RSF: The Russell Sage Foundation Journal of the Social Sciences

U.S. Census 2020: Continuity and Change

Part II

RSF: The Russell Sage Foundation Journal of the Social Sciences

U.S. Census 2020: Continuity and Change

Part II

The Russell Sage Foundation

The Russell Sage Foundation, one of the oldest of America's general purpose foundations, was established in 1907 by Mrs. Margaret Olivia Sage for "the improvement of social and living conditions in the United States." The foundation seeks to fulfill this mandate by fostering the development and dissemination of knowledge about the country's political, social, and economic problems. While the foundation endeavors to assure the accuracy and objectivity of each book it publishes, the conclusions and interpretations in Russell Sage Foundation publications are those of the authors and not of the foundation, its trustees, or its staff. Publication by Russell Sage, therefore, does not imply foundation endorsement.

Mission Statement

RSF: The Russell Sage Foundation Journal of the Social Sciences is a peer-reviewed, open-access journal of original empirical research articles by both established and emerging scholars. It is designed to promote cross-disciplinary collaborations on timely issues of interest to academics, policymakers, and the public at large. Each issue is thematic in nature and focuses on a specific research question or area of interest. The introduction to each issue will include an accessible, broad, and synthetic overview of the research question under consideration and the current thinking from the various social sciences.

Open Access Policy

RSF: The Russell Sage Foundation Journal of the Social Sciences is an open access journal. It is published under a Creative Commons Attribution-NonCommercial-No Derivs 3.0 Unported License.

U.S. Census 2020: Continuity and Change, Part II

ISSUE EDITORS
Zhenchao Qian and Trevon Logan

CONTENTS

Introduction

ZHENCHAO QIAN AND TREVON LOGAN

U.S. Census 2020: Continuity and Change *is the focus of this double issue of* RSF: The Russell Sage Foundation Journal of the Social Sciences. *This introduction briefly describes the broad socioeconomic changes between 2010 and 2020 in the United States and their implications for inequality, families, and American society. We then review the changes in employment, earnings, and education; housing and residential mobility; families and living arrangements; gender, sexuality, race-ethnicity, immigration, and rural America among others discussed in this issue. We highlight the areas of change, stemming from both changes in data availability and measurement and substantive material outcomes with a focus on whether the patterns follow the trends of past decades or change in new directions that signal more fundamental structural changes in American society.*

Keywords: US Census 2020; continuity, change, and inequality; race, gender, sexuality, class, and nativity; employment and earnings; families and living arrangement; housing, residence, and activity space; rural America

This double issue of *RSF: The Russell Sage Foundation Journal of the Social Sciences* gathers researchers from multiple social science disciplines to analyze data from the 2020 Census, American Community Survey, Current Population Survey, administrative, and other data sources to provide a deep understanding of the American population, its growth, structure, diversity, and inequality. The volume explores a variety of topics to help place the 2020 Census into perspective and use it as a benchmark for future analysis. In doing so, we continue the Russell Sage Foundation's long tradition of bringing cutting edge social science insights for each decennial census. Building on work from earlier censuses, surveys, and administrative data (Bean and Tienda 1987; Bianchi and Spain 1986; Farley 1995; Farley and Haaga 2005; Fischer and Hout 2006; Levy 1987; Lieberson and Waters 1988; Logan 2014), the issue documents and analyzes changes, continuity, and inequality in the United States, centering on the period between 2010 and 2020. It covers topics on employment, earnings, and educa-

Zhenchao Qian is a professor of sociology and research associate of Population Studies and Training Center at Brown University, United States. **Trevon Logan** is the ENGIE-Axium Endowed Professor in the Department of Economics at The Ohio State University, United States.

tion; housing and residential mobility; families and living arrangements; gender, sexuality, race-ethnicity, and immigration among others, with a focus on whether these patterns follow the trends of past decades or change in new directions that signal the undercurrents of continuity and change in American society.

The decennial population census has registered more than two centuries of growth and transformation in America's political, social, and economic life. It records the nation's population size, composition, growth, and change. It documents patterns and trends of families and living arrangements, education, employment and earnings, and housing and residential patterns. It witnesses growing population diversity in ethnicity, race, and nativity. It defines, creates, and redefines demographic groups. It captures multiple dimensions of inequality at individual and structural levels. It allows us to both place contemporary patterns into a longer temporal arc and note the stark contrast of the past and present with a goal of understanding the evolution of American society. To that end, this volume features a wide range of topical questions that seek to delve deeper into the evolving currents of American society and to map out the new areas that are beginning to emerge as we refine and redefine dimensions of American society.

The census traditionally gives us the opportunity to ask big questions about and measure changes in American society. The 2010 Census revealed that income and wealth inequality increased in the first decade of the twenty-first century, continuing the trend started in the 1970s and with the Great Recession in the late 2000s furthering the divide that separates the rich from both the poor and the middle class (Levy 1987; Logan 2014), at a time when economic stratification had transformed into a political issue. Meanwhile, young adults had more education than their parents and women have completed college education at a higher rate than men, yet young people and women were otherwise behind in employment, earnings, and economic mobility (Burkhauser and Larrimore 2014; DiPrete and Buchmann 2013). Continuing immigration had increased the shares of racial minorities; fertility declines had accelerated the rate of population aging;

and the transformation of gender, family, and work further diversified the U.S. population. Growing diversity, reflecting tremendous group differences in opportunities and constraints, exacerbated inequality in living arrangements, living standards, health, socioeconomic status, wealth, and poverty from 2000 to 2010 (Bean et al. 2014; Qian 2014; Seltzer and Yahirun 2014).

The changes in American society since the 2010 Census were similarly pronounced. The decade started with an American society still recovering from the Great Recession of 2008 and its attendant housing market crisis. New concerns about increasing economic and racial inequality emerged, political movement on immigration policy took shape, and growing American divides along racial, socioeconomic, political, and rural-urban lines created both the Tea Party and Occupy Wall Street movements. By the time of the 2020 Census, the American public was in the midst of a pandemic, still sorting through the gender dynamics of the #MeToo movement, and had codified same-sex marriage into law nationwide. A particularly divisive presidential election was under way, as was a racial reckoning over police brutality and a new emerging acceptance of (and resistance to) transgender members of American society. At the same time, immigration had dipped to unprecedented lows with the severity of the economic downturn. Immigration continued to be a political and economic issue with international humanitarian crises, and debate about immigration policies went beyond the strength or porous nature of the nation's borders, but also in consideration of those who immigrated undocumented as children (also known as Dreamers) years earlier. In many instances, the speed of changes in American society in the 2010s was unprecedented.

All this change raises several big questions: What did the Great Recession do to Americans' quality of life? How divided have Americans become, and along what axes are those divides most prominent? Is progress toward racial or class equality evident? How and where have the gaps in gender remained in American society? How has immigration continued to change the nation? How large and diverse is the transgender and nonbinary population—nascent categories that rose to national prominence in the

2010s? Is the American divide between rural and urban areas increasing? Moreover, how do we expect these trends to change in the future?

Against these big questions are related questions that add more gravitas (and, we would add, more scholarly specificity) to the larger questions: How have job tenures, work schedules, earnings, and workforce attachment changed? How has economic inequality affected the living conditions of older Americans? Are men and women continuing to diverge in their educational outcomes, and what does this imply for gender inequality? Are Americans increasingly likely to live alone, as popular narratives suggest? Has racial economic inequality been more or less pronounced in rural areas? Where are Americans spending their time, with whom are they spending it, and does this vary significantly by race and gender? In many ways, the relative sparse nature of the snapshot of the census is, by itself, not enough to answer these questions. These questions require us to move beyond the census to look at additional data that offer finer levels of detail and exploit new technologies (such as cell phones) to answer questions that would be impossible to ask of the 2020 Census.

The speed of change in American society, and our desire to have timely answers to pressing questions about America, has significantly altered the standard data that we use to describe the population. In the past, we relied on censuses to find answers to these questions from all Americans, especially when the censuses between 1940 and 2000 included two types of questionnaires: a short form for most households and a long form with additional questions about the household for a sample of households. The census stopped using the long form starting in 2010 and only had nine questions in the short form in 2020. Launched in 2005, the American Community Survey (ACS) has replaced the long-form census and included additional questions. ACS interviews around 3.5 million people in the United States annually and offers up-to-date year-to-year information on individuals and communities. In addition, the Current Population Survey (CPS), Household Pulse Survey (HPS), and other surveys collect data on topics not in the decennial census, such as education, marriage and fam-

ily, employment, migration, nativity, and health. CPS, initiated in 1940, remains the primary source of monthly information on the labor force, employment, and time-use data for the U.S. population. HPS, an online survey started during the pandemic, was designed to capture the experiences of COVID-19 in real time and gathers innovative data on a variety of demographic groups that other surveys have not included, such as sex assigned at birth and current gender identity at high frequency, given that it is a weekly survey. Thus the first item to note is the relative lack of reliance on the census itself to answer the big and small questions about Americans. For that, we must turn to different, but related, data that better describe how Americans live in real time.

At a broad level, this volume reflects the breadth and depth of social science research on topics related to broad trends in American demographics and inequality. It includes work from sociologists, demographers, gender scholars, economists, political scientists, and other social scientists working on substantive issues related to America's continual discovery of itself in the current moment. Another dimension is both the breadth of what we learn about American society and the depth of our knowledge given the emerging data sources social scientists now use. The pandemic leveraged our ability to quickly field high-quality surveys, and one result of that work are new and deeply insightful snapshots of American society changing rapidly in real time. Coupling that with the Russell Sage Foundation's long-standing prominence in scholarly reflection on the census yields a volume at both the cutting edge and the historical firmament of research on American social and demographic change.

The research presented in this double issue covers the important topics just outlined and seeks to answer whether trends in the past continued or changed during the 2010s. The volume starts with an article on census undercount of disadvantaged populations, followed by two articles on racial fluidity and large increases in multiracial populations, which may redefine various racial boundaries. The next three articles document the housing shortage after the Great Recession, the role of immigration in neighborhood change, and racial and

economic differences in mobility of activity space. We then cover multiple dimensions of inequality, including education, income, job tenure, work schedule, and time use in daily lives across gender and racial groups. Next are articles on changes in living arrangements and the emergence of LGBTQ+ families and households. The volume ends with two articles on urban-rural differences in income, with a focus on transitions and trajectories among rural communities as America continues to become increasingly urban as a nation. The broad sweep of the articles in this double issue reflects the scope of questions that can be asked and answered in the census and its related data sources, continuing the Russell Sage Foundation's tradition of leveraging high-quality social science research as a tool to reflect on the current state of American society and the trajectory that brings us to this point.

CENSUS COUNT AND POLITICAL REPRESENTATION

We begin with the political implications of the census because the census, by design, is primarily used for political purposes. The census is decreed in the U.S. Constitution not for social science analysis, but for apportionment of legislative bodies, particularly Congress. Population redistribution based on the 2020 Census resulted in two additional congressional seats in Texas, one additional seat in Colorado, Florida, Montana, North Carolina, and Oregon, and one lost seat each in California, Illinois, Michigan, New York, Ohio, Pennsylvania, and West Virginia. The resulting redistricting requirements exacerbated existing political inequality. Given state legislative practices, Republicans controlled boundaries of 187 congressional districts (43 percent of Congress) and Democrats seventy-five districts (17 percent), with the remainder drawn by independent commissions or being at large districts since the state is represented by a single congressperson (Mekour 2022). This political tilt on redistricting has led to legal battles over the nature of the process— political or racial gerrymandering has been a claim in court cases in Alabama, Alaska, Arkansas, Georgia, Idaho, Illinois, Maryland, Michigan, Nevada, New Jersey, New Mexico, North Carolina, Ohio, and Texas. The accusation is

that deliberate undercounts of parts of the population will coalesce with political prerogatives to create the most partisan state congressional delegations possible.

The goal of every census is to count everyone accurately and in the right place. Yet the census does miscount people. The pandemic broke out when the 2020 Census was under way. Pandemic disruptions of operations raised concerns about whether undercounts and overcounts in previous censuses worsened for the 2020 Census. Political meddling in the census by the Donald Trump administration also exacerbated the worries about data quality (Wines 2022). The Census Bureau's Demographic Analysis, based on vital records and other administrative data, and Post-Enumeration Survey, based on a sample survey, conclude that the counts at the national level are largely accurate and that the 2020 Census overcounted household populations in eight states and undercounted household populations in six others. This is in contrast to estimates of no overcounts and undercounts at the state level in the 2010 Census (Cohn and Passel 2022). For example, Rhode Island, long projected to lose one of the two U.S. congressional seats, was able to keep both because the Rhode Island population was overcounted by about 5 percent, or roughly fifty-five thousand residents, more than enough to avoid losing the seat.

The 2020 Census continued to undercount historically undercounted populations, mainly disadvantaged groups, missing 3 percent of African Americans, 5 percent of Hispanics, and 6 percent of American Indians on reservations (U.S. Census Bureau 2022). The 2020 undercount rates were about the same statistically as in 2010, but increased significantly for Hispanics. Children up to four years old were undercounted by nearly 3 precent. Given that young children are disproportionately racial minorities and immigrants, the undercount of children is another factor in the undercount of immigrants and racial and ethnic minorities. The undercounts matter. Undercounted groups receive fewer federal dollars and less political representation than they are owed.

The article by Lisa Neidert, Reynolds Farley, and Jeffrey Morenoff (2025, this volume, issue 1) provides a review of several Supreme Court

litigation cases for undercount and reveals that none of them was successful for adjustment for apportionment and redistricting. They point out further that undercounted states, municipalities, and school districts received fewer federal dollars because these dollars were allocated based on poverty and unemployment, the characteristics mostly common among the undercount population. They then zoom in to Detroit as a case study to demonstrate the undercount of Detroit's population in 2020, the origins of the undercount and its financial impact. The Census 2020 showed a loss of thirty-one thousand residents in one year and a loss of about fifty thousand housing units. A virtual audit conducted by the city afterward found that the census showed consistently lower occupancy rates and the Census Bureau missed about 12 percent of the residential housing units. Omissions were more pronounced in the blocks with lower self-response rates. This study reveals that the list used during the census operation consisted of far fewer housing units than the master address file developed before the census and accepted by the Census Bureau. The authors question whether the undercount was due to erroneous omissions of legitimate housing units or misclassification of occupied housing units as vacant. The undercount, concentrated in more disadvantaged neighborhoods, deals a serious financial blow to Detroit—the city government may be losing about $5 million in state revenue sharing each year during the 2020s.[1] The census is typically thought of as a demographic survey instrument used to describe American society. We begin this volume, however, by emphasizing the political economy at the heart of the census

and its direct impact on the American population.

EMERGENCE OF MULTIRACIAL POPULATIONS

The question on race has been included starting from the very first census, in 1790. Over time, racial classification of Americans has undergone tremendous change, reflecting increasing racial and ethnic diversity in the population. The 2020 Census asked two questions to collect the races and ethnicities of the U.S. population. The first is Hispanic or Latino origin, categorized into Not Hispanic, Latino, or Spanish origin; Mexican, Mexican American, Chicano; Puerto Rican; Cuban; or another Hispanic, Latino, or Spanish origin. The second is race, categorized into white, black or African American, American Indian or Alaska Native, Asian (specifically, Asian Indian, Chinese, Filipino, Japanese, Korean, Vietnamese, and so on), Native Hawaiian and Pacific Islander, and Some Other Race. Combining the two questions, the most prevalent racial or ethnic group was the non-Hispanic white population. It accounted for 58 percent of the population in 2020, a decline from 64 percent in 2010 (figure 1). Meanwhile, Hispanics and non-Hispanic Asians increased in prevalence over the decade. Applying the diversity index measure, Eric Jensen and colleagues (2021) find that the likelihood that two people chosen at random in the United States are from different racial or ethnic groups increased from 55 percent in 2010 to 61 percent in 2020.

In 2000, the Census Bureau started to identify multiracial populations, that is, people who identify as members of two or more races.

---

1. The gap between the estimated and census-derived population counts has a large impact on local expenditures that are directly tied to population by law. These closure estimates discontinuously change local expenditures based on census counts. As Juan Carlos Suárez Serranto and Philippe Wingender (2016) note, "The error of closure has been substantial in recent Censuses. In 1980, the Census counted 5 million more people that had been derived by using the total population level from the 1970 Census and adding population growth throughout the decade. The 1990 Census counted 1.5 million fewer people than the national estimate. This was due to systematic undercounting of certain demographic groups. In 2000, the Census counted 6.8 million more people than the estimated population level based on the 1990 Census. These errors of closure are even more important in relative terms at the local level due to the difficulty of tracking internal migration" (5). Further, the dollar values from small errors are large: "For instance, GAO finds that relatively small differences (about 0.5%) in the national error of closure in 2000 led 22 states to obtain additional $200 million dollars of funding and 17 states to obtain a deficit of $368 million" (7).
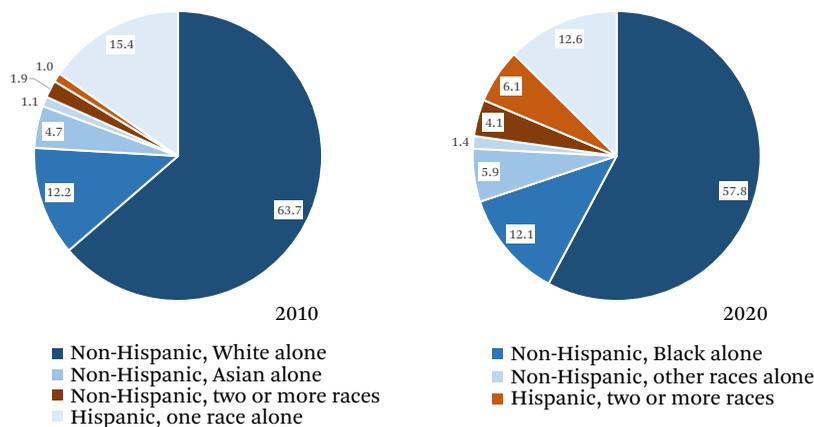
About 6.8 million people, 2.4 percent of the U.S. population, reported two or more races in 2000 (Jones and Bullock 2012). In 2010, as shown in figure 1, 2.9 percent reported two or more races (1.9 percent non-Hispanic and two or more races and 1 percent Hispanic and two or more races). In 2020, the share and size of the multiracial population increased substantially: 33.8 million Americans reported multiple race membership, and about 4 percent now identify as non-Hispanic multiracial and 6 percent Hispanic multiracial (figure 1). This sharp rise is unlikely attributable only to increases in children born to people in interracial relationships.

Who selected two or more races? Among those who reported two or more races, the largest combinations were white and Some Other Race, followed by white and American Indian and Alaska Native, white and black, white and Asian, and black and Some Other Race. Notably, the increase in multiracial populations was largely due to the increase in the Some Other Race population. The Hispanic or non-Hispanic Some Other Race population alone increased by 46 percent, from 6 percent of the total population in 2010 to 8 percent in 2020. The Some Other Race alone or in combination population increased drastically, by 733 percent over the same period (Jones et al. 2021). The Census Bureau attributed the rapid increase to the design improvement of the Hispanic and race questions. Indeed, the improved design drastically increased the number of Hispanics in the cat-

egory of Some Other Race. In 1990, the last decennial census that allowed respondents to mark only one race, about 50 percent of the Hispanics identified white and less than half marked race of Other—a category similar to Some Other Race today. In 2010, when respondents were allowed to mark two or more races, the race question included a checkbox for white but left no room for detailed ethnicity or national origin answers for the white category. In 2020, for those who checked white, the questionnaire adds "Print, for example, German, Irish, English, Italian, Lebanese, Egyptian, etc." These examples did not include any Hispanic group, which may have discouraged Hispanic whites from checking white alone and caused the decline in the Hispanic white alone population. As a result, over the decade between 2010 and 2020, the number of Hispanics who identified as white alone declined by 53 percent; more Hispanics identified Some Other Race alone, an increase of 42 percent; and Hispanics, identified as white, were much more likely to check Some Other Race simultaneously (Jones et al. 2021). These dramatic changes reveal the rapid change in classifications may sometimes be a product of survey design better matching personal identification.

In this volume, Ilana Ventura and René Flores (2025, issue 1) offer strong evidence of the role the design change plays in the dramatic rise of multiracial populations. They compare data from American Community Sur-

Figure 1. Percent Distribution by Race-Ethnicity

2010

2020

- Non-Hispanic, White alone
- Non-Hispanic, Black alone
- Non-Hispanic, Asian alone
- Non-Hispanic, other races alone
- Non-Hispanic, two or more races
- Hispanic, two or more races
- Hispanic, one race alone

Source: Authors' calculations using U.S. Census Bureau 2023.

vey for 2000, 2010, 2020, and 2021, exploiting the design change for the 2020 and 2021 ACS questionnaires. They then compare the results with data from Current Population Survey for 2005, 2010, 2020, and 2021, none of which included a design change. The analysis shows that multiracial populations increased in the 2010s potentially because of increases in interracial fertility, especially among Asian and black Americans, but the increase in multiracial populations in the 2010s was too large to be explained by the natural growth alone, especially for Hispanics. In fact, they reveal that the increase for Hispanics can mostly be attributable to a large growth in the classification of Some Other Race—a result of design change. Overall, the design change doubled the number of multiracial people among the U.S. population as a whole and increased multiracial people by a factor of seven among Hispanics in the 2010s.

As Ventura and Flores show, multiracial populations did increase net of the design change, but by a relatively smaller amount. Several factors contribute to this difference. First, interracial marriage or unions continued to increase. Since 1967, the year the U.S. Supreme Court in the *Loving v. Virginia* case lifted the ban of interracial marriage throughout the country, the percentage of newlyweds who were intermarried jumped from 3 percent then to 17 percent in 2015 (Livingston and Brown 2017). Children born to interracially married couples grew rapidly as a result. Children born to interracial parents who were cohabiting or not in unions also increased. Based on the birth registrations from National Vital Statistics System of National Center for Health Statistics, Zhenchao Qian and Yifan Shen (2020) calculate that the births born to interracial parents, regardless of whether they were married, cohabiting, or single, increased from 10 percent in 2000 to 14 percent in 2016.

Second, not every multiracial person identifies with two or more races. Among children up to seventeen years old between 2008 and 2014, 72 percent of those born to black-white couples checked both white and black, but 16 percent marked only black and 12 percent only white; 48 percent of those born to American Indian–white couples checked both American Indian and white, but 23 percent marked only American Indian and 28 percent only white; 74 percent of those born to Asian-white couples checked both one Asian ethnic category and white, but 8 percent marked only Asian and 18 percent only white; and 60 percent of those born to Hispanic–non-Hispanic white couples checked a Hispanic category and non-Hispanic white, but 15 percent marked only a Hispanic category and 25 percent marked only non-Hispanic white (Lichter and Qian 2018). Racial classifications of children born to interracial couples depend on race, gender, and nativity of the minority partner, and couples' educational attainment, among others (Qian 2004; Lee and Bean 2004). A continuous rise in interracial marriage and subsequent growth in multiracial populations may prompt more children born to interracial parents to report two or more races.

Third, are Americans rethinking their racial identities? Genetic ancestry tests have become popular in recent years, but few test takers fully accept what the tests reveal (Roth, Côté, and Eastmond 2022). In fact, testing often reinforces race privilege among those who already experience it (Roth and Ivemark 2018). White test takers do not necessarily seek to promote racial diversity but some may desire a bit of something nonwhite, a cultural cachet often associated with beauty, exoticism, and a marginal degree of social distinctiveness (Ferla 2023). Genetic ancestry tests, which accelerated in their use and given large technological change and lower costs of ancestry testing in the 2010s, may increase racial awareness and reveal surprising ancestral backgrounds, but they do not necessarily contribute to the increase in multiracial populations.

Fourth, America has changed from a mainly biracial society to a more diverse one (Alba 2020). Furthermore, race in Latin America is more fluidly defined. Immigrants from Latin America can be white, black, Asian, Amerindian, or some combination. In addition, recent cohorts of immigrants are significantly more likely to originate from Africa, Asia, the Caribbean, and Latin America. Immigration along with interracial marriage continues to expand the levels and diversity of multiracial populations in America.

Changes in family structures, schools, neighborhoods, workplaces, and friendship networks may prompt individuals to think more about their racial identities. They may change their racial classifications over their life course. In this volume, John Anders, Mary Campbell, Craig Carpenter, and Luna Chandna (2025, issue 1) underscore racial fluidity by linking the individuals appeared in both 2010 Census microdata and the 2010–2020 American Community Surveys. They restrict the sample to adults aged twenty-five or older at the 2010 Census, old enough to maximize the likelihood that respondents themselves filled out the questionnaires. As a result, changes in racial classification for an individual over time could reflect potential changes in social context over the life course (Doyle and Kao 2007; Agadjanian 2022). Anders and his colleagues find that ethnoracial identity remains very stable among non-Hispanic whites, with over 98 percent remaining non-Hispanic white over time. In contrast, nearly 7 percent of the individuals chose a different ethnoracial identity in a later ACS than in the 2010 Census. This means that disproportionately more nonwhites (including Hispanic nonwhites) change their racial classifications. For example, nearly half of the foreign-born Hispanics who reported two or more races in the 2010 Census identified as only Hispanic white in a later ACS. Hispanics, a panethnic and racially diverse group, are highly fluid in racial identity. Anders and his colleagues report that younger people are more likely to change racial identities than their older counterparts, in part because of greater concentrations of ethnoracial minorities among the younger population. Noticeably, ethnoracial changes are also more likely to occur among immigrants and individuals with low socioeconomic status, suggesting potential confusion of racial identities among the disadvantaged populations. This issue is likely to be less serious in the future as the Office of Management and Budget released the new standards in March 2024 for collecting information on race and ethnicity (Statistical Policy Directive 15). It now has only a single question, asking respondents to select as many options as apply to how they identify. The question includes the following seven race or ethnicity categories: American Indian or Alaska Native, Asian, black or African American, Hispanic or Latino, Middle Eastern or North African, Native Hawaiian or Pacific Islander, and white.

Individuals who report a multiracial identity are diverse in racial combination, but most of them claim a white background. Among the multiracial births in 2016, 82 percent had black-white, American Indian–white, Asian American–white, or Hispanic-white parents (Qian and Shen 2020). The dramatic growth in the multiracial populations that are partly white may have played an important role in the declining share of the non-Hispanic white alone population (Alba 2020). Multiracial populations are too heterogeneous to be considered as one racial group. Currently, the Census Bureau classifies multiracial populations as not white. However, multiracials, many of whom are multiracial whites, are different from members of single-race minorities (Alba, Beck, and Basaran Sahin 2018). They are diverse but on average more advantaged in parental education, income, and residential patterns than single-race minorities (Alba 2020). Indeed, multiracial populations challenge the conceptions and statistical accounting of racial classifications and will have important social and political consequences over time. We highlight here how these categories continue to change as our racial constructions ebb and flow to reflect new realities and nuance in racial formations.

INEQUALITY IN HOUSING, RESIDENCE, AND ACTIVITY SPACE

The Great Recession in the late 2000s witnessed the continuation of a long-term decline in long-distance migration and highlighted a unique increase in local moves within metropolitan areas (Stoll 2014). The increases in short-distance moves were attributable to high levels of unemployment and home foreclosures during the Great Recession. The local movers were likely to be young, less educated, and black and Latino, to live below the poverty line, and to have difficulties paying rents or staying current with mortgage payments. Homeownership rates fell sharply as a result. In this volume, Dowell Myers, Hyojung Lee, and JungHo Park (2025, issue 1) explore the trend and recovery in homeownership after the Great Recession. They high-

light how changing cohort sizes of young adults over the 2010s complicate the recovery of housing markets. Being mindful that the homeownership rate is a prevalence measure, an accumulated status from the past, including homes owned by those who bought them many years ago, they focus on young adults, who are mostly current or recent buyers, to capture current housing preferences. Myers and his colleagues show that young adults who entered housing markets varied in population size because of different cohort sizes at birth among baby boomers, Generation X, and millennials. The authors reveal that fewer people coming of age in the late 2000s and the early 2010s, because of smaller birth cohorts of the late baby boomers and Generation X, created the narrative for lower homeownership preferences and discouraged planning for more homes or appropriate homes for the cohort of millennials, who are about one-third larger than Generation X by total population size. They show that oscillating birth cohorts, along with housing bubbles, restraints on mortgage applications, and pullback in housing construction during and following the Great Recession (2006–2016), created pent-up housing demand. Homeownership rates began to rise in 2017, but housing supply fell sharply behind the demand, drove acute housing shortages, and resulted in affordability problems. Young adults with greater economic resources and whites experienced substantially stronger recovery of homeownership than those with fewer economic resources and those from disadvantaged minority groups. Those with greater wealth and higher incomes were better able to secure housing despite the general increase in prices.

Homeownership continues to contribute to socioeconomic and racial residential sorting because individuals and families in the same neighborhoods share similar attributes (Logan and Parman 2017). Spatial differences in housing prices and homeownership rise and income segregation by neighborhood escalates (Bischoff and Reardon 2014). The influx of immigrants in recent years has increased racial and ethnic diversity in neighborhoods and communities. In 2021, number of immigrants reached forty-five million, accounting for about 14 percent of the total population (Migration Policy Institute 2023). Among them, 52 percent were from the Americas, 31 percent from Asia, and 6 percent from Africa. Not only were more immigrants from non-European countries but also more children were born on average to first-generation immigrants than to the native born (Camarota and Zeigler 2021). The number of children born to diverse immigrants has also contributed to a significant increase in the population of racial and ethnic minorities, especially at younger ages (Parrado 2011).

Immigrants have had a large impact on neighborhood residential patterns. Nima Dahir (2025, this volume, issue 1) focuses on how black immigrants, a group that experienced strong growth in recent decades, influence changes in black neighborhoods. Analyzing data from the 2000 Census and ACS from 2008 to 2012 and 2016 to 2020, she explores how neighborhood influxes of black immigrants are related to subsequent in- or out-migration of native-born blacks, whites, and ethnoracial minorities. Highlighting the importance of neighborhood ethnoracial heterogeneity at the baseline in 2000, Dahir shows that only in neighborhoods in which native-born blacks were a majority in the baseline would an increase in the black immigrant population trigger black native out-migration and white in-migration. The analysis also shows that black immigrants play a buffering role in a white neighborhood, preceding the arrival of native-born blacks, but have a reverse buffering role in black neighborhoods, preceding the arrival of whites. That is, black immigrants in general are a signal of neighborhood racial composition change. Dahir explores the potential mechanisms of what happens when black immigrants move into a neighborhood: making the neighborhoods less affordable to trigger an exit of blacks or moving into the neighborhoods where rent and home value began to grow. The findings underscore the unique role of black immigrants, a particular social position, in shaping neighborhood change and attenuating spatial inequality among ethnoracial groups.

The census has allowed us to learn a great deal about residential and income segregation. These are both important aspects of American society, but changes in technology and society have allowed people to interact in a variety of

new ways. By the time of the 2020 Census, more than 90 percent of Americans owned some type of cellular phone, whereas in 2010 only 30 percent did (Wike et al. 2022). This rapid change in communication technology also comes with another benefit—the ability to track people as they move across space. Because cell phones are now commonly a part of the everyday wardrobe ("wallet, keys, phone") we literally travel with a geographic system that can locate us performing our daily tasks, both work and recreationally.

Next, Siwei Cheng, Yongjun Zhang, and Jenna Shaw (2025, this volume, issue 1) offer an exciting perspective on another dimension of segregation by leveraging this new technology that the vast majority of Americans now use. Exploiting cell phone data, they determine where people live and where they work and play as a function of where they spend their time. These patterns reflect our daily routines, and they link our home locations (where we spend our time sleeping) to the other locations we visit through the course of our days. They note several surprising facts about American interactions across class and race (which they can proxy for with the composition of our home communities) beyond the home. First, they find, rather intuitively, that places of work and activities are significantly less segregated than neighborhoods. Americans truly do work and play in diverse environments. At the same time, the level of this interaction varies significantly over cities: although the trend is generally true, some cities have much larger baseline levels of interactions. Second, they find that black and white households vary in their levels of isolation in these activity spaces across the United States. In general, in the Northeast and Midwest, black and white citizens are more isolated in their activity spaces than in other parts of the country. Even though residential segregation has declined nationwide in the past forty years, this activity-level analysis of segregation reveals a new way in which racial distinctions and isolation occur. Third, they find that city-level inequality is related to the isolation of activity spaces nationwide. Unlike the high levels of racial isolation in the Northeast and Midwest, the isolation of the wealthiest and poorest in activity spaces is pronounced nation-

wide. This implies that not only do the rich and poor live separately, but the possibility of their social interactions with each other is also more limited than we may have anticipated in metropolitan areas. With the distinction of American cities as cosmopolitan spaces, they also retain a great deal of class distinctions that carry over from home to work and even recreation.

GENDER AND RACIAL INEQUALITY IN EDUCATION, TIME USE, AND EMPLOYMENT

Over the course of the twentieth century, the largest changes in labor-force participation, occupation, and earnings were for women (Goldin 2021). Beginning from a relatively small share of total employment, by the time of the 2010 Census, women made up more of the labor market than at any other time in history. Among younger women in large cities, they outearned their male peers, which led to concerns about the prospects of marriage for women who faced a relative dearth of men of marriageable age with similar credentials (Fry 2022; Dean 2022). Among young women, nearly half have a bachelor's degree, which only slightly more than a third of similarly aged men have one (Reeves and Smith 2021). Other features of female-dominated employment led it to be less sensitive to the business cycle than men's employment. First, women were overrepresented in service fields that did not contain cyclical demand, such as education and health. Second, women were in lower-paid occupations relative to men, which tended to have greater security of employment over the business cycle. Third, women valued flexibility benefits of jobs more than men did, allowing them to meet private demands for their time in a manner consistent with their desired labor supply.

Behind this is the gender gap in college completion, where women have outnumbered men in bachelor's degrees since the 1980s. Given the financial crisis and the pandemic, there were reasons to believe that this situation may change. First, the declining value of the college degree may lead to lower rates of women's completion than previously. Second, the pandemic-induced recession, unlike those that came before it, predominantly affected previously safe employment in services, education,

and health, precisely the fields in which women were overrepresented (Fabrizio, Gomes, and Tavares 2021). Third, the growing marketing and proliferation off credentials, especially those by for-profit education providers, which targeted women (Cottom 2017). Fourth, student debt has increased dramatically, and given the persistent gender differences in earnings, the returns to college completion for women have declined (American Association of University Women 2021).

Did the shock of the pandemic and other secular changes in the labor-market change the trends in the tilt of bachelor's degrees toward women? Claudia Buchmann, Rachel Dwyer, and Man Yao (2025, this volume, issue 1) seek to answer this question. Using administrative survey data, including the census and the National Center for Education Statistics, they find a number of interesting facts regarding the gender of higher education in the United States. The gender gap in bachelor's degree attainment has stabilized. Although a gap in education completion remains, it has not changed in the last decade. What has continued to evolve is the gender gap in degrees above the bachelor level, particularly professional degrees. Buchmann and colleagues argue that this acceleration could be partly driven by the growth of for-profit educational degrees, which may exacerbate student loan inequality by gender. In addition, the returns to advanced degrees where women outnumber men has declined over time, which could become another area of increasing gender inequality in the future.

America has become more racially diverse as a result of the continuous influx of immigration from Latin America and Asia. Yet America's racial minorities have long been denied the rights to white Americans. Slavery and Jim Crow segregation for blacks, status of "aliens ineligible for citizenship" for Asians, coerced relocation from tribal lands to reservations for American Indians, and becoming American citizens through conquest for Mexicans, Puerto Ricans, and Native Hawaiians are a few examples (Harrison and Bennett 1995). With various barriers and limited opportunities for upward mobility for racial minorities, racial diversity was synonymous with racial inequality. In the era of racial reckoning in the 2010s, bookended by the Great Recession and the pandemic, how did blacks, Latinos, Asian Americans, or other racial groups fare relative to whites across a broad range of social, economic, and political dimensions? Three articles in this volume provide some of the answers.

Next, Sarah James and Elizabeth Wrigley-Field (2025, this volume, issue 1) analyze data from American Time Use Survey (2003–2019) and compare daily time use among white, black, Latino, and Asian people. They explore how ethnoracial minorities are constrained in their choices to spend their time in various daily activities. They find that white people have the most pleasant elective leisure activities; ethnoracial minorities, especially Asians, report higher levels of daily activities that are rated unpleasant than whites; and blacks spend the most time alone and the most time doing affectively neutral activities, such as watching television. James and Wrigley-Field highlight several pathways including employment, place of residence, people to spend time with, administrative burdens, and psychosocial stress that could lead to such racial disparities in time use and quality of life in the United States.

Before the pandemic, the increasing inequality reflected not only the growth of income among the top 20 percent of the income distribution but also the stagnant wages at the bottom. Indeed, job growth in the 2010s was concentrated in the lower half. Although jobs proliferated, jobs with higher levels of pay did not. These same occupations in the retail, service, and health-care sectors became seriously constrained during the pandemic, and the recovery in the same industries saw extreme wage growth in the lower end of the distribution. As the labor market tightened and unionization increased (and saw larger gains in wages for union members than several previous decades) the labor market after 2020 looked remarkably different from the one that existed just a few years earlier.

One aspect of the low-wage labor market is the extreme volatility of work schedules. Employees in this sector, which is different from the gig economy, where volatility in labor supply drives hours of work, are given highly vari-

able schedules. Variability is not only in schedules but also in hours of pay. This leads to the simultaneous feature of low pay and volatile pay for a significant share of the low-wage labor market (Guyot and Reeves 2020). Even more, these jobs are disproportionately held by women and racial minorities, and the volatility of the low-wage labor market may play a role in enduring inequality.

Julie Cai and Marybeth Mattingly (2025, this volume, issue 1) explore this topic in two ways. They follow a cohort of workers over a four-month period to explore both their work schedules and their wages. They find that work-hour volatility was relatively common and steady until the pandemic, when overall volatility spiked by nearly 50 percent. Nearly all of this increase was for workers who had already experienced volatility before the pandemic. Black and Latino workers had significantly higher baseline volatility before the pandemic, and the subsequent increase during the pandemic was relatively more modest given their higher starting level. Although volatility for workers declined to pre-pandemic levels by 2022 overall, for Asian workers it remained higher. For workers working the same average number of hours, working in more volatile work hours settings is related to lower wages. Additionally, a racial disparity emerges within volatile hours themselves. Despite consistent employment, black workers earn significantly less than white workers when their work hours are volatile. This relationship became even more intense for black workers during the Great Recession and the pandemic. As the labor market continues to evolve into the next decade, the precarity of low-wage employment continues to leave low-wage workers with higher uncertainty.

One common feature of contemporary labor markets is that job tenure and career have been redefined. Whereas previous generations of Americans could expect to work in a specific occupation for the majority of their working lives, contemporary labor-market observers note that workers in today's labor market will have several careers by the time they retire (Broom 2023). This affects not only the way workers train and search for jobs, but also the expectations that workers have about employment more generally. Although we know a great deal about wages and work hours, we know much less about how long people stay in their jobs (job duration), how job duration changes over time, and how it varies among groups in the population. Searching for new employment, either from dissatisfaction with current employment or driven by the loss of a job, is costly. At the same time, periods of significant technological and economic change may give rise to new industries (and cause severe declines in others) that would be related to population level changes in job duration over time. Given the macroeconomic experiences of the Great Recession and the "creative destruction" of the internet and other technological changes, knowing how American job duration changes is important for understanding how our economy has changed.

Using the concept of expected job duration, how long one expects to hold a particular job with a given employer, Michael Lachanski (2025, this volume, issue 1) uses life table techniques to analyze changes in job duration for the past twenty-five years. Indeed, this is the first research on job duration in fifteen years. Drawing on the IPUMS Current Population Survey Job Tenure Supplement and the U.S. Census Bureau's Quarterly Workforce Indicators and nonstable population theory, Lachanski uses the number of new job starts and stable employment positions to estimate the expected duration of employment in the private sector in two-year increments from 1996 to 2020. The main highline finding is that employment duration overall has been remarkably stable over this period. If anything, despite the rhetoric that employment has become more detached than in the past, Lachanski finds that expected tenure has increased from 1996 to 2020. When separating these effects by sex and race, he finds that women and men have similar durations of employment, which stands somewhat in contrast to the idea that women's employment is less cyclical than men's. By race, black workers have persistently lower employment durations than white workers, but not when conditioning on those who have been employed for one year. Latino workers have slightly longer durations over the entire period, both at initial job starts and conditional on being employed for a year. Lachanski's exclusion

of public-sector employment may be one reason for these findings, as women and black workers are overrepresented in public employment, which tends to be more stable than private-sector employment. Similarly, the data restrict us to those who are not self-employed, so the transitions to and between the gig economy are not observed in the data. Even with this caveat, the findings here challenge the narrative that employer-employee relationship duration has changed significantly over time.

LIVING ARRANGEMENTS

Vivek Murthy, surgeon general of the United States, warned in 2023 that Americans have become increasingly lonely and isolated. Lack of social connections is taking a toll on Americans' mental and physical health. Over time, more Americans are unmarried: among adults aged eighteen and older, the percentage living with a spouse declined from 56 percent in 2001 to 50 percent in 2021 (U.S. Census Bureau 2021). Unmarried cohabitation, a less stable relationship than marriage, continued to rise for this population, from 4 percent to 8 percent over the same period. Given the trends in marital stability and the increasing educational gradient with health, knowing who lives alone and with others plays a critical role in helping us see how communities and households are changing. Popular press such as *Bowling Alone* by Robert Putnam have argued that America's political dilemmas may have their roots in the increasing rate to which we live separately from each other, as this is seen as a key input to civic engagement, public political participation, and prosocial behavior. The pandemic revealed that the density of housing in the United States varied significantly by race and education, which had implications for the prevalence of COVID-19 among certain populations unable to engage in social distancing given the density of their communities (Yang, Choi, and Sun 2020; Zhai et al. 2023). However, despite the pandemic, the proportion of adults living alone barely budged, from 14 percent in 2001 to 15 percent in 2021. Lonely adults do not necessarily live alone and may not be able to afford living alone. They may live with parents, relatives, or nonrelatives. Social distancing and isolation during the pandemic may have

exacerbated loneliness regardless of living arrangement.

The census is critical in determining who lives with whom. Household size and composition have always been important in census measurement. Intergenerational, nuclear, and single-person households all tell us different features about American families, economy, and society. Let us now focus on young adults age twenty to thirty-four, the group that have experienced most changes in living arrangement. Using data from the decennial censuses from 1980 to 2000 along with ACS 2008–2021 data, figure 2 presents this young population's living arrangement: married, cohabiting, living alone, living with parents, living with other relatives, living with nonrelatives, in group quarters, and others. The proportion of those married declined sharply from 53 percent in 1980 to 27 percent between 2017 and 2021; meanwhile, the proportion cohabiting, unavailable in 1980, increased to 10 percent in the same period. The median age at first marriage reached an all-time high, twenty-eight and thirty, respectively, for women and men in 2023 (U.S. Census Bureau 2024). Marriage delay and retreat among young people was common. Although cohabitation, a shorter and more unstable relationship, grew, it did not offset the decline of marriage. Consequently, declines in unions were largely responsible for rising levels of singlehood. Although fewer Americans get married, most still expect to marry. In 2014, 76 percent of the Americans expected to marry at some point (Smock and Schwartz 2020). In the end, marriage has become more attached to socioeconomic status and a symbol of economic success (Gibson-Davis, Edin, and McLanahan 2005; Edin and Kefalas 2005). Whether to marry, when to marry, and how long to marry are increasingly divergent across racial-ethnic and social class lines. Men and women with economic resources are more likely to marry and stay married than their counterparts.

Despite marriage retreat and rising singlehood, the proportion of young adults living alone in the past four decades changed little, about 10 percent (see figure 2). This trend actually holds for all adults. In this volume, Hyunjoon Park, Matthew Sheen, and Paula Clark

Figure 2. Living Arrangements Among People Age Twenty to Thirty-Four
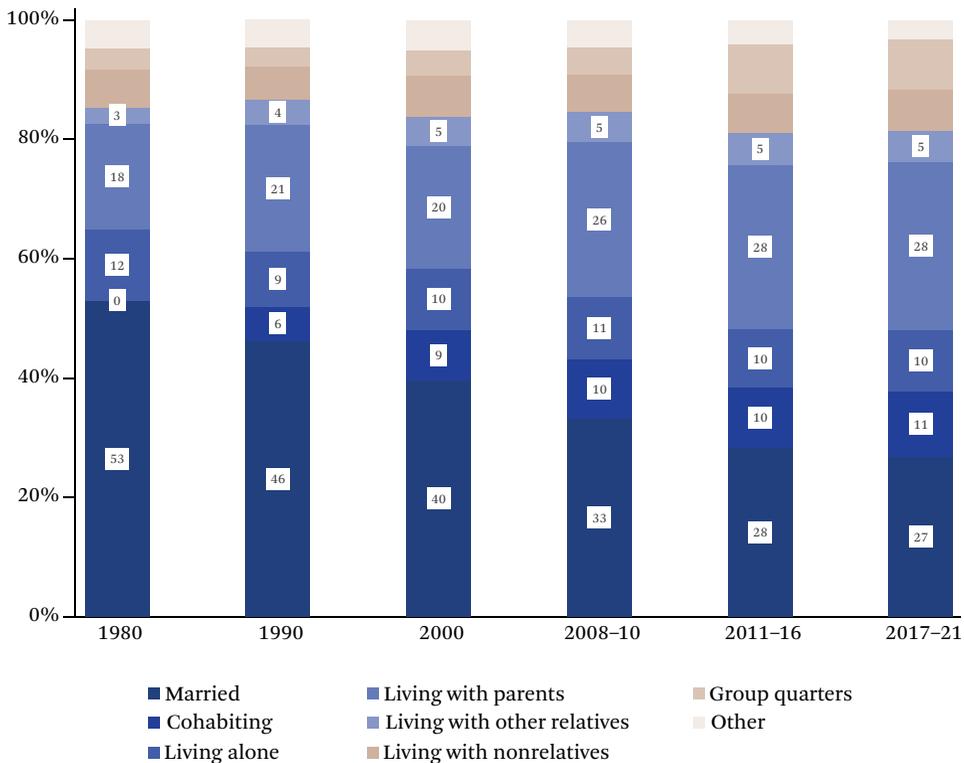
Source: Authors' calculations using Ruggles et al. 2024.

(2025, issue 2) explore trends in living alone among adults aged twenty-five to seventy-four. Although living alone was relatively uncommon in the middle of the twentieth century, when fewer than 15 percent of all households were single person, today more than 25 percent of all households are single persons living alone. Analyzing data from the censuses from 1980 to 2000 and ACS from 2010 to 2019 reveals several facts about the trend of living single. Stability in the share of American households living alone has been remarkable. Despite the public discourse that the share of single-person households may have social, economic, and political consequences, the authors show only modest change, at best, in the proportion living alone. More surprising, marriage appears to play a limited role in the stability of the trend. Even though the proportion of never-married men and women in prime age groups has increased, the share of those who live alone has declined, offsetting the increase in the share of

nonmarried individuals in the same age group. That is, the link between marriage and cohabitation is weakening, which leaves us with a more nuanced story about where the trend in single living is coming from. Indeed, the only noticeable change in living alone over this period is older men aged sixty-five to seventy-four, and this is partly offset by declines in women in the same age group living alone. Population aging and longevity has changed the composition but not the population share of single-person households in the United States.

One notable finding from figure 2 is that single young adults became increasingly likely to live with their parents, from 17 percent in 1980 to 27 percent in the 2017 to 2021 period. Extended singlehood prolongs the emerging adulthood during which young people explore more and long, from romantic or cohabiting partnerships, in or out of college, to various work options and job episodes (Arnett 2004). Such frequent explorations introduce uncer-

tainties and financial difficulties (Qian 2012). Intensified by the Great Recession, the pandemic, and attendant housing shortages and rising housing and rental prices, they often end up living with parents. After all, young adults living with parents had less education, lower income, and higher rates of unemployment than those who lived alone or were married (based on our calculations, results not shown). Disadvantaged young adults have to rely on their parents when they face tough setbacks in relationships, schools, or jobs.

Lucie Schmidt, Lara Shore-Sheppard, and Tara Watson (2025, this volume, issue 2) offer a unique perspective to explore the living arrangements of older Americans. Older Americans are more likely to live alone than any other elderly group in the world. However, differences by race and gender in the extent to which people live alone are evident. Highly educated older adults are more likely to own homes, access to wealth, and live independently than others, a phenomenon described as aging in place (Anderson 2024). This raises a related question: who among the older adults tend to live with children or grandchildren? The discussion on living arrangements of young adults above offers some clues. Schmidt and her colleagues provide a clear picture. They highlight racial and socioeconomic differences in patterns of older adults living with children. Older adults step in when children and grandchildren are in economic insecurity. Among older people between sixty-five and ninety, whites have much lower levels of coresidence with children than blacks and Latinos. The reason is mostly economic. Economically vulnerable older people are more likely to live with children to pool limited resources. Their analyses show that older people tend to live with their children and grandchildren and form multigenerational living if safety net policies are less generous, housing costs are higher, or older people are Latino, Asian, or foreign born. In contrast, older people tend to live with only grandchildren and form skip-generational living if female incarceration rates are higher or older people are toward the bottom of the predicted income distribution. It is clear that older people chip in and help when their children are incarcerated or their children and grandchil-dren are in dire economic need. Older people living with children are disproportionately racial minorities and at the bottom of the socioeconomic ladder.

Once again, black-white differences in living arrangements are strong, the same as seen along the socioeconomic lines. Blacks are much less likely to marry than whites and married blacks are more likely to divorce than their white counterparts. Black children are more likely to live with their mothers or grandmothers than white children. Using data from the Panel Study of Income Dynamics, Christina Cross (2019) shows that black children spent 55 percent of their childhood with a single mother, relative to 13 percent for white children and 19 percent for Hispanic. Such sharp differences can be traced at least in part to structural racism (Pager and Shepherd 2008; Rackin and Gibson-Davis 2018; Baker and O'Connell 2022). Structural disadvantages often lead to unstable and short-term relationships, which "may launch chains of disadvantage in relationships throughout the life course that then have cumulative effects on health over time" (Cherlin 2010; Umberson et al. 2014, 20).

THE EXPANDING CONCEPTS OF MARRIAGE, FAMILY, AND GENDER

Another major milestone in American families came in 2015 when the Supreme Court ruled in favor of marriage equality. The legalization of same-sex marriages in this landmark decision led to a rapid rise in number of same-sex households. In 2021, some 1.2 million same-sex couple households lived in the United States, 710,000 married and 500,000 unmarried (Scherer 2022). This doubles the count of same-sex households in 2010. However, data on same-sex individuals and households are sparse. Soon after the Supreme Court in 2020 held that the 1964 Civil Rights Title VII's prohibition on employment discrimination based on sex encompasses discrimination based on sexual orientation and gender identity, Congress passed the LGBTQ+ Data Inclusion Act in 2022, which would require federal surveys to include data collection on sexual orientation, gender identity, and other sex characteristics on a voluntary basis. This requirement will fill the data void and help advance equity of the LGBTQ+ popu-

lation. The Household Pulse Survey in 2021 marked the first time a Census Bureau sponsored survey included questions which identified the LGBTQ+ population. The HPS, which tracked American experiences during the pandemic, revealed the socioeconomic inequities this population faced. It shows that LGBTQ+ respondents exhibit more with anxiety and depressive symptoms than their counterparts do (Marlay, File, and Scherer 2022). The HPS builds the foundation for increased data collection of the LGBTQ+ population in future nationally representative surveys.

Gender minorities, individuals whose current gender does not align with their sex assigned at birth, are an understudied but a sizable population in the United States. In this volume, Christopher Carpenter, Maxine Lee, and Laura Nettuno (2025, issue 2) analyze data from HPS 2021–2023 and offer the first evidence on marital status and family outcomes of transgender and other gender minority populations. Their analysis shows that gender minorities are younger, less likely to be heterosexual, much less likely to be married, and more likely to have a spouse who has passed away than their cisgender counterparts. In addition, noncisgender people are less likely than their cisgender women counterparts to have children in the household and more likely to live in households with more adults than their cisgender counterparts. Given that unions and marriages offer the social, emotional, and financial support for most adults, non-cisgender people's higher levels of living alone, divorce, and widowhood, along with significant social stigma, discrimination, harassment, and violence, may indicate higher levels of challenge and loneliness.

RURAL AMERICA

The 2016 presidential election brought renewed focus to rural areas in the United States. Observers noted that previous administrations had paid relatively little attention to rural communities, which tended to be overlooked and considered stagnant places (Love and Loh 2020). The surprising political power of rural voters caused social scientists to begin exploring rural areas again, but some researchers had long been committed to understanding

changes in rural communities over the last several decades (Lichter and Brown 2011). Even though the popular imagination and media narrative paint rural America as racially and class homogeneous, essentially the white working class, rural communities are actually extremely diverse. In fact, the United States puts rural communities into any of several categories: graying America, Hispanic centers, Latter-Day Saints enclaves, aging farmlands, Native American lands, evangelical hubs, working-class country, rural Middle America, and African American South (Ajilore and Willingham 2020). The names of these locations give some clues about the baseline diversity of rural communities in the United States. They are defined both by the relative aging, occupational structure, and racial-ethnic composition. They also differ extensively economically. Between 2010 and 2016, for example, graying America and Hispanic centers added more than sixteen thousand new businesses in their communities while rural Middle America and African American South lost more than that over the same period. They also have different socioeconomic outcomes. Recent research shows that economic mobility is not perfectly mapped onto these measures of economic activity. Even though both the African American South and rural Middle America have similar trajectories of business losses, they have vastly different economic mobility rates. Of all rural communities, the African American South has the lowest rate of upward intergenerational mobility, and rural Middle America has a mobility rate well above the mean for rural communities (Ajilore and Willingham 2020). Any focus on rural communities must account for their inherent diversity.

In this volume, Daniel Lichter and Kenneth Johnson (2025, issue 1) provide an in-depth analysis of the transitions and trajectories of rural communities over the last few decades. By 2020, fewer than 15 percent of all Americans lived in nonmetro areas. How are these communities alike and different? Using a 4D (depopulation, deaths, diversity, and deprivation) approach to the issue, they document the divergence and congruence of these four outcomes over time. For the first time in history, the vast majority of nonmetro counties, more

than two-thirds, lost population. The acceleration of population decline in rural areas is now one defining feature of all nonmetro areas. Rural areas are also places that have seen diverse outcomes in mortality—exacerbated by the COVID-19 pandemic and the so-called deaths of despair that have been particularly harsh for white Americans in rural communities. This has led to accelerating declines in the white population in rural communities, which are increasing in their diversity due to more stable nonwhite populations and some inflows from immigrant groups (as opposed to inflows from urban areas). It is this increasing diversity that Lichter and Johnson relate to the political upheaval that has received considerable media attention. What has been overlooked, and what Lichter and Johnson document, is the increasing poverty (deprivation) of rural communities. At the same time, they establish the lack of any monolithic rural America. Renewed opportunities for urbanization (especially for rural communities on the outer edges of urban centers), increasing economic activity due to green economy initiatives, and the creation of recreational enclaves in rural communities have changed the trajectories, and even led to some gentrification, of rural communities from 1990 to 2020. The ability of some rural areas to incorporate or serve as key outlets for increasingly urban America has resulted in another portion of rural America that is increasingly isolated and in precipitous decline. To speak of a monolithic rural America is to avoid a discussion of their inherent diversity and dramatically divergent trajectories.

Finally, Bradley Hardy, Shria Holla, Elizabeth Krause, and James Ziliak (2025, this volume, issue 2) consider race and place by analyzing the rural-urban and black-white gaps in income from 1970 to 2020 using data from the Current Population Survey. Troubled by the narrative that rural areas are monolithic and racially homogeneous, they look at the tax system and resulting transfers to see how they have influenced trajectories of black and rural incomes over time. In doing so, they draw an analogy between rural and black communities as being subjected to the same socioeconomic forces such as lower quality schooling, community divestment, and lower levels of entrepre-

neurial activity. Since the 1970s, the U.S. tax system has changed significantly, as has the attendant social safety net. These changes would be particularly pertinent to black and rural communities given their lower average incomes before taxes and transfers. Some of the most prominent tax-based transfers would be the earned income tax credit and the child tax credit, and social safety net programs such as food assistance. These transfers have narrowed the racial and geographic gaps between the groups over time. Overall, improvement in outcomes has been significant, and the tax and transfer system have been important in stabilizing the incomes of black and rural households. At the same time, the inequality between black and rural households and the highest income households has grown. Similar to the increases in the inequality observed by others, the geographic gaps and racial gaps in income between the richest and the poorest have grown over time. The ability of the American tax and transfer system to lessen the impact of growing inequality has been stymied by more recent acceleration in high income earnings and the retreat from more progressive taxation policies. In particular, they show that black residents in rural areas have fared worse than those in urban areas, leaving black households in rural areas furthest behind in terms of income gaps.

CONCLUSION

In this double issue, researchers from multiple social science disciplines analyze data from various sources and provide updated and insightful snapshots of American society in the 2010s to the present. The decade of the 2010s is unusual. It started with America still recovering from the Great Recession and ended in the midst of a once-in-a-lifetime pandemic. In the intervening years, America witnessed Occupy Wall Street condemning and drawing attention to growing income inequality; Black Lives Matter underscoring persistent racism, racial injustice, and mass incarceration; the #MeToo Movement raising awareness of the endemic nature of sexual harassment and sexism in the workplace and beyond; the legalization of same-sex marriages advancing the rights of LGBTQ+ individuals; the urban-rural divide be-

coming widened again; and the elections of Donald Trump and Joe Biden to the White House, which intensified political polarization in America.

Although those changes occurred at the macro level, the degree to which they were felt within America varied significantly. Unemployment and home foreclosures during the Great Recession hit the young and disadvantaged populations hardest. The decade of the 2010s highlighted various dimensions of inequality and opportunity, including the role of place as a key correlate of socioeconomic mobility, and generated prospects of tackling some of the root causes. Yet before much improvement was made, the COVID-19 pandemic further exposed health disparities and widened social inequalities along race, gender, and class lines. Ironically, the same role that place has shown with mobility carried over to the duration and severity of the pandemic. The theme from the studies reported in this double issue is that inequalities persisted over the last decade and continued to disadvantage minorities, women, and young Americans. The variability of disadvantage remains acute in American society.

Inequalities are highly tied to race-ethnicity in American society. The undercount of blacks and Hispanics in the 2020 Census, especially in disadvantaged neighborhoods, may skew racial-ethnic inequality given missing information about those at the bottom of the socioeconomic ladder. It also has the potential to lead to political inequality, which may have a direct impact on the policies pursued to counter the negative effects of disadvantage. In addition, the growth of multiracial populations has changed the racial composition of the country. Multiracial individuals, mostly part white and part minority, are situated socioeconomically between whites and the minority group (Alba 2020). The shares of multiracial people and their classifications—being white, a minority race, or multiracial—may redefine racial boundaries and introduce variability in racial-ethnic inequality. America's racial composition continues to revise and redefine itself, showing the porous nature of America's racial divides.

Many studies in this double issue focus on race-ethnicity, a salient feature of American society and an important source of inequality.

Racial-ethnic minorities continue to experience inequality. Blacks and Latinos tended to experience greater work-hour volatility, shorter job tenure, and lower wages than whites; they failed to catch up in homeownership after the Great Recession because of pent-up demand in housing that they did not have the resources to overcome; they, along with Asians, engaged in more hours than whites performing unpleasant daily activities. These examples make it clear that racial inequality manifests in nearly every aspect of life. Changes in racial composition and the growth of the racial-ethnic minorities in recent decades highlight urgent needs to tackle root causes of racial inequality. At the same time, immigration is redefining some of the typical ways we think of racial groups. For example, the increasing share of immigrants in the black population makes it increasingly difficult to cling to old notions of race within the black population itself.

Gender gaps in college completion remained relatively unchanged in the 2010s, but women's gain above the bachelor's degree level, especially professional degrees, widened. More women seek for-profit educational degrees and exacerbate student loan inequality by gender. Buchmann and her colleagues also show that women's outnumbering men in holding advanced degrees declined over time, signaling persistent gender gaps in earnings that favor men. The COVID-19 pandemic led to an economic disruption that has been termed a shecession due to the changes in women's labor supply and labor-force attachment, which were atypical of most other economic downturns. The pandemic also drew attention to the wages and work conditions in the service sector, elementary education, especially retail, restaurants and hotels, health care, and childcare—all occupations dominated by women. In 2022, American women earned 82 cents for every dollar by men, a large jump relative to forty years ago when they earned just 65 cents (Aragão 2023). Yet the gender pay gap remained very much unchanged in the past two decades, despite women's advancement in college completion. Job tenure does not vary much by gender but earnings gaps increase as men and women spend more time in the labor force. Indeed, throughout the life course, women with chil-

dren carry a motherhood penalty even as men enjoy a fatherhood premium (Kochhar 2023). Gender discrimination in workplaces as well as gender inequality in division of household labor and childcare plays an important role (Ishizuka 2021).

Young people were also hit hard in the 2010s. More young people coming of age after the Great Recession means that more were unable to find steady jobs and own homes or afford rents, especially during a time when demand for homes far exceeds the supply. Fewer were getting married or entering unions, but many were unable to live independently. Continuing the trend started during the Great Recession, more young people lived with their parents in the 2010s (Qian 2012). Economic factors may be a primary reason for this phenomenon. Young people who lived with their parents were more likely to be unemployed, have lower income, have less education, or be racial minorities than their counterparts who lived alone or were married. Parents or older people who live with children often do so in order to pool resources or provide financial help to children or grandchildren in need. Economic hardship contributes to loneliness among young people, regardless of their living arrangement. Meanwhile, non-cisgender people tend to be younger and less likely to marry or enter a union. Compounded by social stigma and discrimination, they also experience higher levels of loneliness and social isolation (Marlay, File, and Scherer 2022).

Taken together, the studies in this double issue underscore continuation of inequality along race, gender, and class. They also underscore that the continuation is not linear, but rather nuanced and highly dependent on the window through which we seek to understand inequality—whether social, economic, political, or another dimension. The recent national elections show an increasing fractionalization of America politically and socially. Economic inequality in the 2010s, exacerbated by the COVID-19 pandemic, may have pushed political polarization to a new height. The divides concern issues as diverse as education, immigration, gun control, reproductive rights, and media access. The racial, gender, education, and economic correlates of political views are

strong, and some observers have pointed to geographic differences in political behavior and policy choices as well (Brown and Mettler 2023). The census and all the relevant data can help us answer how various dimensions of inequality and young adults' disadvantaged economic prospects have lined up with political divergence in the United States. Relatedly, the census can also help us place the current fixation with polarization in appropriate perspective: Is this a new development in American society? Is this a return to earlier types of polarization seen in the nineteenth century? Is there a way of moving ahead by reducing inequality? As the current decade continues to unfold, answers will reveal themselves only with time.

REFERENCES

Agadjanian, Alexander. 2022. "How Many Americans Change Their Racial Identification over Time?" *Socius* 8 (January): 23780231221098547. https://doi.org/10.1177/23780231221098547.

Ajilore, Olugbenga, and Caius Z. Willingham. 2020. "The Path to Rural Resilience in America." Washington, D.C.: Center for American Progress. Accessed April 3, 2024. https://www.americanprogress.org/article/path-rural-resilience-america.

Alba, Richard. 2020. *The Great Demographic Illusion: Majority, Minority, and the Expanding American Mainstream*. Princeton, N.J.: Princeton University Press.

Alba, Richard, Brenden Beck, and Duygu Basaran Sahin. 2018. "The Rise of Mixed Parentage: A Sociological and Demographic Phenomenon to Be Reckoned With." *Annals of the American Academy of Political and Social Science* 677(1): 26–38. https://doi.org/10.1177/0002716218757656.

American Association of University Women. 2021. "Deeper in Debt." Accessed April 3, 2024. https://www.aauw.org/app/uploads/2021/05/Deeper_In_Debt_2021.pdf.

Anders, John, Mary E. Campbell, Craig Wesley Carpenter, and Luna Chandna. 2025. "Ethnoracial Transformations? Linking Administrative Data to Explain Changes in Identification." *RSF: The Russell Sage Foundation Journal of the Social Sciences* 11(1): 65–84. https://doi.org/10.7758.RSF.2025.11.1.04.

Anderson, Dana. 2024. "Homeowners Today Stay in Their Homes Twice as Long as They Did in 2005, Driven Largely by Older Americans Aging in Place." *Redfin News*, February 14. Accessed April 3, 2024. https://www.redfin.com/news/home owner-tenure-2023.

Aragão, Carolina. 2023. "Gender Pay Gap in U.S. Hasn't Changed Much in Two Decades." Washington, D.C.: Pew Research Center. Accessed April 3, 2024. https://www.pewresearch.org /short-reads/2023/03/01/gender-pay-gap-facts.

Arnett, Jeffrey Jensen. 2004. *Emerging Adulthood: The Winding Road from the Late Teens Through the Twenties*. Oxford: Oxford University Press.

Baker, Regina S., and Heather A. O'Connell. 2022. "Structural Racism, Family Structure, and Black–White Inequality: The Differential Impact of the Legacy of Slavery on Poverty Among Single Mother and Married Parent Households." *Journal of Marriage and Family* 84(5): 1341–65. https:// doi.org/10.1111/jomf.12837.

Bean, Frank D., James D. Bachmeier, Susan K. Brown, Jennifer Van Hook, and Mark A. Leach. 2014. "Unauthorized Mexican Migration and the Socioeconomic Integration of Mexican Americans." In *Diversity and Disparities: America Enters a New Century*, edited by John Logan, 341–74. New York: The Russell Sage Foundation.

Bean, Frank D., and Marta Tienda. 1987. *The Hispanic Population of the United States*. New York: Russell Sage Foundation.

Bianchi, Suzanne M., and Daphne Spain. 1986. *American Women in Transition*. New York: Russell Sage Foundation.

Bischoff, Kendra, and Sean F. Reardon. 2014. "Residential Segregation by Income, 1970–2009." In *Diversity and Disparities: America Enters a New Century*, edited by John Logan, 208–33. New York: The Russell Sage Foundation.

Broom, Douglas. 2023. "Having Many Careers Will Be the Norm, Experts Say." Davos Agenda, May 2. World Economic Forum. Accessed April 3, 2024. https://www.weforum.org/agenda/2023 /05/workers-multiple-careers-jobs-skills.

Brown, Trevor E., and Suzanne Mettler. 2023. "Sequential Polarization: The Development of the Rural-Urban Political Divide, 1976–2020." Perspectives on Politics. Cambridge: Cambridge University Press. Accessed April 3, 2024. https:// www.cambridge.org/core/journals/perspectives -on-politics/article/sequential-polarization-the -development-of-the-ruralurban-political -divide-19762020/ED2077E0263BC149FED8 538CD9B27109.

Buchmann, Claudia, Rachel E. Dwyer, and Man Yao. 2025. "The Deepening Gender Divide in Credentials, 2000–2020: Continuity, Change, and Implications." *RSF: The Russell Sage Foundation Journal of the Social Sciences* 11(1): 154–77. https:// doi.org/10.7758/RSF.2025.11.1.08.

Burkhauser, Richard, and Jeff Larrimore. 2014. "Median Income and Income Inequality: From 2000 and Beyond." In *Diversity and Disparities: America Enters a New Century*, edited by John Logan, 105–38. New York: Russell Sage Foundation.

Cai, Julie Y., and Marybeth J. Mattingly. 2025. "Unstable Work Schedules and Racial Earnings Disparities Among U.S. Workers." *RSF: The Russell Sage Foundation Journal of the Social Sciences* 11(1): 201–23. https://doi.org/10.7758/RSF.2025 .11.1.10.

Camarota, Steven A., and Karen Zeigler. 2021. "Fertility Among Immigrants and Native-Born Americans." Washington, D.C.: Center for Immigration Studies. Accessed April 3, 2024. https://cis.org /Report/Fertility-Among-Immigrants-and -NativeBorn-Americans.

Carpenter, Christopher S., Maxine J. Lee, and Laura Nettuno. 2025. "Gender Minority Status and Family Inequality in the United States." *RSF: The Russell Sage Foundation Journal of the Social Sciences* 11(2): 65–85. https://doi.org/10.7758 /RSF.2025.11.2.04.

Cheng, Siwei, Yongjun Zhang, and Jenna Shaw. 2025. "Economic Inequality and the Geography of Activity Space Segregation: Combining Mobile Device Data and Census Data." *RSF: The Russell Sage Foundation Journal of the Social Sciences* 11(1): 132–52. https://doi.org/10.7758 /RSF.2025.11.1.07.

Cherlin, Andrew J. 2010. "Demographic Trends in the United States: A Review of Research in the 2000s." *Journal of Marriage and Family* 72(3): 403–19. https://doi.org/10.1111/j.1741–3737.2010 .00710.x.

Cohn, D'Vera, and Jeffrey S. Passel. 2022. "Key Facts About the Quality of the 2020 Census." Washington, D.C.: Pew Research Center.

Cottom, Tressie McMillan. 2017. *Lower Ed: The Troubling Rise of For-Profit Colleges in the New Economy*. New York: The New Press.

Cross, Christina J. 2019. "Racial/Ethnic Differences

in the Association Between Family Structure and Children's Education." *Journal of Marriage and Family* 82(2): 691–712. https://doi.org/10.1111/jomf.12625.

Dahir, Nima. 2025. "Who Is Black on the Block? Black Immigrants and Changing Black Neighborhoods." *RSF: The Russell Sage Foundation Journal of the Social Sciences* 11(1): 110–31. https://doi.org/10.7758/RSF.2025.11.1.06.

Dean, Jeff. 2022. "Young Women Earn More Than Young Men in Several U.S. Cities." National Public Radio. Accessed April 3, 2024. https://www.npr.org/2022/04/02/1090466033/gender-pay-gap-women-earn.

DiPrete, Thomas A., and Claudia Buchmann. 2013. "Gender Disparities in Educational Attainment in the New Century: Trends, Causes and Consequences." In *Diversity and Disparities: America Enters a New Century*, edited by John R. Logan. New York: Russell Sage Foundation.

Doyle, Jamie Mihoko, and Grace Kao. 2007. "Are Racial Identities of Multiracials Stable? Changing Self-Identification Among Single and Multiple Race Individuals." *Social Psychology Quarterly* 70: 405–23.

Edin, Kathryn, and Maria Kefalas. 2005. *Promise I Can Keep: Why Poor Women Put Motherhood Before Marriage*. Berkeley: University of California Press.

Fabrizio, Stefania, Diego B. Gomes, and Marina Mendes Tavares. 2021. "COVID-19 She-Cession: The Employment Penalty of Taking Care of Young Children." *IMF* working paper no. 2021/058. Washington, D.C.: International Monetary Fund. Accessed April 3, 2024. https://www.imf.org/en/Publications/WP/Issues/2021/03/03/COVID-19-She-Cession-The-Employment-Penalty-of-Taking-Care-of-Young-Children-50117.

Farley, Reynolds. 1995. *State of the Union: America in the 1990s*. New York: Russell Sage Foundation.

Farley, Reynolds, and John Haaga. 2005. *The American People: Census 2000*. New York: Russell Sage Foundation.

Ferla, Ruth La. 2023. "Generation E.A.: Ethnically Ambiguous." *New York Times*, December 28. Accessed April 3, 2024. https://www.nytimes.com/2003/12/28/style/generation-ea-ethnically-ambiguous.html.

Fischer, Claude S., and Michael Hout. 2006. *Century of Difference: How America Changed in the Last One Hundred Years*. New York: Russell Sage Foundation.

Fry, Richard. 2022. "Young Women Are Out-Earning Young Men in Several U.S. Cities." Washington, D.C.: Pew Research Center. Accessed April 3, 2024. https://www.pewresearch.org/short-reads/2022/03/28/young-women-are-out-earning-young-men-in-several-u-s-cities.

Gibson-Davis, Christina M., Kathryn Edin, and Sara McLanahan. 2005. "High Hopes but Even Higher Expectations: The Retreat from Marriage Among Low-Income Couples." *Journal of Marriage and Family* 67(5): 1301–12.

Goldin, Claudia. 2021. "Journey Across a Century of Women." *Miken Institute Review* 23(2): 36–45.

Guyot, Katherine, and Richard V. Reeves. 2020. "Unpredictable Work Hours and Volatile Incomes Are Long-Term Risks of American Workers." Washington, D.C.: Brookings Institution. https://www.brookings.edu/articles/unpredictable-work-hours-and-volatile-incomes-are-long-term-risks-for-american-workers.

Hardy, Bradley J., Shria Holla, Elizabeth S. Krause, and James P. Ziliak. 2025. "Stalled Progress? Five Decades of Black-White and Rural-Urban Income Gaps." *RSF: The Russell Sage Foundation Journal of the Social Sciences* 11(2): 115–36. https://doi.org/10.7758/RSF.2025.11.2.06.

Harrison, Roderick J., and Claudette E. Bennett. 1995. "Racial and Ethnic Diversity." In *State of the Union: America in the 1990s,* vol. 2: *Social Trends*, edited by Reynolds Farley, 141–210. New York: Russell Sage Foundation.

Ishizuka, P. 2021. "The Motherhood Penalty in Context: Assessing Discrimination in a Polarized Labor Market." *Demography* 58(4): 1275–300. https://doi.org/10.1215/00703370-9373587.

James, Sarah, and Elizabeth Wrigley-Field. 2025. "How Ethnoracial Groups Spend Their Time." *RSF: The Russell Sage Foundation Journal of the Social Sciences* 11(1): 178–200. https://doi.org/10.7758/RSF.2025.11.1.09.

Jensen, Eric, Nicholas Jones, Megan Rabe, Beverly Pratt, Lauren Medina, Kimberly Orozco, and Lindsay Spell. 2021. "The Chance That Two People Chosen at Random Are of Different Race or Ethnicity Groups Has Increased Since 2010." *America Counts: Stories Behind the Numbers*, August 12. Washington: U.S. Census Bureau. Accessed April 3, 2024. https://www.census.gov/library/stories/2021/08/2020-united-states

-population-more-racially-ethnically-diverse
-than-2010.html.

Jones, Nicholas, and Jungmiwha Bullock. 2012. *The Two or More Races Population: 2010*. Washington: U.S. Census Bureau. Accessed April 3, 2024. https://www2.census.gov/library/publications /cen2010/briefs/c2010br-13.pdf.

Jones, Nicholas, Rachel Marks, Roberto Ramirez, and Merarys Rios-Vargas. 2021. "2020 Census Illuminates Racial and Ethnic Composition of the Country." *America Counts: Stories Behind the Numbers*, August 12. Washington: U.S. Census Bureau. Accessed April 3, 2024. https://www .census.gov/library/stories/2021/08/improved -race-ethnicity-measures-reveal-united-states -population-much-more-multiracial.html.

Kochhar, Rakesh. 2023. "The Enduring Grip of the Gender Pay Gap." Washington, D.C. Pew Research Center. Accessed April 3, 2024. https:// www.pewresearch.org/social-trends/2023/03/01 /the-enduring-grip-of-the-gender-pay-gap.

Lachanski, Michael. 2025. "U.S. Trends in Job Stability by Sex, Race, and Ethnicity from 1996 to 2020." *RSF: The Russell Sage Foundation Journal of the Social Sciences* 11(1): 224–46. https://doi .org/10.7758/RSF.2025.11.1.11.

Lee, Jennifer, and Frank D. Bean. 2004. "America's Changing Color Lines: Immigration, Race/Ethnicity, and Multiracial Identification." *Annual Review of Sociology* 30(1): 221–42.

Levy, Frank. 1987. *Dollars and Dreams: The Changing American Income Distribution*. New York: Russell Sage Foundation.

Lichter, Daniel T., and David Brown. 2011. "Rural America in an Urban Society: Changing Spatial and Social Boundaries." *Annual Review of Sociology* 37(1): 565–92. https://doi.org/10.1146 /annurev-soc-081309-150208.

Lichter, Daniel T., and Kenneth M. Johnson. 2025. "Depopulation, Deaths, Diversity, and Deprivation: The 4Ds of Rural Population Change." *RSF: The Russell Sage Foundation Journal of the Social Sciences* 11(2): 88–114. https://doi.org/10.7758 /RSF.2025.11.2.05.

Lichter, Daniel T., and Zhenchao Qian. 2018. "Boundary Blurring? Racial Identification among the Children of Interracial Couples." *Annals of the American Academy of Political and Social Science* 677(1): 81–94. https://doi.org/10.1177/0002716 218760507.

Lieberson, Stanley, and Mary C. Waters. 1988. *From Many Strands: Ethnic and Racial Groups in Contemporary America*. New York: Russell Sage Foundation.

Livingston, Gretchen, and Anna Brown. 2017. "Intermarriage in the U.S. 50 Years After Loving v. Virginia." Washington, D.C.: Pew Research Center.

Logan, John. 2014. *Diversity and Disparities: America Enters a New Century*. New York: Russell Sage Foundation.

Logan, Trevon D., and John M. Parman. 2017. "The National Rise in Residential Segregation." *Journal of Economic History* 77(1): 127–70. https://doi .org/10.1017/S0022050717000079.

Love, Hanna, and Tracy Hadden Loh. 2020. "The 'Rural-Urban Divide' Furthers Myths About Race and Poverty—Concealing Effective Policy Solutions." Washington, D.C.: Brookings Institution. Accessed April 3, 2024. https://www.brookings .edu/articles/the-rural-urban-divide-furthers -myths-about-race-and-poverty-concealing -effective-policy-solutions.

Marlay, Matthew, Thom File, and Zachary Scherer. 2022. "Mental Health Struggles Higher Among LGBT Adults Than Non-LGBT Adults in All Age Groups." *America Counts: Stories Behind the Numbers*, December 14. Washington: U.S. Census Bureau. Accessed April 3, 2024. https:// www.census.gov/library/stories/2022/12/lgbt -adults-report-anxiety-depression-at-all-ages .html.

Mekour, Deborah. 2022. "Despite Huge Redistricting Advantage, Republicans Play It Safe." VOA News, November 2. Accessed April 3, 2024. https:// www.voanews.com/a/despite-huge-redistricting -advantage-republicans-play-it-safe-/6736897 .html.

Migration Policy Institute. 2023. "Migration Data Hub." Accessed April 3, 2024. https://www .migrationpolicy.org/programs/migration-data -hub.

Myers, Dowell, Hyojung Lee, and JungHo Park. 2025. "Misalignment of Housing Growth and Population Trends: Cohort Size and Lagging Measurements Through Recession and Recovery." *RSF: The Russell Sage Foundation of the Social Sciences* 11(1): 86–109. https://doi.org/10.7758 /RSF.2025.11.1.05.

Neidert, Lisa, Reynolds Farley, and Jeffrey Morenoff. 2025. "How Census Undercount Became a Civil Rights Issue and Why It Is Increasingly Important." *RSF: The Russell Sage Foundation of the*

Social Sciences 11(1): 26–43. https://doi.org /10.7758/RSF.2025.11.1.02.

Pager, Devah, and Hana Shepherd. 2008. "The Sociology of Discrimination: Racial Discrimination in Employment, Housing, Credit, and Consumer Markets." *Annual Review of Sociology* 34(1): 181–209.

Park, Hyunjoon, Matthew Sheen, and Paula Clark. 2025. "Living Alone for Black and White Men and Women over Four Decades, 1980–2019." *RSF: The Russell Sage Foundation of the Social Sciences* 11(2): 26–45. https://doi.org/10.7758 /RSF.2025.11.2.02.

Parrado, Emilio A. 2011. "How High Is Hispanic/ Mexican Fertility in the United States? Immigration and Tempo Considerations." *Demography* 48(3): 1059–80. https://doi.org/10.1007/s13524 -011-0045-0.

Qian, Zhenchao. 2004. "Options: Racial/Ethnic Identification of Children of Intermarried Couples." *Social Science Quarterly* 85(3): 746–66.

——. 2012. "During the Great Recession, More Young Adults Lived with Parents." Census Brief for Project US2010. New York: Russell Sage Foundation and American Communities Project of Brown University. Accessed April 3, 2024. https://s4.ad.brown.edu/Projects/Diversity /Data/Report/report08012012.pdf.

——. 2014. "Divergent Paths of American Families." In *Diversities and Disparities: America Enters a New Century*, edited by John Logan, 237–69. New York: Russell Sage Foundation.

Qian, Zhenchao, and Yifan Shen. 2020. "Context of Interracial Childbearing in the United States." In *Analyzing Contemporary Fertility*, edited by Robert Schoen, 65–87. New York: Springer.

Rackin, Heather M., and Christina M. Gibson-Davis. 2018. "Social Class Divergence in Family Transitions: The Importance of Cohabitation." *Journal of Marriage and Family* 80(5): 1271–86. https:// doi.org/10.1111/jomf.12522.

Reeves, Richard V., and Ember Smith. 2021. "The Male College Crisis Is Not Just in Enrollment, but Completion." Washington, D.C.: Brookings Institution. https://www.brookings.edu/articles/the -male-college-crisis-is-not-just-in-enrollment -but-completion.

Roth, Wendy D., Rochelle Côté, and Jasmyne Eastmond. 2022. "Bridging Boundaries? The Effect of Genetic Testing on Ties Across Racial Groups." *Social Problems* 71(2): 180–202. https://doi .org/10.1093/socpro/spab082.

Roth, Wendy D., and Biorn Ivemark. 2018. "Genetic Options: The Impact of Genetic Ancestry Testing on Consumers' Racial and Ethnic Identities." *American Journal of Sociology* 124(1): 150–84. https://doi.org/10.1086/697487.

Ruggles, Steven, Sarah Flood, Matthew Sobek, Daniel Backman, Annie Chen, Grace Cooper, Stephanie Richards, Renae Rodgers, and Megan Schouweiler. 2024. "IPUMS USA: Version 15.0 [dataset]." Minneapolis, Minn: IPUMS. https:// doi.org/10.18128/D010.V15.0.

Scherer, Zachary. 2022. "Key Demographic and Economic Characteristics of Same-Sex and Opposite-Sex Couples Differed." *America Counts: Stories Behind the Numbers*, November 22. Washington: U.S. Census Bureau. Accessed April 3, 2024. https://www.census.gov/library/stories /2022/11/same-sex-couple-households -exceeded-one-million.html.

Schmidt, Lucie, Lara Shore-Sheppard, and Tara Watson. 2025. "Living with Children and Economic Disadvantage Among Seniors." *RSF: The Russell Sage Foundation Journal of the Social Sciences* 11(2): 46–64. https://doi.org/10.7758/RSF .2025.11.2.03.

Seltzer, Judith A., and Jenjira Yahirun. 2014. "Diversity in Old Age: The Elderly in Changing Economic and Family Contexts." In *Diversity and Disparities: America Enters a New Century*, edited by John Logan, 270–305. New York: Russell Sage Foundation.

Smock, Pamela J., and Christine R. Schwartz. 2020. "The Demography of Families: A Review of Patterns and Change." *Journal of Marriage and Family* 82(1): 9–34. https://doi.org/10.1111/jomf.12612.

Stoll, Michael A. 2014. "Residential Mobility in the United States and the Great Recession: A Shift to Local Moves." In *Diversity and Disparities: America Enters a New Century*, edited by John Logan, 139–80. New York: Russell Sage Foundation.

Suárez Serrato, Juan Carlos, and Philippe Wingender. 2016. "Estimating Local Fiscal Multipliers." *NBER* working paper no. 22425. Cambridge, Mass.: National Bureau of Economic Research. https://doi.org/10.3386/w22425.

Umberson, Debra, Kristi Williams, Patricia A. Thomas, Hui Liu, and Mieke B. Thomeer. 2014. "Race, Gender, and Chains of Disadvantage: Childhood Adversity, Social Relationships, and Health." *Journal of Health and Social Behavior*

55(1): 20–38. https://doi.org/10.1177/00221465
14521426.

U.S. Census Bureau. 2021. "Census Bureau Releases
New Estimates on America's Families and Living
Arrangements." Press release. Washington: U.S.
Census Bureau. Accessed April 3, 2024. https://
www.census.gov/newsroom/press-releases
/2021/families-and-living-arrangements.html.

——. 2022. "Census Bureau Releases Estimates of
Undercount and Overcount in the 2020 Census."
Press release. Washington: U.S. Census Bureau.
Accessed April 3, 2024. https://www.census
.gov/newsroom/press-releases/2022/2020
-census-estimates-of-undercount-and-overcount
.html.

——. 2023. "Decennial Census P.L. 94-171 Redis-
tricting Data Table P2." Press release. Washing-
ton: U.S. Census Bureau. Accessed April 3, 2024.
https://www.census.gov/programs-surveys
/decennial-census/about/rdo/summary-files
.html.

——. 2024. "Table MS-2. Estimated Median Age at
First Marriage, by Sex: 1890 to Present." Histori-
cal Marital Status Tables. Washington: U.S. Cen-
sus Bureau. Accessed April 3, 2024. https://
www.census.gov/data/tables/time-series/demo
/families/marital.html.

Ventura, Ilana M., and René D. Flores. 2025. "The
'Rise' of Multiracials? Examining the Growth in
Multiracial Identification in the 2020 U.S. Cen-
sus." *RSF: The Russell Sage Foundation Journal of
the Social Sciences* 11(1): 44–64. https://doi.org
/10.7758/RSF.2025.11.1.03.

Wike, Richard, Laura Silver, Janell Fetterolf, Christine
Huang, Sarah Austin, Laura Clancy, and Sneha
Gubbala. 2022. "Internet, Smartphone and Social
Media Use." Washington, D.C.: Pew Research
Center. Accessed April 3, 2024. https://www
.pewresearch.org/global/2022/12/06/internet
-smartphone-and-social-media-use-in-advanced
-economies-2022.

Wines, Michael. 2022. "Census Memo Cites 'Un-
precedented' Meddling by Trump Administra-
tion." *New York Times*, January 15. Accessed April
5, 2024. https://www.nytimes.com/2022/01/15
/us/2020-census-trump.html.

Yang, Tse-Chuan, Seung-Won Emily Choi, and
Feinuo Sun. 2020. "COVID-19 Cases in US
Counties: Roles of Racial/Ethnic Density and
Residential Segregation." *Ethnicity & Health*
26(1): 11–21. https://doi.org/10.1080/13557858
.2020.1830036.

Zhai, Wei, Xinyu Fu, Mengyang Liu, and Philip Hub-
bard. 2023. "The Impact of Ethnic Segregation
on Neighbourhood-Level Social Distancing in the
United States amid the Early Outbreak of
COVID-19." *Urban Studies* 60(8): 1403–26.
https://doi.org/10.1177/00420980211050183.

IV

Living Arrangements and Divergent Families

Living Alone for Black and White Men and Women over Four Decades, 1980–2019

HYUNJOON PARK, MATTHEW SHEEN, AND PAULA CLARK

Using the data on 6.8 million individuals from the 1980, 1990, and 2000 decennial censuses and the 2010 and 2019 American Community Surveys, we document changes in living alone over the four decades across five ten-year age groups—twenty-five to thirty-four, thirty-five to forty-four, forty-five to fifty-four, fifty-five to sixty-four, and sixty-five to seventy-four—for each gender and race group. The analysis reveals no substantial change in living alone for most groups over time, save older men showing an increase in the share of solo living. Four-year-college-educated men are more likely to live alone than less-educated counterparts at younger ages. The relationship is reversed at older ages. This educational crossover is not observed among women, who show educational convergence only at older ages. Blacks are more likely to live alone than whites, though the age and education patterns are similar.

Keywords: living alone, educational crossover, life course, gender, race

The number of one-person households in the United States has soared over the last six decades. In 1960, they totaled 6.9 million, accounting for 13 percent of all types of households. Six decades later, the number of one-person households has increased to thirty-six million, 28 percent of all households (U.S. Census Bureau 2022). At the same time, the media have portrayed the increased proportion of adults living alone as inevitable, warning the public of potentially negative consequences of living alone for individuals and society (Chamie 2021; Goldstein and Gebeloff 2022). Recently, the U.S. Surgeon General declared loneliness and social isolation as an epidemic, which presumes detrimental impacts on both mental and physical health of individuals, prompting urgent public health concerns (Office of the Surgeon General 2023). The advisory report addressed the demographic trend of an increas-

Hyunjoon Park is a Korea Foundation Professor of Sociology at the University of Pennsylvania, United States. **Matthew Sheen** is a graduate student in the Department of Sociology at the University of Pennsylvania, United States. **Paula Clark** has recently earned her undergraduate degree in sociology at the University of Pennsylvania, United States.

ing prevalence of one-person households as one of the factors contributing to heightened loneliness and isolation.

However, it is often ignored that the increase in the share of one-person households has been modest during the last four decades since 1980 (only 5 percentage points, from 23 percent in 1980 to 28 percent in 2020) after a more substantial rise over the earlier two decades. Moreover, the rise of one-person households does not necessarily mean an increase in the proportion of adults who live alone at the population level. As demographers have warned, demographic changes over time based on counting households should not be confused with changes based on counting people (Fischer and Hout 2006; Park and Choi 2015; Ruggles and Brower 2003). In fact, our estimates based on the census and American Community Survey show only a modest change in the share of women living alone among those aged twenty-five to seventy-four, from 12 percent in 1980 to 14 percent in 2019. The corresponding increase is more substantial among men: from 9 percent to 14 percent.[1] Based on census data, David Reher and Miguel Requena (2020) also present that the percentage of women age sixty-five or older who live alone actually declined from 37 percent in 1980 to 31 percent in 2015.

The modest change in the overall share of adults living alone can be the result of competing trends for different demographic groups. Trends in living alone can be heterogeneous by age, education, gender, and race, preventing a single story of temporal changes in solo living. A particularly significant source of confusion in the literature on living alone is who is more likely to do so. Are those with more socioeconomic resources more likely to live alone than their counterparts with fewer resources or vice versa? On one hand, scholars who emphasize independence and freedom associated with living alone, tend to suggest that those who can afford it are more likely to live alone by choice (Klinenberg 2012; Macvarish 2006). On the other hand, scholars who highlight the socioeconomic vulnerability of those who live alone tend to suggest the opposite: those with fewer socioeconomic resources may be pushed out to live alone because they have no other choice (Bennett and Dixon 2006).

These two perspectives, however, are not necessarily in conflict. Instead, they may complement each other in that the nature of living alone actually depends on the stage of life course. Independent living may be considered as an ideal living arrangement for young people in their twenties and early thirties so that young adults with more resources are able to afford solo living. But those who live alone at later ages without a spouse, partner, or family members are likely to come from the lower end of socioeconomic hierarchy. Therefore, the relationship between living alone and socioeconomic status may vary across the life course: the positive relationship in young adulthood may become null and even reversed to be negative in the older life stage (see Lamidi 2022; for a contrast finding, see Reher and Requena 2020). As will become clear, one of the major findings from the current study is the educational crossover across age in the share of people living alone among men, though not among women. At younger ages, men with a bachelor's degree or higher are more likely to live alone than their non-college-educated counterparts, whereas at older ages the relationship is reversed.

In documenting trends in solo living over the last forty years, this study focuses on educational differences in solo living and their temporal changes. Among many possible indicators of socioeconomic resources, educational attainment indicates both economic and cultural resources. Relative to income, which is available only for the working population, educational attainment is applied to everyone. Many studies rely on educational attainment in documenting long-term demographic trends for different socioeconomic groups, providing useful references for the current study of living alone (Martin 2006; Torr 2011). In particular, the literature on diverging destinies has highlighted divergence over time in key family behaviors between less and more educated individuals in the United States and other societies (McLanahan 2004; Raymo, Park, and Yu 2023). Although the focus of the diverging destinies

---

1. For a detailed explanation of data sources and measures, see the methods section.

framework is on family behaviors such as mothers' employment and father's involvement that are relevant for children's well-being, the same framework can be useful to guide hypotheses on potential divergence in other family behaviors like living alone that are not directly relevant for children's well-being.

The discussion on the age variation in the relationship between education and solo living highlights the importance of a life-course perspective. The perspective aids in understanding how the likelihood of living alone varies across different life stages when individuals make transitions to young, middle, and late adulthood (Sandström and Karlsson 2019). As many studies recognize, living alone has been studied primarily among the elderly (Mudrazija et al. 2020; Reher and Requena 2020). Some studies have extended their interest to living alone during middle age or even more broadly during working years (Lamidi 2022; Sandström and Karlsson 2019). Studies of the transition to adulthood often examine solo living in relation to leaving the parental home as a marker of adulthood (Chaloupková 2023). However, given that these studies investigated living alone separately at different life stages, the complete picture of how prevalence and determinants of living alone vary across life stages has not clearly emerged yet.

This study investigates how living alone has changed over the last four decades in the United States for different ages, genders, races, and education levels. By looking at ten-year age groups in each of the 1980, 1990, and 2000 Censuses and 2010 and 2019 American Community Surveys (ACS) for all adults age twenty-five to seventy-four, this article provides a comprehensive picture of changes in living alone over the last four decades. Our intersectional approach in tracing the evolution of solo living explicitly acknowledges heterogeneity in the likelihood of living alone by key demographic and socioeconomic characteristics. Moreover, another advantage of looking at each of twenty-five to thirty-four, thirty-five to forty-four, forty-five to fifty-four, fifty-five to sixty-four, and sixty-five to seventy-four age groups every ten years between 1980 and 2019 (treating 2019 as if 2020) is that we are able to better address the change in living alone over the life course by constructing

a synthetic cohort born between 1946 and 1955, whose likelihood of living alone can be traced every ten years from ages twenty-five to thirty-four through sixty-five to seventy-four.

In understanding life-course variation in living alone, we explicitly consider the role of changing marital status over the life course. Given that most married people live with their spouses (and thus not alone), life-course events such as marriage, divorce, widowhood, and singlehood (never married) have direct implications for the prevalence of solo living. In the early twenties and thirties, when many young adults still remain unmarried, the share of individuals living alone can be relatively high. Then, as young adults make the transition to form a new family through marriage and cohabitation, the share of solo living may decline in the thirties and forties before rising again with increased divorce and widowhood in later ages. However, this scenario of changing prevalence of living alone across the life course should not be generalized to all groups. Because life-course events related to marital status occur in varying timings and degrees for different groups, the patterns of solo living across the life course and time trends therein likely vary by gender, race, and education among others.

CHANGING MARITAL STATUS AND LIVING ALONE

Changes in the marriage rate should be closely related to the trend in living alone. The rise of unmarried individuals who are separated, divorced, widowed, or never married likely indicates the increase in the share of population living alone, ceteris paribus. In this article, we address the influence of changing marital status in documenting the trend in living alone (for cross-national comparisons, see Esteve et al. 2020). The prevalent narrative in media and public discussions suggests that the decrease in marriage rates among young adults necessarily corresponds to an increase in the proportion of individuals living alone, of which evidence is often drawn from the trend of rising one-person households (Pandey 2023; USA Facts 2023). This presumed linkage between declining marriage rates and increasing solo living is reinforced in the context of growing aca-

demic literature showing that the transition to adulthood, including the transition to first marriage, in the United States takes much longer today than in the past (Furstenberg 2010; Shanahan 2000). The trend indicates an increase in the proportion of unmarried young adults in their twenties and thirties, potentially leading to a higher prevalence of individuals living alone within this demographic, assuming that other factors like living with parents remain stable.

However, the trend in the share of nonmarried individuals is not enough to predict the change in the prevalence of living alone. The likelihood of living alone among nonmarried individuals can decline rather than increase over time to the extent to which it offsets the increase in the share of nonmarried individuals. Not all nonmarried individuals live alone but some live with parents (for young adults), adult children (for the elderly), relatives, and even roommates. In fact, the rising share of young adults living with parents and perhaps with roommates partially because of increasing rent and housing prices suggests that the share of young adults living alone might not have necessarily increased despite the increased proportion of young adults who delay or avoid marriage (Davis 2023; Fry, Passel, and Cohn 2020). Another relevant trend is the increase of young adults living with unmarried partners (Gurrentz 2018). Of course, cohabitation and roommates may not account for the large part of living arrangements among older groups. However, we recognize that demographic trends in those and other arrangements among nonmarried adults are relevant to understanding the trend in living alone for the older groups as well. Therefore, we pay attention to assessing the trend in the relationship between marital status (especially being nonmarried) and living alone. Although some studies control for marital status (Reher and Requena 2020) or adjust the proportion of those living alone with consideration of marital status (Esteve et al. 2020), they are still limited in assessing how both the changing composition of marital status and the varying likelihood of living alone within each type of marital status contribute to the trend in living alone in the entire group of a specific age range.

Moreover, because younger and older age groups differ in the composition of marital status and its change over time, it is necessary to examine the connection between changing marital status and the trend in living alone separately by age groups. Therefore, in the results section we discuss changes in the composition of marital status and in the relationship between marital status and living alone for different age groups. Among many age groups, our discussion focuses on two: the youngest (twenty-five to thirty-four) and the oldest (sixty-five to seventy-four). The purpose of this description is to illustrate potential implications of changing marital status and relationship between living alone and marital status for understanding the change in the prevalence of solo living. Our results presented below will reveal that despite the popular discourse of the presumably increased rate of living alone (likely originated from the conventional view of the trend in one-person households), the proportion of individuals living alone has not changed much for most groups—combinations of education, age, gender, and race. An exception is the group of older men, especially the oldest, regardless of race and education, who show a substantial increase. The limited change in the proportion of individuals living alone for most groups is in part due to either the decline in the likelihood of living alone among the expanded group of nonmarried individuals or the decline (or persistence) in the proportion of nonmarried people.

DATA AND METHODS

We use data from the decennial census between 1980 and 2000 and the American Community Survey one-year samples in 2010 and 2019, which collect a variety of information on individuals and households. Harmonized microdata across years were accessed from the IPUMS USA database (Ruggles et al. 2022). Data from the 2020 ACS was excluded from the analysis because of concerns regarding COVID-related data collection issues. The analytic sample of this study was restricted to non-Hispanic black and white Americans between twenty-five and seventy-four in each survey year.

Hispanic and Asian groups were not exam-

ined given their changing characteristics related to immigration over the period, which may have some implications for changing prevalence of solo living. We also did not include other racial and multiracial groups because of the sample size. The age range of twenty-five to seventy-four was selected because by age twenty-five many people would not be enrolled in school and by age seventy-five most people would still wield some degrees of autonomy over deciding whether to live alone. The selection of the age range was also related to our decision to exclude those residing in institutional and non-institutional group quarters such as college dormitories, residential treatment centers, nursing facilities, group homes, military barracks, and prisons (Stempowski and Christy 2021). We did not separate native-born and foreign-born individuals within each race because the share of foreign-born population is relatively small within each of the black and white populations (Ho, Park, and Kao 2022). The final sample for the analysis consists of about 6.8 million individuals across the 1980, 1990, and 2000 decennial censuses and the 2010 and 2019 ACS.

The key outcome variable in the study is living alone status. This was determined by measurement of the number of people recorded in a household (NUMPREC) available in the census and the ACS. If the number of people recorded in the same household was equal to one, respondents were coded as living alone.[2] This operationalization of living alone is consistent with that of previous studies (Reher and Requena 2020). We compare the share of those who live alone across five demographic characteristics of individuals: gender, race, age, and education. Within each gender (men and women) and race (black and white) combination, we assess the share of individuals who live alone across five ten-year age groups: twenty-five to thirty-four, thirty-five to forty-four, forty-five to fifty-four, fifty-five to sixty-four, and sixty-five to seventy-four. The construction of ten-year age groups reflects the decennial census and ACS surveyed in 2010. Although the most recent ACS used in our

analysis was conducted in 2019, we treated it as if it were conducted in 2020 for convenience of ten-year gaps between two adjacent surveys. Within each gender, race, and age group, we distinguished three educational groups—high school or less, some college (one to three years), a bachelor's degree or higher (four or more years). In sum, our analysis of living alone is more comprehensive than most studies to date because we simultaneously consider multiple factors: age (five groups), year (five time points), race (two groups), gender (two groups), and education (three groups). Table 1 presents the number of individuals and their weighted proportions in each category of year, age, education, and race for men and women, respectively.

Methods

Using data pooled across three key independent variables (education, age, year) in each of four race-gender combinations (black men, white men, black women, and white women), we run the following logistic regression model to predict the log odds of living alone by education, age, year, two-way interactions between education and year, between education and age, and between year and age, and three-way interactions among education, year and age:

$$\log\left(\frac{P_{livingalone}}{1-P_{livingalone}}\right) = a + b_{1-2}(Education) + b_{3-6}(Age)$$
$$+ b_{7-10}(Year) + b_{11-18}(Education \times Age)$$
$$+ b_{19-26}(Education \times Year) + b_{27-42}(Age \times Year)$$
$$+ b_{43-74}(Education \times Age \times Year) \qquad (1)$$

CHANGING DISTRIBUTIONS OF MARITAL STATUS AND IMPLICATIONS FOR LIVING ALONE

As emphasized, we examine how the share of nonmarried people in each age, race, and gender gap has changed across years in relation to the trend in living alone. In this section, we describe changes in the distribution of marital status and in the likelihood of solo living among nonmarried people, highlighting their implications for changes in the share of people living alone. Instead of repeating the same dis-

---

2. Of the entire sample, 0.4 percent indicated that they were married but had a spouse absent. We classified them as not living alone.

Table 1. Sample Sizes and Weighted Proportions by Gender

	Men		Women	
	N	Proportion	*N*	Proportion
Survey year				
1980	534,385	0.17	587,690	0.17
1990	618,483	0.19	676,160	0.19
2000	657,339	0.20	709,315	0.20
2010	718,971	0.22	783,456	0.21
2019	754,969	0.22	807,915	0.22
Age				
25–34	723,190	0.24	762,725	0.23
35–44	719,913	0.23	757,686	0.22
45–54	700,259	0.21	744,183	0.21
55–64	654,081	0.19	722,605	0.19
65–74	486,704	0.13	577,337	0.15
Educational attainment				
High school or below	1,622,814	0.49	1,804,519	0.50
Some college	719,406	0.22	825,471	0.24
Bachelor's or higher	941,927	0.29	934,546	0.26
Race				
Black	324,238	0.12	420,489	0.14
White	2,959,909	0.88	3,144,047	0.86

Source: Authors' calculations based on the analytic sample drawn from U.S. Census 1980, 1990, 2000, and the ACS 2010 and 2019.

cussion across all age groups, we focus on the youngest and oldest groups.

Youngest Age Group

Figure 1 presents changes across years in the proportion of nonmarried men, which include those separated, divorced, widowed, and never married. For the sake of visualization, we present the trends only for those in the lowest and highest levels of education, omitting those with some college education. The share of nonmarried men in the twenty-five to thirty-four age group has increased over four decades from 48 to 82 percent for black men without college education, from 44 to 72 percent for black men with a bachelor's degree or higher, from 29 to 67 percent for white men without college education, and from 35 to 57 percent for white men with a bachelor's degree or higher. Regardless of race and education, this increase in the share of nonmarried men in the age group twenty-five to thirty-four is pri-

marily due to the increase in the share of never-married men. The proportion of widowed men in this age group is negligible, while the proportion of divorced men has decreased across years.

However, the proportion of men living solo among those who are not married has substantially declined. Our own calculation based on the census and ACS data reveals that, in 1980, 45 and 47 percent of nonmarried black and white men with a bachelor's degree or higher in the age group lived alone, respectively. Four decades later, only 25 percent and 28 percent did. The decline across years is also substantial for non-college-educated men. Given that the majority of nonmarried men in this age group are never-married men, this trend is mainly due to the decline in the proportion of those living alone among never-married men. As discussed, the declining rate of living alone among nonmarried men age twenty-five to thirty-four may reflect several changes such as the in-

Figure 1. Proportion of Nonmarried Men at Twenty-Five to Thirty-Four

Source: Authors' calculations based on the analytic sample drawn from U.S. Census 1980, 1990, 2000, and the ACS 2010 and 2019.
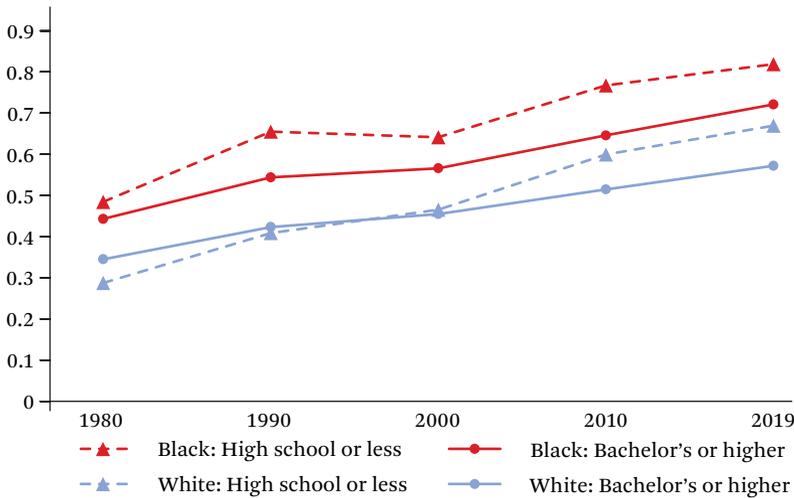
crease in the share of young adults living with parents and perhaps with roommates as well as those living with unmarried partners (Davis 2023; Fry, Passel, and Cohn 2020; Gurrentz 2018). The rising trend of coresidence with parents among young adults is well documented elsewhere (Fry et al. 2020). It is somewhat challenging to estimate prevalence of young adults living with roommates consistently across census and ACS years given the change in the categories for the relationships to household head. Using our data, we calculated the share of those living with a roommate among the twenty-five- to thirty-four-year-olds, based on the category of housemate-roommate, which is available for 1990 Census and afterward. The overall proportion of those living with a roommate among the entire cohort has increased more or less for both genders and races, but particularly among black and white men, who showed an increase from 5 and 6 percent in 1990 to 9 and 10 percent in 2019, respectively. However, the proportion of those living with a roommate among nonmarried individuals has increased over the same period only by 1 to 2 percentage points for men and remained constant for women. The census and ACS data are not ideal to measure prevalence of cohabitation. Using the category of unmarried partner

in 1990 through 2019, we estimated the share of nonmarried men and women age twenty-five to thirty-four living with an unmarried partner. The proportion has increased between 1990 and 2019 for both genders and races, noticeably among white men and women with a bachelor's degree or higher. In 1990, 11 and 13 percent of nonmarried white men and women with bachelor's degrees or higher, respectively, lived with an unmarried partner; in 2019, 23 and 28 percent did.

It is beyond the scope of this article to assess the causes of the declining proportion of never-married men who live alone. Whatever the reasons, however, this trend may wield force against the trend of the rising share of nonmarried men, hardly affecting the change across years in the proportion of young men who live alone in this twenty-five to thirty-four age group.

Young women aged twenty-five to thirty-four show a similar pattern of the rise in the proportion of nonmarried women. As presented in figure 2, 56 and 49 percent of black women in the two educational groups, respectively, were not married in 1980. Four decades later, the proportion of nonmarried black women has increased to 83 and 74 percent. White women also show an increase in the share of nonmarried women,

Figure 2. Proportion of Nonmarried Women at Twenty-Five to Thirty-Four
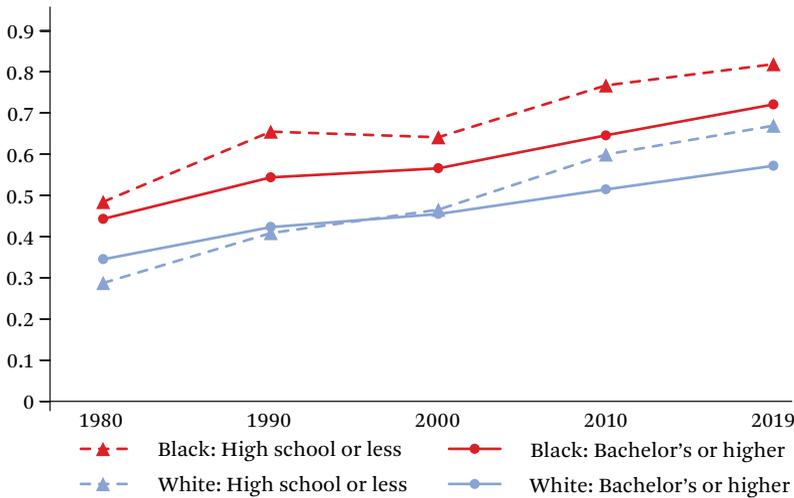
Source: Authors' calculations based on the analytic sample drawn from U.S. Census 1980, 1990, 2000, and the ACS 2010 and 2019.

although the degree of increase among those with a bachelor's degree or higher is relatively modest. Similar to the pattern for twenty-five- to thirty-four-year-old men, the increase in the share of nonmarried women in this age group is primarily driven by the increase in the share of never-married women.

However, the proportion of those living alone among nonmarried women has declined across the years, again similar to the pattern for men in the same age group. According to our estimates with the census and ACS data, 35 and 45 percent of nonmarried four-year-college-educated black and white women, respectively, lived alone in 1980. Four decades later, the corresponding percentage declined to 25 percent for both. White women without college education also show a decline in the proportion of living alone among nonmarried from 16 to 7 percent over this period. In 1980, only 7 percent of nonmarried black women without college education lived alone. This low prevalence has slightly increased to 10 percent in 2019. Along with the decline in the proportion of those living alone among nonmarried women, it remains to be seen how the rising share of non-married women has affected the trend in living alone among twenty-five- to thirty-four-year-old women.

The Oldest Age Group

Figure 3 presents the proportion of men aged sixty-five to seventy-four who are not currently married. In 1980, 36 percent of black men in that age group with high school or less education were not married. This share continued to increase to 49 percent in 2019. The trend toward the increased share of nonmarried men is similar for four-year-college-educated black men as well as among white men for both educational groups. Although not presented in the figure, this increase is primarily due to the increase in the share of divorced (or separated) men and also of never-married men especially for black men.

The rising share of nonmarried men is combined with a limited change across years in the proportion of individuals living alone among nonmarried black and white men aged sixty-five to seventy-four. The share of those living with an unmarried partner among the nonmarried generally increased between 1990 and 2019. However, the proportion is small—9 percent for black men, 12 percent for white men, 3 percent for black women, and 6 percent for white women in 2019. The share of those living with a roommate among the nonmarried is even smaller, though it too has increased over time—about 6 percent for men of both races

Figure 3. Proportion of Nonmarried Men at Sixty-Five to Seventy-Four
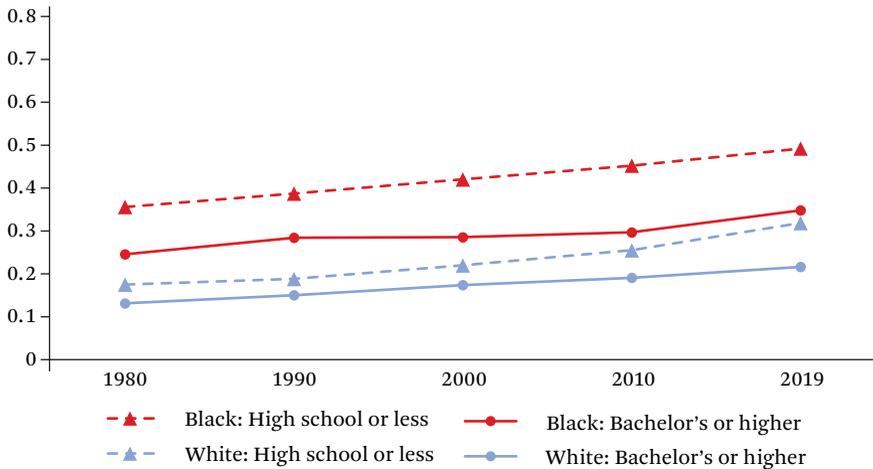
Source: Authors' calculations based on the analytic sample drawn from U.S. Census 1980, 1990, 2000, and the ACS 2010 and 2019.

and 3 percent for women of both races. Our estimates show that the proportion of living alone among nonmarried men in this age group has declined by only 3 and 5 percentage points for white men with a bachelor's degree or higher and with high school or less education, respectively. The proportion has increased only by 7 and 3 percentage points for black men. The increased share of nonmarried men without much change in the proportion of living alone among them should result in the rising share of men living alone in the oldest age group for both educational groups and for both races.

Turning to women aged sixty-five to seventy-four, shown in figure 4, we see the different trends in the proportion of nonmarried women in the age group. Black women regardless of educational group do not show a substantial change over time, whereas white women show a decline in the proportion of nonmarried women. This constant or declining trend is the result of two opposite directions of changes: the relative share of divorced women has increased and that of widowed women has decreased. According to our estimates, moreover, the proportion of living alone among nonmarried women in the age group has hardly changed across years save for a decline among white women without college education. No

change in the proportion of nonmarried black women of both educational groups, combined with no change in the proportion of those living alone, suggests no substantial change across years. Reduction across years in the proportion of nonmarried white women with a bachelor's degree or higher, combined with the constant proportion of living alone suggests a decline in the proportion of four-year-college-educated white women who live alone. The share of nonmarried has declined among white women without college education, and the proportion of living alone among nonmarried women has also declined, indicating a decline in the share of living alone among white women without college education.

RESULTS: LOGISTIC REGRESSION
We first discuss the result of the logistic regression model that predicts log odds of living alone by education, age, and year; two-way interactions between two of education, age, and year; and three-way interactions among education, age, and year. Equation (1) specifies the model that has a total of seventy-four coefficients of independent variables to be estimated, besides an intercept. Table A.1 presents the coefficients and standard errors of each independent variable in the logistic regression model for each of four gender-race groups:

Figure 4. Proportion of Nonmarried Women at Sixty-Five to Seventy-Four
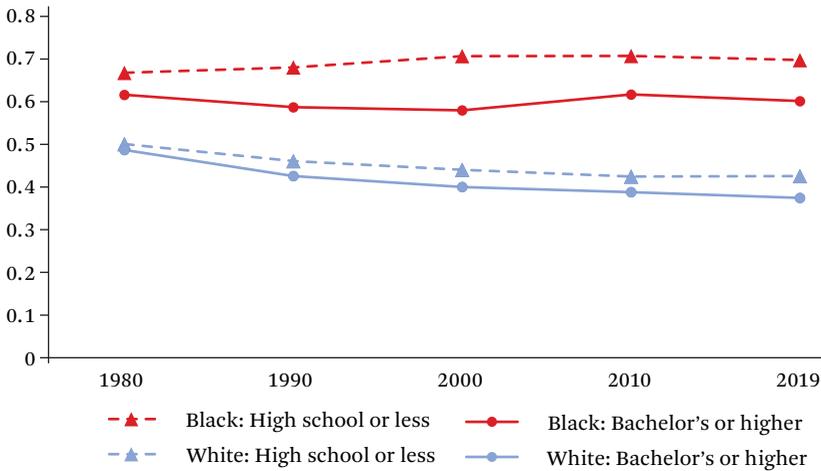
Source: Authors' calculations based on the analytic sample drawn from U.S. Census 1980, 1990, 2000, and the ACS 2010 and 2019.

black and white men and black and white women. Because the three independent variables are categorical, the model—which includes all the two-way and three-way interactions—should reproduce the observed percentages of those living alone in each combination of education, age, and year. However, an advantage of the logistic regression model is to obtain standard errors of the (predicted) percentages. As the model has many interaction terms and interpretation of those interaction coefficients is not straightforward, we present the predicted probabilities of living alone for those with each level of education in each age group and each year, based on the logistic regression. We provide 95 percent confidence intervals of each predicted probability as well. To increase readability of the figures, we display the predicted probabilities only of those at both ends of the educational hierarchy, omitting the middle group (that is, some college).

Figures 5 and 6 show the predicted probabilities of black men and white men living alone at each age range in each census or ACS year. In figure 5, the probability of solo living linearly increases across age groups within each year among black men with high school or less education. Specifically, in 2019 about 11 percent of black men with high school or less education lived alone in the twenty-five to

thirty-four age group; the corresponding share increases to 13 percent (thirty-five to forty-four), 17 percent (forty-five to fifty-four), 23 percent (fifty-five to sixty-four), and 28 percent (sixty-five to seventy-four). Moreover, the difference in the share of solo living between the youngest and the oldest groups has grown across years, due to the more rapid increase in living alone across years among the oldest. Only 19 percent of sixty-five- to seventy-four-year-old black men without college education lived alone in 1980 but 28 percent did four decades later. Meanwhile, the share of solo living among the youngest black men without college education did not increase at all.

The increase in the proportion of those living alone among the oldest black men without college education was expected in our earlier discussion about the increased share of nonmarried men across years in this group along with a slight increase in the probability of living alone among those nonmarried men (figure 3). We also highlighted the declining probability of living alone among nonmarried men in the youngest age group, which potentially could offset the increased proportion of those who are not married across years (figure 1). The result of these two contrasting trends is no substantial change in the proportion of twenty-five- to thirty-four-year-old black men without

Figure 5. Living Alone Among Black Men
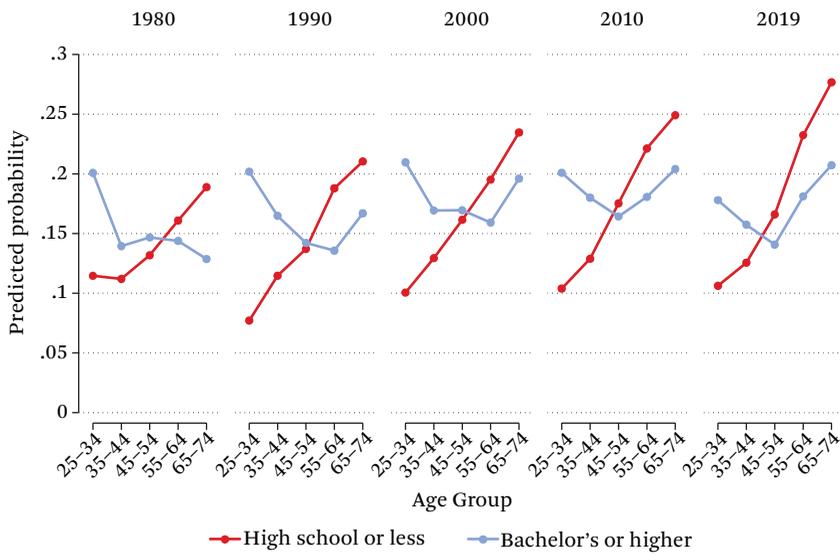
Source: Authors' calculations based on the analytic sample drawn from U.S. Census 1980, 1990, 2000, and the ACS 2010 and 2019.

Figure 6. Living Alone Among White Men
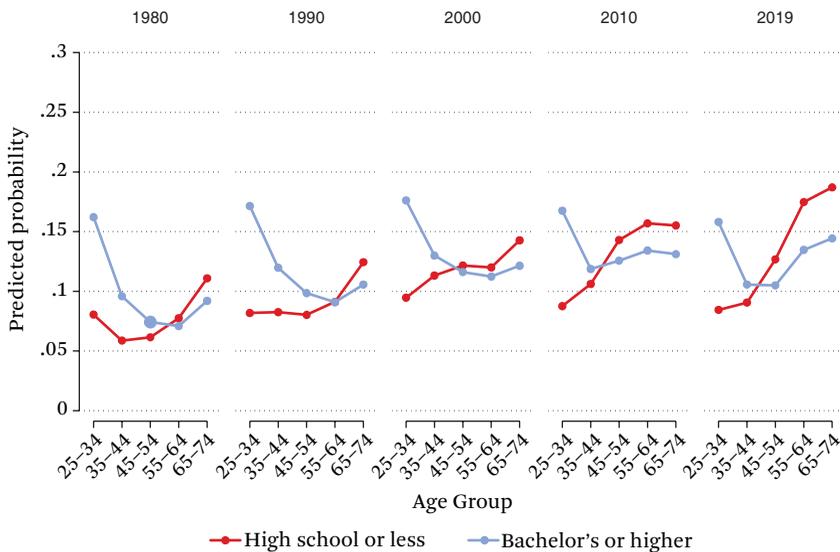
Source: Authors' calculations based on the analytic sample drawn from U.S. Census 1980, 1990, 2000, and the ACS 2010 and 2019.

college education who live alone, contributing to the growing age gap across years in the proportion of people living alone.

However, black men with a bachelor's degree or higher show a different pattern: no linear increase in the likelihood of living alone by age within a specific year, that is, older individuals are more likely to live alone than

younger. The predicted probability of living alone was highest among the youngest until 2000, after which it was highest among the oldest. Except for 1980, the age pattern of living alone is a V shape: the share is highest at both ends of the age groups but lowest at the middle. Only 13 percent of sixty-five to seventy-four-year-old black men with a bachelor's degree or higher lived alone in 1980, but four decades later 21 percent did. This trend was expected from our earlier discussion in figure 3 about the rising share of the oldest black men, both college educated and not college educated, who are not married, combined with only a slight increase in the probability of living alone across years among those who are not married. Meanwhile, the share of people living alone among the youngest age groups has hardly changed. In figure 1, the youngest black men with a bachelor's degree or higher also showed an increase in the proportion not married. However, the probability of living alone among nonmarried men has declined across years. In the result, as shown in figure 5, the proportion of those living alone in this age-education group has not changed much.

With respect to the educational gap in the share of solo living, at younger ages, four-year-college-educated black men are more likely to live alone than their counterparts with high school or less education. This educational gap disappears at the middle age brackets and then reverses at older ages, resulting in the oldest men without college education being more likely to live alone than their college-educated counterparts. This changing relationship across age groups suggests how the nature of solo living varies across the life course. Perhaps living alone at younger ages is a living arrangement young adults prefer, whereas at older ages those without resources are pushed out to live alone.

Turning to figure 6, white men show age patterns by education similar to those of black men. The share of those living alone tends to increase across ages among white men without college education, whereas the age pattern among those with a bachelor's degree or higher becomes increasingly V-shaped. The relationship between education and living alone is positive at young ages but negative at older ages. This reverse pattern over the life course has be-

come more evident in recent years among white men. Also, relative to figure 5 for black men, figure 6 shows that overall white men are less likely to live alone.

In figure 7, the share of not college-educated black women living alone increases sharply across ages after a modest increase between twenty-five to thirty-four and thirty-five to forty-four. The linear increase is observed every year. However, in contrast to what is observed among men, the gap in the proportion between the youngest and oldest age groups has not changed much over time. The corresponding age gap among white women without college education even decreased due to the decline across years in the share of solo living among the oldest white women (figure 8). In our earlier discussion, we found the decline in the proportion of those who are not married among white women without college education in the oldest age group (see figure 4).

Women with a bachelor's degree or higher show a tilted J-shaped pattern: the share among twenty-five- to thirty-four-year-olds is higher than the share among the next two age groups (thirty-five to forty-four and forty-five to fifty-four) from which the proportion of living alone increases linearly until the oldest age group. Relative to among men, the share of solo living among the youngest age group does not reach the same level among the oldest. Another gender difference is that educational differences in living alone among older age groups are not substantial, but among the two youngest age groups are relatively large. Therefore, in contrast to the clear evidence of educational crossover across ages, the gap in living alone converges but is not quite reversed at older ages. Finally, race differences in the age-education pattern and also the overall level of living alone are much less among women than race differences among men.

LIFE-COURSE CHANGES IN LIVING ALONE OF THOSE BORN BETWEEN 1946 AND 1955

For those born between 1946 and 1955, we can estimate the share of those living alone when they were at ages twenty-five to thirty-four from the 1980 Census, at thirty-five to forty-four from the 1990 Census, at forty-five to fifty-four from

Figure 7. Living Alone Among Black Women
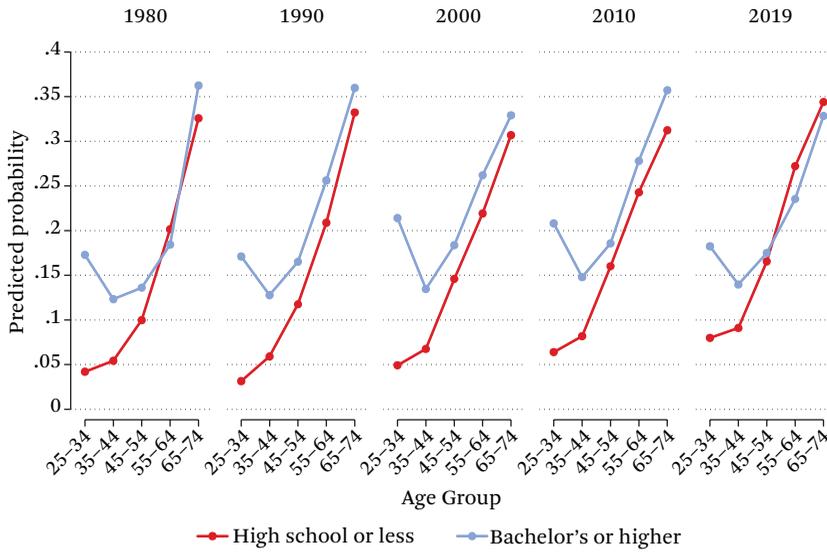
Source: Authors' calculations based on the analytic sample drawn from U.S. Census 1980, 1990, 2000, and the ACS 2010 and 2019.

Figure 8. Living Alone Among White Women
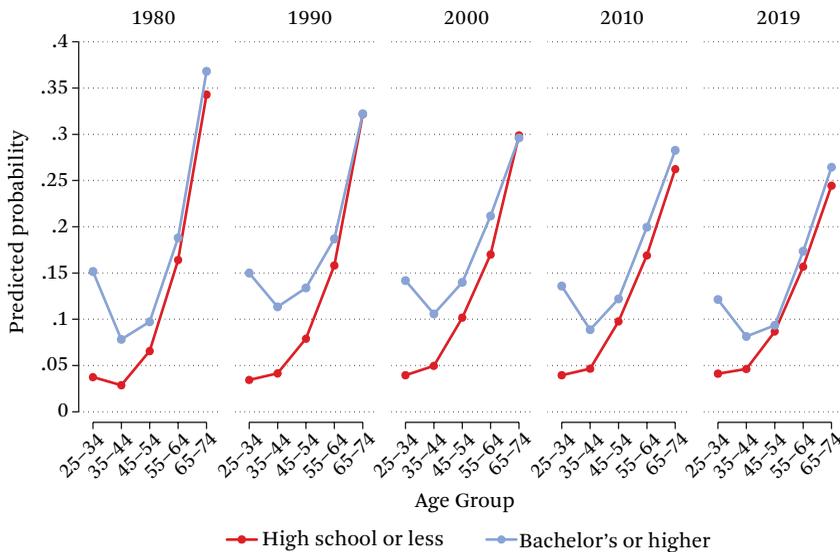
Source: Authors' calculations based on the analytic sample drawn from U.S. Census 1980, 1990, 2000, and the ACS 2010 and 2019.

the 2000 Census, at fifty-five to sixty-four from the 2010 ACS, and sixty-five to seventy-four from the 2019 ACS (although the 2019 ACS is not exactly ten years from the 2010 ACS, we treat it as if it is the 2020 ACS). In short, we can address how U.S. men and women change the likelihood of living alone over their life course from ages twenty-five through thirty-four to

sixty-five through seventy-four for a specific birth cohort born between 1946 and 1955. We can also estimate living alone across the life course for the birth cohort of 1956 to 1965 from twenty-five to thirty-four in 1990 to fifty-five to sixty-four in 2019 (and for other cohorts with varying age ranges). Our preliminary analysis indicated that life course changes in living alone show similar patterns across cohorts. Therefore, we present life-course changes in living alone for the 1946 to 1954 cohort as an illustration.

Figure 9 shows changing proportions of those living alone among black and white men with two different levels of education. Figure 10 shows the corresponding changes for black and white women. For both black and white men born between 1946 and 1955, the educational crossover in living alone occurred between the ages of forty-five and fifty-four. Men with high school or less education show a continued increase in the share of those living alone as they get older, whereas men with a bachelor's degree or higher do not show much change over the life course after a slight decline between twenty-five to thirty-four and thirty-five and forty-four (if any, the pattern is close a V shape, as discussed). This kind of educational cross-

over is not evident among women of the same birth cohort. Among white women, the increase across age groups in the share of those living alone is more substantial among those with high school or less education than their more-educated counterparts, resulting in convergence in the gap in living alone. However, the educational crossover is not observed even in the oldest age group. The pattern for black women is similar to that for white women, except that we can see the educational crossover in the oldest age group.

CONCLUSION

Our investigation of changes over time in the likelihood of living alone by education, age, gender, and race reveals an empirical finding that has not been recognized by both scholarly and public attention to the trend in living alone. Despite the growing public and media attention to the potential rise of solo living, the likelihood of living alone has not changed much over the last four decades for most groups. Both men and women, regardless of education and race, in the youngest age group do not show any substantial change in the proportion of those who live alone. Although the share of nonmarried (particularly never-

Figure 9. Life-Course Change in Living Alone, Men Born 1946 to 1955
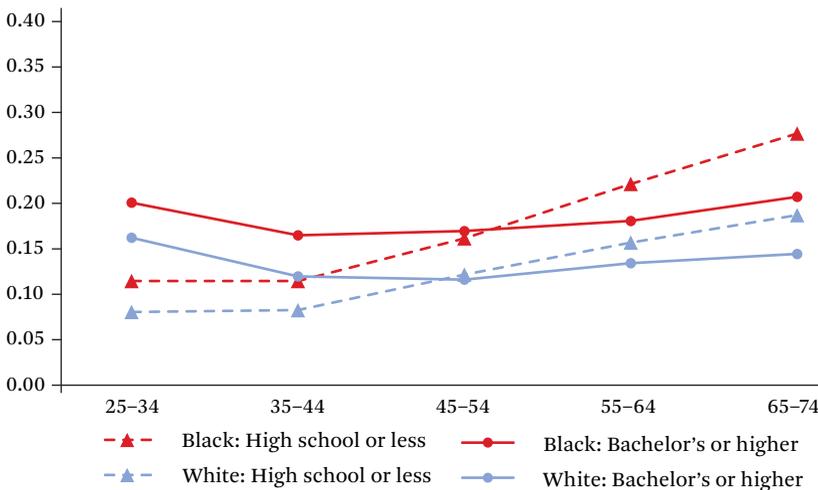
Source: Authors' calculations based on the analytic sample drawn from U.S. Census 1980, 1990, 2000, and the ACS 2010 and 2019.

Figure 10. Life-Course Change in Living Alone, Women Born 1946 to 1955
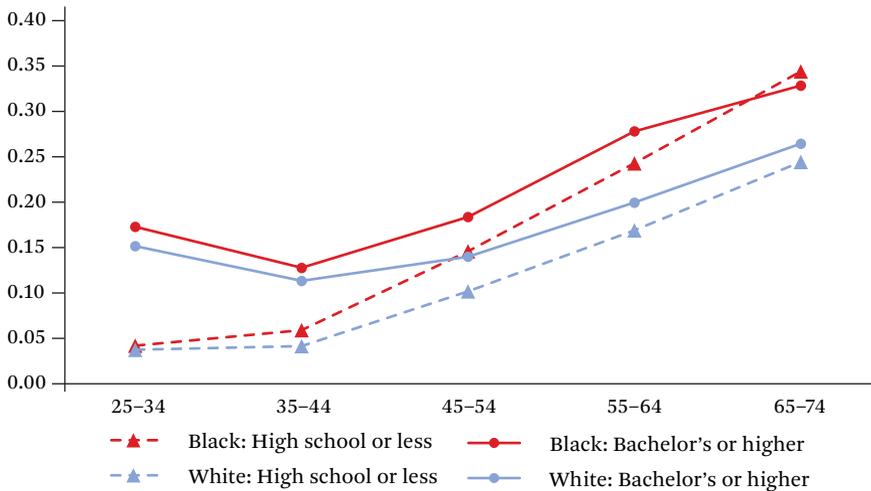
Source: Authors' calculations based on the analytic sample drawn from U.S. Census 1980, 1990, 2000, and the ACS 2010 and 2019.

married) men and women in this age group has increased, the share of those who live alone among nonmarried men and women has declined, offsetting the increase in the share of nonmarried individuals in the age group. Black women of both educational groups in the oldest age bracket do not show any evident trend in living alone either. The share of nonmarried individuals among the oldest black women has hardly changed across years. Moreover, the proportion of those who live alone among nonmarried black women in the oldest age group has not changed much. White women of both educational groups in the oldest age bracket actually show a decline in the share of those who live alone. White women in the oldest age group show a decline across years in the share of nonmarried individuals as well as in the share of those who live alone among nonmarried individuals, especially among white women without college education.

A clear exception against this constant or declining trend in living alone is the increased share of the older, especially the oldest (age sixty-five to seventy-four) men who live alone across years, both races and both educational groups. If there is any group that fits well to the media's concern for the rise of solo living, it is the group of the oldest men. This group of men

shows an increase across years in the share of those who are not married, particularly those who are divorced (and also who are never married for black men). The share of those living alone among nonmarried men has not changed much across years. The evidence that the increased trend in living alone is observed only for the older men offers a useful insight for social policy efforts to address the needs of those who live alone. However, older women are still more likely to live alone than older men. Therefore, public and scholarly concerns for older people living alone should not be restricted to one gender.

The finding of different trends in living alone across age groups was possible because this study investigated solo living across the entire life course (except for those seventy-five or older), unlike many studies that focus on a particular age group (Chaloupková 2023; Reher and Requena 2020; Sandström and Karlsson 2019). This long life-course perspective, moreover, explicitly considered the relevance of another life-course factor—marital status in explaining change or no change across years in the share of those who live alone. Specifically, we examined the changes in the share of those who are not married and the probability of solo living among those who are not married. Based

on the two trends, we were able to anticipate in advance the trends in living alone in both youngest and oldest age groups, which were confirmed with the empirical analysis. Although it is not the main interest of the current study, future research may conduct a formal analysis to quantify the extent to which the changes in the share of solo living between 1980 and 2019 (or any two other time points) are attributable to the changes in the composition of marital status and the rate of living alone among each type of marital status (see Christenson and Hermalin 1991 for an illustration applied to elderly living arrangements).

Another noticeable finding from our study is the educational crossover in men's solo living over the life course. At younger ages, men with a bachelor's degree or higher are more likely to live alone than their counterparts without college education. Although not all independent households refer to solo living, some existing studies have shown that young adults with more education tend to show a higher likelihood of establishing an independent household than their counterparts with less education (Ho, Park, and Kao 2022). However, at older ages, the relationship is reversed: men without college education are more likely to live alone than their more-educated counterparts at older ages. This age-variation pattern suggests that men with more socioeconomic resources are better able to afford solo living at younger ages but men with fewer resources are more likely to live alone not by their choices at older ages. In other words, the nature of solo living seems to depend on the life stage. This finding again confirms the need for social policy efforts to understand the life-course specific nature of solo living in order to adequately address the needs of those who live alone. However, the story becomes even more complicated given the gender difference in the pattern. Although the educational gap in solo living mostly disappears in older age groups, the crossover is not observed among women.

Because the main purpose of this study is to document the trends in living alone by age, gender, race, and education, we did not pay much attention to potential moderating variables. For instance, prevalence of solo living and its relationship with education may differ between rural and urban areas reflecting rural-urban differences in availability of housing units for single persons and housing costs (Henning-Smith, Schroeder, and Tuttle 2020). The Census Bureau definition of urbanicity varies by year but generally refers to all cities and places that have at least 2,500 people, which increased to at least five thousand in the 2020 Census (IPUMS USA, n.d.). Our supplementary analyses separately for rural and urban areas based on the census definition reveal that the major conclusions drawn from our study without distinction between rural and urban areas are generally valid in both areas. Given that 90 percent of blacks and 81 percent of whites in our sample across all years lived in urban areas, the patterns presented here are primarily urban. Although the overall level of solo living is lower in rural areas than in urban, the variations by age, year, education, gender, and race seen in figure 4 are similarly observed in rural areas as well (results not shown).

We acknowledge limitations of our study, especially in our inability to link the trends in living alone with other relevant trends over the last few decades. For instance, studies show an increased risk of institutionalization for older people who live alone (Gaugler et al. 2007; Pimouguet et al. 2016). Therefore, we expect that changes in the overall level of institutionalization and in the relationship between institutionalization and individuals' socioeconomic characteristics should be relevant for the trend in living alone among the elderly. Similarly, evidence for the relationship between living alone and mortality suggests that recognizing the trend in mortality and its socioeconomic variation should be helpful to understanding the change in prevalence of living alone and its socioeconomic differences, especially among the elderly (Abell and Steptoe 2021; Pimouguet et al. 2016). However, the complicated relationships among living alone, institutionalization, and mortality among the elderly prevent us from addressing the issue here. Future research should pay more attention to analyzing the trends in living alone in tandem with historical changes of other relevant contexts.

Table A.1. The Results of Logistic Regression Model Predicting the Log Odds of Living Alone

	Black Men		White Men		Black Women		White Women	
	Coeff.	SE	Coeff.	SE	Coeff.	SE	Coeff.	SE
Educational attainment (ref: high school or less)								
Some college	0.307	(0.053)***	0.455	(0.022)***	0.584	(0.069)***	0.889	(0.027)***
Bachelor's or higher	0.663	(0.061)***	0.793	(0.019)***	1.562	(0.066)***	1.523	(0.024)***
Age (ref: 25–34)								
35–44	−0.026	(0.045)	−0.339	(0.023)***	0.270	(0.059)***	−0.276	(0.029)***
45–54	0.160	(0.044)***	−0.290	(0.022)***	0.927	(0.052)***	0.590	(0.024)***
55–64	0.393	(0.043)***	−0.042	(0.020)*	1.751	(0.048)***	1.617	(0.021)***
65–74	0.587	(0.046)***	0.354	(0.020)***	2.400	(0.048)***	2.595	(0.020)***
Year (ref: 1980)								
1990	−0.438	(0.049)***	0.018	(0.021)	−0.299	(0.071)***	−0.088	(0.030)**
2000	−0.147	(0.044)**	0.177	(0.021)***	0.167	(0.059)**	0.057	(0.031)
2010	−0.110	(0.053)*	0.092	(0.026)***	0.444	(0.066)***	0.056	(0.040)
2019	−0.085	(0.057)	0.052	(0.028)	0.683	(0.069)***	0.100	(0.044)*
Educational attainment x age								
Some college x 35–44	−0.118	(0.095)	−0.135	(0.039)**	−0.252	(0.115)*	−0.315	(0.049)***
Some college x 45–54	−0.260	(0.109)*	−0.321	(0.044)***	−0.416	(0.117)***	−0.674	(0.044)***
Some college x 55–64	−0.295	(0.132)*	−0.529	(0.045)***	−0.832	(0.127)***	−0.781	(0.037)***
Some college x 65–74	−0.678	(0.201)**	−0.552	(0.052)***	−0.542	(0.137)***	−0.807	(0.036)***
Bachelor's or higher x 35–44	−0.412	(0.109)***	−0.263	(0.033)***	−0.666	(0.114)***	−0.468	(0.044)***
Bachelor's or higher x 45–54	−0.539	(0.126)***	−0.591	(0.038)***	−1.210	(0.121)***	−1.096	(0.043)***
Bachelor's or higher x 55–64	−0.796	(0.152)***	−0.889	(0.042)***	−1.673	(0.130)***	−1.358	(0.038)***
Bachelor's or higher x 65–74	−1.119	(0.240)***	−1.001	(0.049)***	−1.399	(0.135)***	−1.413	(0.037)***
Educational attainment x year								
Some college x 1990	0.292	(0.083)***	−0.020	(0.031)	0.289	(0.105)**	−0.090	(0.041)*
Some college x 2000	0.062	(0.081)	−0.120	(0.034)***	−0.033	(0.097)	−0.287	(0.045)***
Some college x 2010	0.085	(0.087)	−0.034	(0.039)	−0.301	(0.102)**	−0.390	(0.054)***
Some college x 2019	0.094	(0.094)	−0.086	(0.041)*	−0.202	(0.107)	−0.413	(0.059)***
Bachelor's or higher x 1990	0.444	(0.099)***	0.049	(0.029)	0.287	(0.105)**	0.076	(0.038)*
Bachelor's or higher x 2000	0.201	(0.091)*	−0.078	(0.030)**	0.098	(0.091)	−0.135	(0.039)**
Bachelor's or higher x 2010	0.111	(0.097)	−0.053	(0.034)	−0.215	(0.095)*	−0.182	(0.046)***
Bachelor's or higher x 2019	−0.063	(0.099)	−0.083	(0.035)*	−0.618	(0.099)***	−0.356	(0.049)***
Age x year								
35–44 x 1990	0.464	(0.073)***	0.348	(0.033)***	0.389	(0.097)***	0.469	(0.045)***
35–44 x 2000	0.311	(0.064)***	0.539	(0.031)***	0.065	(0.083)	0.512	(0.043)***
35–44 x 2010	0.270	(0.075)***	0.551	(0.037)***	−0.005	(0.091)	0.447	(0.055)***
35–44 x 2019	0.216	(0.083)**	0.416	(0.041)***	−0.128	(0.099)	0.395	(0.063)***
45–54 x 1990	0.483	(0.074)***	0.269	(0.033)***	0.484	(0.089)***	0.287	(0.038)***
45–54 x 2000	0.384	(0.064)***	0.571	(0.031)***	0.266	(0.075)***	0.420	(0.038)***
45–54 x 2010	0.446	(0.070)***	0.842	(0.034)***	0.098	(0.080)	0.376	(0.046)***
55–64 x 2019	0.356	(0.078)***	0.743	(0.037)***	−0.101	(0.086)	0.202	(0.052)***
55–64 x 1990	0.625	(0.071)***	0.160	(0.031)***	0.343	(0.083)***	0.044	(0.034)
55–64 x 2000	0.381	(0.064)***	0.307	(0.030)***	−0.061	(0.071)	−0.014	(0.035)
55–64 x 2010	0.503	(0.069)***	0.704	(0.033)***	−0.205	(0.076)**	−0.020	(0.043)

Table A.1. (*continued*)

	Black Men		White Men		Black Women		White Women	
	Coeff.	SE	Coeff.	SE	Coeff.	SE	Coeff.	SE
55–64 x 2019	0.542	(0.073)***	0.873	(0.034)***	−0.291	(0.079)***	−0.153	(0.047)**
65–74 x 1990	0.572	(0.072)***	0.112	(0.029)***	0.329	(0.080)***	−0.008	(0.032)
65–74 x 2000	0.422	(0.066)***	0.111	(0.029)***	−0.254	(0.069)***	−0.259	(0.034)***
65–74 x 2010	0.464	(0.075)***	0.294	(0.034)***	−0.506	(0.077)***	−0.439	(0.043)***
65–74 x 2019	0.582	(0.077)***	0.560	(0.035)***	−0.602	(0.079)***	−0.578	(0.046)***
Educational attainment x age x year								
Some college x 35–44 x 1990	−0.346	(0.132)**	0.005	(0.052)	−0.305	(0.158)	0.092	(0.065)
Some college x 35–44 x 2000	−0.147	(0.125)	−0.049	(0.052)	−0.056	(0.147)	0.038	(0.067)
Some college x 35–44 x 2010	0.045	(0.133)	−0.041	(0.059)	−0.008	(0.154)	0.096	(0.079)
Some college x 35–44 x 2019	0.141	(0.144)	0.036	(0.064)	−0.035	(0.163)	0.054	(0.089)
Some college x 45–54 x 1990	−0.155	(0.151)	0.020	(0.059)	−0.339	(0.161)	0.214	(0.061)***
Some college x 45–54 x 2000	0.028	(0.138)	0.072	(0.056)	−0.015	(0.146)	0.270	(0.061)***
Some college x 45–54 x 2010	−0.055	(0.141)	−0.080	(0.059)	0.259	(0.147)	0.364	(0.069)***
Some college x 45–54 x 2019	0.052	(0.151)	0.028	(0.064)	0.011	(0.156)	0.357	(0.076)***
Some college x 55–64 x 1990	−0.711	(0.184)***	0.123	(0.061)*	−0.047	(0.171)	0.176	(0.054)**
Some college x 55–64 x 2000	−0.203	(0.168)	0.168	(0.060)**	0.425	(0.158)**	0.362	(0.057)***
Some college x 55–64 x 2010	−0.047	(0.160)	0.151	(0.060)*	0.715	(0.154)***	0.455	(0.063)***
Some college x 55–64 x 2019	−0.070	(0.164)	0.184	(0.062)**	0.438	(0.157)**	0.462	(0.067)***
Some college x 65–74 x 1990	−0.014	(0.252)	0.008	(0.066)	−0.406	(0.185)*	0.028	(0.052)
Some college x 65–74 x 2000	0.162	(0.238)	0.076	(0.068)	0.081	(0.175)	0.235	(0.056)***
Some college x 65–74 x 2010	0.156	(0.228)	0.167	(0.067)*	0.439	(0.168)**	0.405	(0.063)***
Some college x 65–74 x 2019	0.218	(0.225)	0.168	(0.067)*	0.219	(0.168)	0.447	(0.066)***
Bachelor's or higher x 35–44 x 1990	−0.274	(0.153)	−0.166	(0.047)***	−0.336	(0.161)	−0.047	(0.060)
Bachelor's or higher x 35–44 x 2000	−0.137	(0.142)	−0.296	(0.045)***	−0.229	(0.144)	−0.102	(0.059)
Bachelor's or higher x 35–44 x 2010	0.033	(0.150)	−0.351	(0.050)***	−0.014	(0.147)	−0.182	(0.068)**
Bachelor's or higher x 35–44 x 2019	0.075	(0.155)	−0.277	(0.054)***	0.206	(0.155)	−0.095	(0.075)
Bachelor's or higher x 45–54 x 1990	−0.526	(0.181)**	−0.027	(0.053)	−0.243	(0.171)	0.085	(0.060)
Bachelor's or higher x 45–54 x 2000	−0.268	(0.157)	−0.177	(0.049)***	−0.175	(0.147)	0.069	(0.057)
Bachelor's or higher x 45–54 x 2010	−0.313	(0.159)	−0.297	(0.051)***	0.043	(0.148)	0.005	(0.063)
Bachelor's or higher x 45–54 x 2019	−0.256	(0.165)	−0.332	(0.055)***	0.333	(0.153)	0.011	(0.068)
Bachelor's or higher x 55–64 x 1990	−0.700	(0.223)**	0.044	(0.058)	0.091	(0.178)	−0.039	(0.056)
Bachelor's or higher x 55–64 x 2000	−0.316	(0.192)	0.099	(0.054)	0.247	(0.160)	0.240	(0.054)***
Bachelor's or higher x 55–64 x 2010	−0.232	(0.182)	−0.034	(0.054)	0.509	(0.154)**	0.221	(0.058)***
Bachelor's or higher x 55–64 x 2019	−0.118	(0.183)	−0.129	(0.055)*	0.535	(0.157)**	0.312	(0.061)***
Bachelor's or higher x 65–74 x 1990	−0.273	(0.309)	−0.026	(0.065)	−0.328	(0.191)	−0.183	(0.055)**
Bachelor's or higher x 65–74 x 2000	0.026	(0.276)	0.100	(0.062)	−0.158	(0.170)	0.011	(0.054)
Bachelor's or higher x 65–74 x 2010	0.087	(0.267)	0.065	(0.062)	0.254	(0.165)	0.175	(0.057)**
Bachelor's or higher x 65–74 x 2019	0.138	(0.263)	−0.020	(0.061)	0.385	(0.163)*	0.352	(0.059)***
Constant	−2.045	(0.027)***	−2.435	(0.014)***	−3.127	(0.039)***	−3.245	(0.018)***
N	324,238		2,959,909		420,489		3,144,047	

Source: Authors' calculations based on the analytic sample drawn from U.S. Census 1980, 1990, 2000, and the ACS 2010 and 2019.

*** $p < .001$; ** $p < .01$; * $p < .05$

REFERENCES

Abell, Jessica G., and Andrew Steptoe. 2021. "Why Is Living Alone in Older Age Related to Increased Mortality Risk? A Longitudinal Cohort Study." *Age and Ageing* 50(6): 2019–24.

Bennett, Jim, and Mike Dixon. 2006. "Single Person Households and Social Policy: Looking Forwards." York, UK: Joseph Rowntree Foundation.

Chaloupková, Jana K. 2023. "Solo Living in the Process of Transitioning to Adulthood in Europe: The Role of Socioeconomic Background." *Demographic Research* 48(3): 43–88.

Chamie, Joseph. 2021. "Living Alone in America." *The Hill*, July 19. Accessed May 3, 2023. https://thehill.com/opinion/finance/563786-living-alone-in-america.

Christenson, Bruce A., and Albert I. Hermalin. 1991. "A Demographic Decomposition of Elderly Living Arrangements with a Mexican Example." *Journal of Cross-Cultural Gerontology* 6(3): 331–48.

Davis, Robert. 2023. "Millennials Are Now the 'Roommate Generation' after Being Squeezed out of Homeownership by High Housing Costs, Said Redfin CEO." *Business Insider*, January 29. Accessed March 17, 2024. https://www.businessinsider.in/thelife/news/millennials-are-now-the-roommate-generation-after-being-squeezed-out-of-homeownership-by-high-housing-costs-said-redfin-ceo/articleshow/96864739.cms.

Esteve, Albert, David S. Reher, Rocio Treviño, Pilar Zueras, and Anna Turu. 2020. "Living Alone over the Life Course: Cross-National Variations on an Emerging Issue." *Population and Development Review* 46(1): 169–89.

Fischer, Claude S., and Michael Hout. 2006. *Century of Difference: How America Changed in the Last One Hundred Years*. New York: Russell Sage Foundation.

Fry, Richard, Jeffery S. Passel, and D'Vera Cohn. 2020. "A Majority of Young Adults in the U.S. Live with Their Parents for the First Time Since the Great Depression." Washington, D.C.: Pew Research Center. Accessed May 4, 2023. https://www.pewresearch.org/short-reads/2020/09/04/a-majority-of-young-adults-in-the-u-s-live-with-their-parents-for-the-first-time-since-the-great-depression.

Furstenberg, Frank F., Jr. 2010. "On a New Schedule: Transitions to Adulthood and Family Change." *The Future of Children* 20(1): 67–87.

Gaugler, Joseph, Sue Duval, Keith A. Anderson, and Robert L. Lane. 2007. "Predicting Nursing Home Admission in the U.S: A Meta-Analysis." *BMC Geriatrics* 7: Article 13. https://doi.org/10.1186/1471-2318-7-13.

Goldstein, Dana, and Robert Gebeloff. 2022. "As Gen X and Boomers Age, They Confront Living Alone." *New York Times*, November 27.

Gurrentz, Benjamin. 2018. "For Young Adults, Cohabitation Is Up, Marriage Is Down." Washington: U.S. Census Bureau. Accessed May 4, 2023. https://www.census.gov/library/stories/2018/11/cohabitation-is-up-marriage-is-down-for-young-adults.html.

Henning-Smith, Carrie, Jonathan Schroeder, and Mariana S. Tuttle. 2020. "Rate of Living Alone by Rurality and Age." Infographic. Minneapolis-Saint Paul: University of Minnesota, Rural Health Research Center. Accessed April 26, 2024. https://rhrc.umn.edu/wp-content/uploads/2020/04/Living-Alone-Infographic_4.13.20.pdf.

Ho, Phoebe, Hyunjoon Park, and Grace Kao. 2022. *Diversity and the Transition to Adulthood in American*. Oakland: University of California Press.

IPUMS USA. n.d. "Geographic Variables: Urban." Minneapolis: University of Minnesota, Minnesota Population Center. Accessed April 26, 2024. https://usa.ipums.org/usa-action/variables/URBAN#description_section.

Klinenberg, Eric. 2012. *Going Solo: The Extraordinary Rise and Surprising Appeal of Living Alone*. New York: Penguin.

Lamidi, E. 2022. "Educational Differences in Self-Rated Health Trends Among Middle-Aged and Older Adults Living Alone, 1972–2018." *Journal of Aging and Health* 34(4–5): 626–39.

Macvarish, Jan. 2006. "What Is the 'Problem' of Singleness?" *Sociological Research Online* 11(3): 81–88. https://doi.org/10.5153/sro.1418.

Martin, Steven P. 2006. "Trends in Marital Dissolution by Women's Education in the United States." *Demographic Research* 15: 537–60.

McLanahan, Sara. 2004. "Diverging Destinies: How Children Are Faring Under the Second Demographic Transition." *Demography* 41(4): 607–27.

Mudrazija, Stipica, Jacqueline L. Angel, Ivan Cipin, and Sime Smolic. 2020. "Living Alone in the United States and Europe: The Impact of Public Support on the Independence of Older Adults." *Research on Aging* 42(5-6): 150–62.

Office of the Surgeon General. 2023. *Our Epidemic*

of Loneliness and Isolation: The U.S. Surgeon General's Advisory on the Healing Effects of Social Connection and Community. Washington: Office of the U.S. Surgeon General.

Pandey, Erica. 2023. "More People Live Alone in Nation Built for Families." *Axios*, December 28. Accessed March 17, 2024. https://www.axios.com/2023/12/28/us-adults-seniors-living-alone-marriage-housing.

Park, Hyunjoon, and Jaesung Choi. 2015. "Long-Term Trends in Living Alone Among Korean Adults: Age, Gender, and Educational Differences." *Demographic Research* 32: 1177–208. https://doi.org/10.4054/DemRes.2015.32.43.

Pimouguet, Clément, Debora Rizzuto, Pär Schön, Behmaz Shakersain, Sara Angleman, Marten Lagergren Laura Fratiglioni, and Weili Xu. 2016. "Impact of Living Alone on Institutionalization and Mortality: A Population-Based Longitudinal Study." *European Journal of Public Health* 26(1): 182–87.

Raymo, James M., Hyunjoon Park, and Jia Yu. 2023. "Diverging Destinies in East Asia." *Annual Review of Sociology* 49: 443–63. https://doi.org/10.1146/annurev-soc-020321-032642.

Reher, David, and Miguel Requena. 2020. "Long-Term Trends in Living Alone in Later Life in the United States, 1850–2015." *History of the Family* 25(3): 455–83.

Ruggles, Steven, and Susan Brower. 2003. "Measurement of Household and Family Composition in the United States, 1850–2000." *Population and Development Review* 29(1): 73–101.

Ruggles, Steven, Sarah Flood, Ronald Goeken, Megan Schouweiler, and Matthew Sobek. 2022. "Integrated Public Use Microdata Series USA: Version 12.0 [dataset]." Minneapolis, Minn.: IPUMS. https://doi.org/10.18128/D010.V12.0.

Sandström, Glenn, and Lena Karlsson. 2019. "The Educational Gradient of Living Alone: A Comparison Among the Working-Age Population in Europe." *Demographic Research* 40(55): 1645–70.

Shanahan, Michael J. 2000. "Pathways to Adulthood in Changing Societies: Variability and Mechanisms in Life-Course Perspective." *Annual Review of Sociology* 26(1): 667–92.

Stempowski, Deborah, and James Christy. 2021. "2020 Group Census Quarters." Washington: U.S. Census Bureau. Accessed April 20, 2023. https://www.census.gov/newsroom/blogs/random-samplings/2021/03/2020-census-group-quarters.html.

Torr, Berna M. 2011. "The Changing Relationship between Education and Marriage in the United States, 1940–2000." *Journal of Family History* 36(4): 483–503.

U.S. Census Bureau. 2022. "Table HH-4. Households by Size: 1960 to Present." Washington: U.S. Census Bureau. Accessed May 5, 2023. https://www.census.gov/data/tables/time-series/demo/families/households.html.

USA Facts. 2023. "The State of Relationships, Marriages, and Living Alone in the US." Updated June 14, 2023. Accessed March 17, 2024. https://usafacts.org/articles/state-relationships-marriages-and-living-alone-us.

Living with Children and Economic Disadvantage Among Seniors

LUCIE SCHMIDT, LARA SHORE-SHEPPARD, AND TARA WATSON

Using the 2000 Census and 2005–2019 American Community Surveys, we examine the propensity of older adults to live with children. We show that seniors from disadvantaged subgroups are more likely to live in multi- or skip-generational arrangements. Contextual factors associated with more multigenerational living include a less generous safety net and high housing costs. Skip-generational living is associated with high female incarceration rates. Conditional on demographic characteristics and these contextual factors, seniors in multigenerational living arrangements are less likely to be in poverty and those in skip-generational arrangements more likely. Overall, the findings are consistent with the possibility that multigenerational arrangements help families address resource needs, whereas skip-generational arrangements heighten the risk of poverty or reflect crises that do so.

Keywords: living arrangements, multigeneration, skip-generation, seniors, poverty

The U.S. population is older than it has ever been, with the share of adults older than age sixty-five approaching 20 percent of the population, and one for every three adults ages eighteen to sixty-four (Vespa, Medina, and Armstrong 2020). Thanks largely to the Social Security program, the over sixty-five age group has experienced lower rates of poverty than younger age groups since about 1980 (Engelhardt and Gruber 2006; Haveman et al. 2015;

Marchand and Smeeding 2016). However, the overall poverty rate among the over sixty-five population of roughly 9 percent masks considerable heterogeneity, with rates of poverty substantially higher for unmarried individuals, women, and households that include children (Li and Dalaker 2021). Moreover, rates of reported material hardship among seniors exceed rates of poverty (Levy 2015).

Living arrangements involving children

Lucie Schmidt is Robert A. Woods Professor of Economics at Smith College, United States. **Lara Shore-Sheppard** is Kimberly '96 and Robert '62 Henry Professor of Economics and dean of the faculty at Williams College, United States. **Tara Watson** is director of the Center for Economic Security and Opportunity at the Brookings Institution, United States.

have been shown to strongly predict disadvantage among seniors. Among older adults, having children under age eighteen in the home is predictive both of being in the lowest income quartile preretirement (Mitchell, Clark, and Lusardi 2021) and of having higher levels of food insecurity (Butcher et al. 2023). Families with multigenerational or skip-generational living arrangements are more economically vulnerable than similar families without grandchildren (Seltzer and Yahirun 2014; Pilkauskas and Dunifon 2016; Ziliak and Gundersen 2016; Dunifon 2018), with potentially large differences between multigenerational and skip-generational households (Dunifon, Ziol-Guest, and Kopko 2014).[1]

Although researchers have studied the phenomenon of coresidence from the perspective of children (see Dunifon, Ziol-Guest, and Kopko 2014; Pilkauskas, Amorim, and Dunifon 2020), less is known about the various forms of coresidence viewed from the perspective of the older adult, where multigenerational living arrangements are the more common focus (Ruggles 2015). It is important to understand which seniors are living with children in the United States today, what factors are contributing to these living arrangements, and what drives the association between living with children and economic disadvantage. In particular, is the case that seniors who are more likely to be economically disadvantaged are also more likely to live with children, or that living with children is predictive of disadvantage even accounting for known correlates of economic hardship? Additionally, how does the relationship between living with children and disadvantage depend on the form that coresidence takes?

In this article, we use data from the 2000 Census and the 2005–2019 American Community Surveys (ACS) in an investigation of living arrangements of older adults living with children. We examine several types of household structure: multigenerational, skip-generational, and own or other child. We begin

by documenting the levels and trends in older adults living with children over the first two decades of the twenty-first century. We find significant differences in both the prevalence and the trends of older Americans living with children across groups in the population. In particular, non-Hispanic White seniors have low rates of coresidence with children that have risen slightly since 2010; non-Hispanic Black, Hispanic, and non-Hispanic Asian seniors have seen declines from considerably higher base rates. Differences are substantial by other demographic characteristics as well, such as foreign-born status, gender, marital status, and education. These differences are evident even in a multiple regression framework when we examine the associations conditional on a number of demographic factors.

We also use a measure of predicted disadvantage to show how living arrangements for seniors vary based on the economic resources they are likely to have at their disposal, when the prediction is based on income in the preretirement working years (fifty to sixty-one) and is a function of a rich set of demographics and state of residence. We find that living arrangements involving children are generally more likely among economically vulnerable seniors.

We then focus on multi- and skip-generational households, and investigate the association between a set of contextual economic and policy variables and these living arrangements in a regression framework, again controlling for an extensive set of demographic characteristics. We also examine whether and how these associations differ for seniors with different levels of predicted resources. Based on research on children living with seniors that considers the correlates of such living arrangements (Gleeson et al. 2009; Dunifon, Ziol-Guest, and Kopko 2014) we consider four groups of economic and policy variables: measures of economic opportunity for workers, measures of safety net generosity, measures of housing affordability, and measures of drug mortality and incarceration. To the best of our

---

1. Skip-generational households are often the most disadvantaged and can be due to parents being unable to care for children for a number of reasons. Multigenerational households are sometimes formed as a response to economic need, but are sometimes formed as a result of cultural preferences (Dunifon, Ziol-Guest, and Kopko 2014).

knowledge, these variables have not been considered simultaneously in models examining living arrangements among seniors.

We hypothesize that some of these factors will have associations with both the propensity to live in multigenerational and the propensity to live in skip-generational households, while other factors are likely to be more important for one or the other. Greater economic opportunity for workers and greater safety net generosity are both likely to improve the ability of the middle generation to live independently of their parents and to reduce the need for children to live with grandparents.[2] In contrast, we hypothesize that housing affordability is likely to have a greater impact on multigenerational living, given that families may respond to higher housing costs by sharing housing. Finally, drug mortality and rising female incarceration rates have been shown to be important correlates of skip-generational living arrangements (Fuller-Thomson, Minkler, and Driver 1997; Johnson and Waldfogel 2002; Hayslip and Kaminski 2005; Minkler and Fuller-Thomson 2005; Park 2006; Gleeson et al. 2009; Pittman 2015; Buckles, Evans, and Lieber 2023).

We find that multigenerational living arrangements are more common when rental costs are higher. Multigenerational living arrangements are less common when safety net policies are more generous, and this relationship is limited to the bottom quartile of the predicted income distribution. In contrast, skip-generational arrangements are less common when rental costs are higher. They are also more common in states and years with higher rates of female incarceration, this relationship being limited to seniors in the bottom of the predicted income distribution. We find no evidence of a correlation between drug mortality and either multigenerational or skip-generational living arrangements.

Finally, we analyze the relationship between living arrangements and economic hardship, accounting for demographic characteristics and economic and policy factors. We find that seniors living in multigenerational arrangements are less likely to be poor than would be predicted based on observable demographic characteristics. Specifically, controlling for the same economic and policy variables previously examined in the analysis of living arrangements as well as a rich set of demographic characteristics, we find that seniors living in multigenerational arrangements are on average 4 percentage points less likely to be in poverty than their counterparts without children in the household. The magnitude of the relationship is larger among seniors predicted to have fewer economic resources in retirement. In contrast, we find that seniors living in skip-generational arrangements are 11 percentage points more likely to be in poverty than their counterparts without children in the household, even after controlling for a detailed set of demographic, economic, and policy variables. Again, the relationship is larger at the bottom of the predicted income distribution.

Our findings highlight heterogeneity in senior outcomes by type of living arrangement and have important implications for public policy. Policies directed at working-age adults may have important spillovers to senior populations due to coresident living arrangements, and policymakers could do more to reduce barriers to safety net program participation among the most vulnerable skip-generation families.

DATA

Our analysis is based on the 2000 Census (5-Percent Public Use Microdata Sample) and the 2005–2019 American Community Surveys (Public Use Microdata Samples).[3] These surveys offer rich demographic information for a large, nationally representative sample of individuals living in the United States and their households. The primary sample of interest is older adults ages sixty-five and up living in

---

2. For example, Natasha Pilkauskas and Katherine Michelmore (2019) show that higher simulated Earned Income Tax Credit benefits reduce multigenerational residence among single-mother families.

3. For 2001 through 2004, the American Community Survey does not report geographic information more finely than the state level; we therefore exclude those years from the analysis.

households, that is, excluding those living in institutions or other group quarters.[4]

We identify whether these seniors live with any child under age eighteen; for each child, we identify how they are related to the older person using variables that describe the individual's relationship to the household head and other reported family relationship variables. We focus on social rather than legal relationships such that both married and unmarried partners are treated as having the same relationship status to other members of the household as their partner.

The senior living arrangements are defined into mutually exclusive groups as follows:

Multigenerational. The focal senior lives with their adoptive, step, or biological grandchild under eighteen or the grandchild of their partner, and with their own adult child or that of their partner. This living arrangement most often arises when the adult child of the senior is the parent of the grandchild, but we also define as multigenerational living arrangements those in which the middle generation adult is not the parent of the child. For example, if a child is living with her aunt and grandmother but not her own parent, we would consider the grandmother to be living in a multigenerational household.

Skip-generational. The focal senior lives with their adoptive, step, or biological grandchild under eighteen or the grandchild of their partner, but not with their adult child or that of their partner. This definition most often includes children living with grandparents without their parents, but also includes the case in which the parent of the child is under age eighteen.

Own or other child. Children under eighteen live in the household but are not the grandchildren of the focal senior or their partner. Under this categorization, the senior or their partner is usually but not always the parent of the child.

No child. No child under eighteen lives in the household.

To analyze the relationships between economic and policy variables and the propensity to live with children, we merge data from a variety of other sources to the census or ACS dataset based on year and place of residence using either state or Public Use Microdata Area (PUMA), where PUMAs are nonoverlapping statistical geographic areas defined by the census so as to contain no fewer than one hundred thousand people each. In particular, we obtain measures of economic opportunity for workers, measures of the generosity of the safety net, measures of housing affordability, measures of drug-related mortality, and measures of incarceration. We inflate all dollar-denominated variables to 2019 dollars using the Consumer Price Index for All Urban Consumers (CPI-U) from the Bureau of Labor Statistics (BLS).

Measures of Economic Opportunity for Workers

Measures of economic opportunity variables are measured annually at the state level and include the state's ratio of employment to population and the minimum wage in effect in the state, which is the state's statutory minimum wage or the federal minimum wage, whichever is higher. We obtained both measures from the University of Kentucky Center for Poverty Research National Welfare Data, which collates state-level data from a variety of documented sources (UKCPR 2023).

Measures of Safety Net Generosity

Measures of safety net variables are also measured annually at the state level. We obtained data on state Unemployment Insurance generosity, measured as the maximum benefit amount multiplied by the maximum duration

4. There has been a secular decline in age-specific institutionalization rates over our time period (Butcher, Moran, and Watson 2022), but the decline is largest among the oldest seniors, who are the least likely to live with children.

of benefits, collated from the Department of Labor's records of state unemployment insurance laws by Maxim Massenkoff (2024). We also use an index of safety net generosity we describe elsewhere (see Schmidt, Shore-Sheppard, and Watson 2023). It is the sum of refundable tax credits, Temporary Assistance for Needy Families (TANF), and Supplemental Nutrition Assistance Program (SNAP) benefits for which the average single-parent family in a nationally representative sample would be eligible, assuming they took full advantage of the programs for the state and prior calendar year.

Measures of Housing Affordability

We use the census and American Community Survey data to calculate annual median rent at the PUMA level. Because metropolitan area residence status is not reported at the household level in the census or ACS, we match a measure of whether the PUMA is nonmetropolitan as determined by IPUMS USA, the METRO variable (Ruggles et al. 2023) to our data by PUMA and year.

Measures of Drug Mortality and Incarceration

We use a measure of the prior year crude drug-related mortality death rate from the CDC (Centers for Disease Control and Prevention) Wonder database (2021). We obtain the number of male and female prisoners by state and year from the Bureau of Justice Statistics National Prisoner Statistics collection and denominate the numbers with state annual male and female population estimates from the Census Bureau to obtain male and female incarceration rates (U.S. Bureau of Justice 2022).[5]

Table 1 reports means of variables in the ACS sample used in regression analyses, broken out by type of living arrangement. Demographic differences are notable across groups, as we explore graphically in the next section. In regard to the economic and policy variables,

seniors in multigenerational living arrangements are more likely living in a metro area and in places with high median rents and lower drug mortality rates. Skip-generational living arrangements are more common in places and years with less generous safety net policies, with lower median rents, and with higher rates of incarceration.

CHARACTERISTICS AND TRENDS IN SENIORS LIVING WITH CHILDREN

We begin with a graphical analysis describing the prevalence of living with children overall and in the three subcategories of child-coresident household structures over time and by demographic characteristics. Figure 1 shows trends in seniors age sixty-five through ninety living with children between 2000 and 2019. The overall propensity to live with children has risen recently, primarily driven by older adults being more likely to live with their own child. Rates of multigenerational living increased slightly around the time of the Great Recession and have returned to around 4 percent since.[6] This pattern is in contrast to the pattern observed when focusing on children, which shows increasing shares of children living in multigenerational and skip-generational arrangements (Dunifon, Ziol-Guest, and Kopko 2014; Pilkauskas, Amorim, and Dunifon 2020). This difference can be explained by demographic shifts in the population. Reductions in fertility in previous generations and longer life expectancy have led to increases in the share of seniors in the population. In total, 7.2 percent of adults between the ages of sixty-five and ninety live with a child in their household in 2019.

Figure 2 illustrates the substantial differences in living arrangements by race and ethnicity, with non-Hispanic White seniors having the lowest prevalence of living with children among all major race-ethnicity groups. In 2019, 4.5 percent of non-Hispanic White seniors live

5. Because the Federal Bureau of Prisons is responsible for sentenced prisoners in Washington, D.C., the male and female incarceration rate variables are available only for the fifty states. Consequently, regression models are estimated for the fifty states excluding Washington, D.C.

6. In the first half of the 2000s, the American Community Survey was experimental and had a less standardized format and a smaller sample size. We do not use the 2001 to 2004 waves due to the lack of detailed geographic information noted, and we believe the jump between 2005 and 2006 to be an artifact of these data issues.

Table 1. Variable Means

	Multigenerational (N = 321,734)	Skip-Generational (N = 77,853)	Own or Other Child (N = 129,248)	No Child in Household (N = 8,532,239)
Demographic variables				
Non-Hispanic white	0.450	0.576	0.471	0.812
Non-Hispanic black	0.133	0.249	0.173	0.079
Non-Hispanic Asian	0.169	0.024	0.106	0.032
Hispanic	0.227	0.121	0.226	0.064
Other race-ethnicity	0.022	0.030	0.024	0.012
Foreign-born	0.412	0.108	0.326	0.112
Never-married male	0.004	0.005	0.035	0.021
Ever-married male	0.372	0.413	0.449	0.424
Never-married female	0.023	0.023	0.051	0.026
Ever-married female	0.601	0.559	0.465	0.529
Less than twelve years education	0.325	0.278	0.328	0.162
Twelve years education	0.381	0.423	0.363	0.417
Some college	0.138	0.173	0.135	0.176
Bachelor's or more	0.156	0.125	0.173	0.245
Age	72.296	71.307	72.792	73.920
In poverty	0.090	0.230	0.148	0.089
Local contextual variables				
State employment-population ratio	0.465	0.462	0.464	0.468
Maximum of federal and state minimum wage	8.623	8.294	8.605	8.435
Maximum UI/1000	12.489	11.780	12.189	12.332
Cash and food safety net index	5.391	5.159	5.393	5.264
Not in metro area	0.073	0.165	0.092	0.143
Median rent/100	11.376	8.938	10.793	9.956
Crude drug mortality rate	14.779	15.437	15.122	15.448
Male incarceration percentage	0.810	0.869	0.819	0.810
Female incarceration percentage	0.059	0.068	0.061	0.061

Source: Authors' calculations based on U.S. Census Bureau 2003, 2006–2020.

Note: Means are for regression analysis sample, which includes individuals aged sixty-five to ninety residing in households and not in group quarters observed in 2000 Census and 2005–2019 American Community Surveys, excluding Washington, D.C., and excluding North Dakota for certain years due to missing data.

with children, compared with 11.7 percent of non-Hispanic Black seniors, 17.7 percent of Hispanic seniors, and 20.6 percent of non-Hispanic Asian seniors. Figure 2 also makes clear that multigenerational living arrangements are particularly common among Asian and Hispanic seniors, and that skip-generational situations are most common among non-Hispanic Black seniors. The propensity to live with children is declining be-tween 2000 and 2019 for most major race-ethnicity groups, but increases slightly among non-Hispanic White seniors over this period, from 3.5 to 4.5 percent of seniors.

We next pool the years of analysis (2000 and 2005 through 2019) to characterize some key demographic patterns. Figure 3 shows that foreign-born seniors are much more likely to live with children, particularly in multigenerational arrangements, than native-born seniors

Figure 1. Living Arrangements Among Seniors Over Time
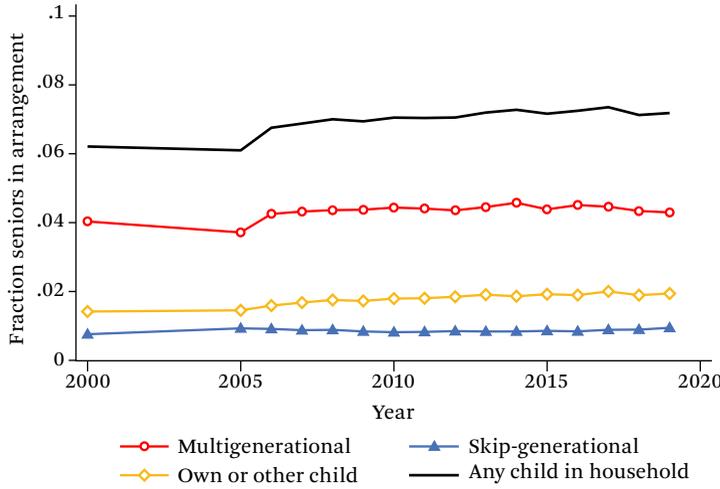
Source: Authors' calculations based on US. Census Bureau 2003, 2006–2020.
Note: Sample is adults aged sixty-five to ninety residing in households and not in group quarters. Definitions of living arrangements described in the text.

Figure 2. Living Arrangements by Race-Ethnicity
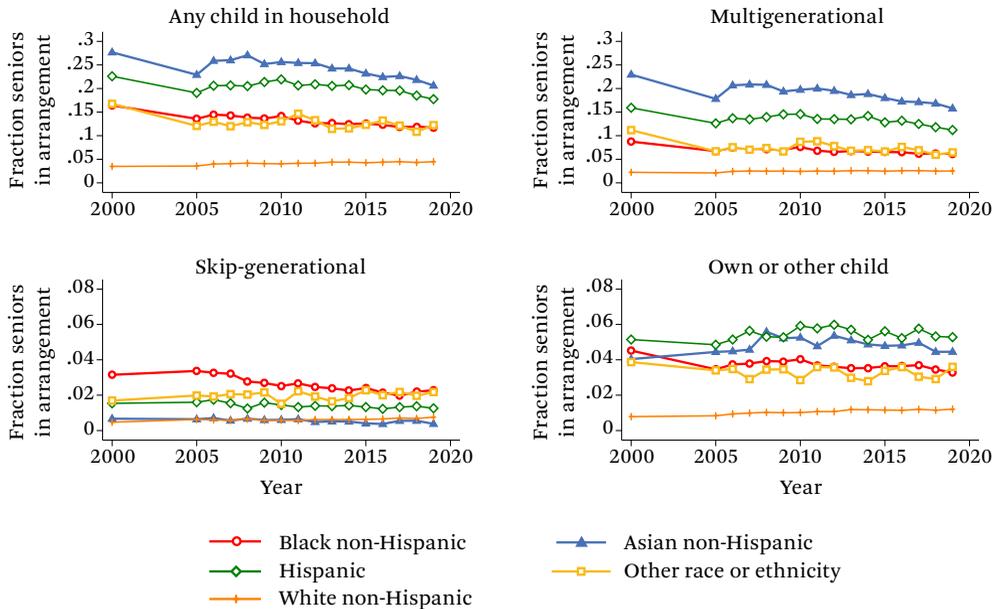
Source: Authors' calculations based on U.S. Census Bureau 2003, 2006–2020.
Note: Sample is adults aged sixty-five to ninety residing in households and not in group quarters observed in 2000 Census and 2005–2019 American Community Surveys. Other race-ethnicity defined to include those reporting more than one race. Definitions of living arrangements described in the text.

Figure 3. Living Arrangements by Foreign-Born Status
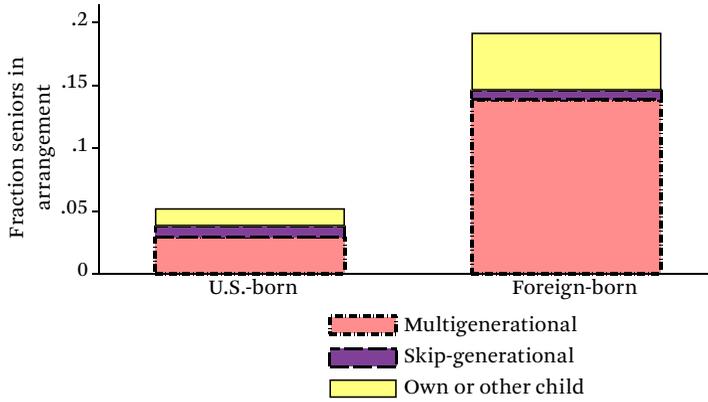
Source: Authors' calculations based on U.S. Census Bureau 2003, 2006–2020.
Note: Sample is adults aged sixty-five to ninety residing in households and not in group quarters observed in 2000 Census and 2005–2019 American Community Surveys. Other race-ethnicity defined to include those reporting more than one race. Definitions of living arrangements described in the text.

(19.2 versus 5.2 percent for the full sample). This propensity of foreign-born seniors to live with children is also evident within each major race-ethnicity group (results not shown).

Figure 4 illustrates differences by sex and marital status, breaking out living arrangements for men and women separately by never married and ever married. Never-married men

are less likely to be living with children (4.1 percent) than either ever-married men (6.6 percent) or women (8.2 and 7.4 percent for never-married and ever-married women, respectively). Among never-married men, the bulk of those living with children are living with their own children, and multigenerational living is uncommon. Among the other three groups, mul-

Figure 4. Living Arrangements by Gender and Marital Status

Source: Authors' calculations based on U.S. Census Bureau 2003, 2006–2020.
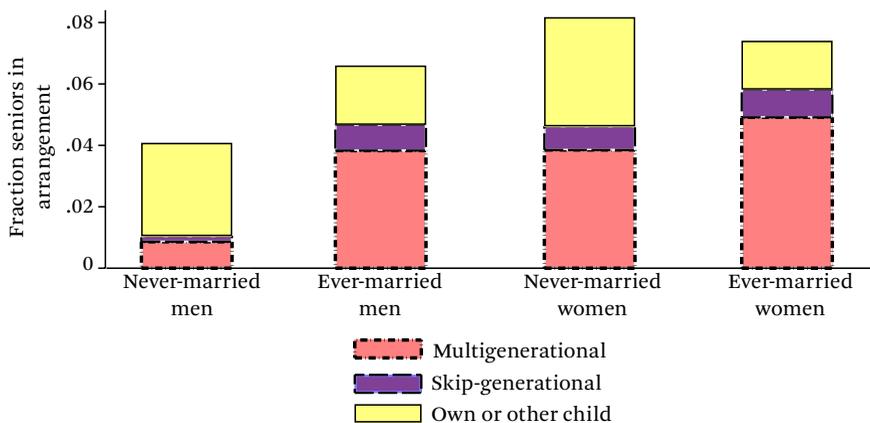*Note:* Sample is adults aged sixty-five to ninety residing in households and not in group quarters observed in 2000 Census and 2005–2019 American Community Surveys. Other race-ethnicity defined to include those reporting more than one race. Definitions of living arrangements described in the text.

tigenerational living arrangements play a much larger role.

Figure 5 presents living arrangements by educational attainment of the senior, breaking out those with less than a high school degree from high school graduates, those with some college, and those with college degrees. We see an educational gradient in the prevalence of living with children, with the highest rates of child coresidence among those with less than a high school degree (13.0 percent), half that rate for high school graduates (6.5 percent), and the lowest rates among college graduates (4.6 percent). Multigenerational households are the most common arrangement across all educational categories, with both own or other children and skip-generational arrangements playing a larger role among the least well educated.

This graphical analysis shows that race-ethnicity, nativity, gender, marital status, and education are important predictors of the propensity to live with children among seniors. However, these demographic factors are correlated with one another, so it is important to examine the partial effect of each factor controlling for the others using a regression framework.

We show the results of this exercise in table 2. The analysis sample is slightly modified to include only observations for which we have the full suite of control variables used, so we drop the District of Columbia, for which we lacked incarceration data for almost all years, and three years of data for North Dakota. The regressions control for year fixed effects, state fixed effects, and age fixed effects, and standard errors are clustered at the state level. Column 1 presents results for any living with children, and the patterns are consistent with the raw associations in the data: seniors who identify as Hispanic or non-White, foreign-born seniors, and those with less education are more likely to live with children even conditional on other demographic characteristics. Ever-married men and women (regardless of marital status) are significantly more likely to live with children than never-married men.

Columns 2 through 4 break results out by the specific category of living with children, presenting results for multigenerational in column 2, skip-generational in column 3, and own or other children in column 4. In general, the patterns are similar to those in column 1. Non-Hispanic White seniors have the lowest likelihood of any of the three types of living arrangements, as do the most educated seniors. One interesting difference is that although foreign-born seniors are significantly more likely to live in either multigenerational households or with their own or other children than the native born, they are significantly less likely to live in

Figure 5. Living Arrangements by Education
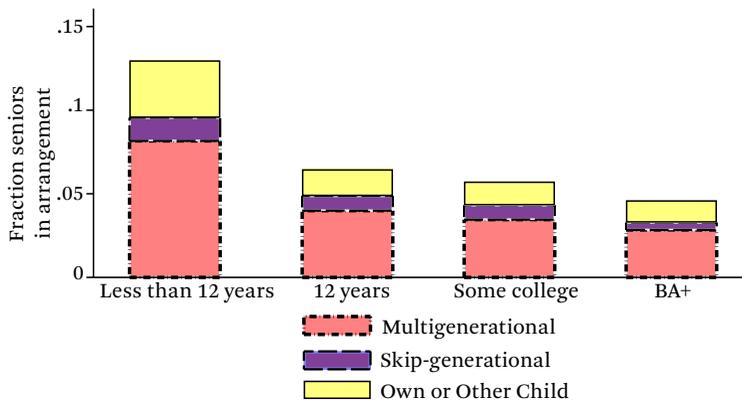
Source: Authors' calculations based on U.S. Census Bureau 2003, 2006–2020.
Note: Sample is adults aged sixty-five to ninety residing in households and not in group quarters observed in 2000 Census and 2005–2019 American Community Surveys. Other race-ethnicity defined to include those reporting more than one race. Definitions of living arrangements described in the text.

Table 2. Demographic Correlates of Living with Children

	(1) Any Child in Household	(2) Multigenerational	(3) Skip- Generational	(4) Own or Other Child
Non-Hispanic Black	0.0750***	0.0350***	0.0177***	0.0224***
	(0.00370)	(0.00208)	(0.000584)	(0.00147)
Non-Hispanic Asian	0.130***	0.108***	0.00143**	0.0206***
	(0.00862)	(0.00786)	(0.000427)	(0.00121)
Hispanic	0.104***	0.0670***	0.00703***	0.0300***
	(0.00902)	(0.00621)	(0.000663)	(0.00290)
Non-Hispanic Other	0.0683***	0.0385***	0.0121***	0.0177***
	(0.00746)	(0.00526)	(0.00158)	(0.00154)
Foreign-born	0.0676***	0.0567***	–0.00411***	0.0150***
	(0.00617)	(0.00512)	(0.000231)	(0.00115)
Ever-married man	0.0349***	0.0345***	0.00867***	–0.00818***
	(0.00202)	(0.00303)	(0.000612)	(0.00141)
Never-married woman	0.0292***	0.0218***	0.00543***	0.00198*
	(0.00193)	(0.00144)	(0.000393)	(0.000919)
Ever-married woman	0.0400***	0.0434***	0.00903***	–0.0125***
	(0.00193)	(0.00328)	(0.000561)	(0.00163)
Less than twelve years education	0.0318*** (0.00441)	0.0185*** (0.00351)	0.00400*** (0.000261)	0.00925*** (0.00106)
Some college	–0.0123***	–0.00792***	–0.00106***	–0.00336***
	(0.00177)	(0.00120)	(0.000150)	(0.000568)
Bachelor's or more	–0.0239***	–0.0153***	–0.00406***	–0.00461***
	(0.00172)	(0.00129)	(0.000266)	(0.000496)
Observations	9,061,074	9,061,074	9,061,074	9,061,074

Source: Authors' calculations based on U.S. Census Bureau 2003, 2006–2020.
Note: Standard errors in parentheses clustered at the state level. Analyses control for year, state of residence, and age. Sample is individuals aged sixty-five to ninety residing in households and not in group quarters observed in 2000 Census and 2005-2019 American Community Surveys, excluding Washington, D.C. and excluding North Dakota for certain years due to missing data.
* $p < .05$; ** $p < .01$; *** $p < .001$

skip-generation households. In addition, ever-married seniors (both male and female) are significantly less likely to live with their own or other children than never-married seniors, holding other characteristics constant.

PREDICTING ECONOMIC RESOURCES AT OLDER AGES

Our analysis thus far has shown that seniors living with children are more likely to be from minoritized race-ethnicity groups, to be foreign born, and to have less education. These factors suggest that, separate from any direct impact of their living arrangements, seniors with children in the household may have fewer eco-

nomic resources at their disposal. To formally investigate this possibility and summarize predicted economic resources, we use a regression model to characterize income in the period before typical retirement age, which—because it correlates with both Social Security benefit amounts and wealth—serves as a proxy for economic resources at older ages, without being directly affected by living arrangements in old age or by the Social Security claiming and retirement decision.

In particular, we consider the total personal income (adjusted to 2019 dollars) of those ages fifty through sixty-one. We assign married individuals half of the combined total personal

income for the couple, and assign unmarried individuals their total personal income. We then use a rich set of variables to predict income by demographic cell, where cells are defined by the interactions of race-ethnicity, foreign-born status, gender, an indicator for whether the person has ever been married, and a set of detailed education dummies. State fixed effects are also included.

Next, we apply the coefficients from the prediction model to the primary sample of interest, those ages sixty-five through ninety, to generate a ventile rank. This rank is a summary measure of predicted economic resources based on demographics and state of residence. Figure 6 shows how this rank correlates with the share of seniors in living arrangements. More economically vulnerable groups—roughly the bottom third of the predicted income distribution—are much more likely to be in living arrangements with children, with the propensity to live with children falling sharply through the first through seventh ventiles and

declining much more gradually with greater predicted income in the upper two-thirds of the distribution.

How Does the Economic and Policy Context Relate to Living with Children?

We now turn to our analysis of the relationship between living arrangements and economic and policy factors. The models also control for year fixed effects, state fixed effects, and age fixed effects, as well as fully interacted demographic controls, including race-ethnicity, foreign-born status, gender, ever-married status, and educational attainment. We focus on how these variables are associated with the likelihood of living in multigenerational and skip-generational arrangements for the overall sample, as well as separately by four predicted income quartiles. The analysis sample is as described.

Table 3 shows the relationship of these contextual variables with multigenerational living arrangements. The first column is for all se-

Figure 6. Living Arrangements by Predicted Income Rank
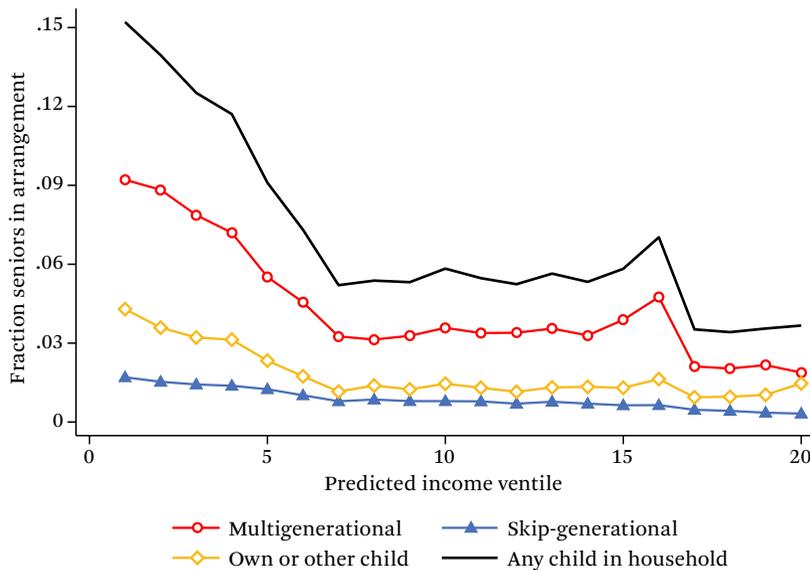
Source: Authors' calculations based on U.S. Census Bureau 2003, 2006–2020.
Note: Sample is adults aged sixty-five to ninety residing in households and not in group quarters observed in 2000 Census and 2005–2019 American Community Surveys. Predicted income rank is based on an out-of-sample analysis of average incomes for fifty- to sixty-one-year-olds on the basis of state and race, ethnicity, gender, marital status, education demographic cell. Definitions of living arrangements described in the text.

Table 3. Economic and Policy Predictors of Multigenerational Living Arrangements by Predicted Income Quartile

	(1) All	(2) Q1	(3) Q2	(4) Q3	(5) Q4
State employment-population ratio	−0.00988 (0.0195)	−0.0573 (0.0384)	−0.0429 (0.0308)	0.0150 (0.0362)	−0.0131 (0.0293)
Maximum federal and state minimum wage	−0.000680 (0.000404)	−0.00157 (0.000929)	−0.000680 (0.000656)	−0.00102* (0.000499)	−0.000368 (0.000363)
Max UI/1000	−0.000224 (0.000126)	−0.000612* (0.000278)	−0.000391* (0.000161)	0.0000127 (0.0000811)	−0.000111 (0.000110)
Cash and food safety net index	−0.00201 (0.00114)	−0.00656* (0.00288)	−0.00333 (0.00245)	−0.000576 (0.00132)	−0.000768 (0.000891)
Not in metro area	−0.00656*** (0.00128)	−0.00707** (0.00255)	−0.00474*** (0.000860)	−0.00584*** (0.00141)	−0.00457*** (0.000693)
Median rent/100	0.000987* (0.000395)	0.00219* (0.000985)	0.00158*** (0.000294)	0.00139** (0.000428)	0.000207 (0.000106)
Crude drug mortality rate	0.0000288 (0.0000663)	0.000105 (0.000134)	−0.0000554 (0.000139)	−0.0000478 (0.0000479)	−0.0000334 (0.0000507)
Male incarceration percentage	0.00880 (0.00741)	0.0253 (0.0140)	−0.00140 (0.00733)	0.00943 (0.00910)	−0.000339 (0.00607)
Female incarceration percentage	0.0697 (0.0472)	0.132 (0.105)	0.147* (0.0595)	−0.0648 (0.0483)	0.0397 (0.0371)
Observations	9,061,074	2,270,793	2,282,144	2,247,468	2,260,656

Source: Authors' calculations based on U.S. Census Bureau 2003, 2006–2020.
Note: Standard errors in parentheses clustered at the state level. Analyses control for year, state of residence, age, and demographic cells defined by race, ethnicity, foreign-born status, gender, ever-married status and education. Sample is individuals aged sixty-five to ninety residing in households and not in group quarters observed in 2000 Census and 2005-2019 American Community Surveys, excluding Washington, D.C., and excluding North Dakota for certain years due to missing data. A small number of singleton observations are dropped in columns (2), (3), and (4). Q1 through Q4 refer to the quartile of the predicted income rank defined in the text.
* $p < .05$; ** $p < .01$; *** $p < .001$

niors, and the remaining columns split the sample into four predicted income quartiles, where Q1 is the lowest income quartile, and Q4 is the highest income quartile. We find no statistically significant relationship between multigenerational living arrangements and the state employment-to-population ratio. The minimum wage does have a statistically significant association with living arrangements for older adults in the middle of the predicted income distribution.

We also find that a less generous safety net is predictive of multigenerational living arrangements for seniors in the lower end of the predicted economic distribution. Seniors in the lower half are significantly less likely to live in multigenerational arrangements when Unemployment Insurance is more generous. More generous cash and food support through refundable tax credits, TANF, and SNAP is also associated with less multigenerational living for older adults in the bottom quartile. An additional \$1,665 in cash and food benefit eligibility, which roughly corresponds to a 10th to 90th percentile jump in state generosity, is associated with a 1.1 percentage point lower rate of multigenerational living in the bottom quartile. These programs are more targeted at the working-age population, and might help the middle generation live independently. The re-

sults are consistent with similar findings regarding the Earned Income Tax Credit (Pilkauskas and Michelmore 2019).

Living in a metro area is associated with more multigenerational living throughout the predicted income distribution, and high rents are associated for all but the highest quartile. This suggests that doubling up through multigenerational living may be a response to high housing costs. For example, moving from the 10th percentile rent area to the 90th percentile rent area, which corresponds to an extra $1,080 in monthly rent, is associated with a multigenerational living increase of 1.1 percentage point overall and 2.4 percentage points for bottom quartile seniors.

The relationship between drug mortality and living arrangements is not statistically significant. The association is positive, however, of female incarceration with multigenerational living for seniors in the bottom half of the predicted income distribution, although only statistically significant for the second quartile. This could reflect multigenerational living arrangements providing support for families facing disruption due to incarceration.

Table 4 repeats the analysis for skip-generational living arrangements. Here we see suggestive evidence that a higher minimum wage reduces the propensity to live in a skip-generational arrangement. Unemployment insurance has the opposite sign, with more

Table 4. Economic and Policy Predictors of Skip-Generational Living Arrangements by Predicted Income Quartile

	(1) All	(2) Q1	(3) Q2	(4) Q3	(5) Q4
State employment-population ratio	−0.00635 (0.00763)	−0.000637 (0.0192)	−0.0223 (0.0134)	−0.00115 (0.00974)	−0.00529 (0.0115)
Maximum of federal and state minimum wage	−0.000270** (0.0000823)	−0.000335 (0.000216)	−0.000415* (0.000188)	−0.000155 (0.000154)	−0.000144 (0.000108)
Max UI/1000	0.0000714* (0.0000290)	0.0000890 (0.000112)	0.0000845 (0.0000581)	0.000109 (0.0000590)	0.0000388 (0.0000359)
Cash and food safety net index	0.0000345 (0.000249)	0.000522 (0.000841)	−0.000197 (0.000556)	0.000248 (0.000429)	−0.000115 (0.000246)
Not in metro area	0.000402 (0.000239)	0.000541 (0.000383)	−0.000325 (0.000357)	0.000300 (0.000335)	0.000454 (0.000269)
Median rent/100	−0.000351*** (0.0000480)	−0.000574*** (0.0000656)	−0.000472*** (0.0000642)	−0.000354*** (0.0000561)	−0.000206*** (0.0000429)
Crude drug mortality rate	0.0000240 (0.0000169)	0.00000093 (0.0000444)	0.0000380 (0.0000340)	−0.00000637 (0.0000315)	0.0000230 (0.0000239)
Male incarceration percentage	0.0000569 (0.00167)	−0.000389 (0.00409)	−0.00202 (0.00411)	0.00203 (0.00275)	0.000629 (0.00231)
Female incarceration percentage	0.0367** (0.0136)	0.0758** (0.0257)	0.0419 (0.0280)	0.00910 (0.0192)	0.00539 (0.0155)
Observations	9,061,074	2,270,793	2,282,144	2,247,468	2,260,656

Source: Authors' calculations based on U.S. Census Bureau 2003, 2006–2020.
Note: Standard errors in parentheses clustered at the state level. Analyses control for year, state of residence, age, and demographic cells defined by race, ethnicity, foreign-born status, gender, ever-married status, and education. Sample is individuals aged sixty-five to ninety residing in households and not in group quarters observed in 2000 Census and 2005–2019 American Community Surveys, excluding Washington, D.C., and excluding North Dakota for certain years due to missing data. A small number of singleton observations are dropped in columns (2), (3), and (4). Q1 through Q4 refer to the quartile of the predicted income rank defined in the text.
* $p < .05$; ** $p < .01$; *** $p < .001$

generous systems associated with more skip-generation arrangements. The estimated coefficients on the cash and food safety net variable are not statistically significant. Skip-generational living is more common in places with low rents, possibly because they are areas in economic decline. We find no evidence of an association between drug mortality rates and skip-generational living arrangements. Finally, state female incarceration rates are positively associated with skip-generational living arrangements, particularly for seniors in the bottom economic quintile. Moving from the 10th to 90th percentile state is equivalent to an increase in the state female incarceration rate of 0.074 per hundred women and the associated increase in skip-generational arrangements is 0.56 percentage points for the least advantaged seniors.

In sum, a number of contextual factors are associated with living arrangements, even after accounting for individual characteristics, year fixed effects, and state fixed effects. Though not a causal analysis, the results suggest a potential role for safety net generosity, housing prices, and incarceration in determining living arrangements among seniors.

LIVING WITH CHILDREN AND POVERTY

Finally, we investigate the association between living with children and poverty, both overall and separately by predicted income quartile, conditioning on the same set of demographics and interactions that we used to predict the income rank. Living with grandchildren and adult children may be beneficial to seniors by providing financial resources, socioemotional support, and caregiving. On the other hand, pooling resources with children may be in response to economic hardship or itself result in economic hardship.

We use the ACS-defined poverty status of the senior, which is defined on the basis of income including government program cash transfers but before taxes. An individual's poverty status depends on who is in their census-defined family, which may differ from the group of individuals actually sharing resources in the household (for more detail, see U.S. Census Bureau 2023). The poverty status typically fluctuates as family members enter or leave a household be-

cause the needs and the resources of the family change. Consequently, we treat these estimates as informative about the nature of relationship between the economic status of seniors and their living arrangements rather than as a precise measure of this relationship.

Using the same approach of predicting the ventile rank in economic resources for seniors as in figure 6, we examine how the rate of poverty varies by ventile of predicted economic resources and living arrangement. Figure 7 shows that the share of seniors in skip-generational living arrangements living in poverty is greater than that in all other living arrangements throughout the predicted income distribution. The poverty rate is strikingly high among seniors whose demographic characteristics predict low resources and above 25 percent for seniors in skip-generational living arrangements who are in the bottom fifth of the predicted income distribution. The relationship between predicted resources and poverty among this group is perhaps unsurprising, but it is notable that the rate of poverty among seniors in skip-generational living arrangements is above 10 percent for all except the top quintile of the predicted distribution. In contrast, poverty rates among seniors in multigenerational living arrangements are lower than those among seniors living without children in the household.

We next explore the relationship between living with a child and poverty in a regression context. Results in column 1 of table 5 control only for year, state, and the age of senior, and show that seniors who live with children are 3.5 percentage points more likely to be poor. However, many demographic and policy variables are correlated with both living arrangements and poverty. Column 2 incorporates the full set of demographic and policy controls and shows an opposite-signed though insignificant association—that is, seniors living with children are no more likely to be poor after controlling for these factors.

Given the results in figure 7, which indicate heterogeneity in this relationship by type of living arrangement, we show detailed results in column 3 of table 5. After controlling for the same set of demographic and policy factors, multigenerational living appears to be protective against poverty, whereas skip-generational

Figure 7. Poverty Rates by Living Arrangement for Predicted Income Rank Groups
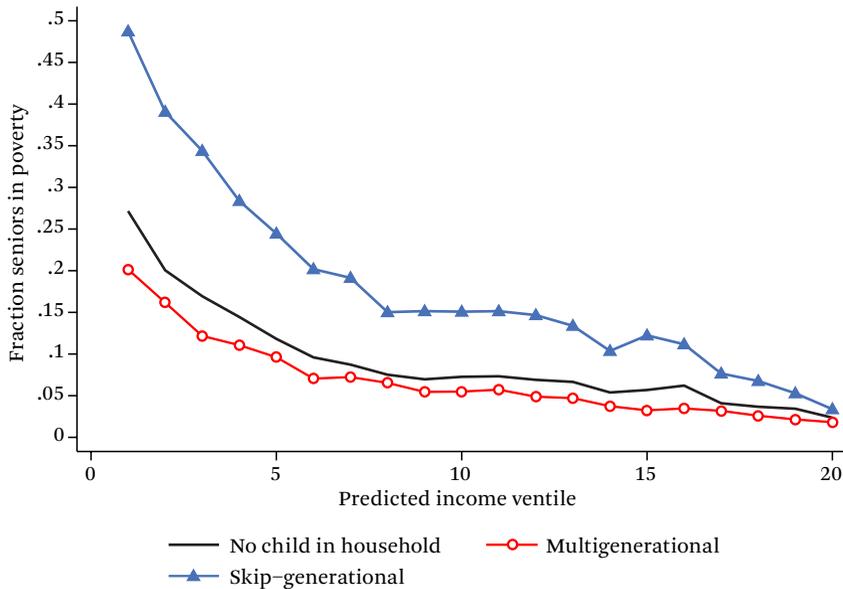
Source: Authors' calculations based on U.S. Census Bureau 2003, 2006–2020.
Note: Sample is adults aged sixty-five to ninety residing in households and not in group quarters observed in 2000 Census and 2005-2019 American Community Surveys. Predicted income rank is based on an out-of-sample analysis of average incomes for fifty- to sixty-one-year-olds on the basis of state and race, ethnicity, gender, marital status, education demographic cell. Definitions of living arrangements described in the text.

living is associated with higher rates of poverty, consistent with the less-controlled results from figure 7. Columns 4 through 7 stratify results by predicted income quartile. We see that both of these patterns—higher poverty among skip-generational households and lower poverty among multigenerational households—are seen throughout the predicted income distribution, but are especially pronounced among those in the bottom quartile. Seniors in the first quartile of the predicted income distribution living in skip-generational households have a 15.8 percentage point higher likelihood of poverty than their counterparts living without children, whereas those in multigenerational arrangements have a 6.5 percentage point lower likelihood. Interestingly, this pattern differs from the pattern for reported food insecurity, which is higher for seniors living with children than for seniors living without children (Butcher et al. 2023). This difference is worth exploring in future work.

CONCLUSION

In this article, we use the 2000 Census and the 2005 through 2019 American Community Surveys to examine the likelihood of seniors to live with children over the first two decades of the twenty-first century. We focus on the living arrangements from the perspective of seniors rather than the perspective of children, and find that in contrast to the patterns viewed from the perspective of children (Pilkauskas, Amorim, and Dunifon 2020), the share of seniors living with children has been relatively stable over this time. However, this overall stability masks important underlying differences by demographic characteristics, such that non-Hispanic White seniors are less likely to live with children than seniors in other racial and ethnic groups, and those who are foreign born and those with less education are more likely. The trends differ across groups as well, with rates among non-Hispanic White seniors rising slightly since 2010, and rates among non-

Table 5. Predictors of Poverty

	(1) All Limited Controls	(2) All Full Controls	(3) All Full Controls	(4) Q1 Full Controls	(5) Q2 Full Controls	(6) Q3 Full Controls	(7) Q4 Full Controls
Any child in household	0.0345*** (0.00451)	-0.0104 (0.00533)					
Multigenerational			-0.0436*** (0.00518)	-0.0650*** (0.00729)	-0.0293*** (0.00743)	-0.0258*** (0.00364)	-0.0251*** (0.00346)
Skip-generational			0.108*** (0.00416)	0.158*** (0.00632)	0.0881*** (0.00432)	0.0679*** (0.00392)	0.0353*** (0.00304)
Own or other child			0.00913** (0.00301)	-0.00455 (0.00567)	0.0249*** (0.00330)	0.0224*** (0.00321)	0.0156*** (0.00219)
# Observations	9,061,074	9,061,074	9,061,074	2,270,793	2,282,144	2,247,468	2,260,656

Source: Authors' calculations based on U.S. Census Bureau 2003, 2006–2020.

Note: Standard errors in parentheses clustered at the state level. Analyses control for year, state of residence, age, demographic cells defined by race, ethnicity, foreign-born status, gender, ever-married status and education, and contextual variables from tables 3 and 4. Sample is individuals aged sixty-five to ninety residing in households and not in group quarters observed in 2000 Census and 2005–2019 American Community Surveys, excluding Washington, D.C., and excluding North Dakota for certain years due to missing data. Q1 through Q4 refer to the quartile of the predicted income rank defined in the text.

* $p < .05$; ** $p < .01$; *** $p < .001$

Hispanic Black, Hispanic, and non-Hispanic Asian seniors declining from considerably higher base rates.

Examining the factors contributing to these living arrangements among seniors, we conduct a multivariate analysis that considers economic and policy variables as well as demographic characteristics and a measure of predicted disadvantage based on income patterns among older working-age adults. We show that seniors with higher predicted disadvantage are more likely to live with children. A number of policy and contextual variables are associated with living arrangements, with a more generous safety net and lower housing prices correlated with lower rates of multigenerational living, and female incarceration rates associated with higher rates of multi- and skip-generation living. Our findings confirm results from qualitative studies and studies of inmates that find a relationship between female incarceration and skip-generation living (Johnson and Waldfogel 2002; Gleeson et al. 2009). In addition, our work provides evidence that in addition to being associated with the well-being of households with seniors and children (Minkler and Fuller-Thomson 2005; Park 2006; Pittman 2015) safety net generosity is associated with the likelihood that such households form.

Finally, we examine the association between child-coresident living arrangements and poverty status, controlling for a rich set of demographic controls as well as the economic and policy context variables discussed. Our results suggest that multigenerational living arrangements are associated with lower poverty rates than those found among seniors living without children, whereas skip-generational living arrangements are associated with higher poverty rates, even after controlling for demographic and other factors that are correlated with the likelihood of forming multigenerational versus skip-generational living arrangements. Overall, the findings are consistent with the possibility that multigenerational arrangements can help families address resource needs, whereas skip-generational arrangements heighten the risk of poverty for seniors or reflect crises that do so.

Our findings are descriptive and do not imply causal relationships, but they are relevant for policy. The number of seniors in the United States is projected to increase by 24.7 million between 2020 and 2040 (Vespa, Medina, and Armstrong 2020), and the demographic composition of those seniors is evolving in ways that make coresidence with children more likely. Our results also suggest that high housing costs, an area of policy concern in many localities, may increase the likelihood that seniors live with children. In addition, our results are consistent with the idea that safety net generosity reduces living with children, and that female incarceration rates increase it. As a result, policies aimed at working-age adults, like safety net programs or criminal justice reform, may have indirect spillover effects on senior well-being.

In addition, skip-generation living arrangements are strongly correlated with poverty and thus skip-generational families are particularly economically vulnerable. Qualitative evidence has documented that many grandparents raising grandchildren face a number of barriers in accessing safety net benefits (Pittman 2015). Our results imply that reducing these barriers could improve the well-being of both generations.

REFERENCES

Buckles, Kasey, William N. Evans, and Ethan M. J. Lieber. 2023. "The Drug Crisis and the Living Arrangements of Children." *Journal of Health Economics* 87 (January): 102723.

Butcher, Kristin F., Kelsey Moran, and Tara Watson. 2022. "Immigrant Labor and the Institutionalization of the U.S.-Born Elderly." *Review of International Economics* 30(5): 1375–1413.

Butcher, Kristin, Lucie Schmidt, Lara Shore-Sheppard, and Tara Watson. 2023. "Living with Children and Food Insecurity in Seniors." *Applied Economic Perspectives and Policy* 45(1): 234–61. https://doi.org/10.1002/aepp.13333.

Centers for Disease Control and Prevention. 2021. "About Multiple Cause of Death, 1999–2020." Washington: National Center for Health Statistics. Accessed June 20, 2023. http://wonder.cdc.gov/mcd-icd10.html.

Dunifon, Rachel E. 2018. *You've Always Been There for Me: Understanding the Lives of Grandchildren Raised by Grandparents*. New Brunswick, N.J.: Rutgers University Press.

Dunifon, Rachel E., Kathleen M. Ziol-Guest, and Kimberly Kopko. 2014. "Grandparent Coresidence and Family Well-Being: Implications for Research and Policy." *The Annals of the American Academy of Political and Social Science* 654(1): 110–26.

Engelhardt, Gary V., and Jonathan Gruber. 2006. "Social Security and the Evolution of Elderly Poverty." *Public Policy and the Income Distribution*, edited by Alan J. Auerbach, David Card, and John M. Quigley, 259–87. New York: Russell Sage Foundation.

Fuller-Thomson, Esme, Meredith Minkler, and Diane Driver. 1997. "A Profile of Grandparents Raising Grandchildren in the United States." *The Gerontologist* 37(3): 406–11. Accessed April 26, 2024. https://academic.oup.com/gerontologist/article/37/3/406/739832.

Gleeson, James P., Julia M. Wesley, Raquel Ellis, Claire Seryak, Gwen Walls Talley, and Jackie Robinson. 2009. "Becoming Involved in Raising a Relative's Child: Reasons, Caregiver Motivations and Pathways to Informal Kinship Care." *Child & Family Social Work* 14: 300–10. https://doi.org/10.1111/j.1365-2206.2008.00596.x.

Haveman, Robert, Rebecca Blank, Robert Moffitt, Timothy Smeeding, and Geoffrey Wallace. 2015. "The War on Poverty: Measurement, Trends, and Policy." *Journal of Policy Analysis and Management* 34(3): 593–638.

Hayslip, Bert, Jr., and Patricia L. Kaminski. 2005. "Grandparents Raising Their Grandchildren: A Review of the Literature and Suggestions for Practice." *The Gerontologist* 45(2): 262–69. Accessed April 26, 2024. https://academic.oup.com/gerontologist/article/45/2/262/815984.

Johnson, Elizabeth I., and Jane Waldfogel. 2002. "Parental Incarceration: Recent Trends and Implications for Child Welfare." *Social Service Review* 76: 460–79.

Levy, Helen. 2015. "Income, Poverty, and Material Hardship Among Older Americans." *RSF: The Russell Sage Foundation Journal of the Social Sciences* 1(1): 55–77. https://doi.org/10.7758/RSF.2015.1.1.04.

Li, Zhe, and Joseph Dalaker. 2021. "Poverty Among the Population Aged 65 and Older." *CRS* report no. R45791. Washington: Congressional Research Service. https://crsreports.congress.gov/product/pdf/R/R45791.

Marchand, Joseph, and Timothy Smeeding. 2016. "Poverty and Aging." In *Handbook of the Economics of Population Aging*, edited by John Piggott and Alan Woodland, vol. 1, 905–50. North-Holland: Science Direct.

Massenkoff, Maxim. 2024. "State Unemployment Laws." U.S. Department of Labor. Accessed April 26, 2024. https://maximmassenkoff.com/data/statelaws.dta.

Minkler, Meredith, and Esme Fuller-Thomson. 2005. "African American Grandparents Raising Grandchildren: A National Study Using the Census 2000 American Community Survey." *The Journals of Gerontology Series B: Psychological Sciences and Social Sciences* 60(2): S82–92.

Mitchell, Olivia S., Robert L. Clark, and Annamaria Lusardi. 2021. "What Explains Low Old-Age Income? Evidence from the Health and Retirement Study." *NBER* working paper no. 28721. Cambridge, Mass.: National Bureau of Economic Research.

Park, Hwa-Ok Hannah. 2006. "The Economic Well-Being of Households Headed by a Grandmother as Caregiver." *Social Service Review* 80(2): 264–96. https://doi.org/10.1086/503122.

Pilkauskas, Natasha V., Mariana Amorim, and Rachel E. Dunifon. 2020. "Historical Trends in Children Living in Multigenerational Households in the United States: 1870–2018." *Demography* 57(6): 2269–96.

Pilkauskas, Natasha V., and Rachel Dunifon. 2016. "Understanding Grandfamilies: Characteristics of Grandparents, Non-resident Parents and Children." *Journal of Marriage and Family* 78(3): 623–33.

Pilkauskas, Natasha, and Katherine Michelmore. 2019. "The Effect of the Earned Income Tax Credit on Housing and Living Arrangements." *Demography* 56(4): 1303–26.

Pittman, LaShawnDa. 2015. "How Well Does the "Safety Net" Work for Family Safety Nets? Economic Survival Strategies Among Grandmother Caregivers in Severe Deprivation." *RSF: The Russell Sage Foundation Journal of the Social Sciences* 1(1): 78–97. https://doi.org/10.7758/2015.1.1.05.

Ruggles, Steven. 2015. "Patriarchy, Power, and Pay: The Transformation of American Families, 1800–2015." *Demography* 52(6): 1797–823.

Ruggles, Steven, Sarah Flood, Matthew Sobek, Danika Brockman, Grace Cooper, Stephanie Richards, and Megan Schouweiler. 2023. "Integrated

Public Use Microdata Series USA: Version 13.0 [dataset].” Minneapolis, Minn.: IPUMS. https://doi.org/10.18128/D010.V13.0.

Schmidt, Lucie, Lara Shore-Sheppard, and Tara Watson. 2023. “The Effect of Safety Net Generosity on Maternal Mental Health and Risky Health Behaviors.” *Journal of Policy Analysis and Management* 42(3): 706–36.

Seltzer, Judith A., and Jenjira J. Yahirun. 2014. “Diversity in Old Age: The Elderly in Changing Economic and Family Contexts.” In *Diversity and Disparities: America Enters a New Century*, edited by John Logan, 270–305. New York: Russell Sage Foundation.

U.S. Bureau of Justice Statistics. 2022. National Prisoner Statistics, 1978–2021. ICPSR38555-v1. Ann Arbor, Mich.: Inter-university Consortium for Political and Social Research [distributor], 2022-12-19. http://doi.org/10.3886/ICPSR38555.v1.

U.S. Census Bureau. 2003. “5-Percent Public Use Microdata Sample.” Dataset. Washington. Accessed November 25, 2020. https://www2.census.gov/census_2000/datasets/PUMS/FivePercent/.

—— . 2006–2020. “American Community Survey Public Use Microdata Sample.” Dataset. Washington. Accessed November 25, 2020. https://www.census.gov/programs-surveys/acs/microdata/access.html.

——. 2023. “How the Census Bureau Measures Poverty.” Last revised June 15, 2023. Accessed April 26, 2024. https://www.census.gov/topics/income-poverty/poverty/guidance/poverty-measures.html.

University of Kentucky Center for Poverty Research (UKCPR). 2023. “UKCPR National Welfare Data, 1980–2021.” Lexington: University of Kentucky. Accessed March 5, 2023. http://ukcpr.org/resources/national-welfare-data.

Vespa, Jonathan, Lauren Medina, and David M. Armstrong. 2020. “Demographic Turning Points for the United States: Population Projections for 2020 to 2060.” *Current Population Reports*, Series P25, no. 1144. Washington: U.S. Census Bureau.

Ziliak, James P., and Craig Gundersen. 2016. “Multigenerational Families and Food Insecurity.” *Southern Economic Journal* 82(4): 1147–66.

Gender Minority Status and Family Inequality in the United States

CHRISTOPHER S. CARPENTER, MAXINE J. LEE, AND LAURA NETTUNO

We provide new evidence on marital status and family outcomes of transgender and other gender minority populations in the United States using more than fifteen thousand non-cisgender adults in the Census Bureau's 2021–2023 Household Pulse, the only nationally representative survey in the United States with information on sex at birth and current gender. These data indicate that non-cisgender individuals—those whose sex at birth does not align with their current gender—are significantly less likely to be married and more likely to have a spouse who has passed away than their cisgender counterparts. Non-cisgender individuals are also significantly less likely than otherwise similar cisgender women to have children in the household. Non-cisgender individuals live in households with significantly more adults than otherwise similar cisgender adults.

Keywords: transgender, gender minority, marital status, family outcomes, Household Pulse

Gender minorities—individuals whose current gender does not align with their sex assigned at birth (SAAB), including transgender, nonbinary, and intersex individuals—are a sizable and increasing share of the U.S. population. Gallup data from 2021 indicate that 2.1 percent of Generation Z individuals, those born between 1997 and 2012, identify as transgender (Jones 2022).[1] Andrew Flores and his colleagues (2016) estimate the number of transgender

Christopher S. Carpenter is E. Bronson Ingram University Distinguished Professor of Economics at Vanderbilt University and research associate at the National Bureau of Economic Research, United States. **Maxine J. Lee** is assistant professor of economics at San Francisco State University, United States. **Laura Nettuno** is a PhD student in economics at Vanderbilt University, United States.

1. Transgender and gender nonconforming individuals may include transsexuals, androgynous people, cross-dressers, genderqueers, and other gender nonconforming people who identify as transgender. Some but not all

adults in the United States at about 1.4 million; and a recent population-based study estimated that 1.2 million adults in the United States identify as nonbinary, with increasing shares of LGBTQ+ youth—one in four LGBTQ+ Generation Z individuals—embracing a nonbinary identity (Wilson and Meyer 2021).[2] Related to this is increasing attention to transgender rights and policies in the United States and internationally with respect to medical care, bathroom access, sports participation, conversion therapy, and a range of related issues that could affect the ability of gender minorities to thrive.

Relatively little is known about this increasingly relevant population, mainly because of the lack of high-quality representative surveys and administrative datasets in the United States that permit identification of gender-diverse populations (for recent reviews of what is known, see Badgett, Carpenter, and Sansone 2021; Badgett et al. 2024; Stacey, Reczek, and Spiker 2022). Other work relies on nonrepresentative samples such as the U.S. Transgender Survey (Shannon 2021).[3]

Only one nationally representative survey in the United States allows identification of noncisgender people: the Census Bureau's Household Pulse Survey (2024). These data were de-signed to measure experiences with the COVID-19 pandemic. In the summer of 2021, the Household Pulse introduced a two-part question that asked survey respondents about their sex assigned at birth and their current gender identity. We leverage this survey instrument to identify our sample of non-cisgender individuals, which likely includes transgender men, transgender women, nonbinary individuals, and other gender minorities.

We use these data to present new evidence on family inequality as measured by marital status, family structure, household size, and the presence of children. Understanding family outcomes of transgender and gender-diverse people in the United States is important for several reasons. First, as noted, the size of the gender-diverse population in the United States is substantial and fast growing. Second, romantic unions and marriages are the primary sources of social, emotional, and financial support for most adults. It is well documented that gender-diverse people face significant social stigma, discrimination, harassment, and violence, and that they have lower employment rates and lower incomes than cisgender people. Partnerships and marriages provide insurance against such economic and social shocks that differentially affect non-cisgender people. Third, com-

---

of these individuals may desire to undergo medical or legal sex changes or both. Transgender individuals whose gender identity does not match their sex assigned at birth and who desire to change from one sex to another are sometimes referred to as MTF (individuals who transition from male to female) or FTM (individuals who transition from female to male). Variance is wide in the use of these labels; for example, MTF can be used by individuals who are assigned male at birth and identify as a woman but have not taken steps to change their gender expression.

2. Sexual orientation and gender identity are distinct concepts; all individuals have one or more sexual orientations and one or more gender identities. Sexual minorities include individuals who are attracted to or have sex with individuals of the same gender; these individuals are generally referred to as lesbians, gay men, and bisexual individuals. Gender identity refers to one's sense of being male, female, both, or neither. Gender minorities are individuals whose current gender does not match their sex assigned at birth. Gender minorities can have any sexual orientation, and indeed most surveys, including the Household Pulse, show that most gender minorities identify as heterosexual. Similarly, sexual minorities can have any gender identity, and the vast majority of sexual minorities identify as cisgender. This article is primarily about gender identity and gender minority status, though we control for sexual orientation and sexual minority status in our empirical models.

3. With respect to population-representative data on gender minorities, the United States is behind other developed countries. For example, Canada's 2021 Census includes a two-part question to assess both sex at birth and current gender, allowing identification of the country's gender minority population. The United Kingdom's 2021 Census also includes a direct question about whether the respondent's current gender aligns with their sex at birth, and the 2023 New Zealand Census will ask not only about sexual orientation and gender identity but also about variations in sex characteristics to identify intersex individuals.

ing out as transgender can be disruptive to existing romantic relationships, making it important to understand whether gender minorities are differentially likely to be separated or divorced. Because gender minorities are more likely to partner with sexual minorities, a group that faces additional health risks (White, Sepúlveda, and Patterson 2020), it is important to assess whether gender minorities are more likely than cisgender people to experience the loss of a spouse. Fourth, spouses, kin, and chosen families are the primary sources of caregiving for most older adults. Thus, understanding whether gender minorities have differential access to these family networks has important implications for understanding healthy aging. Fifth, much of the social and policy debate over transgender rights concerns health-care access, including care that could be relevant for reproduction or family formation. Finally, economically vulnerable people may choose to coreside with other adults because of financial constraints rather than preferences. Documenting household structure and size is important to understanding the social position of gender minorities.

We report several key findings using the Household Pulse data. First, we find that among adults aged eighteen to sixty-four, non-cisgender individuals are much less likely to be married than their cisgender counterparts, a difference on the order of 15 to 25 percentage points. For example, 33 percent of non-cisgender individuals age eighteen to sixty-four who were assigned male at birth (AMAB) are married, versus 56 percent of cisgender men. For individuals assigned female at birth (AFAB), 25 percent of non-cisgender individuals are married, versus 52 percent of cisgender women. These raw differences are smaller but remain statistically significant when we include detailed controls: even after accounting for age, sexual orientation, education, and race-ethnicity, we estimate that non-cisgender individuals in the Household Pulse are 3 to 6 percentage points less likely to be married than comparable cisgender individuals, and these differences are statistically significant.

Turning to other marital outcomes, the most robust result we document is that gender minority individuals in the Household Pulse are significantly more likely to have a spouse that has passed away than otherwise similar cisgender individuals. These relative differences are quite large in magnitude, generally 50 percent or more. We also find that gender minorities are more likely than cisgender men, but not cisgender women, to be divorced. When we move beyond marital outcomes and examine household composition, we find other differences. Specifically, we find that although non-cisgender people are less likely to be married, they have significantly larger household sizes on average than cisgender people. Together with the marital status finding, we also show that non-cisgender people are significantly less likely to be in traditional married households; that is, they are significantly less likely than comparable cisgender individuals to report being married and have exactly two adults in the household. Finally, we find that non-cisgender individuals are significantly less likely to have any young children and any children at all in the household than comparable cisgender women.

Taken together, our results provide the most timely evidence using population-based nationally representative data on the nature and extent of family inequality that gender minority individuals experience. These results also highlight the need for large population representative data in the United States that would allow for identification of gender minorities and relationships of individuals to others in the household, for example using a household roster such as in the American Community Survey (ACS) or the Current Population Survey (CPS).

DATA DESCRIPTION

Our data come from waves 3.2 to 3.7 of the Census Bureau's Household Pulse Survey (2024), collected between July 2021 and February 2023. The Household Pulse is an online survey of Americans designed to capture the impact of the COVID-19 pandemic.[4] It has been used to answer diverse research questions related to

---

4. The Household Pulse contacts respondents by email and/or text message using information from the Census Master Address File and other supplemental sources. The Household Pulse records responses if the respondent

COVID-19, including food and housing insecurity (Bitler, Hoynes, and Schanzenbach 2020), education supply (Bansak and Starr 2021), and mental health (Huato and Chavez 2021). It has also been used to study the economic conditions of transgender and other gender minorities (Carpenter, Lee, and Nettuno 2022) thanks to the questions on sex assigned at birth and gender identity first included in wave 3.2.

The Household Pulse asks for respondents' gender identity using a two-step approach.[5] In the first question, respondents are asked, "What sex were you assigned at birth, on your original birth certificate?" with female or male as response options. In the second question, respondents are asked, "Do you currently describe yourself as male, female, or transgender?" with female, male, transgender, and none-of-these as response options. To reduce the miscoding of gender identity, those whose answer to the first question does not exactly match their answer to the second question are asked a follow-up question: "Just to confirm, you were assigned ____ at birth and now you describe yourself as ____. Is that correct?" If the respondent answers no, they are asked to confirm or correct their previous answers to the SAAB and gender identity questions.[6]

---

answers the first set of questions on demographics. During waves 3.2 to 3.7, the response rate ranged between 3.9 and 7.9 percent. To adjust for the non-response bias, the Census Bureau weights each individual based on the sampling area's demographic characteristics from the American Community Survey. The weights do not consider the bias from mid-survey attrition, missing demographics in the Census Master Address File, or respondents' skipping a specific question, but they account for the imbalances in response rates by gender, race, or age. Regarding midsurvey attrition, most of the variables we use in this article come from the demographics section, which is not subject to significant attrition.

5. We discuss a range of advantages and disadvantages of eliciting gender identity using one-step methods versus step-step methods in online appendix A (https://www.rsfjournal.org/content/11/2/65/tab-supplemental). In the one-step method, individuals are typically asked a question that includes transgender as a response option alongside male and female (and sometimes other options). This conflates sex and gender and potentially fails to capture non-cisgender individuals who do not identify as transgender. The two-step method also has limitations. For example, in Household Pulse none-of-these as a response option to the question about current gender likely fails to capture the full range of diversity within the gender diverse and transgender population (though the same limitation is also true for the one-step method). Similar to how sexual orientation response options have increased over time as recognition of other identities such as bisexual, pansexual, and asexual grows, greater recognition of diverse gender identities may follow. Best practices for asking about gender identity are therefore also likely to change as these cultural norms and social acceptance of LGBTQ+ identities change, and these norms are themselves likely related to legal and social recognition of a variety of groups, including intersex people. For a more detailed discussion, see online appendix A.

6. The sex at birth question is the sixth question in the Household Pulse survey, and the gender question is the seventh question in the survey. Although one may worry about backlash, irritation, or protest responses in the Household Pulse survey, we do not think this issue is likely to be significant. This is because the transgender response options are not primary; no cisgender person is being asked "Are you transgender?", for example, as they would be in other datasets such as the Behavioral Risk Factor Surveillance System. This means that as long as cisgender people report their correct sex at birth and current gender, they are never directly asked about not being cisgender. Yes, individuals see transgender or none of these as possible response options to the gender question, and some people may also feel confused about why they are being asked about gender so soon after they were just asked about sex at birth (people may not understand that sex and gender are different concepts, for example). We do not have any way to know how this might affect their later responses to questions about marital and family outcomes, nor to questions about demographics. We also note that the Household Pulse approach to identifying non-cisgender individuals requires double-confirmation that sex at birth does not equal current gender. Only non-cisgender individuals are asked to double confirm; cisgender individuals are not asked to double confirm their cisgender status. There is no way for us to know how these survey design features may have affected individuals' responses to the outcomes under study. This is a limitation of the Household Pulse data.

We group individuals by their responses to these questions and identify each group based on their SAAB and gender identity. This convention creates eight groups: AMAB now male (that is, cisgender men), AMAB now female, AMAB now transgender, AMAB now none-of-these, AFAB now female (that is, cisgender women), AFAB now male, AFAB now transgender, and AFAB now none-of-these.

Of these groups, we suspect that those who responded male to the SAAB question but female to the gender identity question, that is, AMAB now female, as those who are perhaps most advanced in their social and medical transition. Although the Household Pulse does not ask the respondents about their transition progress or when they started transitioning, individuals who chose AMAB now female explicitly stated that female fits their identity better than transgender or none-of-these, which could indicate that they may have taken social, medical, or legal steps to affirm their gender and thus feel more comfortable identifying as female. Hence these individuals may also identify with the term transgender woman. Similarly, we suspect that those who responded female to the SAAB question but male to the gender identity question, that is, AFAB now male, have taken social, medical, or legal steps to affirm their gender and are more likely to identify with the term transgender man.

It is possible that those who responded male to the SAAB question and transgender to the gender identity question, that is, AMAB now transgender, have taken fewer social, medical, or legal steps to affirm their gender. It is also possible that these individuals' gender identity falls outside the traditional gender binary, or that they consciously chose transgender rather than female to reject the notion that all transgender people strive to pass as their gender. These individuals may be less likely to conform to the gender normative definition of woman than AMAB now female individuals. We suspect that the analog holds for AFAB now transgender individuals who chose transgender over male or none-of-these as their current gender.

Those who responded none-of-these to the gender identity question, that is, AMAB now none-of-these or AFAB now none-of-these, have

explicitly rejected the labels of female, male, or transgender and confirmed their choice in the follow-up question. Thus we are confident these individuals are not cisgender. Those who answered none-of-these may include nonbinary, genderqueer, agender individuals, and those with nonbinary genders with cultural or historical context, such as third-gender Native Americans or third-gender individuals in Hindu society. It is also possible that those who want to transition but do not feel comfortable using either binary genders or transgender to describe themselves choose none-of-these (for more detail on economic outcomes for gender minority people, see Carpenter, Lee, and Nettuno 2022). In our analyses, we compare non-cisgender individuals with cisgender individuals of the same sex assigned at birth. We define non-cisgender to include those who responded none-of-these along with transgender women (AMAB now female), transgender men (AFAB now male), and those who reported transgender as their gender identity, but we also report the sample means and regression estimates separately for each group.

Regarding family characteristics, the Household Pulse asks for respondents' marital status, the number of adults in the household, and the numbers of children under age five and under age eighteen in the household. The possible responses to the marital status question are now married, widowed, divorced, separated, and never married. For marital outcomes, we create separate indicator outcomes for currently married, ever married (that is, now married, divorced, separated, or having a spouse who has passed away), divorced, separated, and having a spouse who has passed away. When we analyze the indicators for divorced, separated, and having a spouse who has passed away, we exclude never married individuals because they are not at risk for those outcomes. For family outcomes, we consider an indicator for being in a traditional married household, defined as being now married and having exactly two adults in the household. We also consider an outcome equal to the total number of adults in the household, an indicator for any children under age eighteen in the household, and an indicator for any children under age five in the household. The Household Pulse also includes

a number of demographic characteristics, such as race, age, and education, which we report in descriptive statistics and use in the regression analysis as control variables.[7]

In the context of studying family outcomes specifically, several notes and limitations of the Household Pulse data merit mention. First, the question about marital status does not explicitly refer to legal marital status. Thus we cannot be sure that individuals responding to that question are referencing legal marriage. Many individuals in long-term committed romantic relationships who are not legally married may consider themselves effectively married, for example. Second, the Household Pulse data do not ascertain the gender of other individuals in the household. That is, although we know how many total adults are in the household and how many children under age eighteen and under age five are in the household, we observe only the gender of the Household Pulse respondent. Information on the gender of the other adults in the household would be especially helpful for seeing whether, for example, transgender men who report being married and gay are living with another adult who is a man. This is unlike other surveys such as the ACS or CPS, which contain household rosters with information on the demographic characteristics of the other individuals in the household as well as their relationship to the householder. Third, the Household Pulse does not include detailed instructions to the respondent on whom to consider as part of the household when reporting the total number of adults and children. One issue is that if gender minorities cohabit with other individuals because of limited resources (as opposed to preferences for cohabitation, including romantic relationships), gender minorities may be more

likely than cisgender people to have other unrelated individuals included as part of their household even if they are not part of their family unit. Fourth, and related, because the Household Pulse does not include a household roster, we cannot know in these data how the children are related to the respondent (for example, whether they are biological children, adopted or foster children, or children of other individuals in the household). Fifth, the Household Pulse does not include information on the nature or timing of gender transition, if any, for non-cisgender individuals. Despite these limitations—which are shared by many large population surveys—the Household Pulse data provide a unique opportunity to learn new facts about the marital and family outcomes of gender minorities in the United States.

EMPIRICAL APPROACH

To estimate the association between gender minority status and marital and family outcomes, we estimate multiple specifications in the Household Pulse, separately for individuals assigned male at birth and individuals assigned female at birth. The first model takes the following form:

$$Y_i = \beta_0 + \beta_1 X_i + \beta_2 (\textit{Not Cisgender})_i + \varepsilon_i \quad (1)$$

where Y_i are the various family outcomes for individual i and X_i is a vector of individual characteristics. We begin by pooling all noncisgender individuals into a *Not Cisgender* dummy variable that equals one for individuals who were assigned male at birth but who do not currently identify as male and zero otherwise. The excluded category is cisgender men.[8] We do so analogously for individuals assigned

---

7. We drop a very small share of individuals with missing data on the demographic characteristics.

8. For dichotomous outcomes, we estimate linear probability models. Probit and logit models returned very similar results and are reported in online appendix B. For the total number of adults in the household we estimate OLS regressions. The demographic controls include survey week dummies, sexual orientation (indicators for each of the following response options to the question about sexual orientation: gay or lesbian, bisexual, something-else, and "I don't know," with the omitted category being heterosexual), age, age squared, race-ethnicity (indicators for White Hispanic, Black non-Hispanic, Black Hispanic, Asian, mixed or other race, with the omitted category being White non-Hispanic), educational attainment (indicators for less than high school, some college, bachelor's degree, and graduate degree, with the omitted category being high school degree), an indicator for living in a large MSA, and state dummies.

female at birth where the excluded category is cisgender women.

In the second model, we separate the single *Not Cisgender* indicator into three dummies for the three response options that allow us to separately identify non-cisgender people.[9] Again, we estimate separate models for AMAB and AFAB individuals. This model takes the following form:

$$
\begin{aligned}
Y_i = \beta_0 + \beta_1 X_i &+ \beta_2 (AMAB\ now\ female)_i \\
&+ \beta_3 (AMAB\ now\ transgender)_i \\
&+ \beta_4 (AMAB\ now\ none\text{-}of\text{-}these)_i + \varepsilon_i \quad (1),
\end{aligned}
$$

where all variables are as described.[10] Throughout, we use the Household Pulse person weights and estimate White standard errors robust to heteroskedasticity (White 1980).[11]

We clarify here that our intent with the empirical approach is not to isolate the causal effect of non-cisgender status on marital and family outcomes, an exercise we think is far beyond the scope of this article. Instead, we choose to control for demographic characteristics to follow prior work and to account for the large structural differences across the cisgender and non-cisgender samples, especially related to the non-cisgender sample being much younger and less likely to be heterosexual than the cisgender sample. Because age and sexual orientation are strongly linked to life-course patterns of marital and family outcomes, it is important to account for these differences across the cisgender and non-cisgender groups. In the appendix, we present evidence on how inclusion of these control variables changes the conclusions of the article, and the main pattern is that once we control for age and sexual orientation the coefficients on non-cisgender status are quite stable. We recognize that there may be good arguments not to control for cer-

tain covariates, as these may be mechanisms through which non-cisgender status is related to marital and family outcomes.

RESULTS

We begin by presenting descriptive statistics from the Household Pulse data separately by gender identity in tables 1 and 2 for individuals assigned female at birth and individuals assigned male at birth, respectively. The format of table 1 is as follows (and updates our prior work in Carpenter, Lee, and Nettuno 2022): column 1 reports weighted means for cisgender women, column 2 reports weighted means for individuals AFAB who are not cisgender, column 3 reports weighted means for individuals AFAB who identify as male (that is, transgender men), column 4 reports weighted means for individuals AFAB who identify as transgender, and column 5 reports weighted means for individuals AFAB who describe their current gender as none-of-these. Column 2 of table 1 includes individuals in columns 3, 4, and 5 of the same table. The format of table 2 is analogous to that of table 1 except the columns are cisgender men, individuals AMAB who are not cisgender, individuals AMAB who identify as female (that is, transgender women), individuals AMAB who identify as transgender, and individuals AMAB who describe their current gender as none-of-these.

Most of the patterns of demographic characteristics mirror those we reported earlier (Carpenter, Lee, and Nettuno 2022), though we have more than doubled our sample size of gender minorities by adding more waves of Household Pulse data. Among AFAB individuals, non-cisgender individuals are significantly younger, more likely to be sexual minorities, and less likely to have a bachelor's degree than cisgender women. Regarding family outcomes, table

---

9. In all models, we include separate indicators for individuals who report that they don't know, refused to provide, or were missing a response to the question about current gender. We do the same for similar responses to the sexual orientation question. We exclude individuals for whom sex at birth was allocated to increase our confidence that the individuals we identify as non-cisgender have explicitly twice affirmed that their sex at birth does not match their current gender (for more detail, see Carpenter, Lee, and Nettuno 2022).

10. Online appendix B shows that a model where we combine AMAB now female and AMAB now transgender into a single category (and analogously for AFAB individuals) returned similar results.

11. Online appendix B shows that unweighted models returned similar results.

Table 1. Descriptive Statistics, Individuals Assigned Female at Birth

Variable	Cisgender Women	AFAB, Not Cisgender	AFAB, Now Male	AFAB, Now Transgender	AFAB, Now None of These
Age	42.06	32.60***	27.92***	27.92***	35.22***
	(12.95)	(12.45)	(10.38)	(9.24)	(13.12)
Black	0.14	0.14	0.07***	0.07***	0.18***
	(0.35)	(0.35)	(0.26)	(0.26)	(0.38)
Hispanic	0.19	0.22***	0.23	0.22	0.22***
	(0.39)	(0.42)	(0.42)	(0.42)	(0.42)
White	0.73	0.66***	0.71	0.72	0.63***
	(0.44)	(0.47)	(0.45)	(0.45)	(0.48)
Gay or lesbian	0.02	0.13***	0.24***	0.20***	0.09***
	(0.15)	(0.34)	(0.43)	(0.40)	(0.29)
Bisexual	0.07	0.25***	0.36***	0.36***	0.19***
	(0.26)	(0.43)	(0.48)	(0.48)	(0.39)
Less than high school	0.07	0.12***	0.17**	0.12**	0.12***
	(0.26)	(0.33)	(0.38)	(0.33)	(0.32)
High school diploma	0.26	0.26	0.20*	0.23*	0.28
	(0.44)	(0.44)	(0.40)	(0.42)	(0.45)
Bachelor's or more	0.34	0.26***	0.24***	0.28***	0.26***
	(0.47)	(0.44)	(0.43)	(0.45)	(0.44)
Married	0.52	0.25***	0.19***	0.15***	0.30***
	(0.50)	(0.43)	(0.39)	(0.36)	(0.46)
Divorced	0.18	0.20	0.24	0.18	0.20
	(0.36)	(0.40)	(0.43)	(0.38)	(0.40)
Separated	0.04	0.08***	0.06	0.14**	0.07***
	(0.19)	(0.28)	(0.23)	(0.34)	(0.26)
Spouse deceased	0.03	0.09***	0.07	0.15*	0.08***
	(0.16)	(0.29)	(0.26)	(0.36)	(0.26)
Married, two adults in household	0.30	0.13***	0.08***	0.08***	0.15***
	(0.46)	(0.33)	(0.27)	(0.28)	(0.36)
Number of adults in household	2.64	3.08***	3.50***	3.29***	2.94***
	(1.21)	(1.63)	(2.01)	(1.75)	(1.50)
Any children in household	0.47	0.35***	0.24***	0.26***	0.40***
	(0.50)	(0.48)	(0.43)	(0.44)	(0.49)
Any children under five in household	0.18	0.12***	0.09***	0.09***	0.13***
	(0.38)	(0.32)	(0.28)	(0.29)	(0.34)
N	511,306	9,399	633	2,255	6,511

Source: Authors' calculations.
Note: Household Pulse waves 3.2–3.7, eighteen- to sixty-four-year-olds. For the divorced, separated, and spouse deceased outcomes, the means are calculated conditional on ever being married.
* *p* < .1; ** *p* < .05; *** *p* < .01

1 shows that non-cisgender AFAB individuals are significantly less likely to be married at all, more likely to be separated, less likely to have a traditional marriage and household structure (that is, married and exactly two adults in the household), more likely to have a spouse that has passed away, less likely to have any children under age eighteen in the household, and less likely to have any children under age five in the household than cisgender women. However, we

see that non-cisgender AFAB individuals live with significantly more adults than cisgender women.

Among AMAB individuals in table 2, we see similar demographic differences: non-cisgender individuals are also significantly younger, more likely to be sexual minorities, and less likely to have a bachelor's degree than cisgender men. The family outcome comparisons also mirror those in table 1 for AFAB individuals; for AMAB individuals in table 2 we see that non-cisgender individuals are significantly less likely to be married, less likely to have a traditional marriage and household structure, more likely to be divorced, more likely to be separated, more likely to have a spouse who has passed away, and less likely to have any children under age eighteen in the household than cisgender men. Moreover, table 2 shows that non-cisgender AMAB individuals live with significantly more adults than cisgender men.

Results on Marital Outcomes

Table 3 presents the regression results from the AFAB individuals in the Household Pulse data for equation (1) for the marital outcomes: whether the individual is currently married, ever married, divorced, separated, or has a spouse who has passed away. This table essentially asks whether individuals AFAB who are not cisgender are differentially likely to be mar-

ried than cisgender individuals with the same sex assigned at birth even after accounting for significantly different observable characteristics (for example, lower levels of education and higher likelihoods of having a minority sexual orientation). The top panel reports results from the model in which we simply control for the single indicator for being AFAB and not cisgender. The bottom panel reports results from the model in which we separate each of those single indicator variables into their three component parts (that is, for individuals AFAB and not cisgender, we separately control for a dummy for being AFAB and male, a dummy for being AFAB and transgender, and a dummy for being AFAB and describing one's gender as none-of-these). Table 4 follows the identical structure and presents results from the AMAB individuals in the Household Pulse.

The results in column 1 of table 3 return strong evidence that non-cisgender AFAB individuals are significantly less likely to be currently married. This is true in the comparison of non-cisgender AFAB individuals with cisgender women (top panel) and separately for those AFAB now transgender (second row of bottom panel) and AFAB now none-of-these (third row of bottom panel).[12] The magnitude of the differences between each group of non-cisgender individuals relative to cisgender women indicates marriage penalties of 6 to 8 percentage

12. Another possibility we have carefully considered is that people who chose none-of-these to describe their current gender are miscoded cisgender people who may be confused why they are being asked about both sex assigned at birth and current gender or who may find the response options objectionable for some reason. Regardless of whether these individuals are miscoded intentionally or unintentionally, it is less likely that miscoded cisgender people would face marriage market discrimination or different family structures in the same way as, for example, nonbinary individuals who chose none-of-these because their preferred gender description was not listed. We experimented with different ways to assess the degree of potential bias from miscoded cisgender people in our none-of-these group. For example, if cisgender people are confused about the response options, it is possible that they also answered the sexual orientation question with "I don't know" as opposed to straight, gay or lesbian, bisexual, or something else. We estimated models in which we separately controlled for none-of-these people who responded to the sexual orientation question with straight, gay or lesbian, bisexual, or something-else versus none-of-these people who chose "I don't know" to the sexual orientation question. Those models showed that the none-of-these differences we document are mainly driven by those who responded to the sexual orientation question with straight, gay or lesbian, bisexual, or something-else as opposed to those who chose "I don't know" for the sexual orientation question (and who therefore may be more likely to be confused or otherwise miscoded cisgender people). This—along with the double confirmation nature regarding the correspondence between sex assigned at birth and current gender—increases our confidence that our patterns for individuals who describe their gender as none-of-these reflect true differences for gender minority individuals.

Table 2. Descriptive Statistics, Individuals Assigned Male at Birth

Variable	Cisgender Men	AMAB, Not Cisgender	AMAB, Now Female	AMAB, Now Transgender	AMAB, Now None of These
Age	41.84	35.82***	32.64***	33.07***	37.58***
	(13.18)	(13.15)	(11.50)	(12.47)	(13.38)
Black	0.12	0.12	0.11	0.12	0.12
	(0.32)	(0.32)	(0.37)	(0.33)	(0.32)
Hispanic	0.19	0.25***	0.22	0.28***	0.25***
	(0.40)	(0.44)	(0.42)	(0.45)	(0.43)
White	0.75	0.67***	0.71	0.71	0.64***
	(0.44)	(0.47)	(0.45)	(0.45)	(0.48)
Gay or lesbian	0.05	0.15***	0.29***	0.23***	0.08***
	(0.21)	(0.35)	(0.46)	(0.42)	(0.28)
Bisexual	0.03	0.17***	0.32***	0.30***	0.09***
	(0.17)	(0.38)	(0.47)	(0.46)	(0.29)
Less than high school	0.08	0.17***	0.18**	0.18***	0.17***
	(0.26)	(0.38)	(0.39)	(0.38)	(0.37)
High school diploma	0.33	0.30	0.22***	0.31	0.31
	(0.47)	(0.46)	(0.42)	(0.46)	(0.46)
Bachelor's or more	0.30	0.21***	0.17***	0.18***	0.23***
	(0.46)	(0.41)	(0.38)	(0.38)	(0.42)
Married	0.56	0.33***	0.26***	0.18***	0.41***
	(0.50)	(0.47)	(0.44)	(0.38)	(0.49)
Divorced	0.13	0.17***	0.20*	0.21***	0.16*
	(0.36)	(0.38)	(0.40)	(0.41)	(0.37)
Separated	0.03	0.06***	0.08	0.14***	0.04*
	(0.19)	(0.25)	(0.28)	(0.35)	(0.20)
Spouse deceased	0.03	0.09***	0.11**	0.10***	0.08***
	(0.16)	(0.28)	(0.32)	(0.30)	(0.27)
Married, two adults in household	0.33	0.14***	0.11***	0.08***	0.18***
	(0.47)	(0.35)	(0.32)	(0.28)	(0.38)
Number of adults in household	2.69	3.45***	3.12**	3.56***	3.44***
	(1.28)	(1.98)	(1.58)	(2.17)	(1.94)
Any children in household	0.41	0.38**	0.34*	0.32***	0.42
	(0.49)	(0.49)	(0.47)	(0.47)	(0.49)
Any children under five in household	0.14	0.17**	0.13	0.12	0.19***
	(0.35)	(0.37)	(0.34)	(0.33)	(0.40)
N	336,750	5,657	633	1,440	3,584

Source: Authors' calculations.

Note: Household Pulse waves 3.2–3.7, eighteen- to sixty-four-year-olds. For the divorced, separated, and spouse deceased outcomes, the means are calculated conditional on ever being married.

* $p < .1$; ** $p < .05$; *** $p < .01$

points. This is notably smaller than the raw difference in marriage likelihood from table 1.

The results in columns 2, 3, 4, and 5 provide some evidence that the marriage penalty is due to both the lower likelihood of being ever married and the higher likelihood of marriage dissolution among non-cisgender individuals. Specifically, non-cisgender AFAB individuals are 4 percentage points less likely to have ever been married. Among those who have ever

Table 3. Marital Outcomes and Gender Minority Status, Individuals Assigned Female at Birth

	Currently Married	Ever Married	Divorced	Separated	Spouse Deceased
Model 1 (excluded category is AFAB cisgender individuals)					
AFAB not cisgender	–0.06***	–0.04***	0.01	0.02**	0.05***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
N	514,656	514,656	390,805	390,805	390,805
Model 2 (excluded category is AFAB cisgender individuals)					
AFAB now male	–0.04	–0.01	0.09*	–0.01	0.05
	(.03)	(0.04)	(0.05)	(0.02)	(0.03)
AFAB now transgender	–0.08***	–0.04**	0.01	0.07*	0.13**
	(0.01)	(0.02)	(0.03)	(0.04)	(0.06)
AFAB now none of these	–0.06***	–0.04***	0.01	0.01	0.04***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
N	514,656	514,656	390,805	390,805	390,805

Source: Authors' calculations.
Note: Household Pulse waves 3.2–3.7, eighteen- to sixty-four-year-olds. Linear probability models. Models control for survey week dummies, age and its square, race-ethnicity, sexual orientation, education, urban status, and state dummies as described in the text. Models in columns 3–5 restrict attention to individuals who were ever married. Results use Household Pulse person weights, and standard errors are robust to heteroscedasticity.
* $p < .1$; ** $p < .05$; *** $p < .01$

been married, non-cisgender AFAB individuals are 5 percentage points more likely to have a spouse who has passed away. This pattern holds for all three subgroups of non-cisgender AFAB individuals, although the estimates become insignificant for those AFAB and male. We also estimate that non-cisgender AFAB individuals are 2 percentage points more likely than similarly situated cisgender women to be separated. When the three groups of non-cisgender individuals are each compared with cisgender women, we find that AFAB now male individuals are significantly more likely to divorce than separate, and that AFAB now transgender are significantly more likely to separate than divorce, revealing important heterogeneities among these groups in how marriages dissolve.

The results presented in column 1 of table 4 similarly return strong evidence that non-cisgender AMAB individuals are less likely to be currently married than otherwise similar cisgender men. Non-cisgender individuals are also more likely to have ever been married than

otherwise similar cisgender men. These differences indicate that non-cisgender individuals more often experience marriage dissolution, which is consistent with the results in columns 3 through 5 that non-cisgender AMAB individuals are significantly more likely to be divorced, separated, and have a spouse who has passed away than otherwise similar cisgender men.

The results in the bottom panel indicate that all three groups of non-cisgender individuals experience marriage dissolution more often than otherwise similar cisgender men. The bottom panel of table 4 also shows that AMAB now female and AMAB now none-of-these individuals are significantly more likely to have ever been married but are as likely to be currently married as otherwise similar cisgender men, whereas AMAB now transgender individuals are much less likely to be currently married than otherwise comparable cisgender men. Looking at the types of marriage dissolution in columns 3 through 5, we see that AMAB now transgender individuals are significantly

Table 4. Marital Outcomes and Gender Minority Status, Individuals Assigned Male at Birth

	Currently Married	Ever Married	Divorced	Separated	Spouse Deceased
Model 1 (excluded category is AMAB cisgender individuals)					
AMAB not cisgender	−0.03*	0.03**	0.04***	0.02*	0.06***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
N	339,004	339,004	250,881	250,881	250,881
Model 2 (excluded category is AMAB cisgender individuals)					
AMAB now female	0.00	0.09**	0.05	0.03	0.09**
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
AMAB now transgender	−0.08***	−0.03	0.06*	0.09**	0.07***
	(0.02)	(0.03)	(0.03)	(0.04)	(0.02)
AMAB now none of these	−0.00	0.05***	0.03*	−0.00	0.05***
	(0.02)	(0.02)	(0.02)	(0.01)	(0.02)
N	339,004	339,004	250,881	250,881	250,881

Source: Authors' calculations.

Note: Household Pulse waves 3.2–3.7, eighteen- to sixty-four-year-olds. Linear probability models. Models control for survey week dummies, age and its square, race-ethnicity, sexual orientation, education, urban status, and state dummies as described in the text. Models in columns 3–5 restrict attention to individuals who were ever married. Results use Household Pulse person weights, and standard errors are robust to heteroscedasticity.

* $p < .1$; ** $p < .05$; *** $p < .01$

more likely than comparable cisgender men to be separated, and this differential is larger than the associated differential for being divorced. All three groups of non-cisgender individuals are significantly more likely to have a spouse who has passed away than cisgender men.

Looking at tables 3 and 4 together, we note several interesting patterns. First, regardless of individuals' sex assigned at birth, we find strong evidence that non-cisgender individuals are more likely to experience marital dissolution and that a substantial share of the dissolution is due to having a spouse who has passed away. Second, we find some evidence that individuals whose gender identity is transgender face greater marriage penalties than non-cisgender individuals whose gender identity is male or female. Third, we find some evidence that non-cisgender individuals whose gender identity is male or female are more likely to be divorced than separated, whereas non-cisgender individuals whose gender identity is transgender are more likely to be separated

than divorced. Although Household Pulse does not ask its respondents about the timing of social, legal, or medical transitions to affirm one's gender, it is possible that these differences reflect the idea that those who chose transgender have more recently begun transitioning; hence they are separated from their partner but have not yet had time to divorce. These results are also largely consistent with the hypothesis proposed earlier that individuals who answered transgender have not taken as many steps to socially, legally, or medically transition or have more recently started the process of affirming their gender than those who answered male or female.

The findings of tables 3 and 4 allude to the importance of both gender transition and gender identity in determining marital outcomes. Specifically, transgender women's gender identity would shift their marital outcomes away from those of cisgender men and closer to those of cisgender women, but the efforts to affirm their gender would lead to greater search

frictions in the marriage market and lower marriage rates. The lack of information about the medical and social transition of the respondents prevents us from ascertaining the extent to which gender affects marital outcomes. However, we are able to further explore the importance of gender by comparing non-cisgender individuals with cisgender people with identical gender rather than with cisgender people with identical sex assigned at birth. Table 5 presents results comparing non-cisgender AFAB individuals with cisgender men (rather than cisgender women), and table 6 presents results comparing non-cisgender AMAB individuals with cisgender women (rather than cisgender men).

The results in table 5 indicate that non-cisgender AFAB individuals are less likely to be currently married but more likely to have ever been married than cisgender men. These patterns largely hold when we divide non-cisgender AFAB individuals into the three com-

ponent parts and separately compare each group with cisgender men. Those who chose none-of-these when answering the gender question were least likely to be currently married, those who answered male were as likely as cisgender men to be currently married, and those who answered transgender were in the middle. Regarding the marital dissolution outcomes, non-cisgender AFAB individuals are significantly more likely to be divorced, separated, and have a spouse who had passed away than otherwise similar cisgender men, and the patterns observed in table 3 between AFAB now male individuals and AFAB now transgender individuals are again observed in table 5 with the alternative comparison group.

We now turn to the comparison of non-cisgender AMAB individuals and cisgender women in table 6. Surprisingly, the results indicate that non-cisgender AMAB individuals are as likely as cisgender women to be currently married and to have been married. These pat-

Table 5. Marital Outcomes and Gender Minority Status, Alternative Comparison Group, Individuals Assigned Female at Birth

	Currently Married	Ever Married	Divorced	Separated	Spouse Deceased
Model 1 (excluded category is AMAB cisgender individuals)					
AFAB not cisgender	−0.06***	0.02*	0.07***	0.04***	0.07***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.02)
N	342,686	342,686	252,424	252,424	252,424
Model 2 (excluded category is AMAB cisgender individuals)					
AFAB now male	0.01	0.08**	0.13**	0.01	0.06*
	(0.04)	(0.04)	(0.06)	(0.02)	(0.03)
AFAB now transgender	−0.03**	0.05***	0.05*	0.09**	0.13**
	(0.02)	(0.02)	(0.03)	(0.04)	(0.06)
AFAB now none of these	−0.07***	−0.01	0.07***	0.03***	0.05***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
N	342,686	342,686	252,424	252,424	252,424

Source: Authors' calculations.
Note: Household Pulse waves 3.2–3.7, eighteen- to sixty-four-year-olds. Linear probability models. Models control for survey week dummies, age and its square, race-ethnicity, sexual orientation, education, urban status, and state dummies as described in the text. Models in columns 3 through 5 restrict attention to individuals who were ever married. Results use Household Pulse person weights, and standard errors are robust to heteroscedasticity.
* $p < .1$; ** $p < .05$; *** $p < .01$

Table 6. Marital Outcomes and Gender Minority Status, Alternative Comparison Group, Individuals Assigned Male at Birth

	Currently Married	Ever Married	Divorced	Separated	Spouse Deceased
Model 1 (excluded category is AFAB cisgender individuals)					
AMAB not cisgender	−0.02	−0.02	−0.02	−0.01	0.04***
	(0.01)	(0.01)	(0.02)	(0.01)	(0.01)
N	510,974	510,974	389,262	389,262	389,262
Model 2 (excluded category is AFAB cisgender individuals)					
AMAB now female	−0.04	0.00	0.00	0.01	0.08*
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
AMAB now transgender	−0.11***	−0.10***	−0.00	0.06*	0.06**
	(0.02)	(0.02)	(0.03)	(0.04)	(0.02)
AMAB now none of these	0.03*	0.02	−0.03*	−0.03***	0.03**
	(0.02)	(0.02)	(0.02)	(0.01)	(0.02)
N	510,974	510,974	389,262	389,262	389,262

Source: Authors' calculations.

Note: Household Pulse waves 3.2–3.7, eighteen- to sixty-four-year-olds. Linear probability models. Models control for survey week dummies, age and its square, race-ethnicity, sexual orientation, education, urban status, and state dummies as described in the text. Models in columns 3–5 restrict attention to individuals who were ever married. Results use Household Pulse person weights, and standard errors are robust to heteroscedasticity.

* *p* < .1; ** *p* < .05; *** *p* < .01

terns hold for AMAB now female individuals and AMAB now none-of-these individuals to an extent, but AMAB now transgender individuals are currently married and ever married at a significantly lower rate than similarly situated cisgender women. AMAB now none-of-these individuals are also less likely to be divorced or separated than cisgender women, perhaps hinting at a difference in the likelihood of getting remarried once divorced or separated. The results regarding the elevated likelihood of having a spouse who has passed away are again observed for non-cisgender AMAB individuals relative to cisgender women and for all three groups separately relative to cisgender women in table 6, similar to the comparison with cisgender men in table 4.

Results on Family Outcomes

Table 7 presents the results of comparing family outcomes of non-cisgender and cisgender AFAB individuals using the same sample and model specification as table 3. The analog

holds for table 8 relative to table 4. The family outcomes are the traditional married household indicator (that is, now married and exactly two adults in the household), the total number of adults in the household, an indicator for any children under age eighteen in the household, and an indicator for any children under age five in the household.

Among AFAB individuals, non-cisgender individuals are significantly less likely to live in a traditional household as a married person with exactly two adults than otherwise similar cisgender women. Non-cisgender AFAB individuals on average live in households with significantly more adults than comparable cisgender women but are also significantly less likely to have children in the household. These results hold when the three groups of non-cisgender AFAB individuals are separately compared with cisgender women, though the size of the gap varies. Specifically, the family outcomes of AFAB now none-of-these individuals tend to be more similar to those of otherwise comparable

Table 7. Family Outcomes and Gender Minority Status, Individuals Assigned Female at Birth

	Married, Two Adults in Household	Total Adults in Household	Any Children Under Eighteen in Household	Any Children Under Five in Household
Model 1 (excluded category is AFAB cisgender individuals)				
AFAB not cisgender	–0.07***	0.29***	–0.07***	–0.06***
	(0.01)	(0.04)	(0.01)	(0.01)
N	514,656	516,180	516,180	516,180
Model 2 (excluded category is AFAB cisgender individuals)				
AFAB now male	–0.09***	0.68***	–0.13***	–0.10***
	(0.01)	(0.21)	(0.03)	(0.02)
AFAB now transgender	–0.09***	0.48***	–0.11***	–0.09***
	(0.01)	(0.11)	(0.02)	(0.01)
AFAB now none of these	–0.06***	0.17***	–0.04***	–0.05***
	(0.01)	(0.04)	(0.01)	(0.01)
N	514,656	516,180	516,180	516,180

Source: Authors' calculations.
Note: Household Pulse waves 3.2–3.7, eighteen- to sixty-four-year-olds. Linear probability models in columns 1, 3, and 4; OLS regression in column 2. Models control for survey week dummies, age and its square, race-ethnicity, sexual orientation, education, urban status, and state dummies as described in the text. Results use Household Pulse person weights, and standard errors are robust to heteroscedasticity.
* $p < .1$; ** $p < .05$; *** $p < .01$

cisgender women, whereas family outcomes of AFAB now male and AFAB now transgender individuals tend to be more dissimilar.

Non-cisgender AMAB individuals in table 8 are also significantly less likely to live in a traditional married household with exactly two adults and instead on average live in households with significantly more adults than cisgender men. Non-cisgender AMAB individuals are also significantly more likely to live with children under eighteen and children under five than cisgender men. These differences are consistently observed in the bottom panel, which separately compares the three subgroups of non-cisgender AMAB individuals with cisgender men, although the outcomes regarding the probability of living with children are statistically insignificant for AMAB now female and AMAB now transgender individuals.

To explore these dynamics more carefully, we replicate tables 7 and 8 with alternative com-

parison groups as we did in tables 5 and 6 for marital outcomes. Table 9 compares the family outcomes of non-cisgender AFAB individuals with cisgender men (rather than cisgender women), and table 10 compares the family outcomes of non-cisgender AMAB individuals with cisgender women (rather than cisgender men).

Looking first at table 9, we find that non-cisgender AFAB individuals are significantly less likely to live in a traditional married household with exactly two adults and to live with significantly more adults on average than otherwise similar cisgender men, as observed in the analogous results in table 7. Non-cisgender AFAB individuals are also significantly more likely to have any children under eighteen at home and are as likely to have any children under five at home than cisgender men, but less likely to have children at home than cisgender women. The results regarding the probability of children under eighteen at home are driven

Table 8. Family Outcomes and Gender Minority Status, Individuals Assigned Male at Birth

	Currently Married, Two Adults in Household	Total Adults in Household	Any Children under Eighteen in Household	Any Children Under Five in Household
Model 1 (excluded category is AMAB cisgender individuals)				
AMAB not cisgender	−0.05***	0.51***	0.03**	0.05***
	(0.01)	(0.08)	(0.02)	(0.01)
N	339,004	339,813	339,813	339,813
Model 2 (excluded category is AMAB cisgender individuals)				
AMAB now female	−0.04*	0.26*	0.05	0.03
	(0.02)	(0.16)	(0.03)	(0.03)
AMAB now transgender	−0.06***	0.63***	0.02	0.02
	(0.01)	(0.22)	(0.03)	(0.02)
AMAB now none of these	−0.04***	0.50***	0.04**	0.06***
	(0.01)	(0.08)	(0.02)	(0.02)
N	339,004	339,813	339,813	339,813

Source: Authors' calculations.
Note: Household Pulse waves 3.2–3.7, eighteen- to sixty-four-year-olds. Linear probability models in columns 1, 3, and 4; OLS regression in column 2. Models control for survey week dummies, age and its square, race-ethnicity, sexual orientation, education, urban status, and state dummies as described in the text. Results use Household Pulse person weights, and standard errors are robust to heteroscedasticity.
* $p < .1$; ** $p < .05$; *** $p < .01$

by individuals who chose none-of-these when asked about their gender, indicating that the gap is largest for individuals who may be least likely among the three groups to share gender identity with cisgender men.

Similarly, non-cisgender AMAB individuals in table 10 are significantly less likely to live in a traditional married household with exactly two adults and are on average living in households with significantly more adults, but significantly less likely to live with children under eighteen at home than cisgender women. These differences are consistently observed in all three groups of non-cisgender AMAB individuals.

Comparing the results in tables 7 and 8 with those in tables 9 and 10, we note several novel patterns. First, these results indicate that transgender, nonbinary, or gender nonconforming Americans are on average more likely to live with children than cisgender men but less likely to live with children than cisgender women. These results again allude to the importance of gender in determining family outcomes, similar to our observation regarding marital outcomes. Further, the difference in sex assigned at birth and the biological differences in the likelihood of bearing a child may play a role in determining the number of children at home—though again we have no information on whether and how the children are related to the respondent. Specifically, we observe that AFAB people who are male or transgender (that is, transgender men) are as likely as cisgender men to have children at home, but that AMAB people who are female or transgender (that is, transgender women) are much less likely to have children at home than cisgender women. Last, we consistently find that non-cisgender individuals live in households with more adults, perhaps indicating that the lower marriage rates affect household structure.

Table 9. Family Outcomes and Gender Minority Status, Alternative Comparison Group, Individuals Assigned Female at Birth

	Currently Married, Two Adults in Household	Total Adults in Household	Any Children Under Eighteen in Household	Any Children Under Five in Household
Model 1 (excluded category is AMAB cisgender individuals)				
AFAB not cisgender	−0.06***	0.18***	0.03***	−0.00
	(0.01)	(0.05)	(0.01)	(0.01)
N	342,686	343,515	343,515	343,515
Model 2 (excluded category is AMAB cisgender individuals)				
AFAB now male	−0.04***	0.55***	−0.00	−0.01
	(0.01)	(0.21)	(0.03)	(0.02)
AFAB now transgender	−0.05***	0.34***	0.01	−0.01
	(0.01)	(0.13)	(0.02)	(0.01)
AFAB now none of these	−0.06***	0.07*	0.05***	0.00
	(0.01)	(0.04)	(0.01)	(0.01)
N	342,686	343,515	343,515	343,515

Source: Authors' calculations.
Note: Household Pulse waves 3.2–3.7, eighteen- to sixty-four-year-olds. Linear probability models in columns 1, 3, and 4; OLS regression in column 2. Models control for survey week dummies, age and its square, race-ethnicity, sexual orientation, education, urban status, and state dummies as described in the text. Results use Household Pulse person weights, and standard errors are robust to heteroscedasticity.
* $p < .1$; ** $p < .05$; *** $p < .01$

DISCUSSION AND CONCLUSION

We use data from the only large, nationally representative publicly available survey in the United States that includes information on gender minority individuals (Household Pulse) to provide new evidence on marital status, family structure, and family inequality related to gender minority status. These data identify more than fifteen thousand non-cisgender individuals. Our regression models that account for observable demographic characteristics return evidence that—relative to otherwise comparable cisgender individuals—non-cisgender individuals are significantly less likely to be currently married, significantly more likely to have

a spouse who has passed away, and live in households with significantly more adults. Non-cisgender individuals are also less likely to have children in the household than demographically similar cisgender women but more likely to have children in the household than comparable cisgender men.[13]

Our results have implications for understanding the well-being of gender minority individuals in the United States. Given that spouses are the primary sources of social, emotional, and financial support in the United States, our results that non-cisgender individuals are less likely to be married provide new evidence of family inequality that may interact

13. Online appendix B includes results from heterogeneity analyses where we examined whether the non-cisgender association with marital and family outcomes systematically varied with race-ethnicity, income, education, urbanicity, region, and age. Most of these investigations did not return meaningful evidence of heterogeneity, with a few exceptions.

Table 10. Family Outcomes and Gender Minority Status, Alternative Comparison Group, Individuals Assigned Male at Birth

	Currently Married, Two Adults in Household	Total Adults in Household	Any Children Under Eighteen in Household	Any Children Under Five in Household
Model 1 (excluded category is AFAB cisgender individuals)				
AMAB not cisgender	−0.05***	0.62***	−0.06***	−0.00
	(0.01)	(0.08)	(0.01)	(0.01)
N	510,974	512,478	512,478	512,478
Model 2 (excluded category is AFAB cisgender individuals)				
AMAB now female	−0.07***	0.33**	−0.09***	−0.04
	(0.02)	(0.15)	(0.03)	(0.03)
AMAB now transgender	−0.09***	0.74***	−0.09***	−0.05**
	(0.01)	(0.21)	(0.03)	(0.02)
AMAB now none of these	−0.03**	0.60***	−0.03*	0.03
	(0.01)	(0.08)	(0.02)	(0.02)
N	510,974	512,478	512,478	512,478

Source: Authors' calculations.
Note: Household Pulse waves 3.2–3.7, eighteen- to sixty-four-year-olds. Linear probability models in columns 1, 3, and 4; OLS regression in column 2. Models control for survey week dummies, age and its square, race-ethnicity, sexual orientation, education, urban status, and state dummies as described in the text. Results use Household Pulse person weights, and standard errors are robust to heteroscedasticity.
* *p* < .1; ** *p* < .05; *** *p* < .01

with other economic and health vulnerabilities facing this community. Increased likelihood of having a spouse who has passed away also suggests that non-cisgender individuals may be disproportionately dealing with trauma from loss of a spouse, which is commonly understood to be one of the most severe adverse life events for an individual's mental and physical health.

The association with having a spouse that has passed away is notable for many reasons. For example, it is very large as a share of its population mean. It is also observed in every subcategory of non-cisgender people. It is also not sensitive to which cisgender comparison group is used. What could explain this effect? There are several possibilities. One is negative health selection. It could be that transgender and other gender minority people choose

spouses who are disproportionately likely to have a chronic condition such as HIV, thus exposing them to an increased risk of having a spouse who has passed away. They may have entered into such a relationship precisely for caregiving purposes or to provide access to improved health insurance coverage through marriage, for example. Relatedly, it could be that transgender and other gender minority people have a spouse who has passed away at higher rates because they are more likely to be married to other non-cisgender people, and transgender people are well documented as having a higher risk of mortality from suicide, homicide, and other external causes (de Blok et al. 2021). Another possibility is that having a spouse who has passed away enables people to live their lives openly and come out as non-cisgender later in life after the death of a

spouse. Further work is needed to understand the relative timing of these important life-course transitions.

Our analyses are subject to several limitations, many related to the data. First, our data are all based on self-reports. As noted in prior work, there may be systematic selection associated with disclosing to a government survey about not being cisgender (Carpenter, Eppink, and Gonzales 2020). Second, our sample of adults who are not cisgender only includes non-institutionalized adults. Missing from our analysis were homeless adults; adults residing in institutionalized medical facilities, incarceration facilities, and homeless shelters; and those without email addresses or devices with cellular network support. Data from nonrepresentative samples of transgender individuals suggest that some of these exclusions may disproportionally affect transgender individuals because, for example, transgender individuals report high rates of homelessness and incarceration relative to the general population (Grant, Motter, and Tanis 2011; Burwick et al. 2014; James et al. 2016). Third, the context of the Household Pulse data is important: the survey was explicitly designed to measure responses to the COVID-19 pandemic. It is plausible that non-cisgender individuals were disproportionately affected by COVID-19 with respect to health, employment, and other outcomes, and this may affect the sample of non-cisgender people identified in the Household Pulse as well as their marital and family outcomes. Fourth, as noted, response rates to the Household Pulse survey overall were low, consistently below 10 percent, which may raise questions about representativeness.[14]

Fifth, we cannot know whether the household size differences are related to preferences or constraints of non-cisgender individuals. Prior work has documented lower socioeconomic status and income for gender minorities (Carpenter, Lee, and Nettuno 2022; Carpenter, Eppink, and Gonzales 2020). Non-cisgender individuals may need to live with other individuals due to family rejection or high housing costs or both. Alternatively, it could be that non-cisgender people have strong chosen family networks, including individuals with whom they share housing. That is, the larger household size could be protective for overall well-being if it reflects increased social or financial support. Without information on how individuals determine who counts as a household member and how individuals are or are not related to each other (through a household roster, for example), we are limited in how to interpret these household size differences.[15]

Sixth, and relatedly, we cannot directly measure family rejection of non-cisgender people or access to broader parental and family supports (such as from the presence of older children). This is also related to the Household Pulse dataset lacking questions about relationships with families and lacking a detailed household roster to understand how other people are related to the survey respondent. Family supports clearly matter for emotional, social, and financial reasons, and the inability to directly measure these in the Household Pulse is a significant limitation.

Despite these limitations, this article provides a benchmark for future studies that may make use of more detailed data to understand family structures and family inequality related to gender minority status. For example, if the American Community Survey were to include a two-step process to separately ask for sex assigned at birth and current gender, researchers

---

14. In online appendix B, we demonstrate that models without the survey weights (which were designed to make the data nationally representative) returned similar patterns, suggesting that these representativeness concerns are unlikely to meaningfully change the results.

15. We did estimate models stratified by education and income, however, and we did not find stark differences in the relative patterns related to gender minority status for less educated versus more educated individuals or for households with lower versus higher income. This is broadly inconsistent with the differences being entirely due to constraints, since in that case we might have expected the differences only to appear in the less educated and lower income samples. For the results of this exercise, see online appendix B.

would be able to identify the share of households headed by a non-cisgender person, the share of households with any non-cisgender person, and—more important—how all other individuals (including children) in households headed by a non-cisgender person are related to that householder.[16] Adding gender identity questions to surveys such as the National Survey of Family Growth would provide detailed fertility and partnership histories for non-cisgender individuals. And adding gender identity questions to long-running panel datasets such as the Survey of Income and Program Participation, the Panel Study of Income Dynamics, the National Longitudinal Survey of Youth, or the Health and Retirement Study would allow researchers to more directly time key life-course transitions with respect to gender identity, romantic unions and dissolutions, cohabitation, and family formation. Until then, these findings using Household Pulse provide a useful first national snapshot of gender minority status and family inequality in the United States as we emerge from the COVID-19 pandemic.

REFERENCES

Badgett, M. V. Lee, Christopher S. Carpenter, Maxine J. Lee, and Dario Sansone. 2024. "A Review of the Economics Literature on Sexual Orientation and Gender Identity." *Journal of Economic Literature* 62(3): 948–94. https://www.aeaweb.org/articles?id=10.1257/jel.20231668.

Badgett, M. V. Lee, Christopher S. Carpenter, and Dario Sansone. 2021. "LGBTQ Economics." *Journal of Economic Perspectives*, 35(2): 141–70. https://doi.org/10.1257/jep.35.2.141.

Bansak, Cynthia, and Martha Starr. 2021. "COVID-19 Shocks to Education Supply: How 200,000 U.S. Households Dealt with the Sudden Shift to Distance Learning." *Review of Economics of the Household* 19 (January): 63–90. https://doi.org/10.1007/s11150-020-09540-9.

Bitler, Marianne P., Hilary W. Hoynes, and Diane Schanzenbach. 2020. "The Social Safety Net in the Wake of COVID-19." *Brookings Papers on Economic Activity 2020*, no. 2: 119–58. https://doi.org/10.1353/eca.2020.0008.

Burwick, Andrew, Gary Gates, Scott Baumgartner, and Daniel Friend. 2014. "Human Services for Low-Income and At-Risk LGBT Populations: The Knowledge Base and Research Needs." *OPRE* report no. 2014–79. Washington: U.S. Department of Health and Human Services.

Carpenter, Christopher S., Samuel T. Eppink, and Gilbert Gonzales. 2020. "Transgender Status, Gender Identity, and Socioeconomic Outcomes in the United States." *Industrial & Labor Relations Review* 73(3): 573–99. https://doi.org/10.1177/0019793920902776.

Carpenter, Christopher S., Maxine J. Lee, and Laura Nettuno. 2022. "Economic Outcomes for Transgender People and Other Gender Minorities in the United States: First Estimates from a Nationally Representative Sample." *Southern Economic Journal* 89(2): 280–304. https://doi.org/10.1002/soej.12594.

deBlok, Christel J. M., Chantal M. Wiepjes, Daan M. van Velzen, Annemieke S. Staphorsius, Nienke M. Nota, Louis J. G. Gooren, Baudewinjntje P. C. Kreukels, and Prof Martin den Heijer. 2021. "Mortality Trends Over Five Decades in Adult Transgender People Receiving Hormone Treatment: A Report from the Amsterdam Cohort of Gender Dysphoria." *The Lancet Diabetes & Endocrinology* 9(10): 663–70. https://doi.org/10.1016/S2213-8587(21)00185-6.

Flores, Andrew R., Jody L. Herman, Gary J. Gates, and Taylor N. T. Brown. 2016. "How Many Adults Identify as Transgender in the United States." Williams Institute Report. Los Angeles: University of California School of Law. Accessed May 2,

16. Moreover, in the ACS one could identify the age and current grade of each child in the household, which would potentially be relevant for children's academic achievement outcomes such as age for grade. The ACS includes information on the number of rooms in the living unit, which could also provide useful information on whether gender minorities' larger households are more likely to be due to preferences; for example, non-cisgender people might have larger chosen families) or to constraints (for example, rent is expensive in cities that are accepting to non-cisgender people). Finally, the ACS provides information on the number of times an individual has been married over their lifetime. In the Household Pulse, we only see whether the respondent was ever married, but it is possible that the process of gender dysphoria may result in a series of continued disruptions to romantic relationships, and thus information on the number of lifetime marriages could be informative.

2024. http://williamsinstitute.law.ucla.edu/research/how-many-adults-identify-as-transgender-in-the-united-states.

Grant, Jaime M., Lisa A. Motter, and Justin Tanis. 2011. "Injustice at Every Turn: A Report of the National Transgender Discrimination Survey." Washington: National Center for Transgender Equality and National Gay and Lesbian Task Force. Accessed May 2, 2024. https://transequality.org/sites/default/files/docs/resources/NTDS_Report.pdf.

Huato, Julio, and Aida Chavez. 2021. "Household Income, Pandemic-Related Income Loss, and the Probability of Anxiety and Depression." *Eastern Economic Journal* 47: 546–70. https://doi.org/10.1057/s41302-021-00199-3.

James, Sandy, Jody Herman, Susan Rankin, Mara Keisling, Lisa Mottet, and Ma'ayan Anafi. 2016. "The Report of the 2015 US Transgender Survey." Washington, D.C.: National Center for Transgender Equality. Accessed May 2, 2024. https://transequality.org/sites/default/files/docs/usts/USTS-Full-Report-Dec17.pdf.

Jones, Jeffrey M. 2022. "LGBT Identification in U.S. Ticks up to 7.1%." Gallup News, February 17. Accessed May 2, 2024. https://news.gallup.com/poll/389792/lgbt-identification-ticks-up.aspx.

Shannon, Matthew. 2021. "The Labour Market Outcomes of Transgender Individuals." *Labour Economics* 77: 102006. https://doi.org/10.1016/j.labeco.2021.102006.

Stacey, Lawrence, Rin Reczek, and R. Spiker. 2022. "Toward a Holistic Demographic Profile of Sexual and Gender Minority Well-Being." *Demography* 59(4): 1403–30. https://doi.org/10.1215/00703370-10081664.

U.S. Census Bureau. 2024. "Household Pulse Survey: Measuring Emergent Social and Economic Matters Facing U.S. Households." Accessed May 2, 2024. https://www.census.gov/programs-surveys/household-pulse-survey.html.

White, Halbert. 1980. "A Heteroskedasticity-Consistent Covariance Matrix Estimator and a Direct Test for Heteroskedasticity." *Econometrica* 48(4): 817–38. https://doi.org/10.2307/1912934.

White, Jordyn, Martin-José Sepúlveda, and Charlotte J. Patterson. 2020. *Understanding the Well-Being of LGBTQI+ Populations*. Washington, D.C.: The National Academies Press.

Wilson, Bianca, and Ilan Meyer. 2021. "Nonbinary LGBTQ Adults in the United States." Williams Institute Report. Los Angeles: University of California School of Law. Accessed May 2, 2024. https://williamsinstitute.law.ucla.edu/publications/nonbinary-lgbtq-adults-us.

V
Rural America

Depopulation, Deaths, Diversity, and Deprivation: The 4Ds of Rural Population Change

DANIEL T. LICHTER AND KENNETH M. JOHNSON

This article uses recently released data from the 2020 Census, along with earlier censuses, to document the geographic spread of several signature dimensions of rural demographic change over the past three decades. These include depopulation, deaths, diversity, and deprivation—the 4Ds—which are now reshaping rural America, perhaps as never before. Rural America is at a crossroads. Since 1990, nonmetro counties have diverged along two tracks, one marked by population growth and renewal, the other by stagnation and lagging economic growth. We show that urbanization is a marker of rural demographic success, and that many nonmetro counties have been left behind in today's metropolitan and global economy.

Rural America is at an inflection point of recent U.S. demographic history. The 2020 Census now reveals that only 14 percent—roughly forty-six million people—live in nonmetro America. The social and economic implications of widespread rural decline have reverberated throughout society. They are revealed in an uptick in spatially concentrated poverty and growing income disparities (Thiede, Kim, and Valasik 2018), in COVID-related deaths and increasing "deaths of despair" from alcohol and drug abuse (Case and Deaton 2021; Cheng, Sun, and Monnat 2020; Knapp et al. 2019), in the politics of rural disaffection, resentment, and extremism, including White nationalism and antigovernment hate groups (Cramer 2016; Edelman 2021; Feinburg, Branton, and Martinez-Ebers 2022) and, ultimately, in rural voting trends and Trumpism (Albrecht 2019; Johnson and Scala 2022; Mettler and Brown 2022; Monnat and Brown 2017).[1] Now is an especially propitious time to take demographic stock of the state of rural America.

This article presents recently released data

Daniel T. Lichter is Ferris Family professor emeritus in the Cornell Brooks School of Public Policy at Cornell University, United States. **Kenneth M. Johnson** is professor of sociology and senior demographer at the Carsey School of Public Policy at the University of New Hampshire, United States.

1. The current state of rural America also is revealed in upward mortality trends and declining life expectancy, which have diverged significantly with metropolitan areas (Brooks, Mueller, and Thiede 2020; Probst et al. 2020).

from the 2020 Census, along with earlier censuses, to document the diverging trajectories in four signature dimensions of America's rural population change since 1990. These include depopulation, deaths, diversity, and deprivation—the 4Ds—which are now reshaping rural America, perhaps as never before. To be sure, rural America has suffered historically from depopulation (Johnson and Lichter 2019). What is new over the past decade is that rural America, for the first time, lost population in the aggregate and in the majority of all nonmetro counties (Lichter and Johnson 2023). Depopulation is a consequence of chronic out-migration and aging in place, which has pushed the number of rural deaths to levels in excess of births, reinforcing a downward demographic spiral. Rural in-migration, including some recently arrived immigrant and refugee populations have at the same time increased racial and ethnic diversity, a trend reinforced by White depopulation, out-migration, and natural decrease. The influx of historically disadvantaged populations may offset rural decline but also potentially heightens economic deprivation—poverty and inequality—among rural people and places left behind (Lichter and Johnson 2020; Ulrich-Schad and Duncan 2018). The demographic impacts on rural America are cumulative over time and inextricably linked to global and urban economic restructuring (that is, offshoring of jobs and transnational migration). We provide an empirical benchmark and substantive insights about recent rural demographic change as well as key methodological lessons for a growing interdisciplinary research community focused on rural America (see Clark, Harper, and Weber 2022).

Our analyses of recent population change reveal divergent tracks—"two rural Americas"—that point to new policy challenges as well as potential opportunities for renewed growth and rural economic development (for example, green energy or recreational development). Our objectives are both descriptive and didactic. We provide up-to-date estimates of depopulation, deaths, diversity, and deprivation over the 1990 to 2020 period. Census data tell a familiar story of chronic and widespread rural population decline, rapid aging and dying in place, growing racial and ethnic diversity, and upticks in absolute and relative economic deprivation. Yet, another story is sometimes overlooked: ongoing urbanization and economic development across rural America (Johnson and Lichter 2020). This article highlights evidence of growing spatial inequality and rural demographic differentiation. National patterns and trends may obfuscate underlying spatial variation, masking the emergence of rural slums or ghettos (Brown, Mettler, and Puzzi 2021; Parker 2022) and overlooking new patterns of rural gentrification (Sherman and Schafft 2022). Our empirical approach, based on data from the past four U.S. Censuses, highlights cumulative rural disadvantages and advantages that are rooted in self-reinforcing patterns of local-area depopulation, deaths, diversity, and deprivation.

BACKGROUND

Urbanization continues apace in the United States. Indeed, over the past half century, U.S. resettlement patterns are revealed in continuing metropolitanization, a product of the ongoing transformation from a rural agrarian society to an urban industrial and postindustrial society, and population deconcentration, the centripetal expansion of metropolitan regions to the suburbs and beyond. Rural growth and development have languished, left behind by ongoing urbanization (Fuguitt 1972; Silva 2019; Wuthnow 2018).

The 4Ds of depopulation, deaths, diversity, and deprivation are most often associated with metropolitan inner-city populations, that is, with the so-called urban underclass (for a recent review and critique, see Wacquant 2022). William Julius Wilson (2011) in his seminal book *When Work Disappears: The World of the New Urban Poor* describes the loss of good jobs in the city, the massive exodus of the White middle class, growing Black concentration and segregation, and the rise of the "truly disadvan-

---

This is due to limited access to health care—insurance and primary medical care—but also to unhealthy behaviors, often the result of low education and lack of knowledge (that is, related to diet, obesity, smoking, substance abuse, and occupation-linked deaths).

taged" and an "underclass"—mostly poor Black and Brown people. Throughout much of the 1950s and 1960s, major metropolitan cities, especially in the Rust Belt, suffered from heavy population losses to the suburbs (especially of non-Hispanic Whites). The 1965 passage of Hart-Celler Act, followed by Immigration Reform and Control Act of 1986 (IRCA), opened the door to new immigration from Latin America and Asia, joining African Americans left behind in poor inner-city neighborhoods. Racial diversity accelerated. Urban neighborhoods were transformed, unmasking widespread neighborhood inequality and racial segregation, along with ethnoracial disparities in "deaths of despair" (that is, drug-related deaths and homicides). Inner-city deprivation took a myriad of forms: concentrated poverty, welfare dependence, inadequate and overcrowded housing, family disruption, and joblessness; meanwhile, mass incarceration mushroomed (Massey and Denton 1993; Wilson 2012).

Pessimistic narratives of inner-city decline and dysfunction have seemingly moved to the countryside and to small-town America (Albrecht and Albrecht 2000; Jensen 2018; Ramirez and Villarejo 2012). America's spatial boundaries have blurred over time with advances in transportation and communication networks, which have knitted together America's rural and urban populations as never before (Lichter and Brown 2011). Rural and urban America represent flipsides of the same demographic coin, which argues the need for a spatially inclusive perspective that acknowledges spatial interdependence—social, demographic, and economic—rather than impermeable spatial boundaries (Lichter and Ziliak 2017).

Growing spatial interdependence is revealed in each of the 4Ds. For example, chronic rural population losses from nonmetro outmigration have redounded to metropolitan America, both directly and indirectly through the large second-order effects of high fertility. Rural-to-urban migration historically has been selective of young, mostly White adults of reproductive age, leaving behind an aging-in-place older population along with higher death rates no longer balanced by births (Johnson 2021). A burgeoning immigrant and refugee population in new immigrant destinations has helped offset White population losses in some rural areas. In-migration and fertility among immigrant groups have transformed the racial and ethnic composition of many small towns, especially among young adults and children (Lichter 2012; Johnson and Lichter 2016). That rural America has historically exported many of its "best and brightest"—those with high education and skilled occupations—has further reinforced persistent poverty and economic inequality in left-behind rural communities. Recent influxes of disadvantaged minority populations into rural areas further contributes to the geographic concentration of poverty across rural America (Lichter, Parisi, and Taquino 2022; Thiede, Kim, and Valasik 2018). Although not always appreciated, rural and urban America arguably have followed similar and interrelated trajectories of population growth and decline, but during different historical periods and for different reasons having different social and political implications.

The 4Ds of Rural Demographic Change

Our stylized portrait of America's rural demographic transformation, of course, risks obfuscating a fuller understanding and nuanced appreciation of recent change and variation among rural people and places. There is no single rural America. The usual narrative of rural decline is incomplete and often wrong. Whether rural America is failing or succeeding is not always obvious or straightforward. As with growing disparities between metro and nonmetro America (that is, the so-called rural-urban divide), rural America itself is seemingly increasingly divided along two demographic tracks, each differentiated by one or more of the 4Ds. One track is marked by chronic rural decline, now and into the future; the other is represented by resilience, growth, and revitalization.

Depopulation

Among all nonmetro counties (defined in 2013), more than 40 percent reached their population peaks in 1950 or earlier (Johnson and Lichter 2019). Over the last decade, nonmetro counties lost population in the aggregate for the first time (Johnson 2023), which is consistent with the usual narrative of rural decline. Data from

the 2020 Census in fact reveals that the majority of the nation's 3,143 counties (or equivalents) saw their population shrink since 2010. These were overwhelmingly nonmetro counties, where roughly two-thirds lost population between 2010 and 2020. This figure contrasts sharply with the 20 percent of all metro areas that lost population between the last two censuses (Mackun, Comenetz, and Spell 2021).

This story of rural decline, however, fails to acknowledge that nonmetro population change is due to endogenous growth or decline in a fixed universe of nonmetro counties, and growth or decline from nonmetro-to-metro reclassification. Most studies focus on the first and ignore the second (Johnson and Lichter 2020; Lichter, Thiede, and Brooks 2023). This is a mistake. Between 1980 and 2020, nearly twenty-three million rural people were lost to reclassification when their counties of residence were redefined as metro by the U.S. Office of Management and Budget (OMB) either because they grew enough to become new metro areas or were absorbed into existing metro areas. These were rural demographic winners but were not counted as such. The clear lesson is that reclassification hides the success, at least demographically, of many flourishing rural counties.

As we describe in this article, the urbanization of rural America, if nothing else, gives caution to the usual claims of rural decline. Reclassified rural counties have often grown more rapidly than the metro counties they join, reinforcing the process of urbanization (Johnson and Lichter 2019; Lichter, Brown, and Parisi 2021). More important, the decades-long winnowing of growing nonmetro counties from the nonmetro universe means that many nonmetro counties—as they are defined today—are increasingly left behind in America's urban economy. Prospects for rural population and economic growth arguably will become even more limited in the future (Lichter and Johnson 2023).

Deaths

America's rural population is aging rapidly. The baby boom generation has moved into retirement ages, driving up death rates to a point where rural deaths are no longer offset by births among a shrinking population of young adults depleted by chronic out-migration (Johnson 2020). Between 2010 and 2019, 46 percent of all U.S. counties experienced natural decrease, of which the large majority (79 percent) were classified as nonmetro (Johnson 2020). Since 2019, nonmetro areas also have suffered disproportionately from COVID-19 and deaths of despair (that is, opioids and alcoholism), further driving up rural death rates, even when adjusted for differences in age composition (Brooks, Mueller, and Thiede 2020; Mueller et al. 2021; Peters et al. 2020; Spencer et al. 2018).

High rates of mortality are a singular measure of population health and well-being, a clear indicator of social inequality and racial stratification (Jones et al. 2023). Indeed, the mortality gap between rural and urban America has grown since the turn from the twentieth century (Cosby et al. 2019; Elo et al. 2019). Life expectancy has declined in rural America but increased overall in urban America (Singh and Siahpush 2014; Abrams, Myrskylä, and Mehta 2021). Age-adjusted rural-urban differences also are broadly experienced across most major causes of death (such as cardiovascular disease or cancer). Much of the literature centers on rural-urban disparities in health insurance enrollment and access to health-care providers (that is, declining numbers of rural hospitals), as well as differences in health-care knowledge, such as education, and behavior, such as smoking and obesity (Cossman et al. 2010; James and Cossman 2017).

What about within-nonmetro variation in death rates and natural decrease? High amenity and retirement rural areas, in particular, are the most obvious counterpoint to the usual pessimistic image of declining health and growing mortality in rural America. The U.S. Department of Agriculture has developed a natural amenities scale that locates rural counties on a continuum from no amenities to six or more (Economic Research Service 2023). Between 1970 and 2015, population growth rates increased monotonically with increases in amenities, as defined by standard deviations (SD) from the mean. For example, for counties with natural amenities three or more SDs from the mean, nonmetro population growth from 1970 to 2015 increased by 166 percent. In coun-

ties at least one SD below the mean, population declined on average over this period. High amenity counties are often heavily populated by highly educated and affluent older persons with physical and financial access to hospitals, primary care physicians, and health specialists (Johnson 2023). New rural in-migration of older adults is sometimes characterized as "gray gold" or "rural gentrification" (Brown et al. 2011; Sherman 2021). Unlike aging in place in dying rural communities, newly arrived older retirees in recreation and retirement communities often bring needed human capital, leadership skills, income, and tax dollars to local rural economies without making large demands on government infrastructure or displacing indigenous local workers.

Diversity

Rural America is diversifying as never before (Lee and Sharp 2017; Lichter 2012). Although racial minority and immigrant populations have made rural America their home for decades, they often remained invisible—at least until recently. They have been spatially isolated and forgotten in poor Black Belt counties of the deep South, including the Mississippi Delta region, on remote Indian reservations in Oklahoma and other parts of the agricultural heartland, and in the Southwest, especially along the lower Rio Grande borderland, where Latinos and Mexico-origin immigrants have lived for centuries. The difference today is the extraordinary spatial diffusion of America's burgeoning immigrant population, made increasingly visible by working side-by-side with Whites in new destinations. Latinos, in particular, are now employed in corporate agriculture (picking fruits and vegetables), dairy farms, aquaculture, slaughterhouses, timber, and construction (Lichter and Johnson 2020).

The racial transformation across rural America is a complicated tale of racial and spatial divergence. For much of rural America, Whites are the overwhelming share of the population. Data from the 2020 Census show that 76 percent of the nonmetro population remains non-Hispanic White, down only slightly from 2010 (80 percent), but still substantially higher than in metro counties overall. In other regions and counties, Blacks, Hispanics, and Native

Americans predominate but remain separated geographically from the White majority living elsewhere and from each other (Lee and Sharp 2017). According to D. W. Rowlands and Hanna Love (2021), the "future of rural America is increasingly marked by growing diversity and expanding inequity within and across regions." If racial integration in a multicultural society is defined by racial mixing (of all kinds), then most rural counties seemingly are still characterized as largely monoracial rather than multiracial.

Growing rural diversity, in the aggregate, largely reflects increases in America's Hispanic population (Johnson and Lichter 2016). Since 1990, nearly two-thirds of all rural population growth was due to Hispanic population growth (Lichter and Johnson 2023). From 2010 to 2020, the rural population declined in the aggregate, largely because Hispanic and minority population growth has slowed and can no longer fully offset White population loss. Still, roughly two hundred rural counties experienced population growth, but only because minority population growth offset White decline. White natural decrease and out-migration are now characteristic features of much of rural America, but they also are highly selective of some types of counties (such as agricultural and extractive) but not others, an empirical regularity that further amplifies the demographic and economic consequences of the Hispanic diaspora. The key empirical question today is whether new minority population growth provides a demographic lifeline to dying rural communities or instead has occurred in tandem with White growth and economic development in still-growing rural counties (such as high amenity or retirement areas). Is racial diversification a key to rural growth? Or is it a consequence of rural growth, which is fueled by a global and urban racially diverse population of recent rural arrivals? The answer informs our general understanding of rural renewal or stagnation.

Deprivation

Economic deprivation, especially poverty and inequality, are inextricably linked as both cause and effect to each of the other 4Ds—to rural depopulation, deaths (natural decrease), and diversity. Depopulation is a clear economic in-

dicator of rural economic resilience and sustainability (Peters 2019). It is rooted demographically in population aging, a result of chronic out-migration of young adults and their children. Schools and hospitals risk closing, good jobs evaporate, and the local tax base erodes, culminating in a cycle of economic decline and out-migration. This is most evident in rural communities historically dependent on extractive industries, on agriculture, dairy, textiles, mining, and forestry, where the mechanization and consolidation of production, along with offshoring, has affected rural communities especially hard. Jobs previously filled by dwindling numbers of working- and middle-class Whites are now attracting low-wage and non-unionized workers from Mexico and other parts of Latin America, who have filled the labor void. Racial and ethnic diversity has brought new demands for moderate-income housing, schools, and social services. Even with population and job growth, rural poverty often remains high and persistent (for example, rural central Appalachia), passed along from generation to generation, and reinforced both by new in-migration and selective out-migration (that is, by education and social class).

Some scholars have recently introduced the idea of emerging rural ghettos (or rural slums) populated by a new "rural underclass" (Burton, Garrett-Peters, and Eason 2011; Eason 2012), an idea that has clear parallels to concentrated inner-city poverty (Wilson 2011, 2012). Rural ghettos take various forms, including Hispanic boomtowns such as those home to slaughterhouses or meatpacking plants (Lichter 2012), isolated rural trailer parks, now relegated to the countryside by new local zoning ordinances (Brooks and Mueller 2020; Salamon and MacTavish 2017), persistent Black-White segregation in southern rural communities (Lichter et al. 2007), municipal underbounding and racially selective annexation (Aiken 1987), and newly concentrating rural poverty (Thiede, Kim, and Valasik 2018). The clear implication is that the 4Ds may cluster in some rural counties or regions, reinforcing rural deprivation of all kinds.

This gloomy demographic scenario may of course mischaracterize other rural success stories. How commonplace is rural affluence or prosperity? Is growing rural affluence revealed in urbanization but hidden from public view by nonmetro-to-metro reclassification? Although evidence is lacking, growing affluence could simply be located in the excess mortality and out-migration of less educated and poor residents. Clear lessons come from gentrifying inner-city neighborhoods, which have rebounded over the past decade from chronic population decline, White flight, and neighborhood poverty. Is this demographic and economic transformation—rural gentrification—now emerging in some rural counties? In the ski regions of the Rockies or in scenic areas of New England and the Upper Great Lakes? If so, then the usual rural narrative should be amended. Of course, whether rural gentrification should be regarded as success is a value judgment. As a demographic process, it nevertheless argues the need for identifying those predisposing conditions (such as proximity to metro areas and natural amenities) or rural development strategies that lead to success, however it is defined.

CURRENT STUDY

The recent release of data from the 2020 Census, along with previous censuses and census products (such as the Current Population Survey or American Community Survey), provide a timely opportunity to take stock of rural America. This is accomplished by placing the empirical spotlight on the 4Ds—depopulation, deaths, diversity, and deprivation—which reveal growing rural-urban social and economic disparities (Clark, Harper, and Weber 2022), while underscoring spatial interactions at the so-called rural-urban interface (Lichter and Brown 2011; Lichter and Ziliak 2017). We complement the usual urban-centric focus on metropolitan America and the rural-urban divide, emphasizing instead the urbanization of rural America, which we regard as an indicator of full participation in mainstream society and the American way of life. Of course, success has different meanings to different people. We update and reorient the conventional narrative of rural decline to one highlighting divergent tracks of rural demographic change (that is, two rural Americas). Our study provides a conceptual framework and empirical baseline that serves

as a point of departure for renewed analyses and discussions of rural America in transition.

METHODS

We use data on all 3,141 U.S. counties for much of our analyses, but focus our discussion largely on nonmetropolitan counties. Counties are inclusive of the entire U.S. population (unlike cities and communities) and the boundaries that define them are generally stable over time. Harmonized county data from 1990 to 2020 include county indicators of the 4Ds, including tabulations from the recently released 2020 Census, intercensal and postcensus population estimates, and the American Community Survey. Additional analyses are based on fertility and mortality data from Centers for Disease Control and Prevention (CDC), historical poverty and economic data from the Economic Research Service of the U.S. Department of Agriculture, and the Social Vulnerability Index developed by CDC's Agency for Toxic Substances and Disease Registry (ATSDR).

Measurement

Here we briefly describe how we measure and justify each of the 4Ds at the county level.

Depopulation

Our baseline analyses focus on interdecadal county population growth and decline, comparing nonmetropolitan with metropolitan counties as they are defined by OMB in 2018. We consider growth and decline over the 1990 to 2020 study period as well as over the past decade, documenting the changing share of counties experiencing absolute population decline. Our analyses also consider the substantive implications of using a fixed 1993 definition of nonmetropolitan counties and following them prospectively until 2020. This is important because population change over time can be partitioned into population change in the universe of counties classified as nonmetro throughout the study period (endogenous change), and population change that results from administrative transfers of counties from nonmetro to metro status (reclassification).

Deaths

We use county data on births and deaths since 1990 as well as highlight the converging trajectories of birth and death rates over the study period. We also consider natural population change, which we define as the difference between births and deaths over the past decade or the entire 1990 to 2020 study period. Natural decrease occurs when deaths exceed births, which in turn either depresses county population growth rates or exacerbates decline. Our time series of births and deaths does not include the COVID-19 pandemic, which dramatically altered mortality patterns and accelerated the incidence of natural decrease in both rural and urban America.

Diversity

Our analyses present population growth differentials among America's racial and ethnic populations. To harmonize race data each decade, we focus on Hispanics, non-Hispanics Whites, non-Hispanic Blacks, and non-Hispanic Asians, and all other groups (including mixed race populations). We use the Simpson Diversity Index, which measures the probability that any two people, drawn randomly from a county, will be of a different race or ethnicity.[2] A diversity index of 40, for example, indicates that the probability that any two county residents will be of a different race is 40 percent. We document significant increases nationally in the diversity index, as well as growing heterogeneity across U.S. counties.

---

2. We calculated a diversity index (DI), which measures the racial and ethnic diversity of the population (Meyer and McIntosh 1992). It is calculated as follows: $DI = 1 - (H^2 + W^2 + B^2 + A^2 + N^2 + M^2)$, where H is the proportion Hispanic, W is the proportion non-Hispanic white, B is the proportion non-Hispanic black, A is the proportion non-Hispanic Asian, N is the proportion non-Hispanic Native American, and M is the proportion non-Hispanic multiracial (that is, those with two or more races (in 1990 there was no multiracial category, so M included those of Other races)). The values of DI range from 0, which would indicate that a county is made up entirely of one race-ethnicity, to a maximum value of 0.83, which would be attained if each race-ethnicity constitutes exactly one-sixth of the population.

Deprivation

National estimates of nonmetro poverty over the 1990 to 2019 period are based on data from the U.S. Census Bureau's Annual Social and Economic Supplement to the Current Population Survey. We also draw on two sources of county data from the Economic Research Service (2023). County data for 1990 come from the decennial census STF3 and the 2019 data are from the ACS five-year 2015–2019 cumulative file. Individuals or families are defined as poor if their total money income from earnings, Social Security, and other pre-tax cash income (such as public assistance, interest income) is below a specified poverty income threshold based on family size and composition. The average poverty threshold for a family of four was $26,172 in 2019. The poverty threshold was $12,490 for a single-person household. We supplement our analysis of poverty and income with the newly available Social Vulnerability Index (SVI) developed by the Centers for Disease Control and Prevention (2023). The SVI identifies community vulnerability to hazardous events, and its ability to respond to natural and human-made hazardous events. For our purposes, we focus on the subcomponent of the SVI that measures vulnerability based on socioeconomic status. It is a composite indicator of unemployment, housing cost burden, lower education attainment, absence of health insurance and poverty, which closely align with the concept of deprivation. Our time series ends in 2019, before the onset of the COVID-19 pandemic, which distorted national and subnational patterns of employment, earnings, family structure, and census coverage.

Empirical Approach

Our empirical approach is largely descriptive. We identify diverging county patterns of nonmetro population growth and decline, natural increase and natural decrease, racial diversity and homogeneity, and poverty and affluence.

We also provide evidence of whether patterns of convergence or divergence across each of the 4Ds are overlapping or distinct, which has implications for a growing spatially concentrated rural underclass. The percentage distribution of each of our 4Ds across nonmetro counties is provided in the online appendix.[3]

RESULTS

We discuss our results according to the 4Ds.

Depopulation

Large shares of nonmetropolitan counties—roughly 40 percent—reached their population peaks in 1950 or earlier (Johnson and Lichter 2019). This empirical fact is based on nonmetro counties as they are defined today (in the 2010s). Over the past century, nonmetro counties have lost population, both from endogenous population decline in a fixed set of counties and from a winnowing process in which fast-growing, more population counties are reclassified as metropolitan. Here we focus on population growth for all metro and nonmetro counties as defined in 2018 by OMB.

As a baseline, figure 1 provides population growth rates for 1990–2000, 2000–2010, and 2010–2020. These data show interdecadal declines in nonmetro population growth rates. Indeed, for the first time, today's nonmetro counties experienced absolute population decline between decennial censuses.[4] Population decline now characterizes many parts of rural America and portents a stark demographic future. To be sure, county population losses have been commonplace over the past century, yet nonmetro America in the aggregate continued to grow as a result of new immigration and high fertility. Today, the urbanization process has clearly accelerated, both from absolute nonmetro population decline and rapid metro population growth and reclassification.

Growth rates today are seemingly diverging between metro and nonmetro counties, but

---

3. See online appendix at https://www.rsfjournal.org/content/11/2/88/tab-supplemental.

4. Just after the end of our study period, nonmetropolitan counties experienced a modest population gain since the 2020 Census because net migration gains to nonmetro counties exceeded the substantial natural decrease from the COVID-19 pandemic. The factors occasioning the migration gains are not yet fully understood but include both selective in-migration gains from metro areas and reduced out-migration from nonmetro areas (Johnson 2023; Peterson, Winkler, and Mockrin 2024).

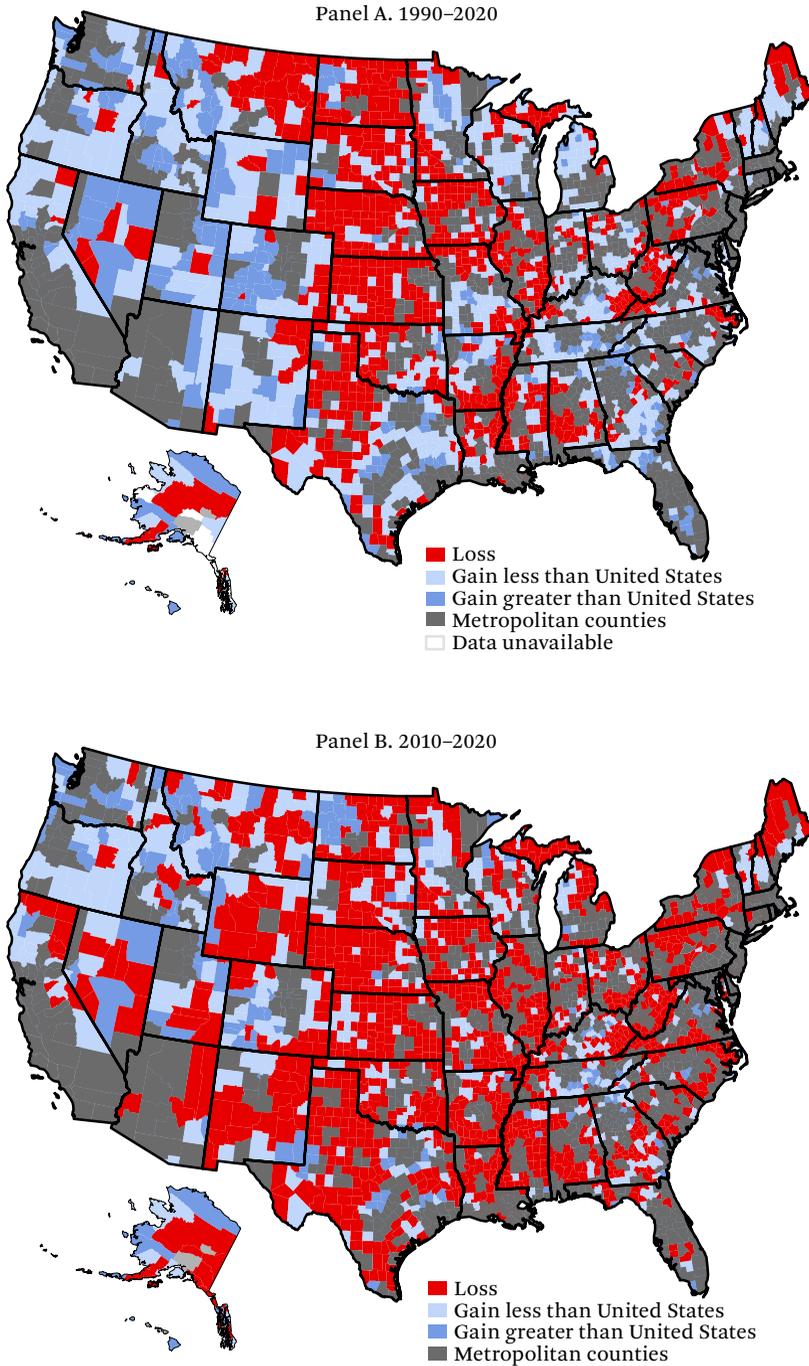**Figure 1.** Population Change by Metropolitan Status
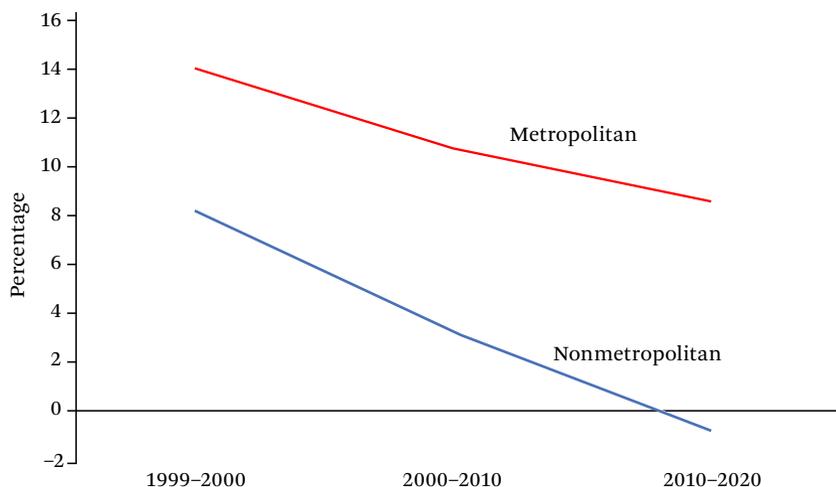
Source: Authors' calculations based on U.S. Census Bureau 2024a.

also within nonmetro counties. In supplemental analyses provided in figure A.1, we illustrate that the comparatively slow nonmetro population growth during the 1990s and 2000s, along with nonmetro population decline in the 2010s, has been reinforced by nonmetro-to-metro reclassification. The floating contemporary definition redefines growth each decade using updated metro classifications based on the most recent census counts. In the absence of reclassification, however, roughly sixty-three million people would have been counted as living in nonmetro counties in 2020 (data not shown). Instead, nonmetro America was officially home to only forty-six million in 2020. Along with slow or declining rates of endogenous population growth, metro reclassification has taken a large bite out of America's nonmetro population.

The maps in figure 2 highlight the geographic reach of nonmetro decline across America since 1990 (panel A) and over the past decade (panel B). Here we identify counties with growth rates higher than the U.S. average, counties with positive growth but less than the U.S. average, and counties that experienced population loss. For the entire period, population loss occurred in nearly one-half (46 percent) of all nonmetro counties. These included

nonmetro counties in the agricultural heartland, in the so-called Black Belt in the Mississippi Delta and Deep South, and in the lower Rio Grande River valley (panel A, figure 2). Only a small fraction of nonmetro counties over the period experienced population growth rates exceeding the national average (13 percent).

Diverging trajectories of growth and decline are further illustrated in panel b of figure 2, which provides a map of county population changes over the past decade. The key point here is that nonmetro population losses have increased and are more widely distributed across the United States. Between 2010 and 2020, 67 percent of all nonmetro counties lost population and the share growing faster than the U.S. average dropped from 13 to 8 percent. Nonmetro growth has languished. This statistical portrait nevertheless is not without nuance, especially if population change is tracked using a fixed universe of nonmetro counties in 1993 rather than 2018. Of the 395 nonmetro counties reclassified as metro between 1993 and 2018, 36 percent grew faster than the U.S. average over the 1990 to 2020 period. The commonplace narrative of rural counties left behind—rural depopulation and dying small towns—is at odds with evidence showing that many nonmetro counties reclassified as metro over the study

Figure 2. Population Change in Nonmetropolitan Counties

Panel A. 1990–2020

Loss
Gain less than United States
Gain greater than United States
Metropolitan counties
Data unavailable

Panel B. 2010–2020

Loss
Gain less than United States
Gain greater than United States
Metropolitan counties

Source: Authors' calculations based on U.S. Census Bureau 2024a. The optimal way to view the maps in this article is in color. We refer readers of the print edition of this article to https://www.rsfjournal .org/content/11/2/88 to view the color versions.

have flourished, as did a significant number of counties that remained nonmetropolitan throughout.[5]

Deaths

Shifting trajectories of rural growth and decline are rooted in the demographic processes of migration, fertility, and mortality. High rates of nonmetro-to-metro out-migration, along with low rates of nonmetro in-migration, have slowed rural growth trajectories over the past century. Nonmetro out-migration is highly selective of young adults of reproductive age, thus reducing fertility. With net out-migration and low fertility comes population aging and higher death rates. High death rates are now a characteristic demographic feature of rural America (Brooks, Mueller, and Thiede 2020; Johnson 2020; Monnat 2020) that is redefining its demographic vitality and long-term sustainability.

Figure 3, panel A shows converging trajectories of nonmetro births and deaths, along with birth and death rates, for 1990–2000, 2000–2010, and 2010–2020. Births and birth rates have plummeted, especially over the past decade. The number of deaths, on the other hand, has marched upward from decade to decade. Crude death rates have increased from 10.7 deaths per 1,000 in the 2000s to 11.0 per 1,000 in the 2010s (see figure 3, panel B). Diverging trajectories of fertility and mortality reflect especially rapid population aging in rural and small-town America. Indeed, the share of the nonmetro population aged sixty-five and older increased from 15.4 percent in 1990 to 19.5 percent in 2020 (data not shown). Nonmetro age-standardized death rates declined during the 2000s but then stagnated between 2010 and 2019, and metro age-standardized deaths continued to decline after 2010 (Curtin and Spencer 2021). The mortality gap between metro and nonmetro counties is growing quite independent from metro-nonmetro differences in population aging (see online appendix 2).

Diverging rates of fertility and mortality are responsible for unprecedented declines in rates of rural natural increase since 1990, from roughly eighteen more births than deaths per thousand during the 1990s to virtually zero growth from natural increase over the past decade (see figure 3, panel C). Even more striking is that the majority of all nonmetro counties (55 percent) over the past decade experienced natural decrease, up from just 22 percent in the 1990s.[6] Much of nonmetro America is locked in a long-term downward demographic spiral, rooted in chronic out-migration that is no longer offset by natural increase.

The county map in figure A.2 illustrates the dramatic increase in the incidence of natural decrease counties in the past decade. In all, 38 percent of all nonmetro counties had more deaths than births between 1990 and 2020, and an additional 18 percent experienced natural decrease from 2010 to 2020 after having natural increase before 2010. The important point is that natural decrease has proliferated and spread across America's nonmetro counties. Not surprisingly, the excess of deaths over births was most common among counties that lost population, especially during the past decade. These data raise policy questions about the resiliency and sustainability of America's nonmetro counties, and about where public interventions and investments are most likely to reap demographic dividends.
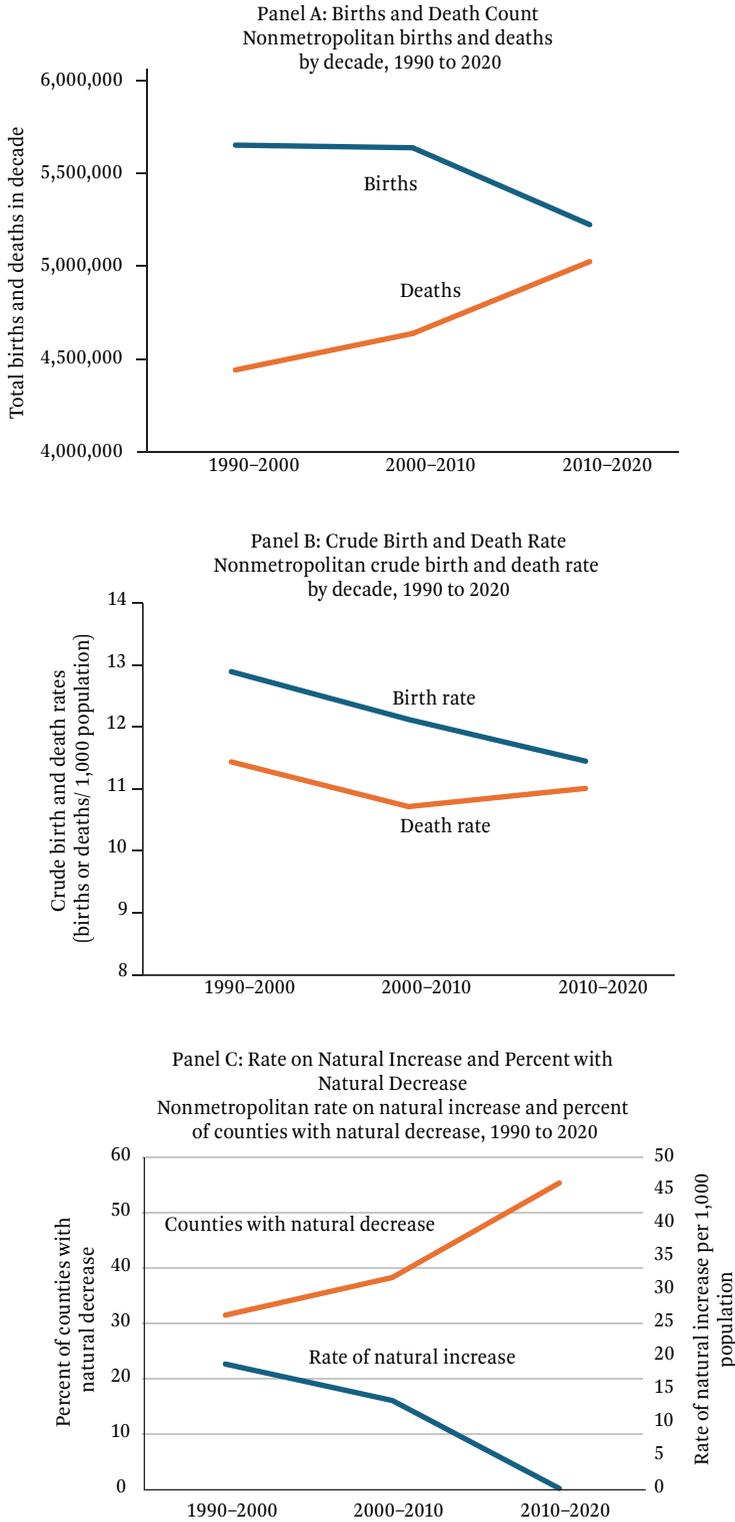
Diversity

Perhaps ironically, increasing numbers of racial minority and immigrant populations have provided demographic counterweight to chronic rural depopulation and economic decline. All of the growth in nonmetro areas over the past two decades was a result of growth in the non-White and non-Black populations (see figure A.3, panel A). Rural economic restructuring has provided new jobs—in corporate agriculture, hospitality, and the service industry—

---

5. Using the 1993 definition of nonmetro counties, the nonmetro population would have increased by 1 percent rather than declined by 0.6 percent between 2010 and 2020.

6. The incidence of natural decrease has without question risen significantly in nonmetro counties in the last decade, even using the 1993 metro definition, 47 percent of the counties classified as nonmetro saw a natural decrease between 2010 and 2020. Additionally, with the onset of the pandemic, natural decrease will continue to rise in nonmetro America (Johnson 2023).

Figure 3. Deaths, Crude Death Rates, and Natural Decrease

Panel A: Births and Death Count
Nonmetropolitan births and deaths
by decade, 1990 to 2020

Panel B: Crude Birth and Death Rate
Nonmetropolitan crude birth and death rate
by decade, 1990 to 2020

Panel C: Rate on Natural Increase and Percent with
Natural Decrease
Nonmetropolitan rate on natural increase and percent
of counties with natural decrease, 1990 to 2020

Source: Authors' calculations based on U.S. Census Bureau 2024a, 2024b.

that have attracted minority and immigrant workers with limited skills and education. The result is that the White population in rural America declined from roughly 85 percent in 1990 to about 75 percent in 2020. Additionally, with the onset of the pandemic, natural decrease will continue to rise in nonmetro America (Johnson 2023).[7]

Diversity has increased significantly over the past three decades in rural America. Our baseline analyses of nonmetro diversity scores, based on the Simpson Diversity Index, show steady decade-to-decade increases. The diversity index estimates the probability that any two randomly drawn residents of the county will have different ethnoracial backgrounds. In 1990, the diversity index in nonmetro America was roughly 18, meaning that rural residents had a less than 1 in 5 probability of exposure to persons of another race in their counties of residence (data not shown). By 2020, the diversity index climbed to nearly 31, about a 1 in 3 probability of exposure to other residents in the county was entirely random.[8] Rural racial and ethnic diversity is now higher than ever.

Racial diversity, of course, is distributed unequally across America's nonmetro counties. The post-1990 rise in new immigrant destinations, especially among Hispanics, results from their spatial dispersal from traditional destinations, mostly in the Southwest, to other rural counties produced increasing concentrations of minorities and immigrants. This conclusion is clearly supported in figure 4, panel A, which provides county-to-county variation in the diversity index in 2020. More diverse counties in the Midwest, as well as in the Texas and New Mexico, reveal substantial residential mixing of non-Hispanic Whites, Hispanics, and Native Americans. Interestingly, counties along the lower Rio Grande River remain overwhelmingly Hispanics, which is revealed both in very low ethnoracial diversity and spatial isolation from non-Hispanic populations.
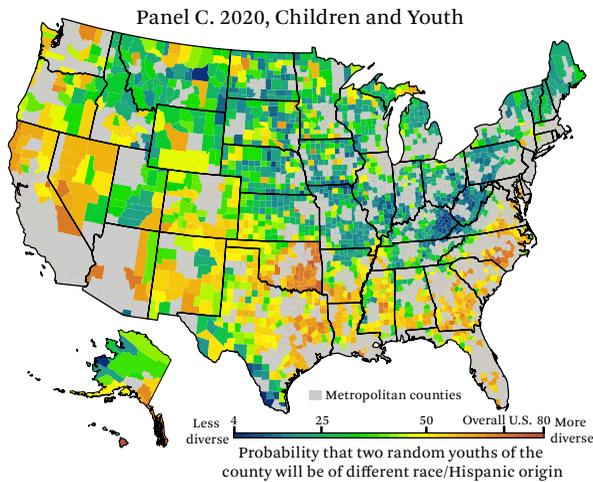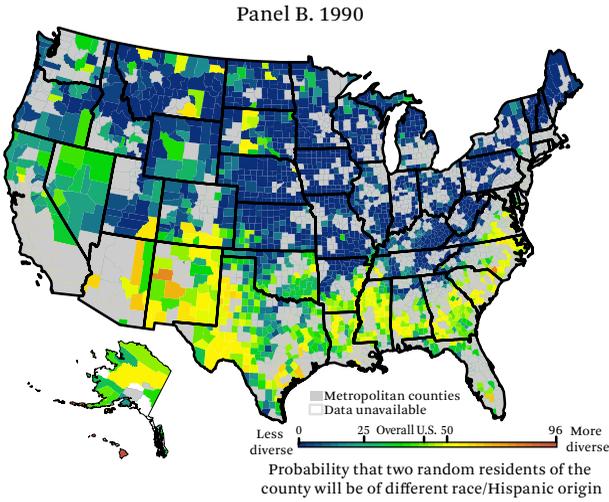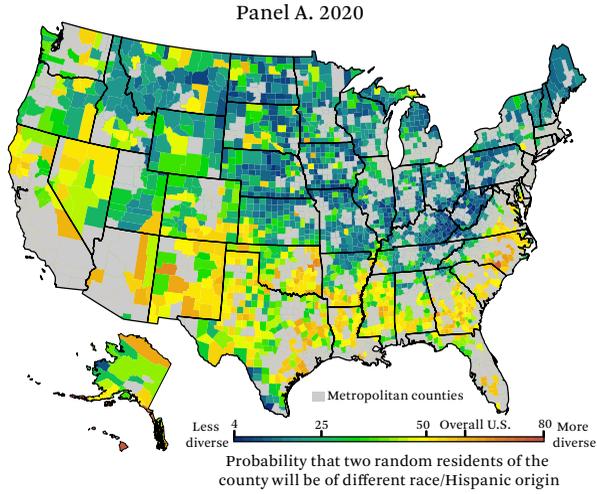
The map also highlights considerably more racial diversity in the South and West than elsewhere. The high level of ethnoracial diversity in the old slave and plantation South is a vestige of historical Black settlement patterns. In much of the Black Belt crescent—from the Delta to Virginia—the diversity index exceeds 50 (figure 4, panel A). This means that local residents—predominantly Black and White—are as likely to be exposed to someone of different race as someone of the same race or ethnicity. These patterns of diversity contrast sharply with racially homogamous and predominantly White nonmetro counties in much of Appalachia (Kentucky, Tennessee, and West Virginia), the agricultural heartland, and northern New England states.

To highlight the shifting geography of ethnoracial diversity—both past and future—we provide two additional county maps. Figure 4, panel B maps county diversity scores in 1990, which suggest much lower diversity in the past. This is indicated by comparing the counties in 1990 and 2020. In 1990, far fewer nonmetro counties had diversity scores of 50 or higher. To anticipate America's racial future, figure 4, panel C provides a map of county diversity scores for children and youth under age twenty. Growing racial and ethnic diversity occurs from the bottom up—starting with children. The main conclusion here is self-evident. Children are far more exposed to a diverse population (of other) children. Compared with panel A, which focuses on overall exposure to diversity, panel C shows many more counties with high levels of child diversity. Today's rural baby boom population of mostly aging Whites will be succeeded over the next two decades by increas-

---

7. Reclassification also contributed to the growing diversity of nonmetro areas. In previous research, we found that Whites represented a disproportionate share of the population in counties that were reclassified from nonmetro to metro. The combination of White loss, in part through reclassification, and nonmetro minority gain accelerated nonmetro diversity (Lichter and Johnson 2023).

8. We also estimated the mean diversity score for counties, which gives each county, regardless of racial composition, equal weight (rather than weighting by nonmetro population size). For each decade, the mean diversity scores were slightly higher, which reflects the outsized impact of highly diverse outlier counties. The nonmetro county diversity mean was roughly 31 in 2020. This compares with a metro mean diversity score of 42 in 2020.

Figure 4. Racial Diversity of Nonmetro Population

Panel A. 2020

Less diverse 4   25   50   Overall U.S. 80 More diverse

Probability that two random residents of the
county will be of different race/Hispanic origin

Panel B. 1990

Less diverse 0   25 Overall U.S. 50   96 More diverse

Probability that two random residents of the
county will be of different race/Hispanic origin

Panel C. 2020, Children and Youth

Less diverse 4   25   50   Overall U.S. 80 More diverse

Probability that two random youths of the
county will be of different race/Hispanic origin

Source: Authors' calculations based on U.S. Census Bureau 2024a.

ingly diverse populations of children as they transition into adulthood and bear children of their own.

Deprivation

The War on Poverty in the 1950s and 1960s brought sharp declines in the poverty gap between metro and nonmetro areas, but this was replaced in the 1990s by a 3 to 4 percent poverty gap that persists today. The official poverty rate in 2019 was 15.4 and 11.9 percent, respectively, in nonmetro and metro areas (see online appendix 3). Direct comparisons are difficult because the official measure does not adjust for spatial differences in the cost of living, consumption patterns, household living arrangements (cohabitation and doubling-up), informal work, or in-kind income. As an alternative measure, the Census Bureau's Supplemental Poverty Measure (SPM) accounts for most government benefits and geographic differences in the cost of living. The SPM reveals higher poverty estimates than the official measure, at least until the pandemic (Fox and Burns 2021). In 2020, the nation's official rate exceeded the SPM for the first time (11.4 versus 9.1 percent). Moreover, the SPM in 2015 was 13.2 percent in nonmetro areas, slightly lower than the 14.5 percent in metro areas (Shapiro and Sherman 2016). Unambiguous interpretations of the official poverty rate, especially when comparing metropolitan and nonmetropolitan areas, have been made difficult by nonmetro-to-metro reclassification. More populated, faster-growing, less remote, and more economically vibrant counties with lower poverty rates are most likely to be reclassified as metro over time, leaving behind mostly slow growing or declining counties with higher poverty rates (Johnson and Lichter 2020).[9]

Whether nonmetro counties are on divergent economic trajectories is similarly unclear. Are chronically poor nonmetro counties diverging from other nonmetro counties that have become less impoverished and more af-

fluent over time? Figure 5 presents county maps that identify low-poverty counties, where the percentage of the population in poverty is less than 0.75 of the U.S. poverty rate; counties with moderate levels of poverty, where the percentage is between 0.75 and 1.25 times the national rate; high-poverty counties, where the percentage is 1.25 to 1.50 times higher than the national rate; and very high-poverty counties, where the percentage is at least 1.50 times higher (or 50 percent higher) than the national rate. County poverty in panel A is compared with U.S. poverty data for the 1990s; panel B is based on the 2010s. Divergence would be revealed in increasing shares of nonmetro counties below and above the national poverty rates.

In fact, the overall pattern is one of declining poverty rates between 1990 and 2019. This is clearly revealed by substantial declines in the number of high-poverty nonmetro counties (see figure 5). The percentage of very high-poverty counties dropped from 33 percent to 23 percent between 1990 and 2019. In particular, very high-poverty counties are far fewer today not only in the southern Black Belt, but also in the high plains of West Texas, central Appalachia (especially West Virginia), and isolated parts of the upper Midwest (especially the Dakotas). Extreme poverty is much less prevalent today than in 1990 if measured by the official poverty rate. At the other end of the county poverty distribution, the percentage of low-poverty counties increased from 11.4 percent to 16.6 percent in 2019. The expansion of low-poverty counties is plainly observed in the agriculture heartland, extending from the Dakotas to Kansas.

The geography of rural poverty remains striking, as indicated by continuing widespread rural poverty. The county map in figure A.4 (panel A) illustrates the substantial concentrations of relatively high poverty, especially in the South. Our comparison of nonmetro county poverty rates, measured in relative terms, does

---

9. In previous research on the impact of nonmetro to metro reclassification, we found that nonmetro areas that have transitioned to metro status included higher percentages of college-educated people, higher per capita incomes, lower poverty rates, and a smaller proportion of their population over sixty-five. Such reclassification exacerbates the deficit of human capital in nonmetro areas and increases the gap between metro and nonmetro areas (Johnson and Lichter 2020).

Figure 5. Nonmetropolitan Poverty Relative to United States Overall
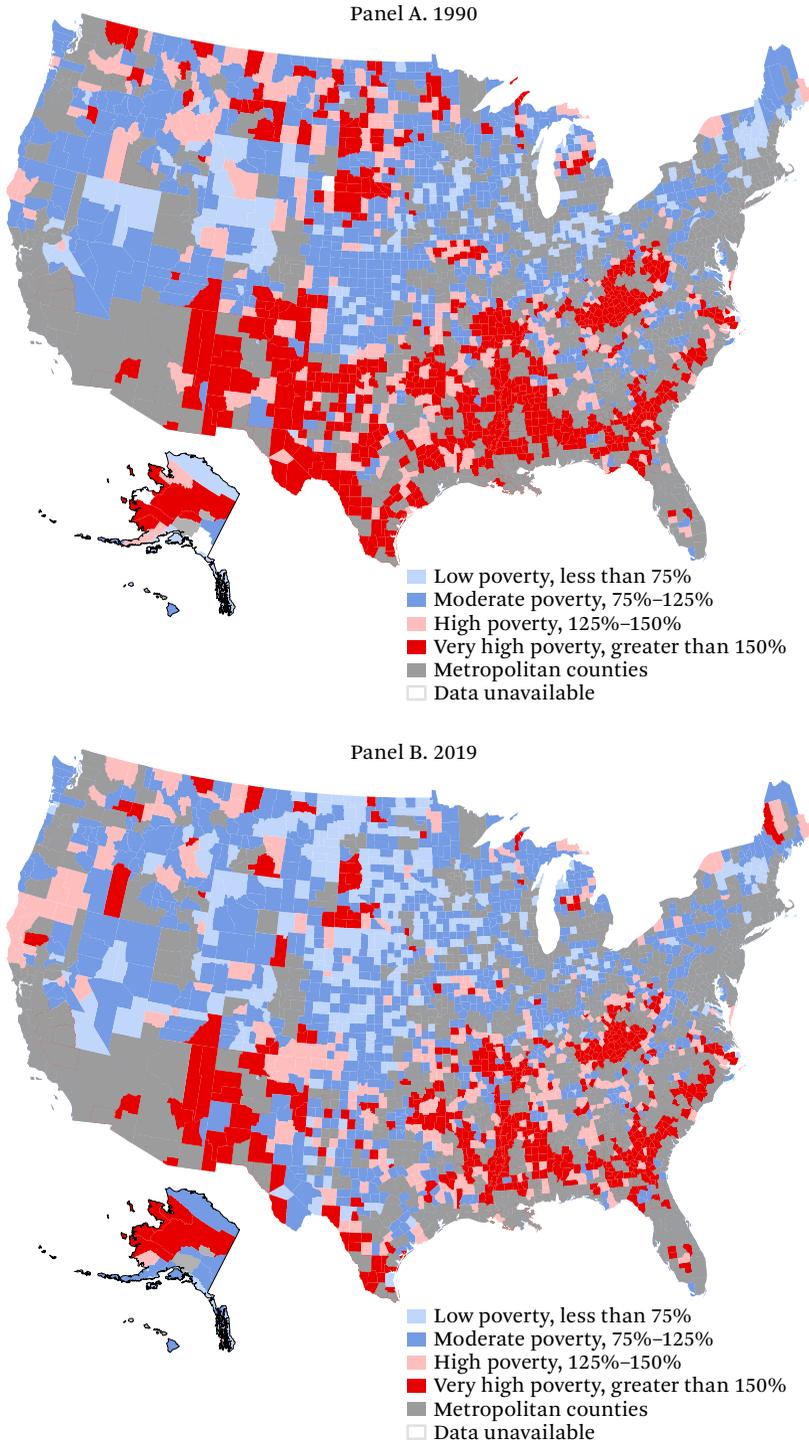
Panel A. 1990

Panel B. 2019

Source: Authors' calculations based on U.S. Census Bureau 2023; Economic Research Service 2023.

not obviate the need for place-based policy interventions. Income inequality is often extreme in high-poverty counties. This is revealed in figure A.4, panel B, which documents county variation in the ratio of percentages of low-income families (less than $25,000 annually) to high-income families (more than $150,000 annually) in 2019. A low ratio suggests high levels of family income inequality—a pattern revealed in counties with many poor families and comparatively few affluent families. The substantive point here is clear. Income inequality is most extreme in the South and least extreme in the Midwest.

Finally, as a coda to our analyses of rural deprivation, we also consider whether the 4Ds overlap in ways that suggest a cumulative disadvantage in nonmetro America. In figure A.5, we show the statistical association between county poverty rates in 1990 and 2019 and each of the other 3Ds—depopulation, deaths, and diversity—as well as the Social Vulnerability Index. We ask a straightforward question: To what extent are depopulation (versus growth), deaths (natural decrease versus natural increase), diversity (above 0.50 versus below), and deprivation (above and below poverty) associated with the SVI?

These supplementary analyses reveal widespread declines in county poverty rates between 1990 and 2019. The only exception is nonmetro counties that experienced White population decline and gains in racial diversity, where poverty rates increased between 1990 and 2019. The largest declines in poverty were observed in counties that experienced natural increase in the 2010s despite experiencing natural decrease over the entire study period. These counties are newly experiencing natural increase, which has been accompanied by low poverty. Each of these Ds is more strongly linked to variation in SVI than to county poverty rates, either in 1990 or 2019. The SVI in 2020 is highest in counties that have grown rapidly (more than 5 percent over the past decade), that have recently experienced natural decrease, and that have experienced White population decline (along with substantial increases in diversity). The implication is that high rates of population growth of minorities, coupled with White decline and natural decrease, is linked to increasing social and economic vulnerability in nonmetro counties.

DISCUSSION AND CONCLUSIONS

Our fundamental goal has been to provide an up-to-date demographic benchmark of rural America over the recent period of rapid social, economic, and political change (Mettler and Brown 2022; Ulrich-Schad and Duncan 2018). Achieving this goal is now possible with the release of the 2020 Census, along with earlier censuses and other federal demographic data. These data provide spatially fine-grained information on depopulation, deaths, diversity, and deprivation—the 4Ds. Rural America is at a demographic inflection point, one marked by the continuing transformation from a rural to urban society. This is indicated by persistent metro-nonmetro gaps in social and economic well-being, but also by growing disparities within nonmetro America. As in the past, rural people and places today are divided along divergent trajectories. One connotes growing prosperity and spatial inclusion into mainstream (urban) society, the other highlights a rural America left behind, excluded from urban America's economic largess (Cramer 2016; Wuthnow 2018).

Indeed, we describe one rural America as experiencing population growth, and the other as facing chronic depopulation and decline over the recent past, much like the nation's inner cities in the 1950s and 1960s (Wilson 2011). One avenue to success in rural America is revealed by population increase, urbanization, and ultimately reclassification to metropolitan status. Other rural areas continued to gain population because their natural and built amenities enabled them to attract amenity and retirement, or as economic and service centers for proximate rural areas. However, we also document the lack of demographic resilience or sustainability—incipient low fertility and high mortality—across large geographical swaths of rural America. Natural decrease—the growing excess of deaths over births—has supplanted natural increase, which historically has been a demographic counterweight to chronic rural outmigration. In addition, our analyses highlight the unprecedented uptick in racial and ethnic diversity in many parts of rural America. Yet the

lack of diversity in other rural counties means that they are diverging racially and culturally from the rest of the country. Whether rural diversity is an economic panacea or an indicator of rural decline is much less clear. Finally, we place America's nonmetropolitan counties along different economic trajectories, with opposing ideal-types as endpoints (for example, rural slums at one end and rural gentrification at the other). It is unclear, of course, whether the usual cultural narrative of left-behind rural Americans needs some revision, especially if many thinly settled rural counties have become prosperous new destinations for in-migration from urban areas (Sherman and Schafft 2022).

If nothing else, our framing and empirical approach suggest that rural development strategies and policy interventions must address a moving target, one made difficult by unusually rapid changes in rural depopulation, deaths, diversity, and deprivation. Place-based interventions have targeted rural America with new funding for local economic development and infrastructure, such as fiber optics, public transportation, and rural schools (Brown and Shucksmith 2017; Partridge and Rickman 2008; Pipa and Geismar 2022). Competing scholarly claims concerning equity and efficiency of place-based policies are increasingly commonplace and difficult to adjudicate. On the one hand, place-based investments directed at "dying" small towns may be justified from an equity standpoint, but are often discounted if efficiency matters more to policymakers. Whether depopulating rural counties can be revived is unclear, especially if they lack basic ingredients necessary for sustainability and long-term economic success, such as access to health care, infrastructure, good schools, and civic governance. On the other hand, public investments may be better targeted at persons rather than places, even if they incentivize individual choices that occur at the expense of communities, that is, out-migration of rural youth (for a discussion, see Parker, Tach, and Robertson 2022). Others have argued for greater investments in rural communities, but only if there is some likelihood of success. Prospects for success depend on local endowments, a skilled or educated population, adequate physical infrastructure, attractive natural resources or amenities, and a political and civic culture that ensures viability over the long-term. Still others suggest that regional development should subsume community development. The putative goal is to better link small or remote rural communities to thriving urban or metro regional employment centers (Brown and Shucksmith 2017; Tsvetkova, Partridge, and Betz 2017).

Our focus on the 4Ds is hardly exhaustive of the many demographic challenges facing rural America, especially as communities confront an increasingly urban-dominated national and global economy. For example, rural America faces housing challenges that often exacerbate problems of labor mobility (such as being anchored to housing that cannot be easily sold and therefore abandoned at a loss) and population aging (trapped in older housing ill-adapted to persons with problems of mobility and self-care). For rural people, moving to opportunity or, alternatively commuting to opportunity, can deplete the size and economic viability of local communities and erode resilience and long-term sustainability. The economic incentives of people and places are often working at cross-purposes (Carr and Kefalas 2009). Our focus on the 4Ds does not obviate the need for a much broader research and policy agenda devoted to rural housing, education and schools, public transportation, social service delivery systems, and health care. Our analyses underscore growing complexity, as well as demographic and economic fragmentation in rural America and the need to appreciate this in policymaking.

As we have illustrated, the U.S. decennial census is a national resource for better understanding and responding to rural growth and decline, in general, and to specific at-risk rural places in particular. The U.S. Census was first conducted in 1790 and provides longitudinal demographic data spanning more than two centuries. Census data help policymakers, businesses, and researchers better understand and respond to the unmet needs of America, including rural people and places. The census provides finely grained spatial-racial data for rural governments and administrative units (such as boards of county commissioners). Yet the current census is limited to five demographic complete-count questions: sex, birth-

date, Hispanic origin, race, and relationship to the householder (the first person listed on the questionnaire) and place of residence. Unfortunately, the nation's statistical system has not adapted sufficiently to rural America's increasing economic, political, and racial heterogeneity. Nor has it been immune to political influences that undermine complete-count data, especially data pertaining to America's most vulnerable people and smallest places.

To be sure, the annual American Community Survey has been a boon to the study of spatially delimited political or administrative units, including rural communities and small towns. For smaller mostly rural places, however, estimates of population, economic and social parameters are often imprecise, fluctuating markedly from year to year due to small sample sizes. Recently implemented data privacy algorithms add another element of imprecision to the data from all the major Census Bureau data products, especially for smaller places, including much of rural America. The availability of high-quality, spatially explicit data is crucial, especially during a period of rapid economic change and growing demographic heterogeneity. Few national panel studies are currently of sufficient sample size to confidently address critical policy questions (such as childcare, reproductive health and childbearing, and mental health) concerning rural people and places, either in the aggregate, or when disaggregated at the regional, state, or local levels. This will require oversampling rural areas or providing detailed comparative studies of specific rural communities, much like the Three Cities Study or Los Angeles Family and Neighborhood Survey. Rural and small-town America is in transition. Now, perhaps more than ever, it is imperative that we have the high-quality data needed to take demographic stock of the state of rural America and to build a spatially inclusive society and statistical gathering system.

**Figure A.1.** Nonmetropolitan Population, Floating and Fixed Definition
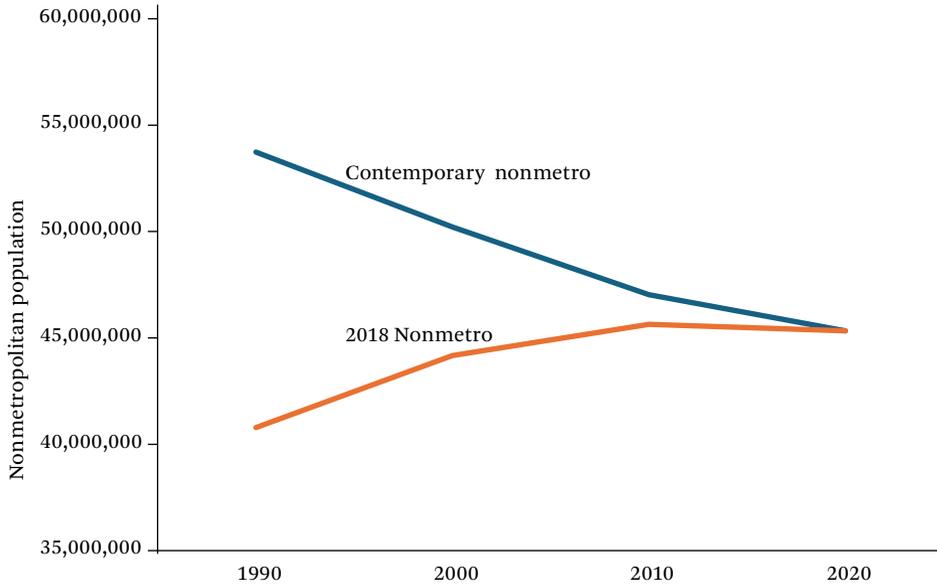
Source: Authors' calculations based on U.S. Census Bureau 2024a.

**Figure A.2.** Population Patterns in Nonmetropolitan Counties

- Natural decrease 1990–2020, 2010–2020
- Natural increase 1990–2020, natural decrease 2010–2020
- Natural decrease 1990–2020, natural increase 2010–2020
- Natural increase 1990–2020, 2010–2020
- Metropolitan counties
- Data unavailable
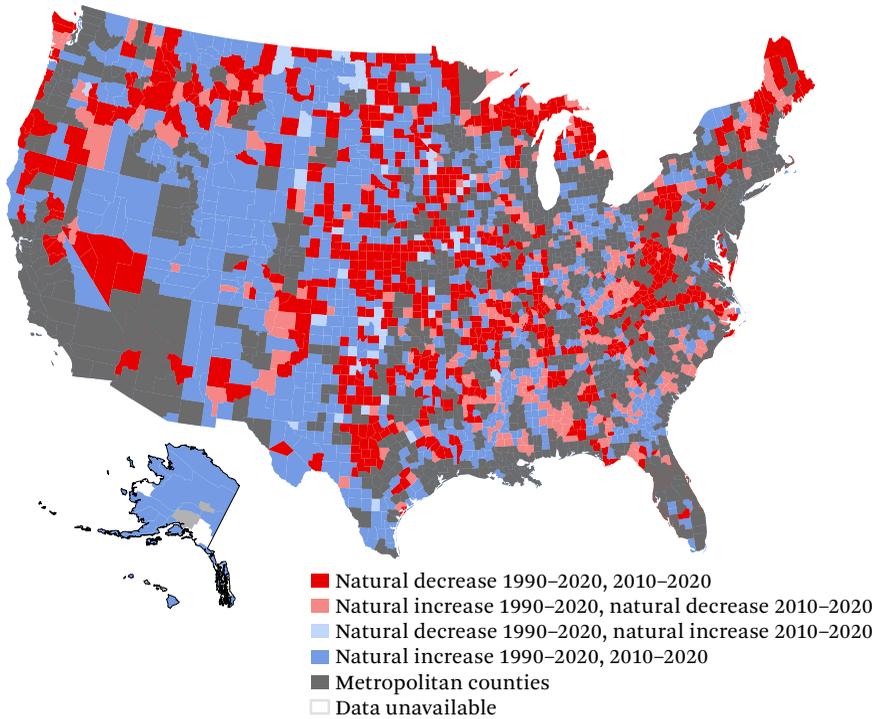
Source: Authors' calculations based on U.S. Census Bureau 2024b.

Figure A.3. Nonmetropolitan Population by Race and Hispanic Origin

Panel A. Change

Panel B. Percentage
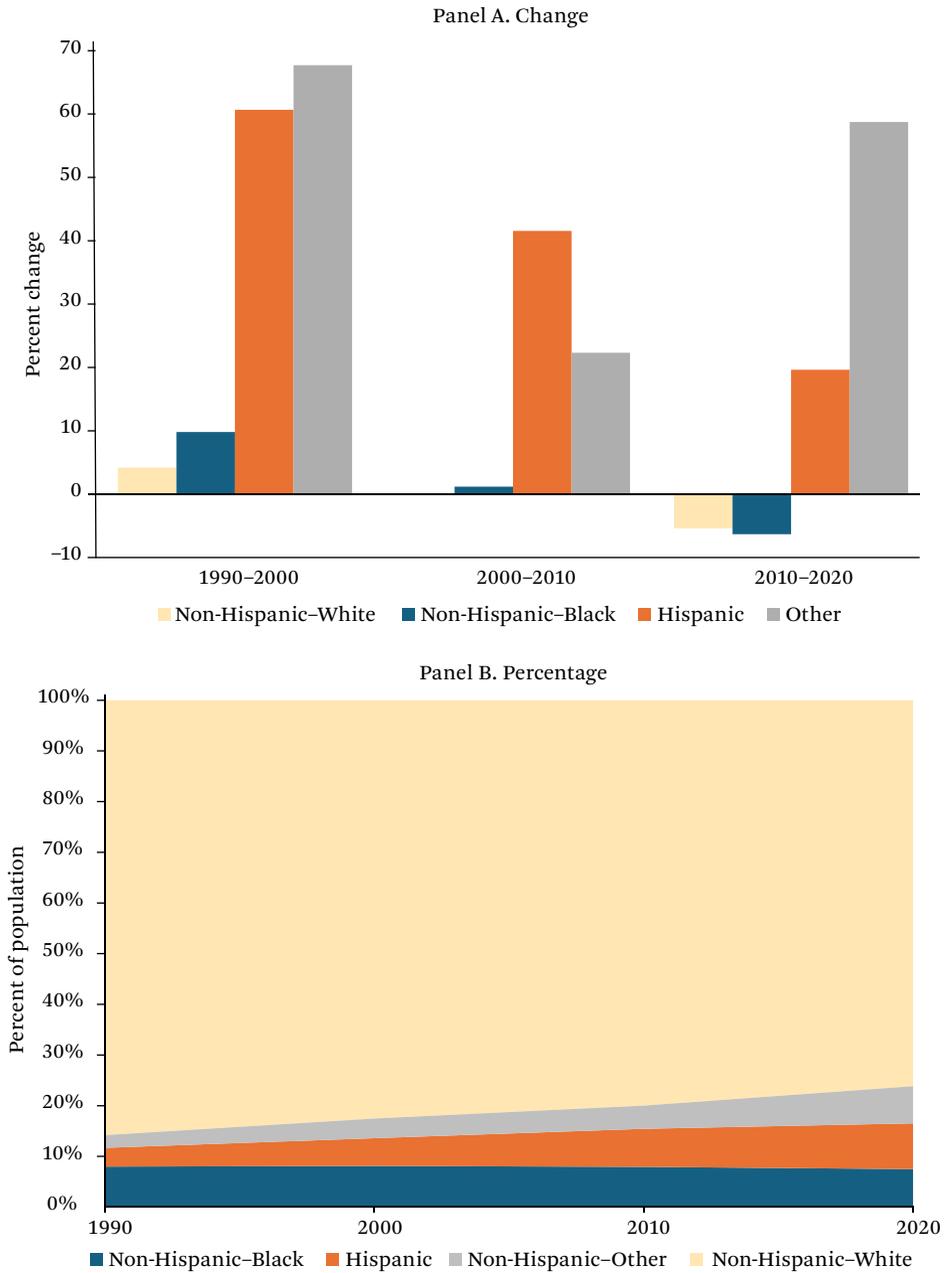
Source: Authors' calculations based on U.S. Census Bureau 2024a.

Figure A.4. Income and Poverty by County, 2019
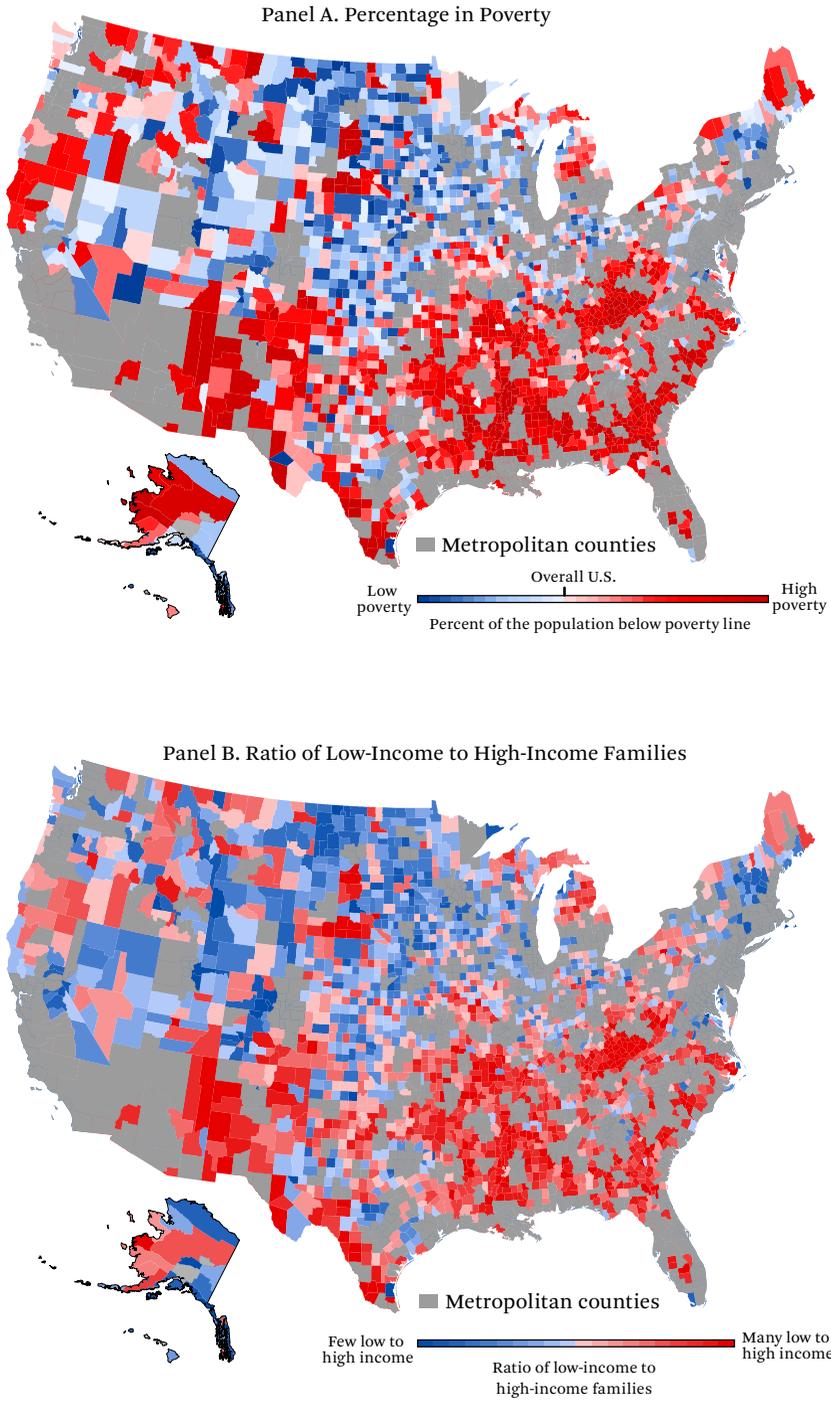
Panel A. Percentage in Poverty

Panel B. Ratio of Low-Income to High-Income Families

Source: Authors' calculations based on U.S. Census Bureau 2023; Economic Research Service 2023.

Figure A.5. Social Vulnerability and Poverty, 1990–2020

Panel A. Population Change

Panel B. Incidence of Natural Decrease

Panel C. Diversity Status

■ Poverty 1990   ■ Poverty 2019   ■ Social Vulnerability
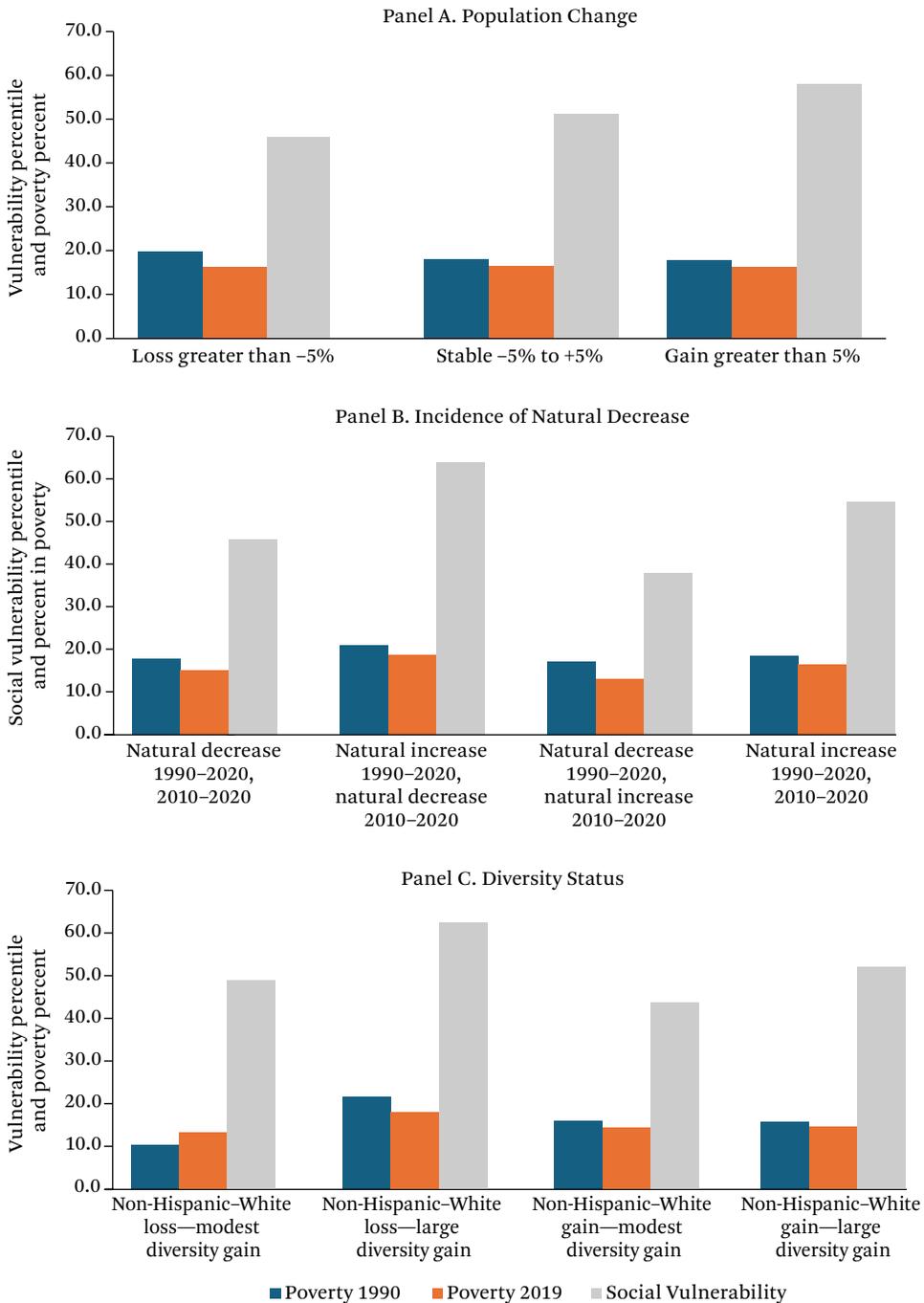
Source: Authors' calculations based on U.S. Census Bureau 2023, 2024a, 2024b; Centers for Disease Control and Prevention 2023; Economic Research Service 2023.

REFERENCES

Abrams, Leah R., Mikko Myrskylä, and Neil K. Mehta. 2021. "The Growing Rural–Urban Divide in US Life Expectancy: Contribution of Cardiovascular Disease and Other Major Causes of Death." *International Journal of Epidemiology* 50(6): 1970–78.

Aiken, Charles S. 1987. "Race as a Factor in Municipal Underbounding." *Annals of the Association of American Geographers* 77(4): 564–79.

Albrecht, Don E. 2019. "The Nonmetro Vote and the Election of Donald Trump." *Journal of Rural Social Sciences* 34(1): 3.

Albrecht, Don E., and Stan L. Albrecht. 2000. "Poverty in Nonmetropolitan America: Impacts of Industrial, Employment, and Family Structure Variables." *Rural Sociology* 65(1): 87–103.

Brooks, Matthew M., and J. Tom Mueller. 2020. "Factors Affecting Mobile Home Prevalence in the United States: Poverty, Natural Amenities, and Employment in Natural Resources." *Population, Space and Place* 26(4): e2311.

Brooks, Matthew M., J. Tom Mueller, and Brian C. Thiede. 2020. "County Reclassifications and Rural–Urban Mortality Disparities in the United States (1970–2018)." *American Journal of Public Health* 110(12): 1814–16.

Brown, David L., Benjamin C. Bolender, Laszlo J. Kulcsar, Nina Glasgow, and Scott Sanders. 2011. "Intercounty Variability of Net Migration at Older Ages as a Path-Dependent Process." *Rural Sociology* 76(1): 44–73.

Brown, David L., and Mark Shucksmith. 2017. "Reconsidering Territorial Governance to Account for Enhanced Rural-Urban Interdependence in America." *Annals of the American Academy of Political and Social Science* 672(1): 282–301.

Brown, Trevor, Suzanne Mettler, and Samantha Puzzi. 2021 "When Rural and Urban Become "Us" versus "Them": How a Growing Divide Is Reshaping American Politics." *The Forum* 19(3): 365–93.

Burton, Linda M., Raymond Garrett-Peters, and John Major Eason. 2011. "Morality, Identity, and Mental Health in Rural Ghettos." In *Communities, Neighborhoods, and Health,* edited by Linda M. Burton, Susan P. Kemp, ManChui Leung, Stephen A. Matthews, and David T. Takeuchi, 91–110. Dordrecht, NL: Springer.

Carr, Patrick J., and Maria J. Kefalas. 2009. Hollowing Out the Middle: The Rural Brain Drain and What It Means for America. Boston, Mass.: Beacon Press.

Case, Angus, and Anne Deaton. 2021. *Deaths of Despair and the Future of Capitalism*. Princeton, N.J.: Princeton University Press.

Centers for Disease Control and Prevention. 2023. "CDC/ATSDR Social Vulnerability Index." Washington, D.C.: Centers for Disease Control Agency for Toxic Substances and Disease Registry. Accessed May 11, 2023. https://www.atsdr.cdc.gov /placeandhealth/svi/index.html.

Cheng, Kent Jason G., Yue Sun, and Shannon M. Monnat. 2020. "COVID-19 Death Rates Are Higher in Rural Counties with Larger Shares of Blacks and Hispanics." *The Journal of Rural Health* 36(4): 602–8.

Clark, Shelley, Sam Harper, and Bruce Weber. 2022. "Growing Up in Rural America." *RSF: The Russell Sage Foundation Journal of the Social Sciences* 8(4): 1–47. https://doi.org/10.7758/RSF .2022.8.4.01.

Cosby, Arthur G., M. Maya McDoom-Echebiri, Wesley James, Hasna Khandekar, Willie Brown, and Heather L. Hanna. 2019. "Growth and Persistence of Place-Based Mortality in the United States: The Rural Mortality Penalty." *American Journal of Public Health* 109(1): 155–62.

Cossman, Jeralynn S., Wesley L. James, Arthur G. Cosby, and Ronald E. Cossman. 2010. "Underlying Causes of the Emerging Nonmetropolitan Mortality Penalty." *American Journal of Public Health* 100(8): 1417–19.

Cramer, Katherine J. 2016. *The Politics of Resentment: Rural Consciousness in Wisconsin and the Rise of Scott Walker.* Chicago: University of Chicago Press.

Curtin, Sally C., and Merianne R. Spencer. 2021. "Trends in Death Rates in Urban and Rural Areas: United States, 1999–2019." *NCHS* data brief no. 417. Washington, D.C.: National Center for Health Statistics.

Eason, John M. 2012. "Extending the Hyperghetto: Toward a Theory of Punishment, Race, and Rural Disadvantage." *Journal of Poverty* 16(3): 274–95.

Economic Research Service. 2023. "County-Level Poverty." Washington: U.S. Department of Agriculture. Accessed May 3, 2024. https://data.ers .usda.gov/reports.aspx?ID=17826.

Edelman, Marc. 2021. "Hollowed Out Heartland, USA: How Capital Sacrificed Communities and

Paved the Way for Authoritarian Populism." *Journal of Rural Studies* (82): 505–17.

Elo, Irma T., Arun S. Hendi, Jessica Y. Ho, Yana C. Vierboom, and Samuel H. Preston. 2019. "Trends in Non-Hispanic White Mortality in the United States by Metropolitan-Nonmetropolitan Status and Region, 1990–2016." *Population and Development Review* 45(3): 549–83.

Feinberg, Ayal, Regina Branton, and Valerie Martinez-Ebers. 2022. "The Trump Effect: How 2016 Campaign Rallies Explain Spikes in Hate." *PS: Political Science & Politics* 55(2): 257–65.

Fox, Laina, and Kalee Burns. 2021. "The Supplemental Poverty Measure." *Current Population Reports*. P60-275.

Fuguitt, Glenn V. 1972. "The Places Left Behind: Population Trends and Policy for Rural America." *Rural Sociology* 36(4): 449–70.

James, Wesley, and Jeralynn S. Cossman. 2017. "Long-Term Trends in Black and White Mortality in the Rural United States: Evidence of a Race-Specific Rural Mortality Penalty." *The Journal of Rural Health* 33(1): 21–31.

Jensen, Leif. 2018. "Understanding Rural Social Class in an Era of Global Challenge." *Rural Sociology* 83(2): 227–43.

Johnson, Kenneth M. 2020. "As Births Diminish and Deaths Increase, Natural Decrease Becomes More Widespread in Rural America." *Rural Sociology* 85(4): 1045–58.

———. 2023. "Population Redistribution Trends in Nonmetropolitan America, 2010 to 2021." *Rural Sociology* 88(1): 193–219.

Johnson, Kenneth M., and Daniel T. Lichter. 2016. "Diverging Demography: Hispanic and Non-Hispanic Contributions to US Population Redistribution and Diversity." *Population Research and Policy Review* 35(5): 705–25.

———. 2019. "Rural Depopulation: Growth and Decline Processes over the Past Century." *Rural Sociology* 84(1): 3–27.

———. 2020. "Metropolitan Reclassification and the Urbanization of Rural America." *Demography* 57(5): 1929–50.

Johnson, Kenneth M., and Dante J. Scala. 2022. "The Rural-Urban Continuum and the 2020 US Presidential Election." *The Forum* 20(2): 229–55.

Jones, Malia, Mahima Bhattar, Emma Henning, and Sharon M. Monnat. 2023. "Explaining the U.S. Rural Disadvantage in COVID-19 Case and Death Rates During the Delta-Omicron Surge: The Role of Politics, Vaccinations, Population Health, and Social Determinants." *Social Society & Medicine* 335 (October): 116–80. https://doi.org/10.1016/j.socscimed.2023.116180.

Knapp, Emily A., Usama Bilal, Lorraine T. Dean, Marina Lazo, and David D. Celentano. 2019. "Economic Insecurity and Deaths of Despair in US Counties." *American Journal of Epidemiology* 188(12): 2131–39.

Lee, Barrett A., and Gregory Sharp. 2017. "Ethnoracial Diversity Across the Rural-Urban Continuum." *Annals of the American Academy of Political and Social Science* 672(1): 26–45.

Lichter, Daniel T. 2012. "Immigration and the New Racial Diversity in Rural America." *Rural Sociology* 77(1): 3–35.

Lichter, Daniel T., and David L. Brown. 2011."Rural America in an Urban society: Changing Spatial and Social Boundaries." *Annual Review of Sociology* 37(1): 565–92.

Lichter, Daniel T., David L. Brown, and Dominico Parisi. 2021. "The Rural–Urban Interface: Rural and Small Town Growth at the Metropolitan Fringe." *Population, Space and Place* 27(3): e2415.

Lichter, Daniel T., and Kenneth M. Johnson. 2020. "A Demographic Lifeline? Immigration and Hispanic Population Growth in Rural America." *Population Research and Policy Review* 39(5): 785–803.

———. 2023. "Urbanization and the Paradox of Rural Population Decline: Racial and Regional Variation." *Socius* 9: 23780231221149896.

Lichter, Daniel T., Domenico Parisi, Steven Michael Grice, and Michael C. Taquino. 2007. "National Estimates of Racial Segregation in Rural and Small-Town America." *Demography* 44(3): 563–81.

Lichter, Daniel T., Domenico Parisi, and Michael C. Taquino. 2022. "Inter-County Migration and the Spatial Concentration of Poverty: Comparing Metro and Nonmetro Patterns." *Rural Sociology* 87(1): 119–43.

Lichter, Daniel T., Brian C. Thiede, and Matthew M. Brooks. 2023. "Racial Diversity and Segregation: Comparing Principal Cities, Inner-Ring Suburbs, Outlying Suburbs, and the Suburban Fringe." *RSF: The Russell Sage Foundation Journal of the Social Sciences* 9(1): 25–51. https://doi.org /10.7758/RSF.2023.9.1.02.

Lichter, Daniel T., and James P. Ziliak. 2017. "The Rural-Urban Interface: New Patterns of Spatial Interdependence and Inequality in America." *An-*

nals of the American Academy of Political and So-cial Science 672(1): 6–25.

Mackun, Paul, Joshua Comenetz, and Kindsay Spell. 2021. "Around Four-Fifths of All U.S. Metro Areas Grew Between 2010 and 2020." U.S. Census Bureau. https://www.census.gov/library/stories /2021/08/more-than-half-of-united-states -counties-were-smaller-in-2020-than-in-20 10.html.

Massey, Douglas S., and Nancy A. Denton. 1993. "American Apartheid: Segregation and the Making of the Underclass." Cambridge, Mass.: Harvard University Press.

Mettler, Suzanne, and Trevor Brown. 2022. "The Growing Rural-Urban Political Divide and Democratic Vulnerability." Annals of the American Academy of Political and Social Science 699(1): 130–42.

Meyer, Phillip, and Shawn McIntosh. 1992 "The USA Today Index of Ethnic Diversity." International Journal of Public Opinion Research 4(1): 51–58.

Monnat, Shannon M. 2020. "Trends in US Working-Age Non-Hispanic White Mortality: Rural–Urban and Within-Rural Differences." Population Research and Policy Review 39(5): 805–34.

Monnat, Shannon M., and David L. Brown. 2017. "More Than a Rural Revolt: Landscapes of Despair and the 2016 Presidential Election." Journal of Rural Studies 55: 227–36.

Mueller, J. Tom, Kathryn McConnell, Paul Berne Burow, Katie Pofahl, Alexis A. Merdjanoff, and Justin Farrell. 2021. "Impacts of the COVID-19 Pandemic on Rural America." Proceedings of the National Academy of Sciences 118(1): 2019378118.

Parker, Danny. 2022. "The Politics of Resistance: An Ethnographic Examination of Political Alienation and Radical Disengagement Among Rural White Underclass Men." Mass Communication and Society 25(6): 838–60.

Parker, Emily, Laura Tach, and Cassandra Robertson. 2022. "Do Federal Place-Based Policies Improve Economic Opportunity in Rural Communities?" RSF: The Russell Sage Foundation Journal of the Social Sciences 8(4): 125–54. https://doi.org/10 .7758/RSF.2022.8.4.06.

Partridge, Mark D., and Dan S. Rickman. 2008. "Place-Based Policy and Rural Poverty: Insights from the Urban Spatial Mismatch Literature." Cambridge Journal of Regions, Economy and Society 1(1): 131–56.

Peters, David J. 2019. "Community Resiliency in Declining Small Towns: Impact of Population Loss on Quality of Life over 20 Years." Rural Sociology 84(4): 635–68.

Peters, David J., Shannon M. Monnat, Andrew L. Hochstetler, and Mark T. Berg. 2020. "The Opioid Hydra: Understanding Overdose Mortality Epidemics and Syndemics Across the Rural-Urban Continuum." Rural Sociology 85(3): 589–622.

Peterson, Julia K., Richelle L. Winkler, and Miranda H. Mockrin. 2024. "Changes to Rural Migration in the COVID Pandemic." Rural Sociology 89(1): 130–55.

Pipa, Tony, and Natalie Geismar. 2022. "Rural Federal Policy in Transition." In Rural Areas in Transition, edited by Norman Walzer and Christopher Merrett, 65–85. New York: Routledge.

Probst, Janice C., Whitney E. Zahnd, Peiyin Hung, Jan M. Eberth, Elizabeth L. Crouch, and Melinda A. Merrell. 2020. "Rural-Urban Mortality Disparities: Variations Across Causes of Death and Race/Ethnicity, 2013–2017." American Journal of Public Health 110(9): 1325–27.

Ramirez, Sarah M., and Don Villarejo. 2012. "Poverty, Housing, and the Rural Slum: Policies and the Production of Inequities, Past and Present." American Journal of Public Health 102(9): 1664–75.

Rowlands, D. W., and Hannah Love. 2021. "Mapping Rural America's Diversity and Demographic Change." Washington, D.C.: Brookings Institution. Accessed May 3, 2024. https://www.brookings .edu/articles/mapping-rural-americas-diversity -and-demographic-change.

Salamon, Sonya, and Katherine MacTavish. 2017. Singlewide: Chasing the American Dream in a Rural Trailer Park. Ithaca, N.Y.: Cornell University Press.

Shapiro, Isaac, and Arloc Sherman. 2016. "Non-Metro Areas Gained About as Much as Metro Areas in 2015, American Community Survey Data Indicate." Washington, D.C.: Center for Budget and Policy Priorities. https://www.cbpp.org /research/non-metro-areas-gained-about-as -much-as-metro-areas-in-2015-american -community-survey-data.

Sherman, Jennifer. 2021. Dividing Paradise: Rural Inequality and the Diminishing American Dream. Oakland: University of California Press.

Sherman, Jennifer, and Kai A. Schafft. 2022. "'Turning Their Back on Kids': Inclusions, Exclusions, and the Contradictions of Schooling in Gentrify-

ing Rural Communities." *RSF: The Russell Sage Foundation Journal of the Social Sciences* 8(3): 150–70. https://doi.org/10.7758/RSF.2022.8.03.

Silva, Jennifer M. 2019. *We're Still Here: Pain and Politics in the Heart of America.* Oxford: Oxford University Press.

Singh, Gopal K., and Mohammad Siahpush. 2014. "Widening Rural-Urban Disparities in Life Expectancy, US, 1969–2009." *American Journal of Preventive Medicine* 46(2): e19-e29.

Spencer, Jennifer C., Stephanie B. Wheeler, Jason S. Rotter, and George M. Holmes. 2018. "Decomposing Mortality Disparities in Urban and Rural US Counties." *Health Services Research* 53(6): 4310–31.

Thiede, Brian, Hyojung Kim, and Matthew Valasik. 2018. "The Spatial Concentration of America's Rural Poor Population: A Postrecession Update." *Rural Sociology* 83(1): 109–44.

Tsvetkova, Alexandra, Mark Partridge, and Michael Betz. 2017. "Entrepreneurial and Employment Responses to Economic Conditions Across the Rural-Urban Continuum." *Annals of the American Academy of Political and Social Science* 672(1): 83–102.

Ulrich-Schad, Jessica D., and Cynthia M. Duncan. 2018. "People and Places Left Behind: Work, Cul-

ture and Politics in the Rural United States." *Journal of Peasant Studies* 45(1): 59–79.

U.S. Census Bureau. 2023. "Income and Poverty Tables." Washington: U.S. Department of Commerce. Retrieved May 20, 2024. https://www.census.gov/programs-surveys/popest.html.

———. 2024a. "Decennial Census by Decade." Washington: U.S. Department of Commerce." Retrieved May 20, 2024. https://www.census.gov/programs-surveys/decennial-census/decade.html.

———. 2024b. "Population and Housing Unit Estimates." Washington: U.S. Department of Commerce. Retrieved May 20, 2024. https://www.census.gov/programs-surveys/popest.html.

Wacquant, Loïc. 2022. *The Invention of the "Underclass": A Study in the Politics of Knowledge.* New York: John Wiley & Sons.

Wilson, William Julius. 2011. *When Work Disappears: The World of the New Urban Poor.* New York: Vintage.

———. 2012. *The Truly Disadvantaged.* Chicago: University of Chicago Press.

Wuthnow, Robert. 2018. *The Left Behind; Decline and Rage in Rural America.* Princeton, N.J.: Princeton University Press.

Stalled Progress? Five Decades of Black-White and Rural-Urban Income Gaps

BRADLEY L. HARDY, SHRIA HOLLA, ELIZABETH S. KRAUSE, AND JAMES P. ZILIAK

We examine the contribution of the U.S. tax and social safety net to ameliorating racial and geographic household income gaps using nearly five decades of data from the Current Population Survey Annual Social and Economic Supplement. Our results paint a mixed portrait of economic progress of Black and rural households relative to their White and urban counterparts over the last fifty years. The tax and transfer systems in any given year provide substantial redistribution to low-income Black and rural households, which has resulted in a narrowing of level gaps. However, those gaps have been exacerbated in the upper tail of the distribution, suggesting that the tax code does not undo the underlying economic forces pulling White and urban incomes apart from Black and rural households in the top half of the distribution. This is borne out in the stagnation of rank positional gaps across race and geography.

Keywords: inequality, mobility, racial gaps, geographic disparities

The U.S. tax and transfer systems have changed fundamentally over the past five decades, resulting in lower effective tax rates at both the top and bottom of the income distributions as well as huge new outlays on social insurance and safety net programs (Auerbach and Slemrod 1997; Grogger and Karoly 2005; Piketty and Saez 2007; Moffitt and Ziliak 2019). Whether and to what extent these reforms have attenuated long-standing group differences in disposable incomes across race and geography is not well understood. Although generally examined in isolation, Black and rural households share many impediments to upward economic mobility relative to their White and urban counterparts, including lower school quality and

Bradley L. Hardy is a professor of public policy at Georgetown University, United States. **Shria Holla** is an economist at the Federal Reserve Bank of Chicago, United States. **Elizabeth S. Krause** is a doctoral student in the economics department at the University of Kentucky, United States. **James P. Ziliak** is a professor and Carol Martin Gatton Endowed Chair in the economics department at the University of Kentucky, United States.

educational attainment, reduced access to high-paying jobs and entrepreneurial capital, community disinvestment, among others (Wilson 1987; Lichter and Ziliak 2017; Gooden and Myers 2018; Chetty et al. 2020). Many aspects of the reforms have been targeted toward households with lower pretax incomes, which tend to be overrepresented among Black and rural households. As a result, it is possible that these redistributive features of the tax system and social safety net have helped improve the distribution of after-tax and transfer income among Black and rural households relative to White and urban households, respectively.

Drawing on nearly five decades of data from the 1976–2021 Current Population Survey Annual Social and Economic Supplement (CPS ASEC), we estimate a series of level and rank inequality measures, exploring disposable income gaps across race and geography. Although the economic status of Blacks relative to Whites, and rural relative to urban residents, has been of long-standing interest to both research and policy, much of the extant literature has focused on average group differences in employment, marriage, and earnings, or specific points in the income distribution such as poverty rates (for early treatment of the economic plight of the Black family, see Myrdal 1944; Moynihan 1965; for early treatment of the rural family, see Breathitt 1967; for recent volumes on Black versus White households, see Gooden and Myers 2018; on rural versus urban households, see Lichter and Ziliak 2017; Clark, Harper, and Weber 2022). Patrick Bayer and Kerwin Charles (2018) recently extended the study of Black-White earnings gaps from the well-known level gap approach, for example, comparing the 25th percentile of Black earnings with the 25th percentile of White earnings, to rank earnings gaps that yield insights into where in the White earnings distribution the earnings of a Black worker would place. The rank gap approach speaks to the relative economic mobility of groups. We expand on their work in this article by focusing on definitions of income that incorporate taxes—inclusive of redistributive tax expenditure programs such

as the Earned Income Tax Credit (EITC) and the Child Tax Credit (CTC)—as well as cash welfare and food assistance programs such as the Supplemental Nutrition Assistance Program (SNAP), and by examining gaps not only between Black versus White households, but also between rural versus urban households (for evidence that these policy changes differentially improved rural relative to urban poverty rates, see Nolan, Waldfogel, and Wimer 2017; for evidence that expansions of the Earned Income Tax Credit in the mid-1990s reduced Black-White after-tax income inequality, see Hardy, Hokayem, and Ziliak 2022).[1]

Our results paint a mixed portrait of economic progress of Black and rural households relative to their White and urban counterparts over the last fifty years. The tax and transfer systems in any given year provide substantial redistribution to low-income Black and rural households, which has resulted in a narrowing of level gaps over time. However, those same gaps have been exacerbated in the upper tail of the distribution, suggesting that the tax code does not undo the underlying economic forces pulling White and urban incomes apart from Black and rural households in the top half of the distribution. The divergence tends to be more extreme when comparing rural with urban than Black with White households, resulting in overall converged disposable income level gaps between Black and White households, and a divergence in level gaps between rural and urban households. By contrast, changes in positional disposable income inequality for both groups have been much more muted since the 1970s, with little upward mobility of Black households in the White distribution, with the possible exception of the median, but more progress of low-income rural households in the urban distribution, though no change at the top.

POLICY LANDSCAPE

By the mid-1970s, the nation was roughly ten years into an expanded set of social, political, and economic rights for Black Americans. The Civil Rights Act of 1964 prohibited racial dis-

---

1. We expand on these studies by assessing gaps both in terms of levels as well as position across the full distribution of disposable incomes.

crimination and racial segregation across education, the workforce, and public spaces (Hardy, Logan, and Parman 2018). The Voting Rights Act of 1965 and the Fair Housing Act of 1968 extended to Black Americans the promise of long-awaited political influence and improved access to housing, though arguably unfulfilled (Rothstein 2017). Additionally, although the mid-1970s mark the end of a roughly three-decade period of Black-White male labor-market convergence (Smith and Welch 1989; Heckman and Donohue 1991), social welfare programs were greatly expanded to be more inclusive of Black households. The antipoverty transfer programs of the Great Society placed an emphasis on direct assistance to families by way of cash welfare for families below poverty, called Aid to Families with Dependent Children (AFDC), which operated as an entitlement and matching grant to states with relatively weak employment requirements and high benefit reduction ratios. In-kind food assistance was provided by the Food Stamp Program, which was operational nationwide by 1975 and codified in its modern form with the Food Stamp Act of 1977 (Currie 2003; Hoynes and Schanzenbach 2016).

With the election of President Ronald Reagan in 1980, the discourse on the provision of direct cash assistance shifted and, for many, a perception emerged that the costs of redistribution through welfare programs outweighed the benefits, due in part to concerns of moral hazard and higher nonparticipation in the labor force among Black families (Loury 1986; Murray 1984). AFDC's limited provisions requiring employment risked disincentivizing work. Yet empirical evidence (Darity and Myers 1983, 1984) demonstrates that welfare generosity was not a clear causal factor in determining rates of labor-market nonparticipation among Black families.

As these arguments were taking shape, the Tax Reform Act of 1986 (TRA86) led to a large increase in the EITC, with noticeable impacts on poverty and labor supply among unmarried women with dependent children (Eissa and Liebman 1996; Eissa and Hoynes 2004). Enacted in 1975 to initially offset payroll tax liability among workers with low earnings, the EITC grew from a modest tax credit into an economically meaningful wage subsidy operating through the tax system (Hotz and Scholz 2003; Nichols and Rothstein 2016). TRA86 also continued a trend begun with the 1963 Kennedy Tax Act of slashing top marginal tax rates from more than 90 percent to 70 percent, to 50 percent with the tax reform of 1981, to 28 percent by 1986. Moreover, not only were rates cut, but the number of marginal tax brackets also shrank from sixteen in 1980 to four in 1986. Each bracket was much wider than in the 1970s, meaning those with substantially different taxable incomes faced similar marginal tax rates. Some have argued this heralded an unleashing of inequality at the top (Alvaredo et al. 2013).

Over the next two decades, tax policy developments would mark additional changes to top marginal tax rates (higher in 1993 and 2009, and lower in 2001, 2003, and 2017), enhancements to the size and reach of the EITC, and the introduction of the partially refundable Child Tax Credit, a tax benefit to working families that at once excludes very low-income working families and reaches much higher in the income distribution. The CTC was greatly expanded in generosity, delivery, and reach as part of the 2021 American Rescue Plan, providing benefits monthly to working and nonworking families alike. However, this program lasted only six months, and by 2022 the CTC returned to the same structure of 2017 that restricted the credit to working families only and at reduced generosity.

Significantly, the 1996 welfare reform eliminated the entitlement feature of cash welfare, instead allocating block grants to states that could be used in a broad range of ways to ostensibly reduce poverty and promote marriage; the reform led to a dramatic reduction in direct cash assistance provided to families with low incomes (Blank 2002; Moffitt 2003; Grogger and Karoly 2005). However, several studies exploring racial disparity in the delivery of social services identified disproportionately harsh sanctions among Black families on the welfare caseload (Bonds 2006; Kalil, Seefeldt, and Wang 2002; Fording, Soss, and Schram 2007). Related work demonstrates that states with a higher proportion of Black families in the state or on the welfare caseload provide relatively fewer cash benefits (Hardy, Samudra, and Davis 2019;

Parolin 2021). By the late 1990s, the EITC and food assistance from SNAP would overtake cash welfare as the dominant form of economic assistance for families facing exposure to low income (Hardy, Smeeding, and Ziliak 2018).

Around the same time as the Civil Rights Act of 1964 and Great Society package of antipoverty programs and expansions, policymakers recognized that rural places—and the people residing in them—were in dire need of additional investment (Caudill 1963; Breathitt 1967; Duncan 1999; Eller 2008). The passage of the 1965 Appalachian Regional Development Act created the Appalachian Regional Commission (ARC) and signaled a new acknowledgment of needed attention and resources to parts of rural America that had largely been ignored since the Tennessee Valley Authority three decades earlier (Bradshaw 1992; Ziliak 2012; Kline and Moretti 2014).

Rural economic conditions have historically been depressed relative to those of urban areas and yield similar gaps to those observed across race—including in education, earnings, poverty, and health outcomes (Islam, Minier, and Ziliak 2015; see also Lichter and Ziliak 2017; Tickamyer, Sherman, and Warlick 2017; Clark, Harper, and Weber 2022). Several studies have documented widening disparities in economic outcomes between coastal U.S. cities and their rural counterparts (Black and Sanders 2012; Austin, Glaeser, and Summers 2018; Ziliak 2019). Across rural America more generally, out-migration into larger cities has resulted in large shifts in local-area economic well-being, as well as altered access to social and health services, and educational opportunities (Bollinger, Ziliak, and Troske 2011; Lichter and Graefe 2011; Snyder and McLaughlin 2004). Social scientists have documented uneven impacts from globalization and trade that have disrupted the economic and social stability of many rural communities, leading to higher exposure to and persistent challenges with job loss, poverty, lowered life expectancies, and opioid abuse (Autor, Dorn, and Hanson 2021; Case and Deaton 2015; Monnat 2019). Additionally, although much of the rural-urban divide is couched in terms of challenges facing a White working class, rural America grapples with relatively underdiscussed racial and ethnic gaps in poverty—poverty rates among rural racial minorities are roughly two to three times higher relative to rural Whites (Harvey and Harris 2017; Slack, Thiede, and Jensen 2020). In short, the social, economic, political, and geographic boundaries separating rural from urban America have given rise to stark, measurable inequities across the rural-urban divide (Lichter and Brown 2011).

We aim to understand how these changes to the tax and welfare systems over the past five decades have potentially reshaped or otherwise reordered economic inequality between races and regions. Most income transfers and refundable tax credits are targeted to lower-income households, and even though the 1996 welfare reform led to a retrenchment in cash assistance, other changes such as the expansions of SNAP, EITC, CTC, and disability may have differentially improved the outcomes of Black and rural households relative to their White and urban counterparts given the lower pretax and transfer incomes of Black and rural families. On the other hand, the various tax reforms affecting middle- and upper-income households may, if anything, have favored White and urban households given tax rate cuts and base broadening. Our analysis focuses on the entire distribution, permitting us to identify where and how in the distribution the combined forces of tax and transfer reforms affected relative incomes across race and geography.

DATA

The data come from the Current Population Survey Annual Social and Economic Supplement (CPS ASEC) for survey years 1976–2021 (calendar years 1975–2020). The CPS is a stratified random sample of roughly sixty thousand households from the noninstitutionalized population in the United States conducted monthly by the U.S. Census Bureau on behalf of the Bureau of Labor Statistics. The ASEC is a supplement to the monthly survey collected in March of each year that includes an additional thirty thousand households (as of 2001) over the normal monthly sample. The supplement contains detailed information on annual earnings and incomes from the prior calendar year, employment, hours worked, and family structure. In-

formation is collected at the person, family, and household level, with weights provided by census to make the sample representative at the corresponding level.

Our sample consists of individuals between the ages of twenty-five and sixty (inclusive), which captures the time after formal schooling is completed for most individuals and prior to retirement. For our baseline sample, we follow Bayer and Charles (2018) and classify individuals into one of three racial-ethnic groups—non-Hispanic White, non-Hispanic Black, or other—where the other group consists of Hispanic individuals of any race, as well as those non-Hispanics who self-identify as Asian, Native American, Pacific Islander, or other group. Prior to the 2003 survey, individuals could only choose one racial category, but in every year thereafter respondents had the option to select multiple race categories. Consequently, after 2002 we classify individuals as Black if they select Black alone, as White if they select White alone, and the remaining individuals as other race. A common alternative is to not separate race from ethnicity, and given the growth of the Hispanic population over the sample period, in a robustness section we also provide estimates of Black-White race gaps inclusive of those with Hispanic ethnicity.

In addition to comparisons between race and ethnicity, our study aims to understand changes in the distribution of income in rural households relative to urban households. A preferred approach would be to classify rurality based on the USDA's rural-urban continuum codes that are assigned to each county in the nation (for the codes, see Economic Research Service 2024). However, county identifiers are suppressed in public release versions of the ASEC for the majority of counties, and thus, as is standard, we proxy the measurement of rural and urban using the census designation of residing in a metropolitan or nonmetropolitan area. As Kenneth Johnson and Daniel Lichter (2020) note, much of the metropolitan population growth in recent decades has occurred because of Census Bureau reclassification of non-metro areas, and thus some of the changes we identify will reflect this reclassification. Metro status is missing for roughly 10 percent of the sample before 1985 and then less than 1 percent

per year thereafter. The higher rates stemmed from the fact that fewer geographic areas were sampled and for confidentiality reasons had to be suppressed from public release. Because it reflects survey design, we assume it is missing completely at random and unrelated to the outcomes of interest, and thus we drop those individuals with missing metro status. To further understand the Black-White and rural-urban divides, we evaluate inequities by the intersection of race and geography and compare Black rural households with White rural households and Black urban households with White urban households where race and geography are defined as described (Slack, Thiede, and Jensen 2020).

The focal outcome variable in our analysis is equivalized disposable (after-tax and transfer) household income. We define disposable income as the sum of earnings; nonlabor non-transfer income such as rent, interest, and dividend income; cash welfare transfers such as from AFDC and its replacement Temporary Assistance for Needy Families (TANF); social insurance inclusive of unemployment, disability, workers compensation, and retirement or survivors benefits; and in-kind transfers such as SNAP. From gross income, we subtract tax payments for payroll (Social Security and Medicare), federal, and state taxes. The federal and state taxes include refundable EITC and CTC credits, as well as stimulus payments that were distributed during the COVID-19 pandemic.

Because the CPS ASEC does not collect tax information, we use NBER's TAXSIM program to estimate tax payments and credits. We first use a series of household relationship pointers to identify tax filing units in the household, and then for each tax unit in the household we simulate tax payments and credits (NBER 2024). Most households consist of a single tax unit, but some have multiple filers; in those cases we aggregate tax payments up to the household level. Focusing on the household rather than the tax unit is justified under the assumption that members of the same household share resources. However, households with two or more adults have higher potential earning power than those with one adult, and those with young children face constraints on labor-market time owing to childcare respon-

sibilities. Thus, to account for household size and composition, we equivalize household disposable incomes using a modified OECD scale.[2]

Earnings make up about 80 percent of total income and includes all jobs, whether in paid employment or self-employment, including farm income and with self-employment losses allowed. For confidentiality purposes, earnings in the public release file are top coded, and the method of top coding changed over time. Starting in 2011, the Census Bureau implemented a process known as rank-proximity swapping whereby individuals with earnings above the top code are ordered from lowest to highest and randomly assigned earnings of the individual within a small neighborhood of the person's earnings. This approach has the advantage of preserving the rank order of the distribution above the top code. The Census Bureau released rank-proximity values for all individuals above the top code back to 1975, and thus we use these consistent top code values for our analysis (for a description of rank-proximity swapping, see Moore 1996). We make this substitution prior to constructing tax liabilities in TAXSIM.

An additional complicating factor in the analysis of earnings is the substantial increase in earnings nonresponse in the CPS (Bollinger et al. 2019). Today more than 40 percent of earnings values in the ASEC are missing due to nonresponse, whether from failure to respond to the earnings question (item nonresponse) or failure to respond to any part of the ASEC (supplement nonresponse). For those individuals with missing earnings or the whole supplement, the Census Bureau imputes values by using information from other respondents. Christopher Bollinger and his colleagues (2019) show that this imputation imparts bias into inequality estimates, and thus for our analysis we

drop those households where any individual has imputed earnings (or hours worked), as well as those with an imputed ASEC supplement. We then reweight the sample by using an inverse probability weight. Specifically, for each year and gender we estimate a probit model of the probability of not being imputed as a flexible function of age, education attainment, race, ethnicity, marital status, metro status, interactions of many of these variables, along with state fixed effects. The ASEC person weight is then divided by the fitted probability of nonimputation from the probit model.[3] Creating new weights for each year allows us to maintain a nationally representative sample in the face of changing nonresponse over time. This minimizes measurement error, due to nonresponse, from confounding our estimates of earnings and income inequality over time. All income data are inflation adjusted using the personal consumption expenditure deflator with 2021 base year.

Table A.1 presents weighted summary statistics of selected socioeconomic characteristics of sample individuals, both overall and by race and rural status.[4] The table reveals common themes in comparing Black with White individuals and rural with urban residents. Specifically, relative to Whites, Blacks have lower education attainment; lower rates of marriage and higher rates of never married; and substantially lower equivalized household earnings, nonlabor income, and disposable income. A similar pattern obtains in comparing rural with urban residents. The notable exception is that rates of marriage are higher in rural areas, and rates of never married are lower.

METHODS

We are interested in understanding the evolution of Black-White and rural-urban gaps in dis-

---

2. We divide household income by a factor $\varphi=0.67+0.33[\_n(\text{adults-1})]+0.2n\_(\text{child } 0\text{-}13)+0.33n\_(\text{child } 14+)$, where $\_n(\text{adults-1})$ is the number of adults in the household less the householder, and $n\_(\text{child } 0\text{-}13)$ and $n\_(\text{child } 14+)$ are the number of dependent children in the household age thirteen and younger and fourteen and older, respectively.

3. Because we are using equivalized income we retain all individuals and use the person-level weight. The results are robust to only selecting the household head and using the corresponding inverse probability household weight.

4. All appendix tables and figures can be found at https://www.rsfjournal.org/content/11/2/115/tab-supplemental.

posable incomes across the distribution. These gaps can occur both in terms of income levels (level gap), as well as position in the comparison group income distribution (rank gap). Following Bayer and Charles (2018), we estimate a series of weighted quantile regressions at various quantiles (q) of equivalized disposable income for each year of the sample.

Specifically, let (y_{it}) be the natural log of equivalized disposable income for individual i in year t, then the Black-White level gap is estimated as

$$\ln(y_{it}) = \alpha_t(q) + \gamma_t(q)B_{it} + \delta_t(q)O_{it} \\ + A_{it}\theta_t(q) + \upsilon_{it}(q), \qquad (1)$$

where B is an indicator variable if the individual is Black, O is an indicator variable if the individual is Hispanic or a race other than Black or White, A is a vector of indicator variables capturing five-year age ranges from age twenty-five to sixty, and υ is a random error term. The omitted group is White individuals, and thus under the null hypothesis that Black incomes lie below White incomes, the coefficient $\gamma_t(q) < 0$ represents the log point difference in Black and White incomes at quantile q in year t. When the estimated $\hat{\gamma}$ is small the coefficient is approximately a percent gap, but this does not hold when the coefficient is large. Thus, for ease of interpretation, we convert the coefficient to a percent gap as $100 * [\exp(\hat{\gamma}_t(q)) - 1]$.

To estimate the Black-White rank gap, we first construct the rank order of the White income distribution from the 1st to 99th percentile and then assign where in the White distribution each Black and other race individual's income would place, denoted as $R(y_{it})$. The corresponding weighted quantile rank gap regression is

$$R(y_{it}) = \tilde{\alpha}_t(q) + \tilde{\gamma}_t(q)B_{it} + \tilde{\delta}_t(q)O_{it} \\ + A_{it}\tilde{\theta}_t(q) + \tilde{\upsilon}_{it}(q) \qquad (2)$$

where $\tilde{\gamma}_t(q) < 0$ indicates how many percentile points lower a Black person's disposable income is in the White disposable income distribution at quantile q. Rather than present the coefficient directly as a percentile point deficit, we instead transform it as $q + \hat{\tilde{\gamma}}_t(q)$. For example, if at the 25th percentile we estimate a 10

percentile point deficit for Blacks then this implies that at the 25th percentile the average Black household income would fall in the 15th percentile of the White income distribution.

The analysis of rural-urban level and rank gaps follows the exact same approach as in equations (1) and (2), but rather than controlling for race and ethnicity (B_{it}, O_{it}) in the regression we include an indicator variable that takes a value of 1 if the individual resides in a rural area. The level gap regression then provides estimates of the percentage gap in rural disposable incomes relative to urban incomes, and the rank gap provides estimates of where a rural household would place in the urban household disposable income distribution.

To evaluate Black-White and urban-rural interactions, we augment equations (1) and (2) to include race, ethnicity, and geographic indicators as well as an interaction between the indicator for Black race and the indicator for residing in a rural area. The level gap regression coefficient on Black race now gives the percentage gap in Black urban disposable incomes relative to White urban disposable incomes, and we sum the coefficients on Black and the Black-rural interaction term to produce the estimates of the percent gap in Black rural disposable incomes relative to White rural incomes. To estimate rank gaps, we first assign each rural household a place in the urban distribution, and then implement the fully interacted model and select the coefficients as in the level gap analysis to create estimates of where a Black rural (urban) household would place in the White rural (urban) disposable income distribution.

For each model, we estimate disposable income gaps at the 10th, 25th, 50th, 75th, 90th, and 95th percentiles. However, as noted, withdrawal from the labor force among Black workers in recent decades has been substantial, in part from mass incarceration and declining opportunities in low-wage labor markets from trade and automation (Abraham and Kearney 2020; see also Chandra 2000; Western and Pettit 2005; Neal and Rick 2014; Bayer and Charles 2018; Blundell et al. 2018). James Ziliak (2019) documents a similar pattern among rural workers relative to urban workers. If withdrawal from the labor force is selective by race or rural-

Figure 1. Share of Households Without Labor-Market Earnings
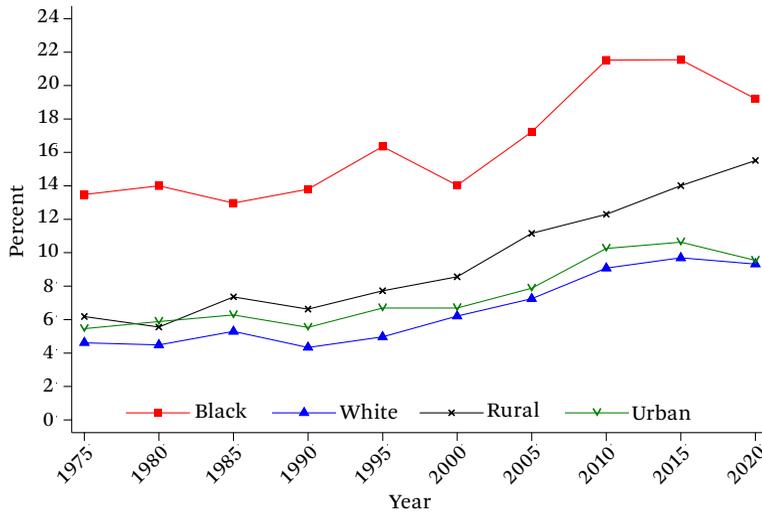
Source: Authors' calculations from the Current Population Survey (U.S. Census Bureau 2024).

ity, then estimates of level and rank gaps could be biased. A common approach in the literature to deal with nonrandom labor-force participation is to assign a median selection rule for nonworkers (Neal and Johnson 1996; Chandra 2000; Bayer and Charles 2018). Specifically, under a median selection rule if a nonworker were to work, it is assumed that they would earn a wage in the bottom half of the distribution; in other words, nonwork is assumed to be concentrated among those workers with fewer formal credentials, lower skills, and thus lower wages.[5] To implement this in a log earnings regression, nonworkers are added back to the sample with log earnings set to 0, and then estimation focuses on the upper-half of the earnings distribution. The cost of the median selection assumption is that comparisons in the bottom half of the distribution are not identified.

These analyses are all at the individual level, and it is possible that labor-force withdrawal among some members of a household could be offset by continued (or new) employment among other workers, that is, the so-called added worker effect (Lundberg 1985; Cullen and Gruber 2000; Stephens 2002). To examine this possibility, in figure 1 we present the share of Black and White and rural and urban households reporting no earnings in the year.[6] The figure makes clear that for all groups there has been a secular rise in households with no earnings, especially after 2000. Among Black households, the share with no earnings increased two-thirds from 12 percent in 2000 to 20 percent in 2020; for White households, it increased by the same percentage, from roughly 6 percent to 10 percent. During that period, rates of nonwork among rural households doubled, from 8 to 16 percent, and among urban households it increased by two-thirds. Despite substantive level gaps across groups in the share without earnings, the rate of change, at least over the

5. The assumption that nonworkers would earn a wage below the median if they entered the labor force generally does not apply to married women with at least a college degree during peak childbearing years, where periods of nonwork are generally fertility related.

6. Figure A.1 shows the share of rural Black, rural White, urban Black, and urban White households reporting no earnings in the year. Trends are similar to figure 1 and a notable increase in nonworking households occurs in 2000. Urban Black households and urban White households are nearly identical in level to their pooled counterparts. Although the share of nonworking rural White households are on average only 3 percentage points higher than the pooled share, the share of nonworking rural Black households is much higher, reaching 34 percent in 2020.

Figure 2. Share of Households Receiving Social Insurance, Means-Tested Transfers, or Refundable Tax Credits
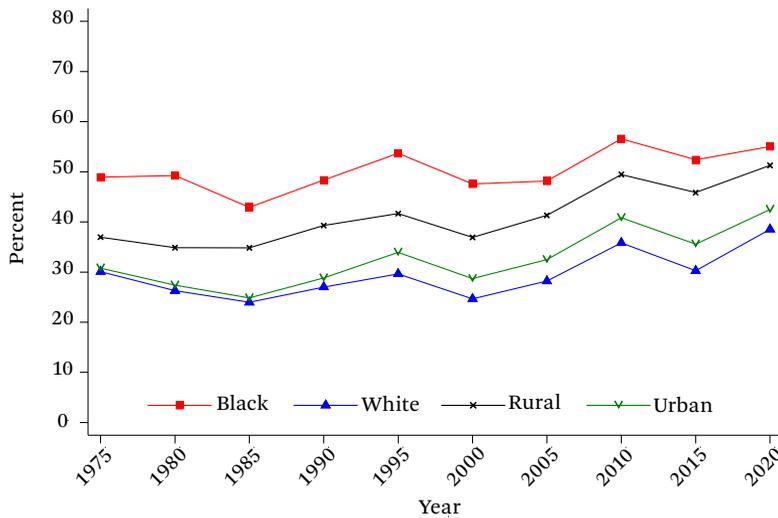
Source: Authors' calculations from the Current Population Survey (U.S. Census Bureau 2024).
Note: Social insurance, transfers and tax credits include Disability Insurance, Social Security, Unemployment Insurance, Veteran's Payments, Workers Compensation, Temporary Assistance for Needy Families, General Assistance, Supplemental Security Income, Supplemental Nutrition Assistance Program, Earned Income Tax Credit, and the Child Tax Credit (refundable portion).

past two decades, is not too different, which weighs against potential selective labor-force withdrawal biasing our estimates. Moreover, our primary outcome is disposable income, not earnings, and the share of households reporting no or negative disposable income is trivial, averaging about 1 percent per year. However, as part of a robustness section we re-estimate the models under the median selection rule.

RESULTS

We begin our results by presenting the Black-White level and rank gaps, followed by the corresponding estimates for rural and urban residents. This is followed by a robustness section examining level and rank gaps at the intersections of race and geography, the influence of selective labor force withdrawal on the estimated gaps, and the sensitivity of the Black-White gaps to combining race and Hispanic ethnicity. All estimates are weighted using the person-level inverse probability weight that ad-

justs for imputed household-level earnings and ASEC supplement. For ease of presentation, we only show results in five-year increments from calendar years 1975 to 2020. Annual estimates are available on request.

To fix ideas on the potential redistributional reach of the social safety net across race and geography, in figure 2 we present trends in the share of households receiving assistance from social insurance (Disability Insurance, Social Security, Unemployment Insurance [UI], Workers Compensation, Veteran's Payments), means-tested transfers (AFDC/TANF, SSI, SNAP), or refundable tax credits (EITC, CTC).[7] The figure reveals that in a typical year before the COVID-19 pandemic about one in two Black households received assistance from the safety net, which is on average about 20 percentage points higher than White households. The corresponding rural-urban gap is about 10 percentage points higher among rural households. A distinct cyclical component to receipt

7. The shares of rural Black, rural White, urban Black, and urban White households receiving assistance are presented in figure A.2.

Figure 3. Black-White Disposable Income and Earnings Level Gaps by Percentile
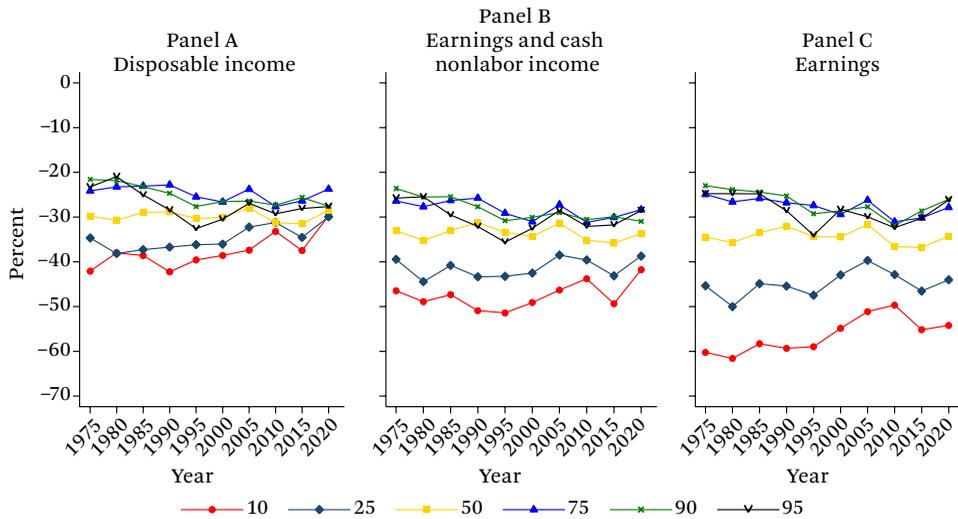
Source: Authors' calculations from the Current Population Survey (U.S. Census Bureau 2024).
Note: Disposable income is the sum of earnings and nonlabor income less federal, state, and payroll tax payments (inclusive of refundable tax credits). Sample is restricted to households with positive disposable income, earnings, and earnings plus nonlabor incomes. Earnings and incomes are in real thousands of dollars using the 2021 PCE and equivalized using the modified OECD scale.

is evident, driven especially by the rise and fall of UI and SNAP payments surrounding major economic recessions. The upward trend in participation is most prominent among White and rural households.[8] Whether and to what extent these patterns of average receipt affect level and rank gaps depends on where in the respective distributions the benefits are flowing, which we turn to next.

Black-White Gaps

Panel A of figure 3 presents estimates of the Black-White level gap in equivalized disposable income. The panel suggests remarkable convergence across the distribution in Black-White disposable income level gaps—Blacks in the bottom half of the distribution gained relative to Whites—from a 40 (35) percent deficit in the mid-1970s at the 10th (25th) percentile to a 30 percent deficit by 2020—whereas Blacks at the

top half of the distribution fell relative to Whites from roughly a 20 percent deficit to nearly 30 percent. Blacks in the middle of the distribution were unchanged over the entire period at a 30 percent level gap.

These patterns in level gaps can emerge because the underlying income levels could be diverging, or they could be trending in the same direction (up or down) but at different growth rates. Figure A.3 presents trends in the log level of inflation-adjusted disposable incomes where it is apparent that incomes are rising for both Black and White households, but they are growing faster for Blacks than Whites in the left tail of the distribution, and slower in the right tail.

Panels B and C in figure 3 isolate components of disposable income, with earnings plus cash nonlabor income from both private sources such as rent, interest, and dividend in-

8. In results not displayed, in calendar year 2021 these racial and geography gaps were nearly eliminated with the huge expansions in the generosity and reach of UI, and the temporarily expanded CTC, so that nearly six in ten households touched the safety net across race and geography.

come as well as cash transfers from social insurance and mean-tested transfers (but not in-kind programs like SNAP) in panel B, and earnings alone in panel C. Beginning with earnings in panel C, we see substantial reduction in earnings gaps at the 10th percentile starting in the mid-1990s, albeit from a very large 60 percent deficit and falling to just 50 percent. At the 25th percentile, the earnings level gap declines from 45 percent to 35 percent. This narrowing of the level gap at the 10th and 25th percentiles coincides with the expansion in the EITC; Bradley Hardy, Charles Hokayem, and James P. Ziliak (2022) show that Black workers responded more to the EITC expansion than White workers in the bottom half of the distribution. Adding cash nonlabor income to earnings in panel B has the effect of attenuating the level gap at the 10th and 25th percentiles by about 10 percentage points prior to 2000 and by about 5 points thereafter, but with little effect at the median and above. Taken as a whole, the tax and transfer systems jointly reduce Black-White level gaps in the bottom half of the distribution, but the tax code does more of that redistribution at the median. Remarkably, disposable income gaps in the top half of the distribution are nearly identical to the earnings and earnings plus cash nonlabor income gaps, indicating that redistribution in the tax code does little to mitigate Black-White level income differences in the top half of the distribution.

Even more stunning is the lack of Black progress in the White distribution, as depicted by the rank gaps in figure 4. The typical Black household at the 10th percentile of the disposable income distribution has income that would only place them at the 2nd percentile of the White distribution (panel A). This was true in 1975 and in 2020, with no change in the intervening years. At the 25th percentile, Blacks are placed at about the 10th percentile of the White distribution, showing a percentile point gain over the last forty-five years. The only positional gain is at the median, where Black progress improved by about 5 percentile points from the 25th percentile of the White distribution in 1975 to the 30th percentile in 2020. There have been no gains in the top half of the distribution, with the 75th percentile Black individual placing in the 55th percentile of the White distribution, and the corresponding

Figure 4. Black-White Disposable Income and Earnings Rank Gaps by Percentile
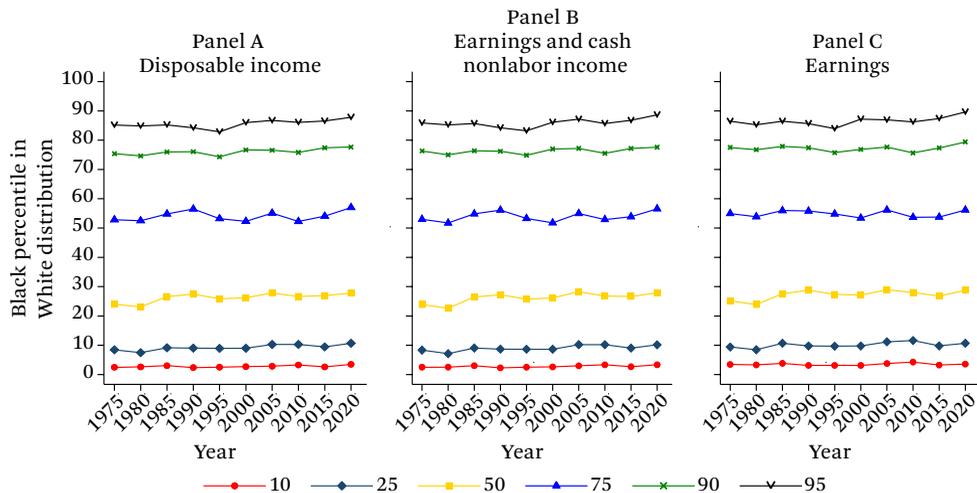
Source: Authors' calculations from the Current Population Survey (U.S. Census Bureau 2024).
Note: Disposable income is the sum of earnings and nonlabor income less federal, state, and payroll tax payments (inclusive of refundable tax credits). Sample is restricted to households with positive disposable income, earnings, and earnings plus nonlabor incomes. Earnings and incomes are in real thousands of dollars using the 2021 PCE and equivalized using the modified OECD scale. See text for details.

ranks for the 90th and 95th percentiles being about the 75th and 85th percentiles of the White distribution, respectively. Panels B and C demonstrate that these rank gaps were basically the same for earnings plus cash nonlabor income and earnings alone, suggesting that the tax and transfer systems do not improve Black mobility relative to Whites for most of the distribution. Similarly, Zachary Parolin, Matthew Desmond, and Christopher Wimer (2023) explore poverty and inequality reduction from U.S. social safety net programs since 1967 and document that policy changes since the 1990s have created a regime that at once lowers poverty levels while exacerbating inequality among the poor.

To reconcile the reduction in level gaps at the bottom of the distribution with the stagnation of the rank gaps, it is helpful to visualize the Black and White earnings distributions side by side, but overlapping to reflect the fact that the median of the Black distribution lies at the 25th percentile of the White distribution, and the 25th percentile of the Black distribution is likewise positioned atop the 10th percentile of the White distribution. Because the tax and transfer systems redistribute earnings to lower-income households, the left tails of each distribution compress to the right, and the distributions narrow in such a way that the measured distance between the 25th percentile of the Black distribution and the 25th percentile of the White distribution is now less. This represents a decrease in the earnings level gap. Although the distributions change shape so that the 25th percentiles are now closer together, the 25th percentile of the Black distribution is still in line with the 10th percentile of the White distribution: the rank measure does not improve.[9]

Rural-Urban Gaps

We next consider rural-urban gaps and how the trends compare relative to the Black-White gaps just discussed. Figure 5 presents the rural-urban level gaps, first for disposable income (panel A), followed by earnings plus cash non-labor income (panel B), and then only earnings (panel C). The pattern is strikingly different than the Black-White level gaps. Rural-urban disposable income level gaps diverged across the distribution in the last five decades rather than converged. This divergence occurred as the bottom half of the rural distribution gained relative to the urban distribution, narrowing the level gap from 20 percent in the mid-1970s to 10 percent by 2010, while the top half of the rural distribution fell from a 15 percent level gap with urban residents to a 30 percent gap. The other notable feature of the rural-urban level gap is that, at the start of the period, the gap was higher in the bottom of the distribution, but by 1990 it reversed and the gap was larger in the upper tail of the distribution. In this sense, the rural-urban level gap is a tale of two halves like the Black-White level gap. As Lichter and Johnson (2025, this issue) observe, the diverging trends of rural areas, including the economic and population growth of formerly rural regions, potentially drives some of our microdata trends. Figure A.4 presents trends in the log level of disposable incomes where we see that incomes are rising for both rural and urban households, but similar to Black-White incomes, they are growing faster for rural than urban households in the left tail, and slower in the right tail.

Panels B and C of figure 5 show that this post-1990 divergence is in evidence for both earnings plus nonlabor income and earnings alone. Panel B suggests that nonlabor income differentially benefited rural workers in the left tail of the income distribution, closing much of the difference between disposable income level gaps in panel A with the earnings level gaps in panel C. From 1975 to 1985, the difference in the rural-urban gap was at least 10 percentage points at the 10th percentile relative to the 90th percentile, which is double the gap in disposable income at the same percentiles. However, over subsequent decades, low-wage rural households gained substantially compared to urban households. David Autor (2019) attributes the declining status of low-wage urban workers to the declining job skills required of low-wage jobs in the urban marketplace.

In figure 6, we present the rural-urban rank

---

9. This example is adapted from Bayer and Charles (2018), who provide a more in-depth explanation of level and rank gaps with images depicting distributions changing shape in the manner described.

Figure 5. Rural-Urban Disposable Income and Earnings Level Gaps by Percentile
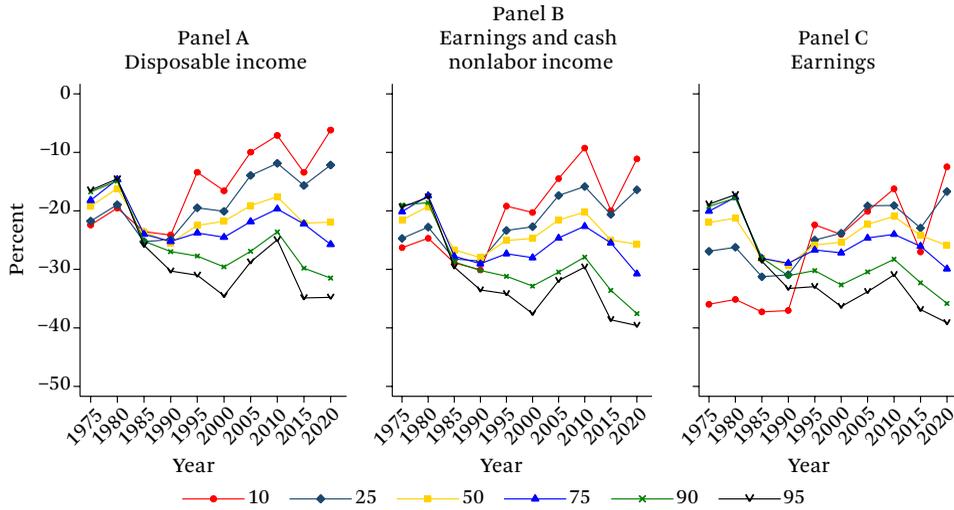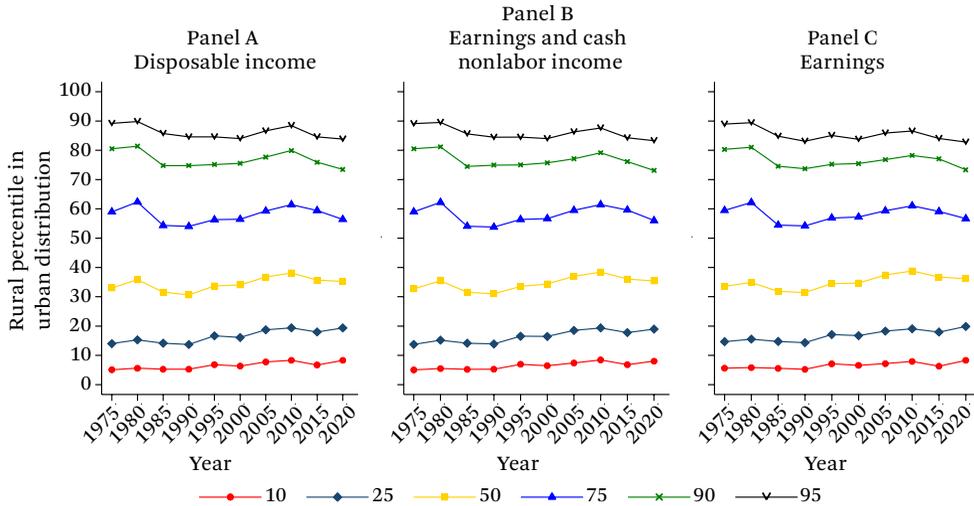

Source: Authors' calculations from the Current Population Survey (U.S. Census Bureau 2024).
Note: Disposable income is the sum of earnings and nonlabor income less federal, state, and payroll tax payments (inclusive of refundable tax credits). Sample is restricted to households with positive disposable income, earnings, and earnings plus nonlabor incomes. Earnings and incomes are in real thousands of dollars using the 2021 PCE and equivalized using the modified OECD scale. See text for details.

gaps. In this case the rank gaps between rural and urban residents at the 10th and 25th percentiles are much more favorable for rural households than the corresponding Black-White rank gaps were for Black households. At the 10th percentile of disposable income, rural residents improve 3 percentile points to the 8th percentile of the urban distribution by 2010 and stabilizing thereafter. At the 25th percentile, rural resident standing improves vis-à-vis urban residents from the 15th percentile to the 20th percentile. However, at the median and above, the rural-urban rank gaps are quite similar to those between Black and White workers. These patterns persist when restricting resources to earnings plus nonlabor income in panel C of figure 6 or earnings alone in panel C. The takeaway is that over the past forty-five years low-income rural residents have improved their standing in the urban rank distribution, but there has been no progress at the median and above. This means that differential redistribution in the U.S. tax/transfer system favors low-income rural household mobility, consistent with the finding of Lauren Nolan,

Jane Waldfogel, and Christopher Wimer (2017) on poverty, but not for the middle and upper classes.

To control for geographic differences in costs of living, we reproduce the Black-White and rural-urban disposable income level and rank gaps with controls for state fixed effects in figures A.5 to A.8. Although the main goal of our analysis is to make comparisons on income, this exercise provides insight into differences in lived experience because our income measures may overstate experienced inequality between low and high cost-of-living areas as well as the redistributive power of federal benefits at mitigating level and rank gaps, given that both income and transfers go further in areas with lower costs of living. Although controlling for cost of living at the county level is not feasible given the suppression of geographic identifiers for areas with populations less than one hundred thousand—which includes many rural areas—in the CPS ASEC, adding state fixed effects into our models will mitigate some of these concerns. Figures A.5, A.6, and A.8 show that the Black-White level

Figure 6. Rural-Urban Disposable Income and Earnings Rank Gaps by Percentile

Source: Authors' calculations from the Current Population Survey (U.S. Census Bureau 2024).
Note: Disposable income is the sum of earnings and nonlabor income less federal, state, and payroll tax payments (inclusive of refundable tax credits). Sample is restricted to households with positive disposable income, earnings, and earnings plus nonlabor incomes. Earnings and incomes are in real thousands of dollars using the 2021 PCE and equivalized using the modified OECD scale.

and rank gaps and rural-urban rank gaps are essentially unchanged by the inclusion of state fixed effects. For rural-urban level gaps in figure A.7, distributional divergence remains evident, but the pattern is muted by state fixed effects. The tax and transfer systems alleviate more inequality at the 90th and 95th percentiles bringing the disposable income level gap up to 27 and 29 percentage points in 2020 relative to 31 and 35 percentage points in the absence of state fixed effects in figure 5.

Robustness

We conduct three sets of sensitivity checks on our baseline estimates. The first check is whether differential labor-force participation by race and rural status highlighted in figure 1 affects the estimated level and rank gaps. We implement this test by winsorizing the data and applying a median selection rule. Specifically, for any household with negative earnings or disposable incomes (which can occur from self-employment losses), we censor the data at 0 and then add $1 to all individuals before taking the natural log. This means that all individuals with earnings or income less than or

equal to zero have log earnings (income) equal to 0. We then reestimate the quantile regression models of equations (1) and (2) with all those individuals retained in the sample, and report the results for the median and upper-half of the distribution for the Black-White gaps in figure 7 and rural-urban gaps in figure 8.

Figures 7 and 8 each have four panels, panels A and B showing level gaps for equivalized household disposable income and earnings, and panels C and D showing the corresponding rank gaps. Comparing panel C of figure 3 with panel B of figure 7 indicates that selective labor-force withdrawal does result in a worsening of the Black-White level gap of earnings, by about 5 percentage points in a typical year, but by as much as 10 percentage points in the years after the Great Recession at the median. This is consistent with the findings of Bayer and Charles (2018) for Black men. At the 75th percentile and higher, we continue to see a worsening of the Black-White levels gap, but accounting for those with no or negative earnings/incomes does not affect the trend, only the size of the gap (about 5 points larger). A similar result ob-

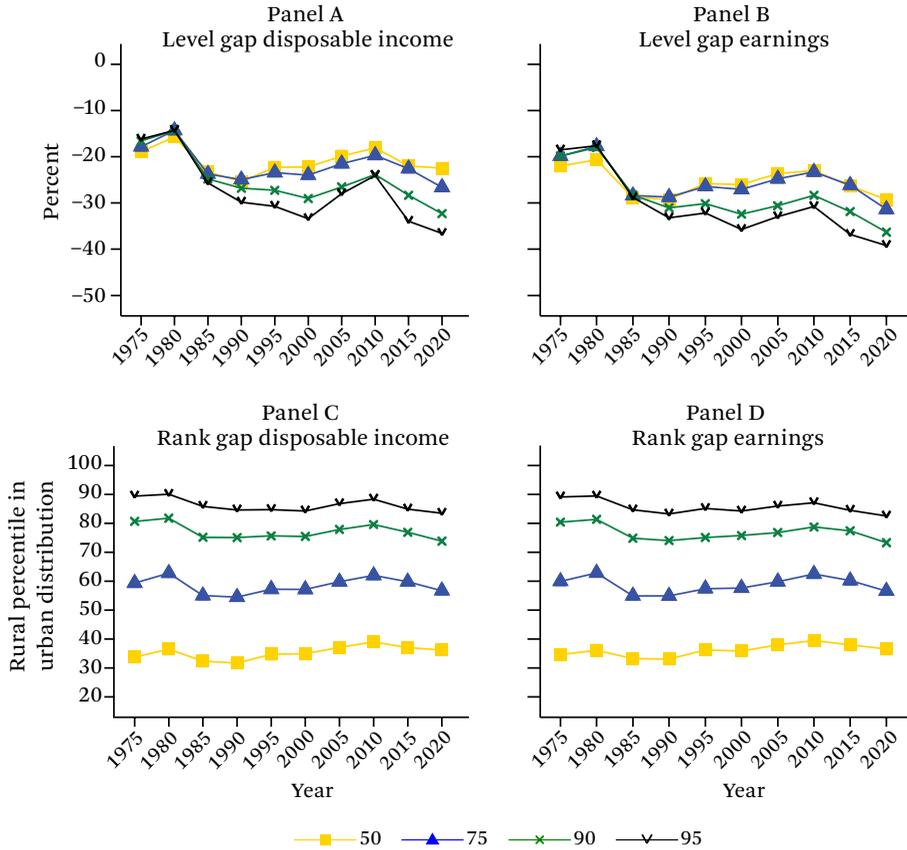**Figure 7.** Black-White Level and Rank Gaps under Median Selection Rule
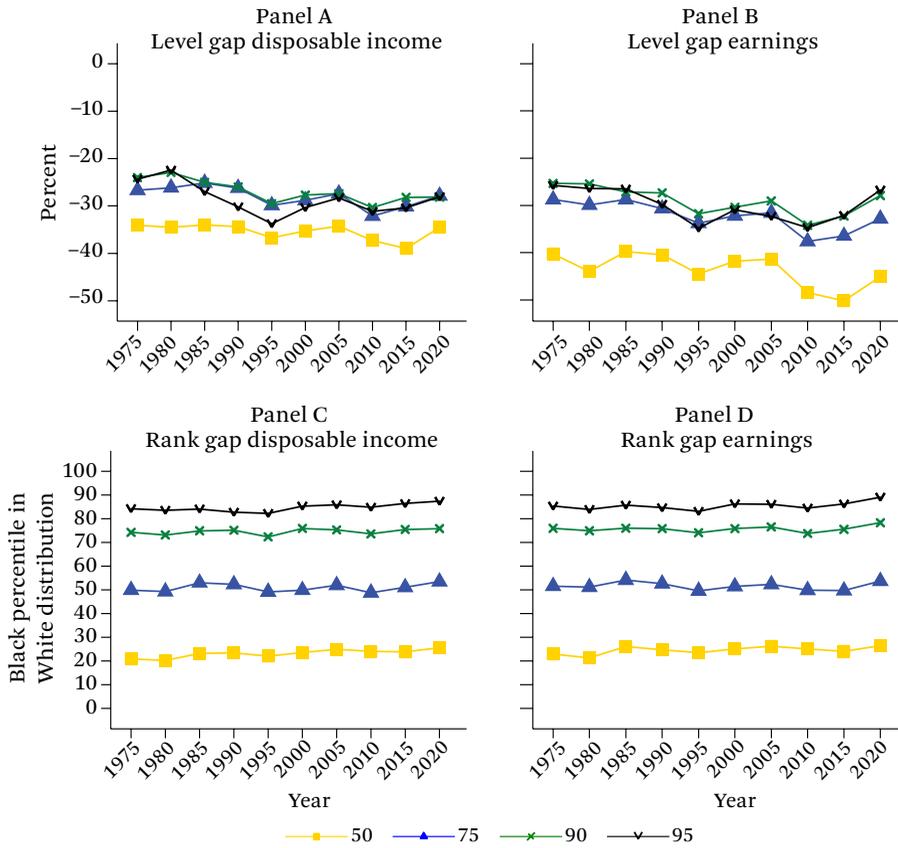
Source: Authors' calculations from the Current Population Survey (U.S. Census Bureau 2024).
Note: Disposable income is the sum of earnings and nonlabor income less federal, state, and payroll tax payments (inclusive of refundable tax credits). Sample is restricted to households with positive disposable income, earnings, and earnings plus nonlabor incomes. Earnings and incomes are in real thousands of dollars using the 2021 PCE and equivalized using the modified OECD scale. See text for details.

tains for the level gap of disposable income in the upper-left panel—labor-force selection increases the size of the gap by about 5 points but not the trend. Perhaps surprising, accounting for selection has no discernible effect on the rank gaps of earnings or disposable income. Likewise, comparing figure 5 with figure 8 shows that possible nonrandom labor-force participation worsens gaps at the median, but has no effect on the upper tail of the rural-urban level and rank gaps.

The second check builds on the first by examining the intersection of racial and geographic disparities. We compare Black rural (urban) households with White rural (urban)

households, maintaining the median selection rule assumption in light of the large increase in nonworking Black, rural households depicted in figure A.1. Figure 9 presents in panels A and B the Black-White level gaps in disposable income for rural and urban households; panels C and D present the corresponding rank gaps. There we see that rural Black households gained on their White counterparts at the median and upper tail of the distribution in both level and relative position in the White distribution. The level gap narrowed by about 10 percentage points after 1975, and the rank position by nearly 20 points at the 75th percentile and above. Much of this gain occurred from 1975

Figure 8. Rural-Urban Level and Rank Gaps under Median Selection Rule

Source: Authors' calculations from the Current Population Survey (U.S. Census Bureau 2024).
Note: Disposable income is the sum of earnings and nonlabor income less federal, state, and payroll tax payments (inclusive of refundable tax credits). Sample is restricted to households with positive disposable income, earnings, and earnings plus nonlabor incomes. Earnings and incomes are in real thousands of dollars using the 2021 PCE and equivalized using the modified OECD scale.
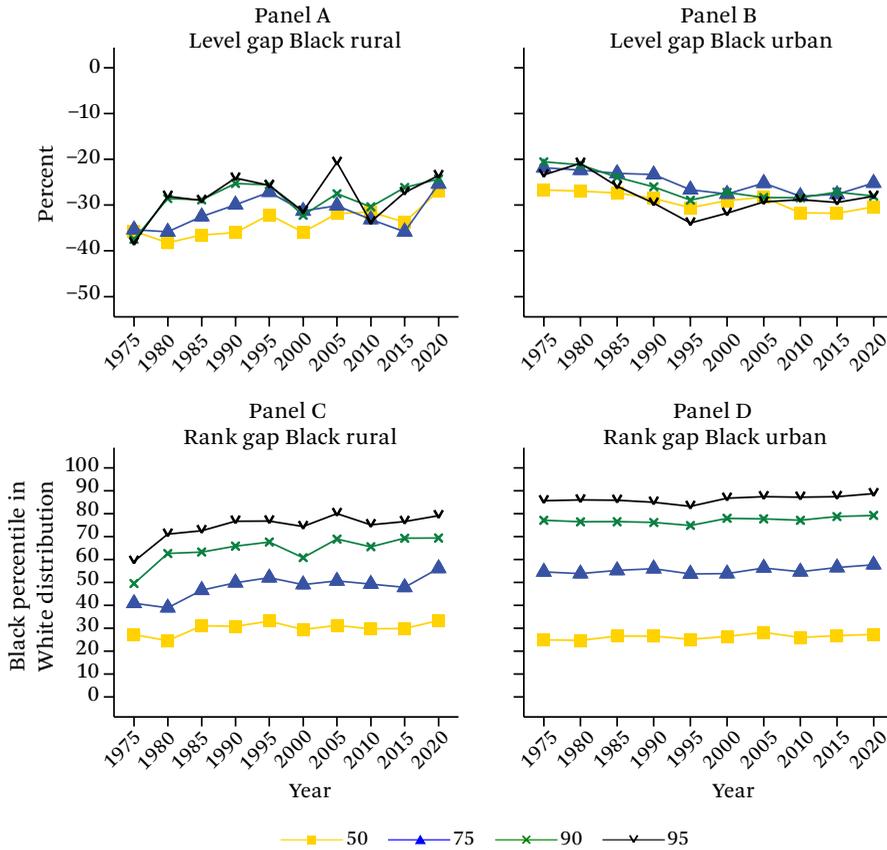
through 1990, although the five years leading up to the pandemic saw again strong gains among Black rural households.[10] At the same time that relative disposable incomes were improving for rural Blacks, it was deteriorating for urban Black households relative to White households, and the rank position of Black urban households was relatively stable over the entire period.

The baseline estimates assign those with Hispanic ethnicity to the Other race category, meaning we are comparing Black non-

Hispanics with White non-Hispanics. Because race and ethnicity capture different social constructs, it is common in the literature to combine them and compare Blacks with Whites regardless of Hispanic ethnicity. Thus, the third robustness check we conduct is found in figure 10, where we present the original level and rank disposable income gaps from figures 3 and 4 in panels A and C, along with reestimated gaps that combine race and ethnicity in panels B and D. To maintain comparability with the baseline models, we present estimates for the

10. Figure A.9 presents trends in the log level of disposable incomes, where we see that incomes are rising for both Black rural and White rural households, though faster among Black households over much of the distribution.

Figure 9. Interacted Disposable Income Level and Rank Gaps by Percentile Under Median Selection Rule

Panel A
Level gap Black rural

Panel B
Level gap Black urban

Panel C
Rank gap Black rural

Panel D
Rank gap Black urban

— 50   — 75   — 90   — 95

Source: Authors' calculations from the Current Population Survey (U.S. Census Bureau 2024).
Note: Disposable income is the sum of earnings and nonlabor income less federal, state, and payroll tax payments (inclusive of refundable tax credits). Sample is restricted to households with positive disposable income, earnings, and earnings plus nonlabor incomes. Earnings and incomes are in real thousands of dollars using the 2021 PCE and equivalized using the modified OECD scale.

whole distribution assuming no nonrandom selection into work. In this case, panels B and D indicate substantially more Black progress in both level and rank in the bottom half of the distribution. This suggests that more Hispanics affiliate with White race and their economic fortunes lie in between Black non-Hispanics and White non-Hispanics (Lee and Bean 2010), resulting in a narrowing gap between Black and White workers across Hispanic ethnicity.

CONCLUSION

Our results paint a mixed portrait of economic progress of Black and rural households relative to their White and urban counterparts over the last fifty years. In any given year for both Black and rural households, the tax and transfer systems substantially attenuate level income gaps compared to their White and urban counterparts in the bottom half of the income distribution, and those gaps narrowed over time. Although Black rural households in the top half of the distribution also experienced improvements in their level gaps, Black urban households and rural households overall saw those same level gaps worsen in the top half of the distribution. This has resulted in converged disposable income level gaps of about 30 per-

Figure 10. Black-White Level and Rank Disposable Income Gaps by Hispanic Ethnicity
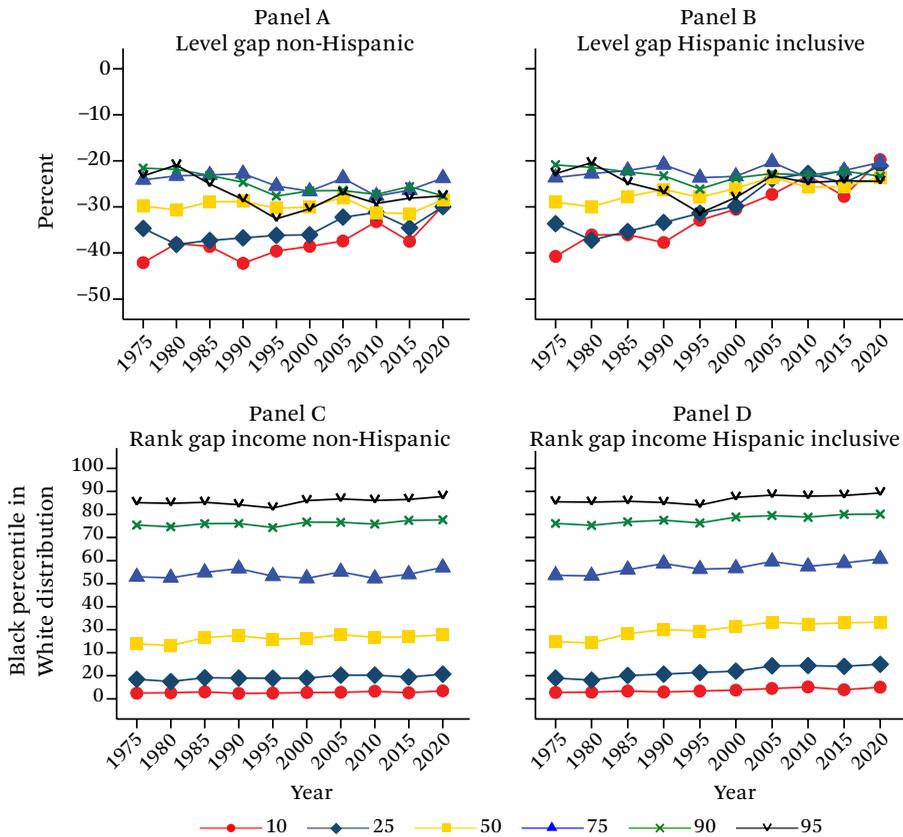
Source: Authors' calculations from the Current Population Survey (U.S. Census Bureau 2024).
Note: Disposable income is the sum of earnings and nonlabor income less federal, state, and payroll tax payments (inclusive of refundable tax credits). Sample is restricted to households with positive disposable income, earnings, and earnings plus nonlabor incomes. Earnings and incomes are in real thousands of dollars using the 2021 PCE and equivalized using the modified OECD scale.

cent between Black and White households across the distribution in 2021 and a divergence in level gaps between rural and urban households resulting in a 25-percentage point difference between the bottom and top of the disposable income distribution. By contrast, changes in positional disposable income inequality for both groups have been much more muted since the 1970s, with little upward mobility of Black households in the White distribution, with the possible exception of the median, but more progress of low-income rural households in the urban distribution, though no change at the top. Upper tail improvements are only notable for Black rural households in the White rural household distribution.

How can we reconcile inequality estimates that depict convergence in Black-White level gaps, divergence in rural-urban gaps, and at the same time a relative lack of progress in rank mobility? These results are consistent with a fifty-year trajectory in which Black and White and rural and urban incomes show overall improvement in absolute terms, but at varying rates between groups. This can produce a result wherein both phenomena are true at once; Black and rural incomes have generally grown over this period, but not at a rate relative to White and urban incomes to generate meaningful rank mobility realignment in economic well-being. Our findings are consistent with similar work by Parolin, Desmond, and Wimer

(2023) which demonstrates that, over a roughly fifty-year period beginning in the late 1960s, the U.S. safety net of antipoverty programs reduces poverty but then evolves, from the mid-1990s and onward, to reduce poverty levels while exacerbating inequality among the poor.

The redistributive tax and transfer policies summarized here interact with broader societal shifts. Since the 1970s, the United States has transitioned into a more highly educated, demographically diverse, and unequal society. Hispanics in the United States are a mix of citizen and noncitizen residents drawn from a diverse array of nations—in some instances with little in common beyond shared language. Our evidence shows that their incomes are generally—on average—somewhere between that of Black and White Americans. Moreover, features of the tax system may implicitly exacerbate racial inequality across relatively higher-income households (Brown 2022; Gale 2021). As recently demonstrated (Holtzblatt et al. 2023), the so-called marriage penalty is one such feature in the tax code that may differentially penalize higher-income Black households. Within the tax code, thresholds, deductions, credits, and rates for married filers are not double their single counterparts, and this penalty is more acute for married couples with similar incomes than for spouses with disparate incomes. Janet Holtzblatt and her colleagues show that married Black couples are more likely to have similar incomes than married White couples, and this may worsen disposable income gaps at the top.

The nation's set of direct cash, near-cash, and refundable tax credits have lowered poverty but without substantial realignment of racial or rural-urban intragenerational inequality. Changing social interactions, regional housing tenure choice decisions, and family formation patterns may ultimately help reshape racial, ethnic, and rural-urban inequality trends. For now, our evidence strongly suggests that the tax and transfer policies highlighted here supplement low and moderate earnings for Black and rural residents. However, these policies—as currently designed—struggle to keep pace with rising earnings inequality, which continues to drive large gaps in relative economic well-being across race and place.

REFERENCES

Abraham, Katherine, and Melissa Kearney. 2020. "Explaining the Decline in the U.S. Employment-to-Population Ratio: A Review of the Evidence." *Journal of Economic Literature* 58(3): 585–643.

Alvaredo, Facundo, Anthony B. Atkinson, Thomas Piketty, and Emmanuel Saez. 2013. "The Top 1 Percent in Historical and International Perspective." *Journal of Economic Perspectives* 27(3): 3–20.

Auerbach, Alan J., and Joel Slemrod. 1997. "The Economic Effects of the Tax Reform Act of 1986." *Journal of Economic Literature* 35(2): 589–632.

Austin, Benjamin, Edward Glaeser, and Lawrence Summers. 2018. "Saving the Heartland: Place-Based Policies in 21st Century America." *Brookings Papers on Economic Activity*, Spring: 151–255.

Autor, David. 2019. "Work of the Past, Work of the Future." *American Economic Review Papers and Proceedings* 109 (May): 1–32.

Autor, David, David Dorn, and Gordon Hanson. 2021. "On the Persistence of the China Shock." *Brookings Papers on Economic Activity*, Fall: 381–447.

Bayer, Patrick, and Kerwin Charles. 2018. "Divergent Paths: A New Perspective on Earnings Differences Between Black and White Men Since 1940." *Quarterly Journal of Economics* 133(3): 1459–501.

Black, Dan, and Seth Sanders. 2012. "Inequality and Human Capital in Appalachia: 1960–2000." In *Appalachian Legacy: Economic Opportunity After the War on Poverty*, edited by James Ziliak, 45–80. Washington, D.C.: Brookings Institution Press.

Blank, Rebecca. 2002. "Evaluating Welfare Reform in the United States." *Journal of Economic Literature* 40(4): 1105–66.

Blundell, Richard, Robert Joyce, Agnes Norris Keiller, and James P. Ziliak. 2018. "Income Inequality and the Labour Market in Britain and the US." *Journal of Public Economics* 162 (June): 48–62.

Bollinger, Christopher R., Barry Hirsch, Charles Hokayem, and James P. Ziliak. 2019. "Trouble in the Tails? What We Know About Earnings Nonresponse Thirty Years After Lillard, Smith, and Welch." *Journal of Political Economy* 127(5): 2143–85.

Bollinger, Christopher, James P. Ziliak, and Kenneth R. Troske. 2011. "Down from the Mountain: Skill

Upgrading and Wages in Appalachia." *Journal of Labor Econom*ics 29(4): 819–57.

Bonds, Michael. 2006. "The Continuing Significance of Race: A Case Study of the Impact of Welfare Reform." *Journal of African American Studies* 9(4): 18–31.

Bradshaw, Michael. 1992. *The Appalachian Regional Commission: Twenty-Five Years of Government Policy*. Lexington: University Press of Kentucky.

Breathitt, Edward. 1967. *The People Left Behind: A Report by the President's National Advisory Commission on Rural Poverty*. Washington, D.C.: National Advisory Commission on Rural Poverty. Accessed May 3, 2024. https://files.eric.ed.gov /fulltext/ED016543.pdf.

Brown, Dorothy A. 2022. *The Whiteness of Wealth: How the Tax System Impoverishes Black Americans—and How We Can Fix It*. New York: Crown.

Case, Anne, and Angus Deaton. 2015. "Rising Morbidity and Mortality in Midlife among White non-Hispanic Americans in the 21st Century." *Proceedings of the National Academy of Sciences* 112(49): 15078–83.

Caudill, Harry. 1963. *Night Comes to the Cumberlands: A Biography of a Depressed Area*. New York: Little, Brown.

Chandra, Amitabh. 2000. "Labor-Market Dropouts and the Racial Wage Gap: 1940–1990." *American Economic Review* 90(2): 333–38.

Chetty, Raj, Nathaniel Hendren, Maggie R. Jones, and Sonya R. Porter. 2020. "Race and Economic Opportunity in the United States: An Intergenerational Perspective." *Quarterly Journal of Economics* 135(2): 711–83.

Clark, Shelly, Sam Harper, and Bruce Weber. 2022. "Growing Up in Rural America." *RSF: The Russell Sage Foundation Journal of the Social Sciences* 8(3): 1–47. https://doi.org/10.7758/RSF.20 22.8.3.01.

Cullen, Julie Berry, and Jonathan Gruber. 2000. "Does Unemployment Insurance Crowd Out Spousal Labor Supply?" *Journal of Labor Economics* 18(3): 546–72.

Currie, J. 2003. "U.S. Food and Nutrition Programs." In *Means-Tested Transfer Programs in the United States*, edited by R. A. Moffitt, 291–363. Chicago: University of Chicago Press.

Darity, William A., Jr., and Samuel L. Myers Jr. 1983. "Changes in Black Family Structure: Implications for Welfare Dependency." *American Economic Review* 73(2): 59–64.

———. 1984. "Does Welfare Dependency Cause Female Headship? The Case of the Black Family." *Journal of Marriage and Family* 46(4): 765–79.

Duncan, Cynthia. 1999. *Worlds Apart: Why Poverty Persists in Rural America*. New Haven, Conn.: Yale University Press.

Economic Research Service. 2024. "Rural-Urban Continuum Codes." U.S. Department of Agriculture. Accessed May 3, 2024. https://www.ers .usda.gov/data-products/rural-urban-continuum -codes.aspx.

Eissa, Nada, and Hilary W. Hoynes. 2004. "Taxation and the Labor Market Participation of Married Couples: The Earned Income Tax Credit." *Journal of Public Economics* 88(9–10): 1931–58.

Eissa, Nada, and Jeffrey B. Liebman. 1996. "Labor Supply Response to the Earned Income Tax Credit." *Quarterly Journal of Economics* 111(2): 605–37.

Eller, Ronald. 2008. *Uneven Ground: Appalachia Since 1945*. Lexington: University of Kentucky Press.

Fording, Richard C., Joe Soss, and Sanford F. Schram. 2007. "Devolution, Discretion, and the Effect of Local Political Values on TANF Sanctioning." *Social Service Review* 81(2): 285–316.

Gale, William G. 2021. "Public Finance and Racism." *National Tax Journal* 74(4): 953–74.

Gooden, Susan T., and Samuel L. Myers Jr. 2018. "The Kerner Commission Report Fifty Years Later: Revisiting the American Dream." *RSF: The Russell Sage Foundation Journal of the Social Sciences* 4(6): 1–17. https://doi.org/10.7758/RSF .2018.4.6.01.

Grogger, Jeffrey, and Lynn A. Karoly. 2005. *Welfare Reform: Effects of a Decade of Change*. Cambridge, Mass.: Harvard University Press.

Hardy, Bradley L., Charles Hokayem, and James P. Ziliak. 2022. "Income Inequality, Race, and the EITC." *National Tax Journal* 75(1): 149–67.

Hardy, Bradley L., Trevon D. Logan, and John Parman. 2018. "The Historical Role of Race and Policy for Regional Inequality." In *Place-Based Policies for Shared Economic Growth*, edited by Jay Shambaugh and Ryan Nunn. Washington, D.C.: Brookings Institution.

Hardy, Bradley L., Rhucha Samudra, and Jourdan A. Davis. 2019. "Cash Assistance in America: The Role of Race, Politics, and Poverty." *Review of Black Political Economy* 46(4): 306–24.

Hardy, Bradley L., Timothy Smeeding, and James P.

Ziliak. 2018. "The Changing Safety Net for Low Income Parents and Their Children: Structural or Cyclical Changes in Income Support Policy?" *Demography* 55(1): 189–221.

Harvey, Mark H., and Rosalind P. Harris. 2017. "Racial Inequalities and Poverty in Rural America." In *Rural Poverty in the United States*, edited by Ann R. Tickamyer, Jennifer Sherman, and Jennifer Warlick, 141–67. New York: Columbia University Press.

Heckman, James, and John J. Donohue. 1991. "Continuous Versus Episodic Change: The Impact of Civil Rights Policy on the Economic Status of Blacks." *Journal of Economic Literature* 29(4): 1603–43.

Holtzblatt, Janet, Swati Joshi, Nora Cahill, and William Gale. 2023. "Racial Disparities in the Income Tax Treatment of Marriage." *NBER* working paper no. 31805. Cambridge, Mass.: National Bureau of Economic Research.

Hotz, V. Joseph, and John Karl Scholz. 2003. "The Earned Income Tax Credit." In *Means-Tested Transfer Programs in the United States*, edited by Robert Moffitt, 141–98. Chicago: University of Chicago Press.

Hoynes, Hilary W., and Diane W. Schanzenbach. 2016. "US Food and Nutrition Programs." In *Economics of Means-Tested Transfer Programs in the United States*, vol. 1, edited by Robert A. Moffitt, 219–302. Chicago: University of Chicago Press.

Islam, Tonmoy, Jenny Minier, and James P. Ziliak. 2015. "On Persistent Poverty in a Rich Country." *Southern Economic Journal* 81(3): 653–78.

Johnson, Kenneth M., and Daniel T. Lichter. 2020. "Metropolitan Reclassification and the Urbanization of Rural America." *Demography* 57(5): 1929–50.

Kalil, Ariel, Kristin S. Seefeldt, and Hui-Chen Wang. 2002. "Sanctions and Material Hardship Under TANF." *Social Service Review* 76 (4): 642–62.

Kline, Patrick, and Enrico Moretti. 2014. "Local Economic Development, Agglomeration Economies, and the Big Push: 100 Years of Evidence from the Tennessee Valley Authority." *Quarterly Journal of Economics* 129(1): 275–331.

Lee, Jennifer, and Frank D. Bean. 2010. *The Diversity Paradox: Immigration and the Color Line in Twenty-First Century America*. New York: Russell Sage Foundation.

Lichter, Daniel T., and David L. Brown. 2011. "Rural America in an Urban Society: Changing Spatial and Social Boundaries." *Annual Review of Sociology* 37(1): 565–92.

Lichter, Daniel T., and Deborah R. Graefe. 2011. "Rural Economic Restructuring: Implications for Children, Youth, and Families." In *Economic Restructuring and Family Well-Being in Rural America*, edited by Kristin E. Smith and Ann R. Tickamyer, 25–39. University Park: Pennsylvania State University Press.

Lichter, Daniel T., and Kenneth M. Johnson. 2025. "Depopulation, Deaths, Diversity, and Deprivation: The 4Ds of Rural Population Change." *RSF: The Russell Sage Journal of the Social Sciences* 11(2): 88–114. https://doi.org/10.7758/RSF.2025.11.2.05.

Lichter, Daniel T., and James P. Ziliak. 2017. "The Rural-Urban Interface: New Patterns of Spatial Interdependence and Inequality in America." *Annals of the American Academy of Political and Social Science* 672 (July): 6–25.

Loury, Glenn. 1986. "The Black Family: A Critical Challenge." *Journal of Family and Culture* 2(1): 1–15.

Lundberg, Shelly. 1985. "The Added Worker Effect." *Journal of Labor Economics* 3(1): 11–37.

Moffitt, Robert A. 2003. "Temporary Assistance for Needy Families." In *Means-Tested Transfer Programs in the United States*, edited by Robert A. Moffitt, 291–364. Chicago: University of Chicago Press.

Moffitt, Robert A., and James P. Ziliak. 2019. "Entitlements: Options for Reforming the Social Safety Net in the United States." *Annals of the American Academy of Political and Social Science* 686 (November): 8–35.

Monnat, Shannon M. 2019. "The Contributions of Socioeconomic and Opioid Supply Factors to U.S. Drug Mortality Rates: Urban-Rural and Within-Rural Differences." *Journal of Rural Studies* 68 (May): 319–35.

Moore, Richard A., Jr. 1996. "Controlled Data-Swapping Techniques for Masking Use Microdata Sets." Statistical Research Report working paper no. RR96-4. Washington: U.S. Bureau of the Census. Accessed May 3, 2024. https://www.census.gov/content/dam/Census/library/working-papers/1996/adrm/rr96-4.pdf.

Moynihan, Daniel Patrick. 1965. *The Negro Family: The Case for National Action*. Washington: U.S. Department of Labor, Office of Policy Planning and Research.

Murray, Charles. 1984. *Losing Ground: American Social Policy 1950–1980.* New York: Basic Books.

Myrdal, Gunnar. 1944. *An American Dilemma: The Negro Problem and Modern Democracy*. New York: Harper & Row.

National Bureau of Economic Research (NBER). 2024. "Codes for Creating TAXSIM Datasets." Accessed May 3, 2024. https://taxsim.nber.org /to-taxsim/cps.

Neal, Derek, and William R. Johnson. 1996. "The Role of Premarket Factors in Black-White Wage Differences." *Journal of Political Economy* 104(5): 869–95.

Neal, Derek, and Armin Rick. 2014. "The Prison Boom and the Lack of Black Progress after Smith and Welch." *NBER* working paper no. 20283. Cambridge, Mass.: National Bureau of Economic Research.

Nichols, Austin, and Jesse Rothstein. 2016. "The Earned Income Tax Credit." In *Economics of Means-Tested Transfer Programs in the United States*, vol. 1, edited by Robert A. Moffitt, 137–218. Chiago: University of Chicago Press.

Nolan, Lauren, Jane Waldfogel, and Christopher Wimer. 2017. "Long-Term Trends in Rural and Urban Poverty: New Insights Using a Historical Supplemental Poverty Measure." *The Annals of the American Academy of Political and Social Science* 672 (July): 123–42.

Parolin, Zachary. 2021. "Temporary Assistance for Needy Families and the Black–White Child Poverty Gap in the United States." *Socio-Economic Review* 19(3): 1005–35.

Parolin, Zachary, Matthew Desmond, and Christopher Wimer. 2023. "Inequality Below the Poverty Line Since 1967: The Role of the U.S. Welfare State." *American Sociological Review* 88(5): 782–809.

Piketty, Thomas, and Emmanuel Saez. 2007. "How Progressive is the U.S. Federal Tax System? A Historical and International Perspective." *Journal of Economic Perspectives* 21(1): 3–24.

Rothstein, Richard. 2017. *The Color of Law: A Forgotten History of How Our Government Segregated America*. New York: Liveright Publishing.

Slack, Tim, Brian C. Thiede, and Leif Jensen. 2020. "Race, Residence, and Underemployment: Fifty Years in Comparative Perspective, 1968–2017." *Rural Sociology* 85(2): 275–315.

Smith, James P., and Finis R. Welch. 1989. "Black Economic Progress After Myrdal." *Journal of Economic Literature* 27(2): 519–64.

Snyder, Anastasia R., and Diane K. McLaughlin. 2004. "Female-Headed Families and Poverty in Rural America." *Rural Sociology* 69(1): 127–49.

Stephens, Melvin. 2002. "Worker Displacement and the Added Worker Effect." *Journal of Labor Economics* 20(3): 504–37.

Tickamyer, Ann R., Jennifer Sherman, and Jennifer Warlick. 2017. *Rural Poverty in the United States*. New York: Columbia University Press.

U.S. Census Bureau. 2024. "Current Population Survey Annual Social and Economic Supplement, 1976–2021." Accessed May 3, 2024. https:// www.census.gov/data/datasets/time-series /demo/cps/cps-asec.html.

Western, Bruce, and Becky Pettit. 2005. "Black-White Wage Inequality, Employment Rates, and Incarceration." *American Journal of Sociology* 111(2): 553–78.

Wilson, William J. 1987. *The Truly Disadvantaged: The Inner City, the Underclass, and Public Policy*. Chicago: University of Chicago Press.

Ziliak, James P. 2012. *Appalachian Legacy: Economic Opportunity after the War on Poverty*. Washington, D.C.: Brookings Institution Press.

——. 2019. "Restoring Economic Opportunity for 'The People Left Behind': Employment Strategies for Rural America." In *Expanding Economic Opportunity for More Americans: Bipartisan Policies to Increase Work, Wages, and Skills*, edited by Melissa A. Kearney and Amy Ganz, 100–126. Washington, D.C.: Aspen Institute.