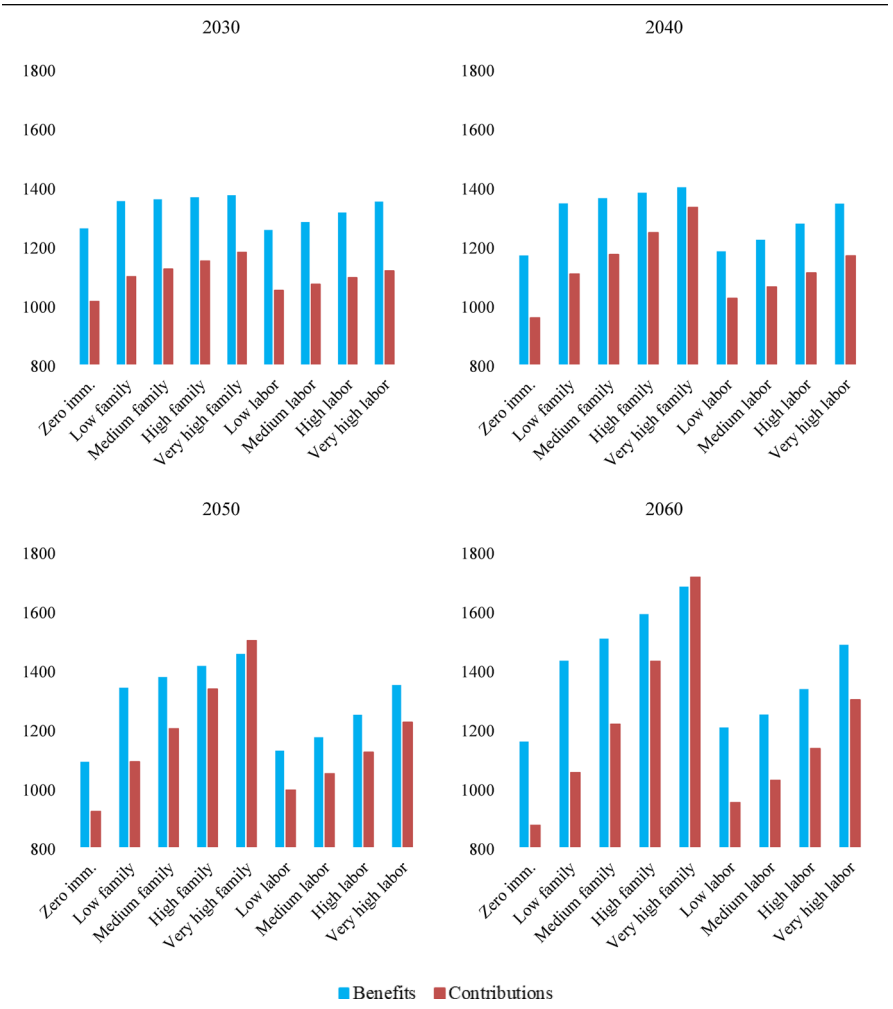


Fig. 9 Projected Social Security Trust Fund benefits (expenditure) and contributions (revenue) in constant 2021 dollars (billion USD) by immigration policy scenario, selected years

three other labor-emphasis scenarios than the family-emphasis scenarios over the four decades.

Variations in Social Security Trust Fund income and costs are much greater among family-emphasis scenarios than labor-emphasis scenarios. As in the case of GDP per capita, the labor-emphasis scenarios are more resistant to the level of immigration than the family-emphasis scenarios for the Social Security Trust Fund. Social Security Trust Fund income in the very high family scenarios substantially offsets the costs, resulting in significantly lower Social Security deficits or even surpluses in most projected years. In contrast, the Social Security Trust Fund costs far exceed tax contributions in the low family scenario, leading to its highest deficits among all scenarios throughout the next four decades. The difference grows larger after 2030.

For instance, in 2040, the very high family scenario generates a Social Security Trust Fund income of 1,330 billion 2021 constant dollars, which is 9 billion dollars lower than its costs (Fig. 9). Meanwhile, the low family scenario yields a Social Security Trust Fund income of 1,105 billion dollars, lower than its Social Security costs by 239 billion dollars. In 2050, the increase in the Social Security Trust Fund income surpasses the rising costs in the very high family scenario by 44 billion dollars, while the deficits increase by 5% in the low family scenario, despite the decline in both income and costs. As the surplus continues in the very high family scenario in 2060, the deficit in the low family scenario is exacerbated. Although the Social Security Trust Fund income is the lowest in the zero immigration scenario throughout the next four decades, its costs are also the lowest in most of the years, which leads to lower deficits than the low family scenario.

The lower deficits under higher immigration assumptions demonstrate the critical role of immigration in the economy. More contributions and fewer benefits of immigrants noticeably reduce Social Security Trust Fund deficits in all immigration policy scenarios, particularly in the scenarios with higher immigration and the labor-emphasis scenarios (not presented). This finding corroborates Social Security Administration's estimates in 2005 that legal immigrants will contribute substantially to the Social Security system, and a moratorium on legal immigration would increase the actuarial debt by 31% over a 50-year period (Anderson, 2005).

To sum up, the economic projections reveal substantial differences depending on immigration volume and family- vs. labor-emphasis preferences. Larger working-age populations in higher immigration scenarios increase GDP significantly, although per capita differences are smaller, while also lowering Social Security Trust Fund deficits. The family-emphasis scenarios differ considerably more than the labor-emphasis scenarios in the Social Security Trust Fund, shaped by their working-age populations. Particularly, the low family scenario experiences the highest deficits throughout the next four decades.

Discussion and Conclusions

U.S. immigration today reflects divergent trends in U.S. immigration politics. The share of residents who were born in another country is at the highest level since the turn of the twentieth century, and immigration levels from 2022–2024 were near historic highs. Yet the second Trump administration is on the path to decreasing immigration levels to historic lows. Aggressive enforcement along the U.S.-Mexico border, blanket denials of asylum status, increased scrutiny in visa applications, and reductions in the availability of student, employment, and refugee visas have prevented many would-be immigrants from entering the country. Revocation of visas and Temporary Protected Status, combined with aggressive deportation policies, have forced many immigrants (and sometimes their U.S.-born children) out of the country. Although the full implications of the current administration's migration policies are not yet clear, the United States may experience an unprecedented negative rate of net migration in 2025. To provide more concrete numbers to guide these debates and demonstrate the long-term implications of changes to U.S. immigration policy, we projected demographic and economic outcomes under a

variety of alternative immigration policy scenarios. Our forecasts explored a variety of demographic and economic outcomes over the next four decades.

The findings echo the results of previous research. First, they support the contention that the U.S. population will not continue to grow without relatively high levels of immigration (U.S. Census Bureau, 2023; U.S. Congressional Budget Office, 2024; Wu & Mark, 2023). Our models show that if net migration remains consistently lower than 2018 levels, the U.S. population will eventually decline. Second, the results indicate that immigration does not reverse the trend toward population aging (Craveiro et al., 2019; Murphy, 2021). Even at very high levels of immigration and under a migration policy that prioritizes employment, the U.S. population will be older in 2060 than it is today. Third, our projections confirm that immigrants, even in a policy environment that prioritizes family reunification over employment, are a net benefit to the national economy (Borjas, 2019; Brunow et al., 2015; Lutz, 2019).

Our findings also build on existing literature in two ways. First, we demonstrate that, although "replacement migration" is not a realistic goal, the current policy of heavily restricting immigration exacerbates the aging of the population and forestalls the potential for substantial growth in both the overall economy and individual incomes. Social Security Trust Fund balances are also the most strained in low- or zero-immigration scenarios. If immigration is halted through 2060, payouts from Social Security will increase by 1% but contributions to it will decrease by 20%. Interestingly, restricting immigration to low levels has just as severe, and in some respects worse, economic and fiscal consequences than the case of zero immigration, particularly if low immigration is not employment-based. If current policies continue, limited economic growth and a rapidly aging population will have substantial political repercussions for the United States, and affect the quality of life for many citizens.

Second, we underscore the important but often overlooked role that immigrant composition plays in the demographic and economic consequences of immigration. Research in economics has demonstrated that the characteristics of immigrants, particularly education levels, shapes the economic impacts of immigration (Borjas, 2019; Cortes, 2008; Cortes & Tessada, 2011; Czaika & Parsons, 2017; Lin & Weiss, 2019). Our projections show that labor-based immigration results in a smaller total and foreign-born population but a younger age structure, due to labor immigrants' larger share of the working-age population, compared to the same levels of family-based immigration. Meanwhile, because of higher educational attainment, labor-based immigration leads to greater GDP per capita and improved fiscal outcomes, though it produces lower overall GDP than family-based immigration at comparable levels, due to the smaller population size. At medium and low immigration levels, labor-based immigration, characterized by fewer but more skilled population, produces higher GDP per capita growth than overall GDP growth.

The differences between family- and labor-based immigration are significant. Labor immigrants, who are concentrated in working ages and have fewer children compared to family immigrants, are associated with greater contributions to GDP and the Social Security Trust Fund. However, the economic benefits of labor immigration are offset by the fact that such immigrants have fewer children, thereby diminishing the demographic and economic impacts of second-generation immigrants. Consequently, labor-based immigration is less sensitive to different levels of immigration,

in contrast to the family-based immigration where increases or decreases in net migration rates have substantial impacts on demographic and economic outcomes.

Immigration is not the only approach to address labor shortages and population aging: improving labor force participation can have positive and long-term effects on the economy; increasing fertility among the native-born would slow population aging; and raising the retirement age or increasing payroll taxes could address Social Security deficits. But measures such as these are not politically popular and slow to implement. Increasing fertility rates, if possible at all, would take decades to be felt in the economy. Changing the level or composition of immigrants, on the other hand, has both short-term and longer-term effects.

Although our projections may not capture all potential immigration policies, and they are built on multiple assumptions that will not necessarily prove true, they identify essential factors related to policy consequences. Understanding how immigration policy will affect the national origin, age, and educational composition of new immigrants is just as important as predicting annual levels of immigration in identifying the costs and benefits of immigration policy. Many of the effects of immigration are experienced at the local level, where immigrants can both revive local economies and tax bases, and strain schools, healthcare, and other services (Frey, 2018). Although we do not address these local-level consequences here, considerations of the composition of immigrants will likely prove equally crucial at the local level as they are at the national level.

Given the country's aging population and declining fertility rates in recent years, the economic and demographic projections suggest that increased immigration can make a major contribution to a sustainable working-age population, stronger economic growth, and a solvent Social Security system in the United States. For now, and well into the future, strategic immigration policies are critical.

Supplementary Information The online version contains supplementary material available at https://doi.org/10.1007/s11113-025-09973-z.

Acknowledgements The authors would like to thank Todd Schulte, Mark Delich, Phillip Connor, Pete Boorgard, Andrew Moriarity, Eddie Taveras, and two anonymous reviewers for their feedback on the manuscript at various stages. We also thank Giovanni Peri for his advice on modeling, and Tim O'Shea and Nowrin Fatema for research assistance.

Funding This research was supported by a grant from the FWD.us Education Fund, ORG 223601.

Declarations

Competing interests The authors have no relevant financial or non-financial interests to disclose.

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Publisher's Note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

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