Economic Research Service
U.S. DEPARTMENT OF AGRICULTURE

Economic Information Bulletin Number 306

September 2026

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Economic Research Service
www.ers.usda.gov

Recommended citation format for this publication:

Winikoff, J. B., Winkler, R. L., Cromartie, J., and Curtis, K. J. (2026). *Migration and aging across the rural-urban continuum* (Report No. EIB-306). U.S. Department of Agriculture, Economic Research Service.

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Abstract

Population and demographic change can create both challenges and opportunities for rural communities. This report studies migration and aging patterns across U.S. counties from 1980 to 2020 using detailed data on age-specific migration across the rural-urban continuum. As of 2020, nonmetropolitan counties were significantly older (35 percent over age 55) than metropolitan counties (29 percent over age 55) due to age-specific migration over the previous three decades that saw younger people moving towards more urban areas and older people towards rural places. Nonmetropolitan counties lost prime working age people (age 25–54) in the 2010s despite attracting them previously. Furthermore, fewer retirement-aged people moved to nonmetropolitan counties in the 2010s than in previous decades as part of a national trend of lower migration, despite the large number of Baby Boomers reaching retirement age that decade. Rural retirement and recreation destination typology counties experienced in-migration among people aged 30–79, while farming and manufacturing typology counties saw net out-migration at younger ages. Using a decomposition analysis, this report finds that population aging in the 2010s was driven almost entirely by aging in place, rather than migration like in previous decades. Counties to which older people moved tended to be correlated with better economic and health indicators (but higher housing costs) than those counties younger people moved away from or those that experienced significant aging in place. These insights help inform policymaker decisions related to rural prosperity.

Keywords: migration, aging, rural population, retirement

Acknowledgments

The authors thank Kenneth Johnson of the University of New Hampshire, J. Tom Mueller of the University of Kansas, Julia Cho of USDA, Rural Development's Rural Development Innovation Center (RDIC), and Lauren Miller of USDA, Economic Research Service (ERS) for their reviews. Within USDA, ERS, the authors thank Thomas Worth, Jessica Crowe, Krishna Paudel, and Jonathan McFadden for their reviews of the report and Grant Wall, Christopher Whitney, and Adele Wilcoxen for editorial and design assistance.

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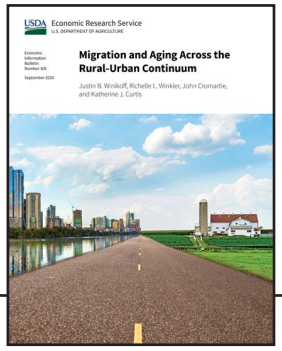

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Key Points

- Populations in U.S. nonmetropolitan (nonmetro) counties are considerably older than populations in U.S. metropolitan (metro) counties because of more than 30 years of consistent age-specific net migration patterns redistributing younger people towards more urban places and older people toward more rural places.
- Nonmetro counties attracted prime working-age people (age 25–54) in the 1990s and 2000s, but lost people at prime working ages in the 2010s due to both migration and natural changes in the population age structure. This was especially true in the most rural counties and contributed to a diminished workforce.
- Attracting retirees has been an economic development strategy for some communities, but nonmetro counties attracted fewer retirement-aged people in the 2010s than in prior decades, despite the large number of Baby Boomers reaching traditional retirement ages. Recreation and retirement destination counties saw more migration gains at most ages than other nonmetro counties, but less so in the 2010s than in decades prior.
- Out-migration of younger people and in-migration of older people were important contributors to rural population aging in the 1990s and 2000s but aging in the 2010s was almost entirely driven by aging in place.
- The nonmetro counties where out-migration of people under age 65 accounted for more of population aging fared worse on economic and health indicators than other nonmetro counties. Nonmetro counties where in-migration of older people contributed more to population aging tended to have better healthcare availability, but residents spent higher shares of their income on housing than in other nonmetro counties.

Why Does This Matter?

Population change can bring both opportunities and challenges for rural areas. Population growth can bring new industries and money to a community but may create problems with housing affordability and providing services. Population loss can lead to the flight of services and economic opportunities for those who remain. Understanding the age composition of a community is also important because young families, working adults, and retirees contribute to the economy in different ways, such as through demand for schools, hospitals, and other services, as well as working local jobs and paying taxes. The economic implications of an aging population may vary depending on whether those individuals have migrated or are aging in place, as retiring migrants may bring with them wealth generated in more urban areas or demand for services not already in a community. This report provides insights for rural communities and policymakers hoping to better understand changing population dynamics and their implications for retaining a prosperous community.

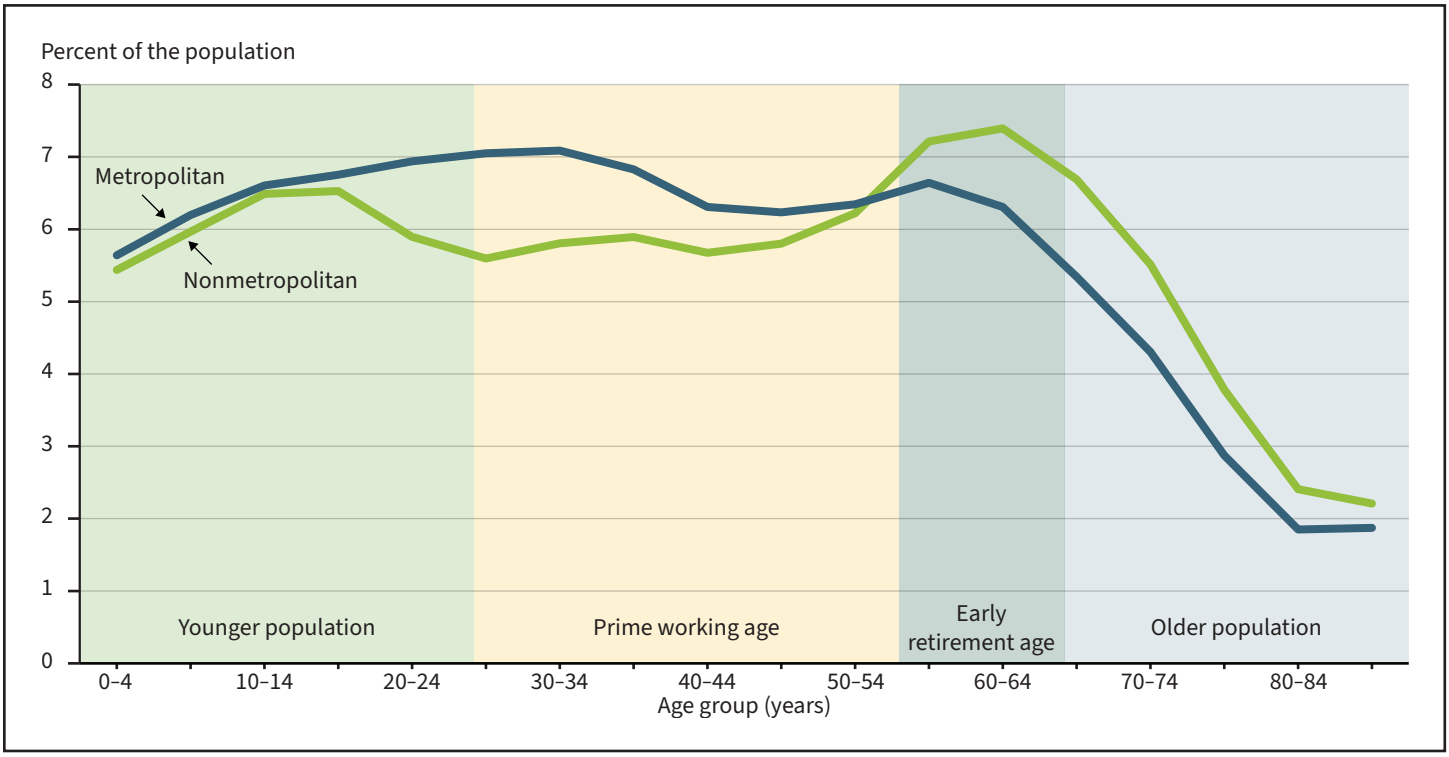
A Few More Details

This report provides an analysis of aging patterns in rural communities. As of 2020, people older than 65 years of age made up more than 20 percent of the population in 1,410 U.S. counties, compared to just 390 in 1990. Age-specific migration patterns have contributed to rural aging with younger people tending to move away and older people tending to move in, depending on the rurality of the county. Across all age groups and county types, however, migration rates during the 2010s were lower than in previous decades, suggesting households were aging in place. In the 2010s, rural communities lost people aged 15–54 due to migration. They also gained people aged 55–74 from migration, but at the slowest rate in three decades.

This report also shows differences in age-specific migration by economic typologies, with farm and manufacturing nonmetro counties experiencing large outward migration of young, working-age individuals while retirement destinations gained people aged 30–79 from migration. These patterns, coupled with natural changes in aging, help explain population growth and losses across the rural United States. While, on average, all types of nonmetro counties experienced population declines of working age individuals due to natural aging (aged 25–54), losses were at least partially offset by positive net migration in recreation counties and retirement destinations. For farming and manufacturing counties, however, outmigration of working age individuals compounded their losses due to natural change.

Finally, this report highlights the differences between counties aging due to migration and those aging due to natural change. Those aging because of the outmigration of younger people generally were associated with lower incomes and employment. Those aging due to an increase in migration among retirement-aged individuals had higher home prices relative to incomes, but also better availability of healthcare facilities.

Metropolitan and nonmetropolitan county population in 5-year age groups, 2020



Note: This figure shows the percentage of residents by 5-year age group, from those younger than 5 years old to those 85 years and older. The percentages in each line add up to 100. The metropolitan-nonmetropolitan delineation used here is based on the modified rural-urban continuum (see box "Defining a Rural-Urban Continuum"). Urban core, suburban, and mid/small sized metropolitan categories are classified here as metropolitan. Exurban, small city, and rural are classified as nonmetropolitan.

Source: USDA, Economic Research Service using data from the 2020 Census, Demographic and Housing Statistics.

Migration and Aging Across the Rural-Urban Continuum

Introduction

Rural populations have been aging at a faster pace than urban populations for decades, resulting in higher-than-ever shares of rural populations over age 65. Before 2010, just 439 U.S. nonmetropolitan (nonmetro) counties had more than 20 percent of their population older than 65. This number rose to 1,294 by 2023 (Farrigan et al., 2024). While births, deaths, and migration combine to impact population age structures, decades-long differences in migration patterns by age are a key reason why today's rural areas are older than urban areas. At least since the 1950s, rural counties have experienced population losses of young adults and gains of older people due to net migration (Johnson & Fuguitt, 2000; Johnson & Winkler, 2015). Young people are more likely to move than older people, and they tend to move away from rural areas towards urban destinations for education, career, and cultural reasons (Plane et al., 2005). As people approach retirement age (55–74), however, they tend to migrate into rural areas at higher rates than when compared to their middle ages (40–54). Over time, these migration patterns can impact counties' age structures, which in turn affects demand for both the labor market and public services, such as healthcare and education.

Longstanding differences in migration patterns by age have continued into the 2010s and beyond. However, another demographic dynamic has gained momentum and hastened rural population aging. What demographers call "aging-in-place" (Lichter et al., 1981), where individuals age in their current homes and communities rather than relocating, has intensified as the large cohorts of the Baby Boomer generation (born 1946–1964) have begun to reach older ages. The combination of aging in place and differences in migration patterns by age have generated new highs in the age profile of many rural counties and, with it, new challenges in promoting a vibrant labor force and healthy aging within rural areas.

Of course, there are differences across rural counties. The precise historical patterns of migration by age and the degree to which aging in place occurs vary, including by the major industries located in a county. For example, rural areas with recreation-based economies tend to attract migrants, especially at older ages. Rural areas that are heavily reliant on farming, however, tend to lose young people through out-migration and gain few newcomers (in net), either younger or older. These migration trends have implications for the age structure of a place immediately, through gains or losses of age-specific groups, and in the longer-run by setting the stage for future aging in place or promoting a more balanced future age structure.

This report examines age-specific migration patterns, describing consistency and change in these patterns over the last three decades. We focus on the ways in which migration has contributed to population aging, how migration has changed over time, and how migration and aging vary across different types of counties along a rural-urban continuum and by economic base.[1] We quantify the extent to which migration of younger and older people has contributed to population aging for

[1] The terms "population aging" and "aging" are used interchangeably and refer to the increase in average age or in the share of older people within a population. These terms include increases in the average age due to both aging in place and migration.

different types of rural counties (by both the degree of rurality and industry specialization, such as farming or recreation) in the 1990s, 2000s, and 2010s. In doing so, we investigate the components driving aging, showing how much of the increase in older populations has been due to migration compared to aging in place and whether migration's contribution has been through out-migration of younger people, in-migration of older people, or a combination of both.[2]

Population shifts in age structure are important because they affect the available work force and demand for certain businesses. Furthermore, differently-aged populations have different needs for services such as healthcare and differentially generate economic activity. Therefore, we examine correlations between components driving aging and county-level economic indicators in the 2010s, including labor force participation, unemployment, low-to-moderate income rates, and housing cost burden. We also explore relationships between components driving aging and indicators of health outcomes (e.g., years of life lost due to premature death and self-reported poor or fair health) and availability of health services (e.g., healthcare providers per capita and exercise facilities).

Understanding rural population aging and how migration contributes to it is critical for identifying and addressing the needs and opportunities in the rural United States. The size and composition of the labor force, the character of the local labor market, and demands on public health and healthcare, social services, local infrastructure, housing markets, and environmental resources are all affected by changes in population composition induced by different age-related migration patterns. As we detail in this report, rural populations are aging, and migration contributes to this trend. Whether aging is primarily driven by migration or aging in place reflects distinct, though inter-related, causes. There are different implications for rural communities depending on these causes which potentially would lead to differing interventions.

Data and Methods

This study focuses on net migration, which results from a combination of people moving in and out of an area. This means we are not able to determine the extent to which inflows or outflows of people are driving changes over time, only the net result. Even when net migration results are similar, the number of people moving in and out of an area can be substantially different. For this study, we chose the net measure because high-quality data are available by 5-year age groups, allowing us to investigate age patterns in migration and how these patterns result in different population age structures across counties.

We used counties as the unit of analysis and examined net migration patterns for different types of counties along a consistent rural-urban continuum (see box, "Defining a Rural-Urban Continuum") for the 1990–2000, 2000–2010, and 2010–2020 time periods.[3] Data on age-specific net migration for counties come from the Net Migration Patterns for U.S. Counties dataset (Egan-Robertson et al., 2024), based on data constructed by Voss et al. (2005) for the 1990s, Winkler et al. (2013) for the 2000s, and Curtis et al. (2025) for the 2010s. The migration estimates include both domestic and international migration, therefore the two components cannot be separated. The data were constructed using a residual method based on decennial census counts observed at the start and end of each decade, and

[2] The rates of migration and aging in place are both affected by and affect the natural change in population, which includes new births and deaths.

[3] The data end in April 2020, prior to substantial Coronavirus (COVID-19) pandemic impacts. We discuss trends that have occurred since 2020 in more detail in the box "Migration Since 2020."

administrative records to measure births and deaths that occurred during the decade.[4] The population observed in the census at the beginning of the decade was advanced forward in age 10 years. Deaths were subtracted and births added to generate an "expected population" at the end of the decade had there been no net migration. These expected populations were compared to the observed census population at the end of the decade to estimate net migration (Egan-Robertson et al., 2025).

Because counties' economic and social characteristics are associated with age-specific migration patterns (Johnson et al., 2005), we examine migration differences by economic types. Data on county economic types are from the USDA, Economic Research Service's (ERS) County Typology Codes (USDA, ERS, 2025a). We focus on counties with high shares of income or employment in farming (farming counties), manufacturing (manufacturing counties), and recreation (recreation counties), and on counties that attract high shares of retirement-age adults (retirement destination counties).[5] [6] The decision to focus on these economic typologies follows from their clear, discernable trends. Other typologies may experience conflicting trends. For example, mining counties include both coal and oil/natural gas producing counties, each of which experienced different (almost opposite) migration patterns in the study period, making migration data for this economic type more difficult to understand. Still, we provide results for the other economic typologies (government, mining, and nonspecialized) in appendix C.[7]

To determine how much of a county's increase in older population was due to migration compared to natural population change (or aging in place), we used a decomposition method developed by Fuguitt (1980) and employed by Lichter et al. (1981), Fuguitt and Beale (1993), and Cromartie (2020). The decomposition methodology is detailed in appendix A. Specifically, we examined the components of natural change and net migration for those under age 65 and for those age 65 and over for each decade (1990s, 2000s, and 2010s).[8] We applied the decomposition for counties along a rural-urban continuum and for nonmetro counties by economic type (farming, manufacturing, recreation, and

[4] The residual method of calculating net migration estimates is based on the population balancing equation where $Population_{(t+1)} = Population_{(t)} + births_{(t\ to\ t+1)} - deaths_{(t\ to\ t+1)} + net\ migration_{(t\ to\ t+1)}$, where t = time. Net migration is calculated by rearranging this equation (Egan-Robertson et al., 2025).

[5] The definitions of county typologies are as follows: For the economic typologies, we use concentrations rather than the mutually exclusive dependency categories. In farming counties, at least 20 percent of earnings came from farming or at least 17 percent of the number of jobs were in agriculture. In manufacturing counties, at least 25 percent of earnings came from manufacturing or at least 17 percent of the jobs were in manufacturing. In recreation counties, a weighted z-score of annual earnings and employment in arts, entertainment, recreation, accommodation and food services, and real estate, rental and leasing is combined with the percentage of housing units for seasonal, recreational, or occasional use. Retirement counties are those for which the number of residents aged 55–74 increased by at least 15 percent due to migration (USDA, ERS, 2025).

[6] USDA, ERS typology codes are updated each decade. This means that some counties that were classified a certain way may no longer be in the same classification in the 2025 version of the codes. For example, many counties that were manufacturing-dependent during the 1990s may no longer be, and thus the 2025 definition of high-manufacturing counties may not include counties that formerly had higher manufacturing concentrations. Still, this study uses the most recent iteration of the typologies for several reasons. First, the economic typologies were calculated in part using data from the late 2010s, which were partially influenced by economic conditions from earlier periods. Second, the use of the 2025 data provides a more current and somewhat forward-looking perspective, shedding light on the present state of counties by their most recent typology. Third, the counties that have persisted with the same typology over the sample period are likely the most concentrated and thus provide the best snapshot into trends in areas where industries are concentrated. However, the retirement destination counties themselves, by definition, are defined as those with an increase in older individuals due to migration. As such, these counties should be expected to have a certain degree of older-age migration. Still, migration and aging at other points of the age spectrum are not necessarily detectable solely from the migration definition.

[7] Government counties had either at least 13 percent of earnings or at least 8 percent of jobs come from Federal or State government. Mining counties had at least 11 percent of earnings or at least 7 percent of jobs come from mining, quarrying, and oil and gas extraction. Nonspecialized met none of the thresholds for the other five county types.

[8] We chose age 65 as a threshold to measure the older population, in alignment with prior literature (Lichter et al., 1981; Fuguitt & Beale, 1993; Cromartie, 2020) and the age at which people are eligible for Medicare.

retirement destination). This strategy allowed us to empirically determine the extent to which net positive or negative migration among younger or older adults contributed to observed and previously documented changes in the distribution of the older population across the United States as compared to the aging of the population in place, along with births and deaths (natural change).

To examine how aging and migration patterns were related to labor market conditions and wellbeing in nonmetro counties, we used the decomposition methods described above to determine which counties were aging primarily due to net migration loss of younger people, net migration gains of older people, or natural change. We relied on data from the American Community Survey, 5-year estimates from 2016–20 (Manson et al., 2024) to compare average labor force participation rates, unemployment rates, low-to-moderate income rates (share of households with income less than twice the poverty rate), and housing cost-burden rates (share of occupied households spending 30 percent or more of income on housing costs) for counties aging (a greater than 1-percentage point increase in population over 65) and those not aging (less than 1 percent). We similarly compared aging and those non-aging counties on measures of health outcomes and health services availability, using data on premature deaths (years of life lost before age 75), reports of poor or fair health,[9] availability of exercise facilities, and the ratio of county population to the number of primary care physicians, dentists, and mental health providers using data from County Health Rankings (2020).[10]

Defining a Rural-Urban Continuum

There are multiple ways to define rurality and to classify geographic areas along a rural-urban continuum (USDA, Economic Research Service (ERS), 2024a). Because the migration data used for this report are only available at the county level, we use a county-based classification scheme. USDA, Economic Research Service publishes Rural-Urban Continuum Codes for counties after each decennial census (USDA, ERS, 2024b). The 2023 Rural-Urban Continuum Codes categorize each county into one of nine codes, assigning each metropolitan county a code based on the population size of the metropolitan area (codes 1/2/3), and nonmetropolitan counties by their degree of urbanization and adjacency to a metro area (codes 4/5/6/7/8/9).

This report uses a modified version of the 2023 Rural-Urban Continuum Codes to classify counties along a rural-urban continuum to study migration's impact on aging. To ease interpretation, we adjusted the original Rural-Urban Continuum Codes to collapse nonmetropolitan classifications into fewer groups where age-specific migration patterns and aging trajectories are similar. We also separate metropolitan counties with large principal cities from their surrounding suburban and exurban counties, which tend to have different age structures and age-specific migration patterns.

The modified rural-urban continuum used for this report includes the six categories described below. The urban core, suburban, and small/mid-sized metropolitan categories represent the more urban end of the continuum, with counties that were classified by the Office of Management and Budget as metropolitan continuously since the 1990 census or which became metropolitan in more recent decades due to the growth of a principal city to at least 50,000 people. The rural, small city,

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[9] Data on poor or fair health are based on self-reports from the Behavioral Risk Factor Surveillance System (2017) and published by County Health Rankings (2020). Sample sizes may not always adequately represent rural counties, so they should be interpreted with caution.

[10] We used pairwise means comparisons tests with a Tukey's Honestly Significant Difference (HSD) test to determine whether average differences between counties on economic and health indicators were statistically significant, while controlling for the family-wise error rate (which occurs when rejecting a true null hypothesis when conducting multiple tests) across all comparisons.

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Defining a Rural-Urban Continuum

and exurban categories represent the more rural end of the continuum, representing counties that were nonmetropolitan in all or some decades. We refer to these three categories as nonmetropolitan in this report.[1]

Rural: Counties that were nonmetropolitan in 2023 and had an urban population of less than 20,000. Classified as 6/7/8/9 in the Rural-Urban Continuum Codes. n= 1,677.

Small city: Counties that were nonmetropolitan in 2023 and had an urban population of 20,000 or more. Classified as 4 or 5 in the Rural-Urban Continuum Code. These include counties that are not large enough to be metropolitan, but had one or more urban centers that may serve a surrounding rural region. Many are micropolitan areas. n= 277.

Exurban: Counties that were nonmetropolitan in 1990, 2000, or 2010, but by 2020 had become metropolitan because of a growing commuting tie with an existing metropolitan area. These counties are often rural in nature, but exist at the fringe of metropolitan areas and are tied to metropolitan areas through labor and housing markets. They are a subset of counties classified as 1, 2, or 3 in the Rural-Urban Continuum Codes. Although metropolitan in the 2020 Census, exurban counties are grouped with nonmetropolitan counties in this report due to their previous classification. n= 353.

Small/mid-sized metropolitan: Counties in metropolitan areas with a population of fewer than 1 million that are not classified as exurban, following the definition above. They are counties classified as 2 or 3 in the Rural-Urban Continuum Codes that were not exurban. n= 476.

Urban core: Counties in metropolitan areas with a population of 1 million or more that contain either the largest principal city in the metropolitan area or has a principal city with at least 200,000 population. These are the counties that contain the primary principal cities of large metropolitan areas. They are a subset of counties classified as 1 in the Rural-Urban Continuum Codes. n= 76.

Suburban: Counties in metropolitan areas with a population of 1 million or more that are not classified as either urban core or exurban, following the definitions above. These counties include both inner ring and outer ring suburbs and secondary cities of large metropolitan counties. They are a subset of counties classified as 1 in the RUCC. n= 280.

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[1] The exact number of counties in this study varies from decade to decade with boundary changes. The number of observations in each rural-urban continuum refers to the number in the 2010s decade. This study does not aggregate the counties that change into a consistent unit because doing so would require combining data from potentially different Rural-Urban Continuum Code classification counties into one unit. Instead, we assign the appropriate designation for each new (or no longer existing) county for the decades in which it appears.

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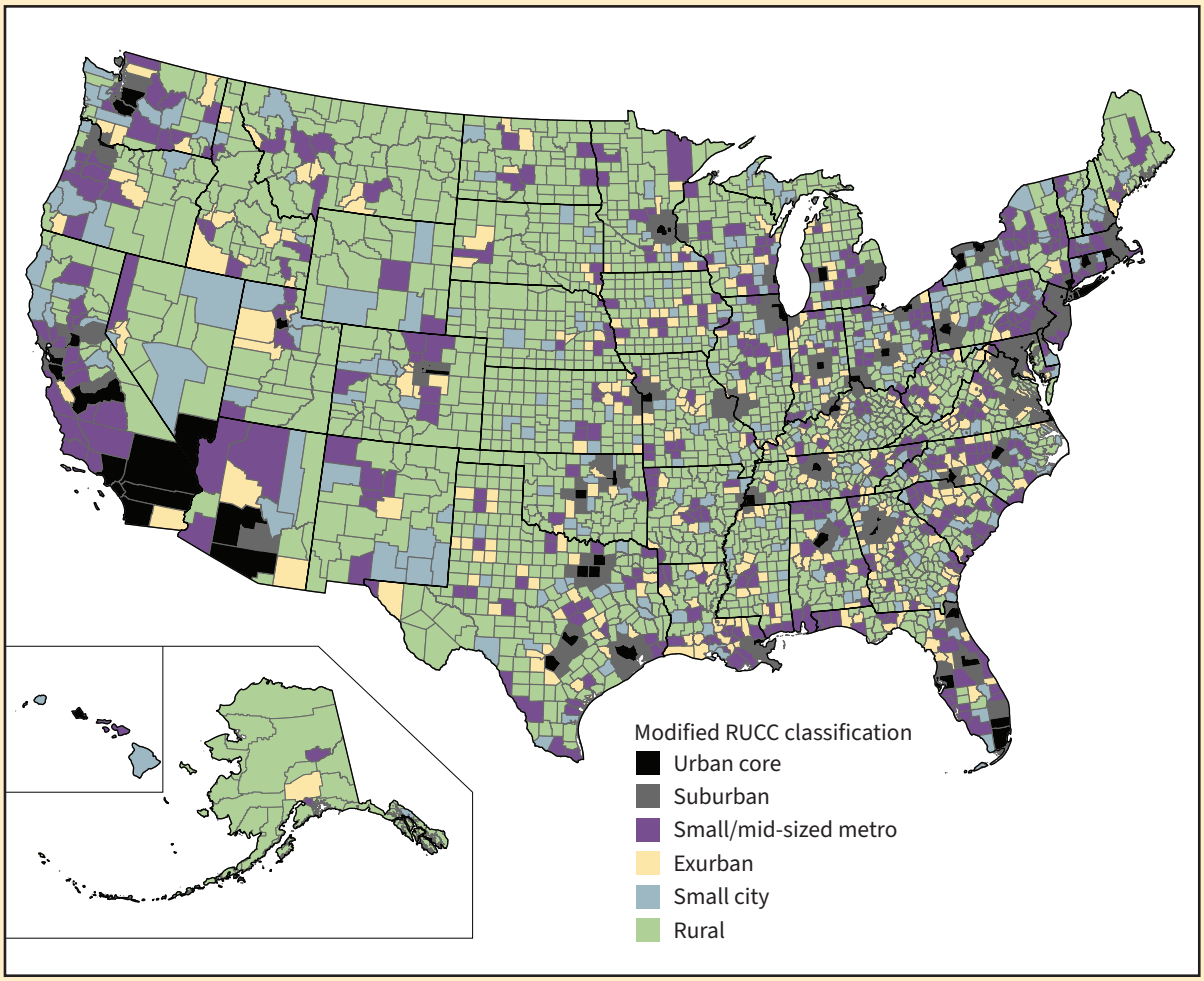
Defining a Rural-Urban Continuum

Modified classification of the Rural-Continuum Codes



RUCC = Rural-Urban Continuum Codes.

Source: USDA, Economic Research Service (ERS) using data from the U.S. Department of Commerce, Bureau of the Census' decennial censuses in 1990, 2000, 2010, and 2020 and the USDA, ERS Rural-Urban Continuum Codes (USDA, ERS, 2024a).

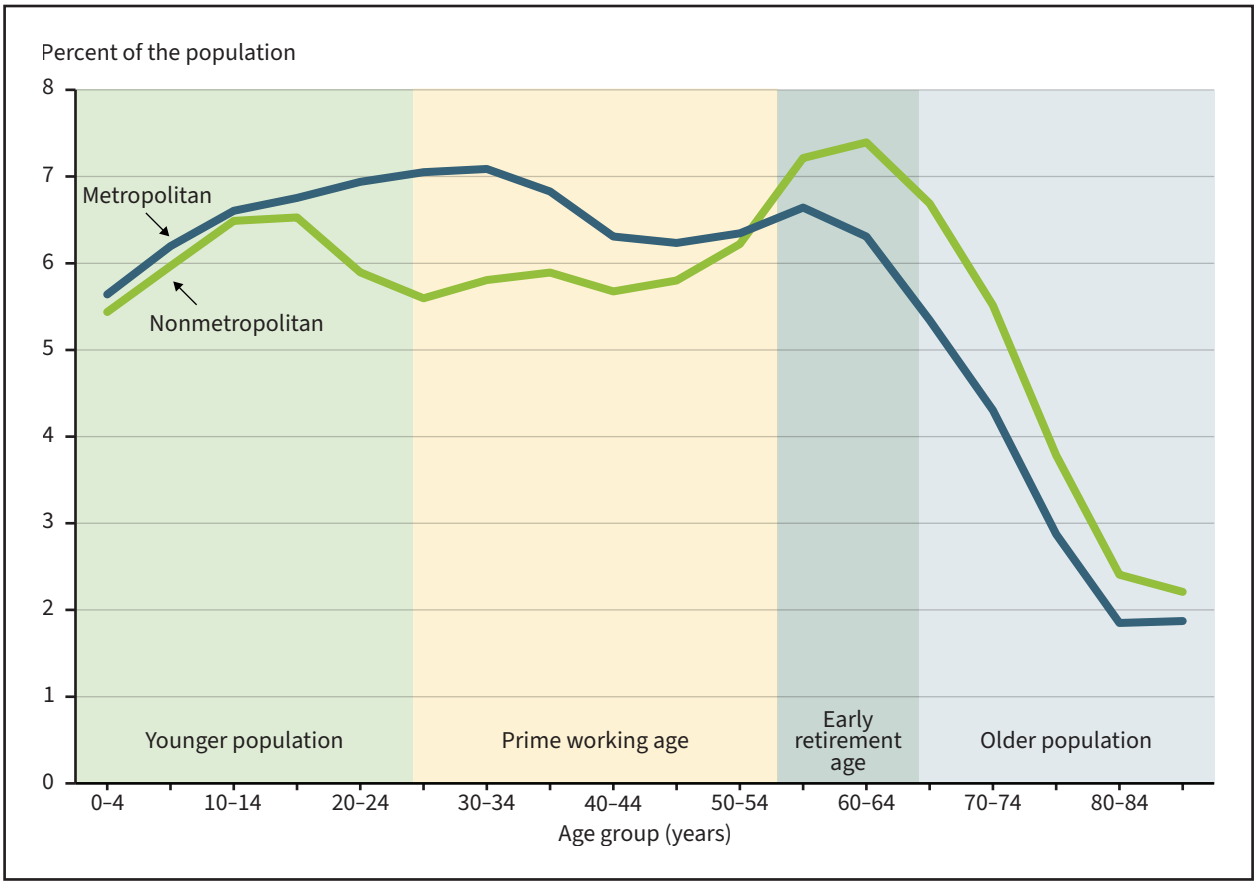
Results

Population Aging in Rural America

The age structure (the relative size of the population at different ages) of nonmetro counties is substantially older than the age structure of metropolitan (metro) counties (figure 1). In 2020, nonmetro counties had lower population shares at younger ages and higher population shares at ages 55 and over compared to metro counties. Nonmetro counties had especially low population shares at ages 20–49, encompassing most of the prime working ages and contributing to a relatively small workforce. Overall, 40 percent of metro populations were of prime working age, compared to just 35 percent for nonmetro counties. By contrast, 29 percent of metro counties were of early retirement age or older, compared to 35 percent for nonmetro counties.

Figure 1

Metropolitan and nonmetropolitan county population in 5-year age groups, 2020



Note: This figure shows the percentage of residents by 5-year age group, from those younger than 5 years old to those 85 years and older. The percentages in each line add up to 100. The metropolitan-nonmetropolitan delineation used here is based on the modified rural-urban continuum (see box "Defining a Rural-Urban Continuum"). Urban core, suburban, and mid/small sized metropolitan categories are classified here as metropolitan. Exurban, small city, and rural are classified as nonmetropolitan.

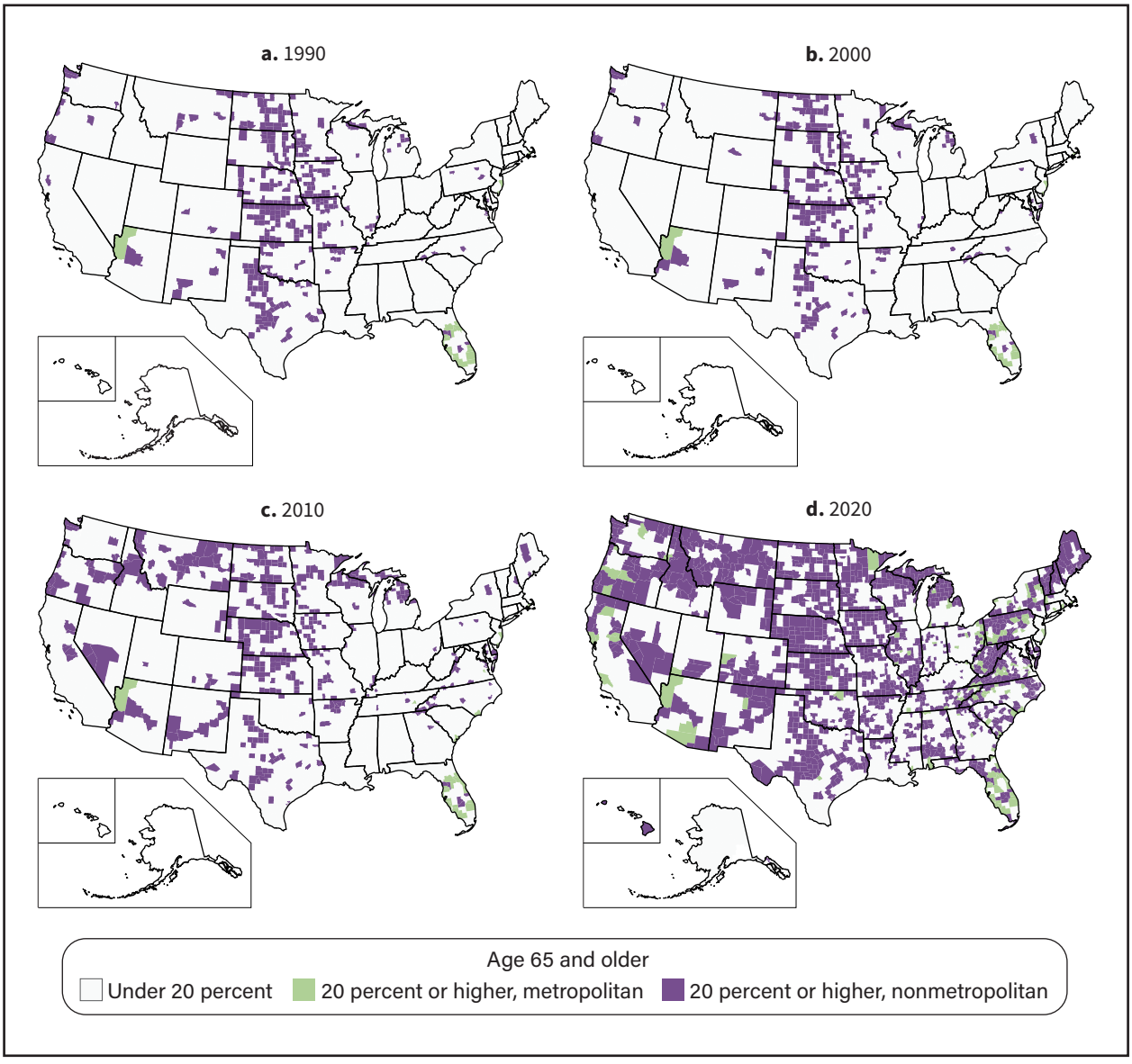
Source: USDA, Economic Research Service using data from the 2020 Census, Demographic and Housing Statistics.

Since at least the 1950s, the primary historical driver of age structure differences between rural and urban areas has been differences in migration by age (Johnson et al., 2005, Johnson & Winkler, 2015). Whether people tend to move toward or away from urban or rural areas varies depending on life stage, with young adults moving away from rural areas toward urban city centers, families with children moving out of city centers toward less population-dense destinations, and people at retirement ages favoring more rural areas (Plane et al., 2005; Plane & Jurjevich, 2009). Migration decisions are structured by major life course events such as getting an education, finding a job, purchasing a house, raising a family, vacation choices, and retirement (Cromartie & Nelson, 2009). Although overall net migration rates fluctuate from one decade to the next, the general age-specific pattern has been consistent over time (Johnson et al., 2005; Johnson & Winkler, 2015). The impacts of age-specific migration compound over time and, ultimately, result in important changes to age structures (Winkler et al., 2012; Fuguitt & Heaton, 1995).

After decades of increasing life expectancy, declining birth rates, and migration patterns that have tended to move younger people to more urban counties and older people towards more rural places, the number of counties where people age 65 and over make up 20 percent or more of the population (referred to as older-age counties) has increased dramatically in recent years (figure 2). The number

of older-age counties remained relatively small through 2010 (figures 2a–c). The number of older-age counties declined from 390 in 1990 (16 percent of nonmetro and 2.5 percent of metro counties) to 329 in 2000 (13 percent of nonmetro, 2.5 percent of metro counties) before increasing to 459 in 2010 (19 percent of nonmetro, 2.8 percent of metro counties). By 2020, the number of older-age counties had expanded to 1,410 (figure 2d). In 2020, 59 percent of nonmetro counties and 19 percent of metro counties met the older-age designation, and older-age counties were found in every State except Alaska.

Figure 2
Older-age counties, 1990, 2000, 2010, and 2020



Note: Older-age counties are defined here as those with 20 percent or more of their population age 65 or older. The metropolitan-nonmetropolitan delineation used here is based on the modified rural-urban continuum described in the box "Defining a Rural-Urban Continuum". Urban core, suburban, and mid/small sized metropolitan categories are classified here as metropolitan. Exurban, small city, and rural are classified as nonmetropolitan.

Source: USDA, Economic Research Service using data from the U.S. Department of Commerce, Bureau of the Census' decennial censuses in 1990, 2000, 2010 and 2020.

The share of the population age 65 and over was already higher in 1990 for the current or former nonmetro county classes (14.6 percent) than for metro (11.7 percent) classes (figure 3a). This share was practically unchanged in 2000 (14.5 and 11.7, respectively) before rising to 15.7 percent for nonmetro and 12.2 percent for metro counties. In 2010s, the percent of the population age 65 and older rose significantly to 15.7 for metro counties and 20 percent for nonmetro counties. Even small city counties, which are the youngest of the nonmetro categories, began and ended the sample period at an older age than metropolitan counties.

The share of the older-age population also varied within nonmetro counties according to their economic base (figure 3b). Nonmetro farming, recreation, and retirement-destination counties all had more than 20 percent of their population at age 65 or older in 2020. Manufacturing counties were somewhat younger at 18.9 percent. As we explore in the sections that follow, recreation and retirement-destination counties had disproportionately large older populations due to above-average rates of in-migration among retirees and other older adults, along with out-migration of young adults. Farming counties had higher percentages of older-age adults (20.8 percent) due to higher-than-average out-migration among young adults.[11]

Migration Since 2020

This report focuses on migration for the period between 1990 and 2020. It is limited in that age-specific migration data are not available at the county level after 2020. Yet, we know migration patterns between metropolitan (metro) and nonmetropolitan (nonmetro) counties changed in the early 2020s. After a decade of net out-migration in the 2010s, nonmetro counties experienced positive net migration each year between 2020 and 2024 (Farrigan et al., 2024). In New England (Massachusetts, New Hampshire, Connecticut, Rhode Island, Maine, and Vermont), population shifted away from large urban cores and toward more rural areas in the first year of the Coronavirus (COVID-19) pandemic (Nelson & Frost, 2023). Across the country, growth due to positive net migration was widespread across rural counties between 2020 and 2023 (Golding & Winkler, 2026), primarily because of a decline in out-migration from rural areas (Petersen et al., 2024). Nonmetro recreation counties especially saw increased migration-driven growth in the years following the onset of the COVID-19 pandemic (Golding & Winkler, 2026; Petersen et al., 2024). Emerging evidence on changes in the age structure of populations suggests this trend is related to fewer younger people leaving rural areas and potentially in some places younger people moving towards rural areas (Lombard, 2024).

It is unclear whether this trend will continue during the second half of the decade or if it was a short-term, pandemic-induced migration trend. Though still positive, the domestic net migration rate in nonmetro counties was lower between 2023 and 2024 than the year prior. Furthermore, the rate of domestic net migration has remained negative in rural and small city nonmetro counties during each year from 2022 to 2024 (USDA, Economic Research Service, 2025b).

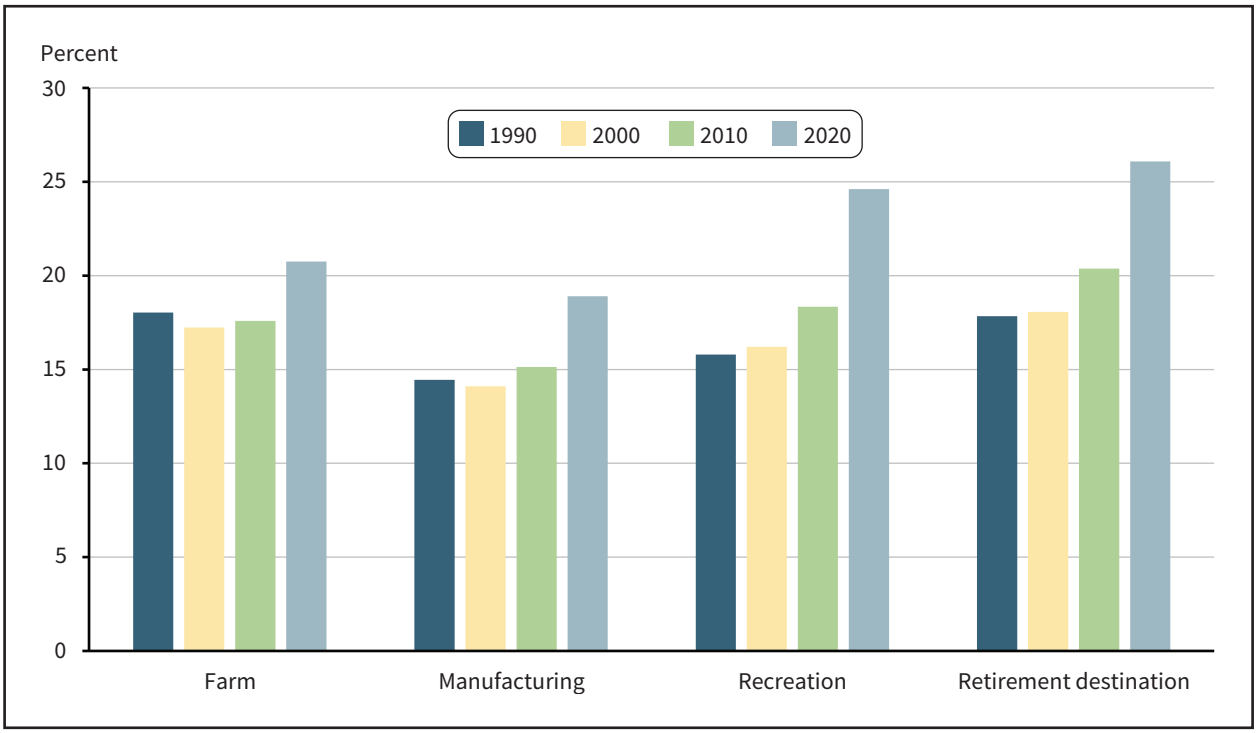
[11] Appendix figure C.1 shows a similar growth for mining, government, and nonspecialized counties, with the share of the population age 65 and over rising to between 17 percent and 20 percent in each of the typologies in 2020.

Figure 3a

Percent of population age 65 and older by location along a rural-urban continuum, 1990–2020

Figure 3b

Percent of population age 65 and older for nonmetropolitan counties by economic type, 1990–2020



Note: These figures show the weighted average share of the population age 65 and over. The rural-urban continuum is based on an adapted version of the USDA, Economic Research Service's Rural Urban Continuum Codes, as described in this report. In Figure 3b, only nonmetropolitan counties (as defined in this report) are shown.

Source: USDA, Economic Research Service (ERS) using data from the U.S. Department of Commerce, Bureau of the Census's decennial censuses in 1990, 2000, 2010, and 2020 and from USDA, ERS County Typologies.

Describing Age-Specific Net Migration in the 1990s, 2000s, and 2010s

From 1990 to 2020, migration kept urban core counties younger and contributed to rural population aging

Over the last three decades, nonmetro counties (rural, small city, and exurban) saw net migration losses at ages 15–29 and net gains at most other ages (figure 4).[12] Urban core counties experienced gains among people between 20 and 34 years of age, but they also experienced losses at other ages (figure 4a). Suburban counties saw substantial gains at ages 30–49 and among children under age 15 (figure 4b), suggesting that many of the people at the family stage of the life cycle leaving urban core counties chose suburban counties as their destinations. Rural counties (figure 4f) experienced the most losses associated with young adult out-migration, losing 10–20 percent of residents between 20 and 29 years old in each decade. Exurban counties (figure 4d) also showed population loss associated with young adult out-migration, but they saw greater gains among people in their 30s and 40s and among children as compared to rural counties. These patterns suggest that, like suburban counties, families with children tended to choose exurban destinations.

Small-to-mid-sized metro counties (figure 4c) and small city counties (figure 4e) tended to see gains due to net migration at ages 15–24, as many of these counties were home to colleges, universities, or military bases. These kinds of institutions increase net migration at ages 15–24 as students or military recruits move in and decrease net migration at ages 25–34 as people leave after they graduate, are transferred, or discharged.

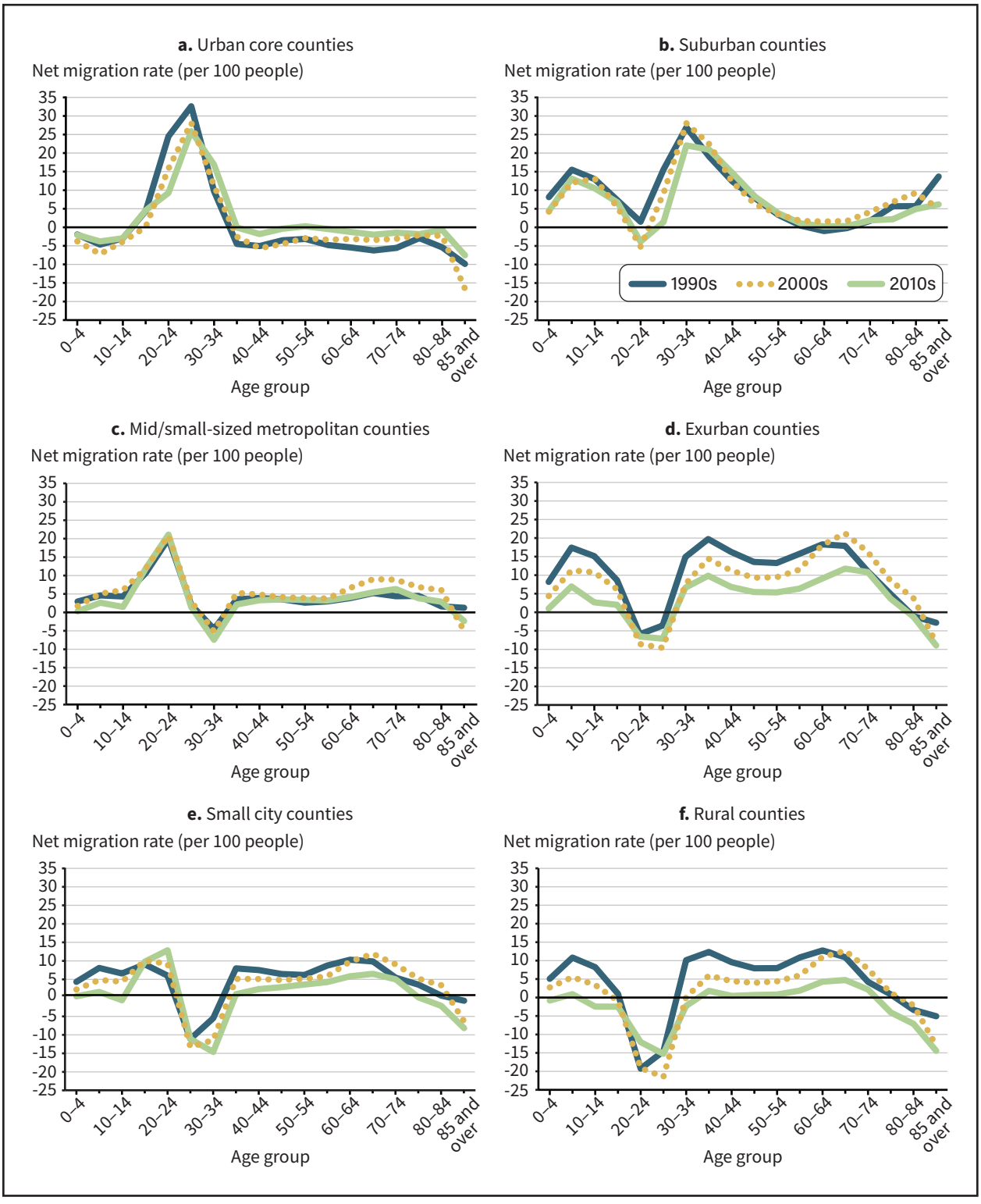
Exurban, small city, and rural counties saw gains due to net migration around retirement ages (ages 55–74). The rate of gain at these ages tended to be higher than for any other age group in the three nonmetro county types. Yet, at the oldest age group (75 and over) nonmetro counties tended to lose people to net migration, while suburban counties gained net migrants age 75 and over. Research suggests that people at the oldest ages move away from nonmetro areas to be nearer to family and to access services that promote healthy aging, including healthcare and transportation, which are more commonly available in urban and suburban areas (Berry & Kirschner, 2012; Glasgow & Brown, 2012).

Figure 4 indicates that much of the movements among different age groups are associated with the relative benefits and costs of certain types of communities for their stage in the life cycle. For example, young children and their parents tended to move out of major urban centers. Young adults moved into areas with universities and urban areas of high employment. Finally, those people later in life moved away from rural areas toward communities with more services. The findings suggest many patterns rely on long-existing, place-based institutions.

[12] To address the fact that many counties are different sizes, the numbers in figure 4 are weighted by population.

Figure 4

Net migration rates by age across a rural-urban continuum: 1990s, 2000s, and 2010s



Note: This figure shows the average number of net migrants per 100 residents by county grouping along a rural-urban continuum, weighted by population. The rural-urban continuum is based on an adapted version of the USDA, Economic Research Service's Rural Urban Continuum Codes, as described in this report. Age group represents age at the end of the decade.

Source: USDA, Economic Research Service using data from Egan-Robertson et al. (2024). *County-specific Net Migration by Age, Sex, Race, and Hispanic Origin, 2010–20.*

Migration did less to redistribute populations in the 2010s than in prior decades

Despite the general consistency in age-specific net migration, the peaks and valleys in migration rates tended to be flatter (closer to zero) in the 2010s than in the 1990s or 2000s. This is consistent with other research indicating that migration within the United States has slowed in recent years, especially since the Great Recession, and reached an historic low point in 2020 (Frey, 2023). It is also consistent with the results we present later in this report about the increased role of aging in place contributing to population aging in the 2010s. Although the role of migration was more limited in the most recent decade, the importance of aging in place increased as migration did less to redistribute populations than in previous decades.

The flatter migration pattern in the 2010s had three key implications for nonmetro counties. First, net migration rates among young adults (age 15–24) were closer to zero in the 2010s than in the 1990s or 2000s. This indicates that rural counties tended to lose fewer young adults on net than in years prior. Most rural counties saw less out-migration of young adults in the 2010s than in 1990s (57 percent) and 2000s (63 percent). This finding is consistent with findings from Frey (2023). Still, even though the rate of loss slowed, a majority of nonmetro counties (85 percent) had a negative net migration rate among young adults in the 2010s.

Second, nonmetro counties gained fewer prime working age people (age 25–54) than in prior decades, and at levels too low to make up for population loss due to young adult out-migration. Nonmetro counties could therefore expect increased workforce shortages, with fewer people of prime working age than might have been expected given previous trends. Third, the flatter migration pattern in the 2010s also meant that while counties continued to see a net gain of people around retirement ages, they gained fewer retirees than in prior decades. This indicates that counties that rely on attracting retirees as a development strategy may have seen fewer benefits associated with this pattern in the 2010s than in earlier decades. Moreover, among the oldest age groups (age 70 and over), rural counties experienced more net population loss in the 2010s than in previous decades, which may be related to diminishing rural health services and hospital closures (Dobis & Todd, 2022: Rupasingha & Cho, 2025). We examine these findings in more detail in the sections that follow.

Nonmetro counties attracted fewer retirement-age adults and lost prime working age adults due to migration in the 2010s

Though figure 4 demonstrates that nonmetro counties in the 1990s and 2000s lost younger people (below age 30) due to migration, they made up for the loss with migration gains at midlife (30s–50s). This balanced population change is important for economic development because labor force participation rates are highest among people age 25–54, and people at these ages make up a large segment of the workforce. Figure 5, however, demonstrates how this pattern reversed from 2000 to 2020. In the 1990s, all nonmetro county groups experienced a net gain at prime working ages due to migration (figure 5b), compensating for the net loss of young people who migrated out that decade. While exurban counties continued to gain population at prime working ages, small city and rural counties experienced migration losses at these ages during the 2000s and 2010s.

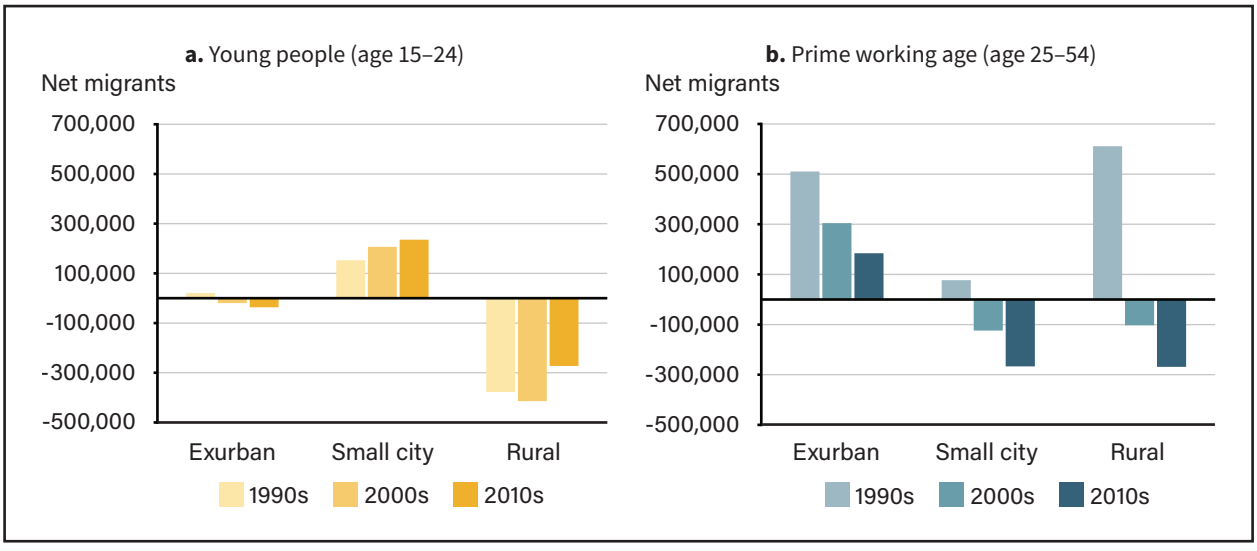
Altogether, in the 1990s nonmetro counties lost about 207,000 young people age 15–24 due to migration, but gained more than 1.13 million at prime work ages (age 25–54). In the 2000s, nonmetro counties gained fewer people in aggregate at prime working ages (19,000 net migrants), nowhere near enough to make up for the loss of young people (-211,000 net migrants). In the 2010s, despite less net loss of younger people to migration (about -63,000), they experienced a greater net loss at working ages (-383,000). Together, the migration trends have contributed to a substantial reduction in the workforce in nonmetro counties and to the low share of the nonmetro population at prime working

ages (figure 1). A further implication of the loss of young people can be felt in subsequent generations because the loss of young adults, who primarily produce the next generation of children, means fewer children and young adults in the future.

Since the 1960s, on the other hand, many nonmetro counties have experienced positive net migration among people ages 55–74, as many people begin to exit the labor force at these ages and choose nonmetro counties as a retirement destination (Cromartie & Nelson, 2009; Johnson et al., 2005; Johnson & Winkler, 2015). In fact, many nonmetro counties have relied on attracting retirees as a rural development strategy, looking to older newcomers as a source of new income, skills, social capital, and tax base (Reeder, 1998). The in-migration of older people has contributed to rural population aging in many communities (Fuguitt & Beale, 1993; Cromartie, 2020). Figure 4 demonstrates this pattern, with net migration near peaks around retirement years (age 55–74) in the nonmetro counties. These migration rates, however, were significantly lower in the 2010s.

A lower migration rate (per 100 residents at those ages) could be due to fewer net migrants (smaller numerator), more residents at those ages (larger denominator), or both. In this case, lower migration rates at retirement ages were a product of both patterns. In the 2010s, each of the three nonmetro categories gained fewer people due to migration at early retirement years (age 55–64) and traditional retirement years (age 65–74) than they had in prior decades (figure 6).[13] This marks a surprising change, because the large cohorts of the Baby Boomer generation advanced from ages 45–64 in 2010 to ages 55–74 in 2020. Prior studies predicted that Baby Boomers would increase retirement migration to the rural United States in the 2010s and 2020s (Cromartie & Nelson, 2006; Reeder, 1998). Despite the larger number of people at ages 55–74, this prediction did not come true. The finding of retirement migration rates closer to zero in the 2010s aligns with broader research highlighting recent slowdowns in migration across the United States and may be related to economic and housing market shifts associated with the Great Recession (Frey, 2023; Johnson et al., 2017).

Figure 5
Number of net migrants age 15–54 along a rural continuum: 1990s, 2000s, and 2010s

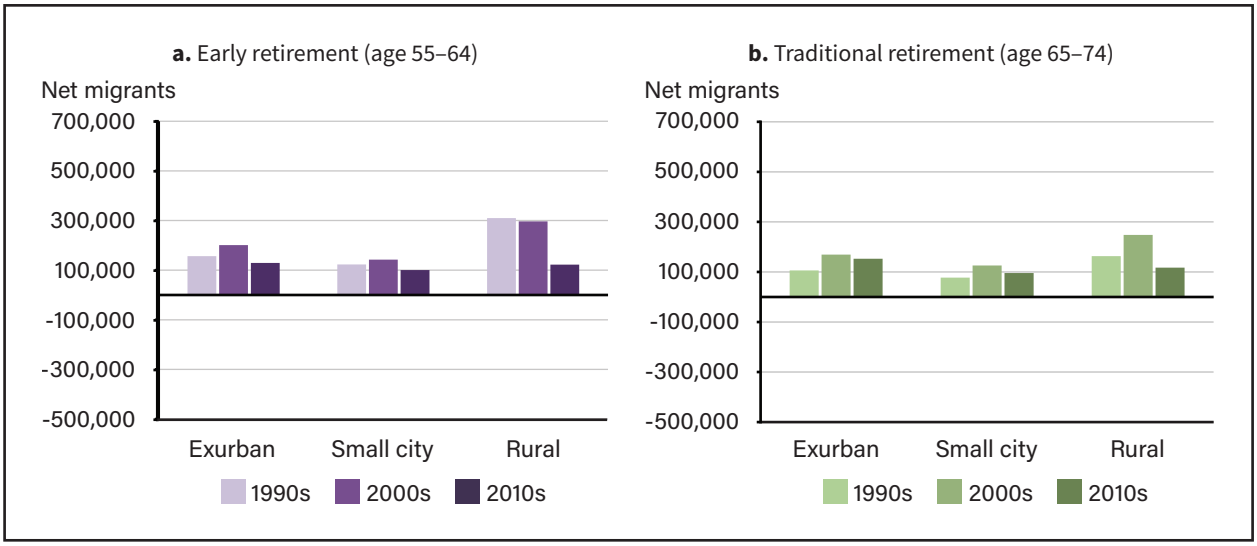


Note: This figure shows the total number of net migrants for key age groups summed by county grouping along a rural continuum. The rural continuum is based on an adapted version of the USDA, Economic Research Service's Rural Urban Continuum Codes, as described in this report. Age group represents age at the end of the decade.

Source: USDA, Economic Research Service using data from Egan-Robertson et al. (2024). *County-specific Net Migration by Age, Sex, Race, and Hispanic Origin, 2010–20.*

[13] This pattern holds both in the aggregate and looking at the number of counties. For example, 309 exurban counties experienced positive net migration among those aged 55–64 in the 2000s, compared to 234 in the 2010s.

Figure 6
Number of net migrants age 55–74 along a rural continuum: 1990s, 2000s, and 2010s



Note: This graphic shows the total number of net migrants for retirement age groups summed by county grouping along a rural continuum. The rural continuum is based on an adapted version of the USDA, Economic Research Service's Rural Urban Continuum Codes, as described in this report. Age group represents age at the end of the decade.

Source: USDA, Economic Research Service using data from Egan-Robertson et al. (2024). *County-specific Net Migration by Age, Sex, Race, and Hispanic Origin, 2010–20.*

Recreation and retirement destination counties saw more migration gain than other nonmetro types, but less so in the 2010s than decades prior

Among nonmetro counties, age-specific net migration varies considerably by economic type (figure 7). USDA, ERS' high industry concentration typology codes are based on counties' industrial structures, indicating counties with relatively high shares of total earnings or employment in farming, manufacturing, and recreation,[14] among other industries (USDA, ERS, 2025). USDA, ERS also publishes a set of demographic typology codes, which include retirement destination counties. Between 2010 and 2020, those counties saw a net gain of people between age 55 and 74 of at least 15 percent (USDA, ERS, 2025). There was considerable overlap in counties classified as recreation and retirement destinations. Of the 344 recreation counties, 139 were also classified as retirement destination counties, and similarly, more than half (139 of 230) of retirement destination counties were also recreation counties.[15]

Of the types we investigated, counties with high shares of farming (figure 7a) experienced the largest loss due to out-migration, losing approximately 30 percent of people age 15–29 each decade and seeing minimal net gains at most other ages. Such loss of young people would contribute to population aging in farming counties, but farming counties also experienced population loss due to out-migration at older ages, which reduced population aging. Since the 1990s, manufacturing counties (figure 7b) have had flatter net migration trajectories with less extreme gains and losses. This was

[14] Recreation counties are also defined, in part, based on the share of vacant housing units for seasonal or recreational use.

[15] The implications of using the most recent definition of retirement counties merits further discussion. If an earlier definition were used, there would be more retirement counties. Those that are no longer classified as retirement counties in the 2025 typology codes would have had lower older-age migration in the 2010s. Therefore, their inclusion would have led to higher net migration counts of older people during the 1990s and 2000s and relatively lower net migration during the 2010s. In other words, the gap between retirement-age migration in earlier decades and the 2010s would have been larger. The primary conclusion of this section, that migration to retirement communities has slowed, would only be amplified.

especially true in the 2010s when net migration rates were near zero across most ages in manufacturing counties, suggesting that migration would have little impact on the age structure.

Nonmetro recreation and retirement destination counties showed similar age-specific net migration trajectories to one another over the last three decades (figures 7c and 7d). Both types of counties experienced relatively small losses of young people (age 15–24) due to migration, but much greater gains at prime working ages and especially at late-career or early-retirement (age 55–64) and traditional retirement ages (age 65–74). As with the other types of counties examined in this report, net migration peaks and valleys were flatter in the 2010s than in decades prior. This dampening of migration suggests that in the most recent decade even those counties that continued to attract the greatest shares of retirement age populations did so at a slower rate.[16] [17]

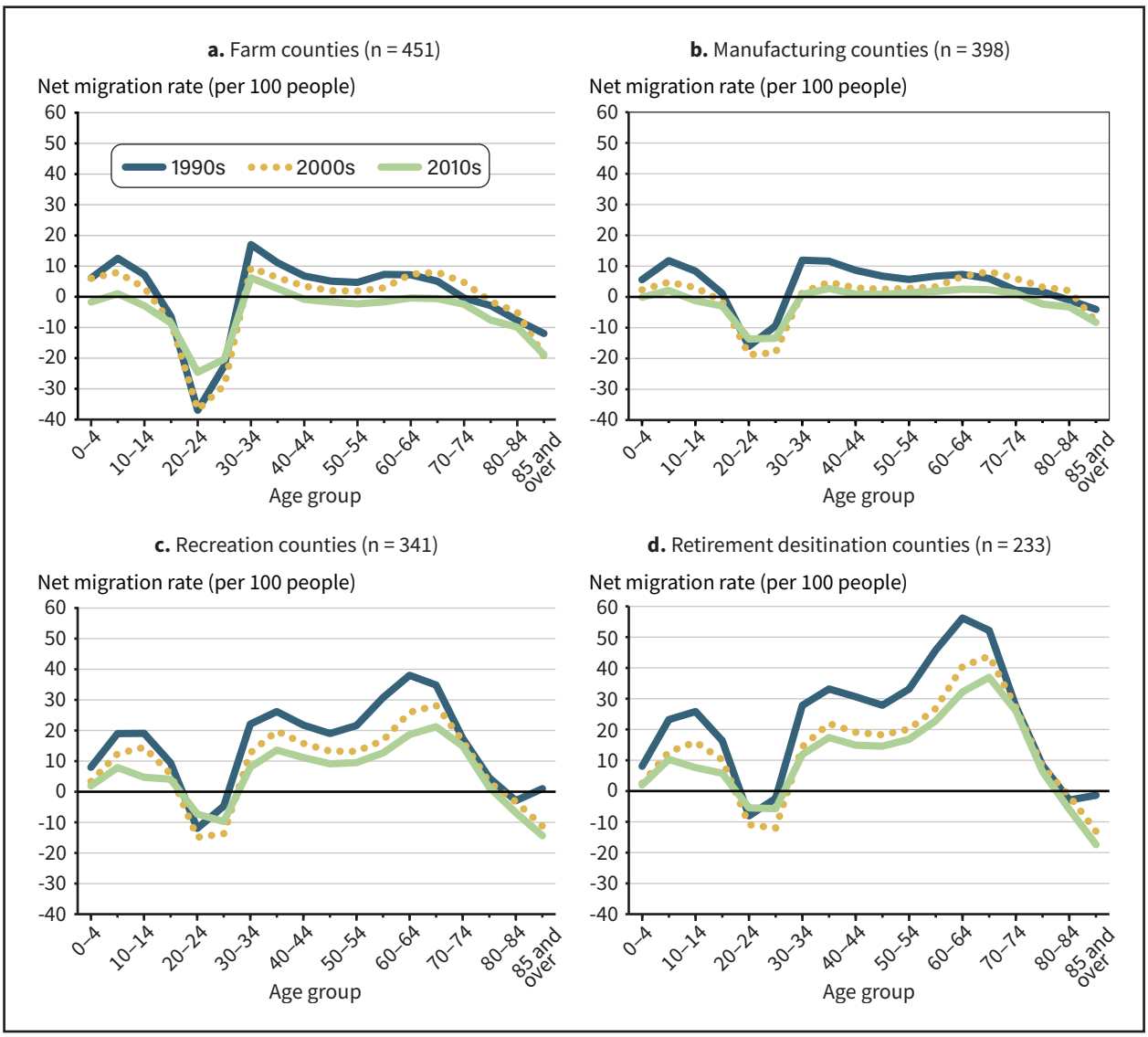
As previously discussed, a lower net migration rate could be the result of increased aging in place (denominator rising for the total population at ages 55–74) and/or a decrease in the number of net migrants at these ages (numerator decreasing). For recreation and retirement destination counties, it was because the number of net migrants age 55–74 increased modestly from the 2000s to the 2010s in both recreation (7,365 more net migrants in the 2010s compared to the 2000s) and retirement destination counties (55,857 more net migrants in the 2010s). Yet, aging in place increased much more (+649,087 residents in recreation counties and +410,301 residents in retirement destination counties) as the complete Baby Boomer cohort reached ages 56–74 between 2010 and 2020.

[16] Appendix figure C.2 shows migration patterns for the remaining county types. Government counties (many of which are home to public universities or military bases) experienced positive net migration among those aged 15–24 but negative net migration among other older, working-age populations. Mining and nonspecialized counties experienced the opposite pattern, though mining counties also saw negative net migration among every age group over 50 in the 2010s, reflecting in part the decline in coal-producing counties.

[17] As an additional robustness check, we recreated figure 7 using the 2015 economic typology codes. Results were qualitatively and quantitatively similar, with no noticeable differences.

Figure 7

Nonmetropolitan net migration rates by age and economic type: 1990s, 2000s, and 2010s



Note: This figure shows the average number of net migrants per 100 residents, weighted by population. It includes only counties in one of the three nonmetropolitan types (exurban, small city, and rural). Economic types were designated as of 2025 and are not exclusive (counties may belong to multiple economic types). Age group represents age at the end of the decade.

Source: USDA, Economic Research Service (ERS) using data from Egan-Robertson et al. (2024). *County-specific Net Migration by Age, Sex, Race, and Hispanic Origin, 2010–20* and USDA, ERS County Economic Typologies 2025.

Components of Population Aging: Migration and Aging in Place

Out-migration of younger people and in-migration of older people were important in the 1990s and 2000s, but aging in the 2010s was almost entirely driven by aging in place

In the 1990s, the number of older people living in nonmetro counties increased by 8.1 percent (table 1). About half of that increase was due to net migration (4.2 percent) and the other half was due to natural increase (or aging in place, 3.9 percent). In the 2000s and 2010s, the number of nonmetro older people increased much more than in the 1990s, by 14.1 percent and 27.5 percent, respectively.

In the 2000s, this increase was driven slightly more by aging in place (8.4 percent) than net migration (5.7 percent), meaning aging in place accounted for 60 percent of the older population growth. By the 2010s, 97 percent of the increase in the older population in nonmetro counties was due to aging in place (26.6 percentage point increase), with minimal older population growth due to migration (1.0 percent). The aging in place experienced in the 2000s and 2010s was partially the result of migration in prior decades where Baby Boomers moved toward nonmetro areas (Cromartie & Nelson, 2009), and by the 2010s they started to reach older ages. In contrast to earlier decades, migration in the 2010s decreased the number of older people in rural counties and aging in place more than made up for the loss. As discussed earlier, this finding may be associated with declining access to healthcare services in the most rural areas (Rupasingha & Cho, 2025).

Table 1

Components of change in the population age 65 and over by location along rural-urban continuum

	Population		Natural increase (NI)	Net migration (MIG)	Percent change	Components (percent)	
	Initial	Final				(NI)	(MIG)
1990–2000							
Metropolitan	23,487,680	26,372,486	2,971,644	-86,838	12.3	12.7	-0.4
Exurban	1,362,149	1,553,393	77,781	113,463	14.0	5.7	8.3
Small cities	2,067,843	2,268,113	114,642	85,628	9.7	5.5	4.1
Rural	4,171,041	4,393,441	103,944	118,456	5.3	2.5	2.8
Total nonmetropolitan	**7,601,033**	**8,214,947**	**296,367**	**317,547**	**8.1**	**3.9**	**4.2**
2000–2010							
Metropolitan	26,293,392	30,740,708	4,134,844	312,472	16.9	15.7	1.2
Exurban	1,536,563	1,884,300	162,929	184,808	22.6	10.6	12.0
Small cities	2,251,655	2,575,417	194,601	129,161	14.4	8.6	5.7
Rural	4,315,047	4,785,314	319,394	150,874	10.9	7.4	3.5
Total nonmetropolitan	**8,103,264**	**9,245,031**	**676,924**	**464,843**	**14.1**	**8.4**	**5.7**
2010–2020							
Metropolitan	30,495,718	42,815,348	11,894,915	424,715	40.4	39.0	1.4
Exurban	1,872,123	2,547,050	536,061	138,865	36.1	28.6	7.4
Small cities	2,558,459	3,334,911	733,033	43,419	30.3	28.7	1.7
Rural	4,756,247	5,832,923	1,171,586	-94,909	22.6	24.6	-2.0
Total nonmetropolitan	**9,186,829**	**11,714,884**	**2,440,680**	**87,375**	**27.5**	**26.6**	**1.0**

Note: This table shows the results of comparing expected populations age 65 and over at the end of the decade under conditions of zero age-specific net migration to observed Census populations at the end of the decade. Initial and final population numbers were adjusted for under/over enumeration each decade by the teams of demographers who constructed the data available in the Net Migration Patterns of U.S. Counties datasets (Egan-Robertson et al., 2024). Because decadal migration datasets were published at different times with the data available at the time of publication, over- or under-counts of population in the Census may not be corrected in earlier years. Thus, final population numbers from one decade do not exactly match initial population numbers for the next decade. The rural continuum is based on an adapted version of the USDA, Economic Research Service's Rural Urban Continuum Codes, as described in this report.

Source: USDA, Economic Research Service using data from Egan-Robertson et al. (2024). *County-specific Net Migration by Age, Sex, Race, and Hispanic Origin, 2010–20.*

Another way to describe population aging is by examining the size of the older population relative to the total population. In table 2, we examine the share of the total population age 65 and older and how this changed over time due to net migration of older people compared to net migration of younger people (under age 65) and due to natural population changes (births, deaths, and aging in place). Aging in place concerns the age structure of the population and the fact that people grow older each year.

Between 1990 and 2000 there was virtually no change in the share of the population over age 65. Aging in place and net positive migration of older people contributed to aging in the nonmetro counties in the 1990s, but these changes were offset by births keeping the population younger and by net positive migration among younger people (especially the Baby Boomer generation). Between 2000 and 2010, the population share over age 65 increased by about 1 percentage point for each of the nonmetro county classes. Aging in place was an important contributor. Births slowed in the 2000s, especially in rural counties, offsetting aging less than before. Positive net migration of people under age 65 helped to offset aging in metro, exurban, and small city counties but was nearly net zero in rural counties.

Between 2010 and 2020, the share of the population over age 65 increased by about 4 percentage points for both metro and nonmetro county classes, almost entirely due to aging in place. Net migration of younger people into metro and exurban counties helped to reduce aging, but it was not nearly enough to offset aging in place. Migration out of rural counties among younger people (under age 65) further contributed to aging. In each of the nonmetro county classes, the number of births did not replace the number of people aging into the older age category. The dominant influence was aging in place associated with the Baby Boomer generation reaching age 65 and older.

Table 2
Components of relative change in the older population according to location along a rural-urban continuum

	Initial	Final	Difference	Natural increase (NI) (65+)	Net migration (MIG) (65+)	NI (<65)	MIG (<65)
1990–2000							
Metropolitan	11.70	11.71	0.01	1.23	-0.04	-0.67	-0.51
Exurban	14.20	14.08	-0.12	0.65	0.95	-0.39	-1.33
Small cities	13.66	13.85	0.19	0.63	0.47	-0.44	-0.47
Rural	15.20	15.04	-0.16	0.31	0.36	-0.29	-0.53
2000–10							
Metropolitan	11.62	12.23	0.61	1.53	0.12	-0.58	-0.45
Exurban	14.01	15.49	1.47	1.20	1.36	-0.23	-0.86
Small cities	13.77	14.84	1.07	0.99	0.66	-0.30	-0.28
Rural	15.22	16.55	1.33	0.94	0.44	-0.06	0.01
2010–20							
Metropolitan	12.17	15.69	3.52	3.91	0.14	0.00	-0.54
Exurban	15.41	20.01	4.60	3.55	0.92	0.64	-0.50
Small cities	14.77	18.90	4.14	3.49	0.21	0.50	-0.06
Rural	16.47	20.65	4.18	3.34	-0.27	0.80	0.30

Note: This figure shows the share of the total population who were age 65 and older and percentage point differences in that share by component of the change. The four components represent part of the change in population growth over the decade and sum to the values in the Difference column. Initial and final population numbers were adjusted for under/over enumeration each decade by the teams of demographers who constructed the data available in the *Net Migration Patterns of U.S. Counties* datasets (Egan-Robertson et al., 2024). Because decadal migration datasets were published at different times with the data available at the time of publication, over- or under-counts of population in the Census may not be corrected in earlier years. Thus, final population numbers from one decade do not exactly match initial population numbers for the next decade. The rural continuum is based on an adapted version of the USDA, Economic Research Service's Rural Urban Continuum Codes, as described in this report.

Source: USDA, Economic Research Service using data from Egan-Robertson et al. (2024). *County-specific Net Migration by Age, Sex, Race, and Hispanic Origin, 2010–20.*

Tables 1 and 2 show changes by two broad age categories, under or over age 65. Yet, migration and aging in place both vary by more nuanced age groups. These patterns are discussed in appendix B and demonstrated in figure B.1. Among other patterns, they show a decrease in prime-aged populations in nonmetro counties.

In sum, the share of older people in nonmetro populations is increasing both because of an increase in the number of older people and because of a decrease in the number of prime working-age people. This combination of gains at older ages and losses among working ages poses challenges for nonmetro counties to develop and meet service needs, including healthcare. In the 1990s and 2000s, migration of older people into nonmetro counties was an important contributor to aging. By the 2010s, however, there were only 43 counties (mostly in Florida) where migration of older people was the greatest driver. Aging in place was the greatest demographic driver of aging in 91 percent of nonmetro counties. Older people moving into rural counties tend to bring outside resources with them (Brown et al., 2008), especially those migrating from urban areas who tend to have higher incomes than those in rural areas (Glasgow & Brown, 2012). This suggests that people aging in place may make different contributions to rural communities and have different service needs than older newcomers.

Migration's contribution to population aging depends on county economic type

The extent to which migration contributed to aging varied significantly across nonmetro USDA, ERS county types. In each of the last three decades, more people age 65 and over moved away from farming counties than in, but the overall population of older people in these counties changed little in the 1990s and 2000s before increasing in the 2010s due to aging in place (table 3). Counties with high shares of manufacturing experienced population aging in each decade, especially in the 2010s, primarily due to aging in place. While net migration contributed to growth in the older population in manufacturing counties in the 1990s and 2000s, more older people moved away from these counties than moved in during the 2010s.

By contrast, recreation and retirement counties consistently experienced faster growth in the population over age 65. In the 1990s, growth was primarily due to net migration of older people into both recreation and retirement destination counties. In the 2000s, older population growth was primarily due to migration in retirement destination counties and more aging in place in recreation counties. In the 2010s, population aging in recreation counties was primarily due to aging in place, but in retirement destinations population aging was due to a more balanced mix of aging in place and migration.[18]

[18] Mining, government, and nonspecialized counties similarly experienced a dramatic growth in the population 65 and over due to increased aging. Nonspecialized counties, however, were the only ones to additionally experience positive net migration in all three decades. However, this rate of migration fell dramatically in the 2010s, such that migration accounted for 0.3 of the 24.8 percent increase in the older population (appendix table C.1).

Table 3

Components of change in the population age 65 and over for nonmetropolitan counties by economic type

	Population		Natural increase (NI)	Net migration (MIG)	Percent change	Components (percent)	
	Initial	Final				(NI)	(MIG)
1990–2000							
Farm	577,230	553,644	-8,531	-15,055	-4.1	-1.5	-2.6
Manufacturing	1,466,044	1,540,686	48,482	26,160	5.1	3.3	1.8
Recreation	1,247,673	1,512,128	83,823	180,632	21.2	6.7	14.5
Retirement destination	893,478	1,118,463	37,309	187,676	25.2	4.2	21.0
Total nonmetropolitan	**7,601,033**	**8,214,947**	**296,367**	**317,547**	**8.1**	**3.9**	**4.2**
2000–2010							
Farm	552,790	557,686	13,135	-8,239	0.9	2.4	-1.5
Manufacturing	1,539,272	1,719,672	122,705	57,695	11.7	8.0	3.7
Recreation	1,508,660	1,903,159	219,637	174,862	26.1	14.6	11.6
Retirement destination	1,111,882	1,445,290	121,437	211,971	30.0	10.9	19.1
Total nonmetropolitan	**8,103,264**	**9,245,031**	**676,924**	**464,843**	**14.1**	**8.4**	**5.7**
2010–2020							
Farm	554,858	622,535	110,055	-42,378	12.2	19.8	-7.6
Manufacturing	1,709,058	2,123,813	433,043	-18,288	24.3	25.3	-1.1
Recreation	1,892,970	2,680,076	601,412	185,694	41.6	31.8	9.8
Retirement destination	1,436,350	2,016,091	327,311	252,430	40.4	22.8	17.6
Total nonmetropolitan	**9,186,829**	**11,714,884**	**2,440,680**	**87,375**	**27.5**	**26.6**	**1.0**

Note: The table shows the results of comparing expected populations age 65 and over at the end of the decade under conditions of zero age-specific net migration to observed Census populations at the end of the decade. Initial and final population numbers were adjusted for under/over enumeration each decade by the teams of demographers who constructed data available in the *Net Migration Patterns of U.S. Counties* datasets (Egan-Robertson et al., 2024). Because decadal migration datasets were published at different times with the data available at the time of publication, over- or under-counts of population in the Census may not be corrected in earlier years. Thus, final population numbers from one decade do not exactly match initial population numbers for the next decade. Only includes nonmetropolitan counties, as classified in this report.

Source: USDA, Economic Research Service (ERS) using data from Egan-Robertson et al. (2024). *County-specific Net Migration by Age, Sex, Race, and Hispanic Origin, 2010–20* and USDA, ERS County Economic Typologies 2025.

Both nonmetro farming and manufacturing counties saw a decrease in the share of the older population during the 1990s, before increasing modestly during the 2000s (table 4). This is because aging in place was at least partially offset by older people moving away from these counties. By the 2010s, however, both experienced a significant increase in the older population share (3.16 percent increase for farming and 3.77 percent for manufacturing). Despite the continued outward migration of older people in the 2010s, it was not enough to compensate for aging in place. For manufacturing counties, this was due in part to the aging of Baby Boomers who had moved to these counties in previous decades.

Table 4

Components of relative change in the older population for nonmetropolitan counties by economic type (percent)

	Initial	Final	Difference	Natural increase (NI) (65+)	Net migration (MIG) (65+)	NI (<65)	MIG (<65)
1990–2000							
Farm	18.03	17.23	-0.80	-0.22	-0.39	-0.17	-0.02
Manufacturing	14.45	14.11	-0.34	0.39	0.21	-0.42	-0.53
Recreation	15.80	16.21	0.42	0.82	1.77	-0.15	-2.02
Retirement destination	17.84	18.07	0.23	0.55	2.76	-0.01	-3.07
2000–2010							
Farm	17.15	17.67	0.52	0.34	-0.21	-0.08	0.48
Manufacturing	14.04	15.21	1.18	0.94	0.44	-0.29	0.08
Recreation	16.17	18.45	2.28	1.85	1.47	0.21	-1.25
Retirement destination	18.00	20.46	2.47	1.48	2.59	0.34	-1.95
2010–2020							
Farm	17.59	20.75	3.16	2.90	-1.12	0.63	0.75
Manufacturing	15.13	18.90	3.77	3.18	-0.13	0.48	0.22
Recreation	18.34	24.61	6.27	4.45	1.38	1.47	-1.04
Retirement destination	20.37	26.09	5.72	3.40	2.62	1.55	-1.85

Note: This figure shows the share of the total population who were age 65 and older and percentage point differences in that share by component of the change. The four components represent part of the change in population growth over the decade and sum to the values in the Difference column. Initial and final population numbers were adjusted for under/over enumeration each decade by the teams of demographers who constructed data available in the *Net Migration Patterns of U.S. Counties* datasets (Egan-Robertson et al., 2024). Because decadal migration datasets were published at different times with the data available at the time of publication, over- or under-counts of population in the Census may not be corrected in earlier years. Thus, final population numbers from one decade do not exactly match initial population numbers for the next decade.

Source: USDA, Economic Research Service (ERS) using data from Egan-Robertson et al. (2024). *County-specific Net Migration by Age, Sex, Race, and Hispanic Origin, 2010–20* and USDA, ERS County Economic Typologies 2025.

In nonmetro recreation and retirement destination counties, both natural increase (a large number of people aging into the older group) and migration of older people contributed to population aging in all three decades. However, this growth shifted from primarily being due to migration of older people in the 1990s toward aging in place in the 2010s. Natural change of younger people further contributed to population aging in these counties, as births did not counter balance the number of people who entered the older age group. The importance of aging in place in the 2010s in both county types is related to the relatively large number of Baby Boomers who moved into these counties in the 1990s and were reaching age 65.

Recreation and retirement destination counties would have experienced more population aging had it not been for positive net migration of younger people, which almost balanced the migration of older people in the earlier decades. In the 2010s, migration of younger people was not large enough to completely offset migration of older people. For example, in retirement destination counties, migration of older people increased the older share of the population by 2.6 percentage points, while migration of younger people decreased the share of the older population by 1.9 percentage points, increasing the share of older people in the population by 0.7 percentage points.[19]

[19] Mining, government, and nonspecialized counties saw their share of the older population driven by aging in place rise significantly during the 2010s (appendix table C.2). However, both the natural decline and out-migration of younger populations played a role in population aging, the opposite of the previous decades.

Appendix figure B.2 demonstrates that, like with the different rural and urban classifications, there are more nuanced differences in migration and natural change among the different economic typologies. These differences are discussed in more detail in appendix B, including notable differences between younger and older retirees.

Relationships between population aging and community and economic wellbeing in nonmetro counties

Finally, we examined nonmetro counties according to the demographic components that were driving population aging (table 5) and explored relationships between these drivers and measures of economic and community wellbeing. We defined counties as aging (experiencing population aging) if they experienced at least a 1-percentage point increase in the share of the population over age 65 during the decade. In the 1990s, most nonmetro counties (80 percent) experienced little to no population aging. In the 2000s, 58 percent of nonmetro counties were aging, and by the 2010s almost all nonmetro counties (95 percent) were aging (table 5).

Using the methodology from tables 2 and 4 to distinguish counties aging for different reasons, we defined counties where at least 25 percent[20] of the increase in the share of the population age 65 and over during the decade was attributed to positive migration among older people (aging due to net migration gain among older people) or to negative migration among younger people (aging due to net migration loss among younger people) (table 5). Of the counties that were aging in the 1990s, nearly half (46 percent) were aging because of net migration gains among older people, and another 41 percent were aging because of out-migration of younger people. Of the counties that were aging in the 2000s, 649 counties (49 percent) aged due to net migration gain among older people and 337 counties (25 percent) aged due to net migration loss among younger people. In the 2010s, aging was primarily driven by natural change, which was the major driver of aging in 1,495 (69 percent) of the 2,181 aging nonmetro counties. In the 2010s, 484 counties (22 percent of aging counties) experienced substantial aging because of out-migration of younger people, and only 202 counties (9 percent of aging counties) aged substantially because of in-migration of older people.

Table 5
Distribution of nonmetropolitan counties aging for different reasons, by decade

Nonmetropolitan counties	2010s	2000s	1990s
Total	**2,307**	**2,304**	**2,300**
Not aging	126	963	1,862
Aging due to natural change	1,495	350	59
Aging due to net migration loss of younger people	484	337	189
Aging due to net migration gain of older people	202	654	190

Note: Counties that were not aging experienced less than 1-percentage point growth in the share of the population age 65 and older during the decade. Counties aging due to a net migration gain of older people were those where net migration of older people accounted for at least 25 percent of the growth in the population age 65 and over during the decade. Counties aging due to a net migration loss of younger people were those that were not classified as aging due to net migration gain of older people and where net migration of younger people accounted for at least 25 percent of the growth in the population age 65 and over during the decade. Counties aging due to natural change were the remaining aging counties, where natural change was the greatest contributor to aging.

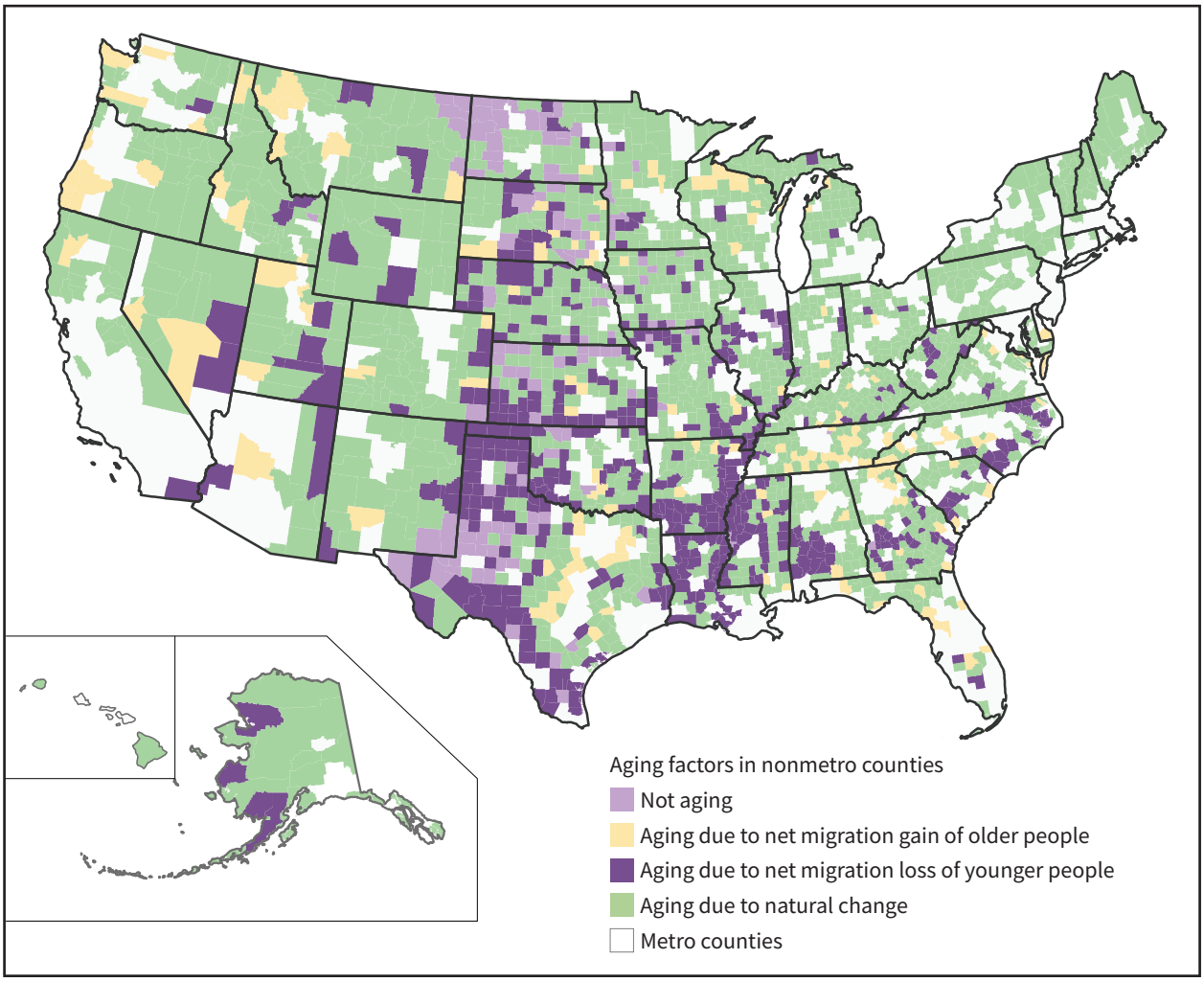
Source: USDA, Economic Research Service using data from Egan-Robertson et al. (2024). *County-specific Net Migration by Age, Sex, Race, and Hispanic Origin, 2010–20*.

The large number of nonmetro counties aging due to natural change during the 2010s were found in all regions of the country and concentrated in the Northeast and West (figure 8, green shade). Some counties with aging due to out-migration of younger cohorts (dark purple shade) can be found in

[20] This definition represented approximately 10 percent of aging counties.

sparsely settled farming regions such as across the Great Plains States, including Texas, Oklahoma, Kansas, and Nebraska, as well as in the Corn Belt States of Illinois, Missouri, and Iowa. These areas have experienced net out-migration of young adults for decades. Other counties in this category were concentrated in regions with relatively high poverty rates, including the Southeast Coastal Plains, the lower Mississippi River Valley, the Rio Grande Valley, and parts of Appalachia and the Ozarks. The much smaller number of nonmetro counties that aged due to net migration gain of older people (yellow shade) are clustered in scenic regions with tourist and recreation economies, such as the southern Appalachians, northern Wisconsin, the Hill Country of Texas, the northern Rockies, and the Pacific Coast. Most of these counties have high concentrations of second homes and have served as primary retirement destinations for decades.

Figure 8
Aging nonmetropolitan counties by primary aging factor, 2010–20



Note: Counties that were not aging experienced less than 1-percentage point growth in the share of the population age 65 and older during the decade. Counties aging due to net migration gain of older people were those where net migration of older people accounted for at least 25 percent of the growth in the population age 65 and over during the decade. Counties aging due to net migration loss of younger people were those that were not classified as aging due to net migration gain of older people and where net migration of younger people accounted for at least 25 percent of the growth in the population age 65 and over during the decade. Counties aging due to natural change were the remaining aging counties, where natural change was the greatest contributor to aging. The metropolitan-nonmetropolitan delineation used here is based on the modified rural-urban continuum described in the box "Defining a Rural-Urban Continuum". Urban core, suburban, and mid/small sized metropolitan categories are classified here as metropolitan. Exurban, small city, and rural are classified as nonmetropolitan.

Source: USDA, Economic Research Service using data from Egan-Robertson et al. (2024). *County-specific Net Migration by Age, Sex, Race, and Hispanic Origin, 2010–20.*

Nonmetro counties that were aging in the 2010s generally fared worse on measures of employment, income, and affordable housing than nonmetro counties that were not aging

Nonmetro counties that were not aging in the 2010s fared better on economic outcomes than nonmetro aging counties (figure 9). Aging counties had significantly lower labor force[21] participation rates (measured as higher labor force non-participation),[22] higher unemployment rates, and higher shares of households experiencing housing cost burden (spending 30 percent or more of their income on housing). The rate of low-to-moderate income households was not statistically different among counties that were aging and not aging, regardless of whether they were aging due to net migration gains among older people or to natural change.

Counties aging due to out-migration of younger people were associated with lower incomes and employment

Counties that were aging primarily due to out-migration of younger people fared worse on economic measures. These counties had higher unemployment rates, higher shares of low-to-moderate income households, and higher labor force non-participation rates than counties aging due to other factors. Each of these differences was statistically significant, except for the comparison with counties that were aging due to in-migration of older people, which showed no significant difference on labor force participation rate. One particularly stark difference is in the share of low-to-moderate income households, reaching 43 percent among those aging due to outmigration of younger people, while no other group is above 36 percent. Results were mixed regarding housing cost burden. Counties aging because of net migration loss among younger people showed higher housing cost burden than counties not aging, but lower housing cost burden than counties aging due to in-migration of older people or due to natural change. This is likely because outmigration kept demand for housing lower.

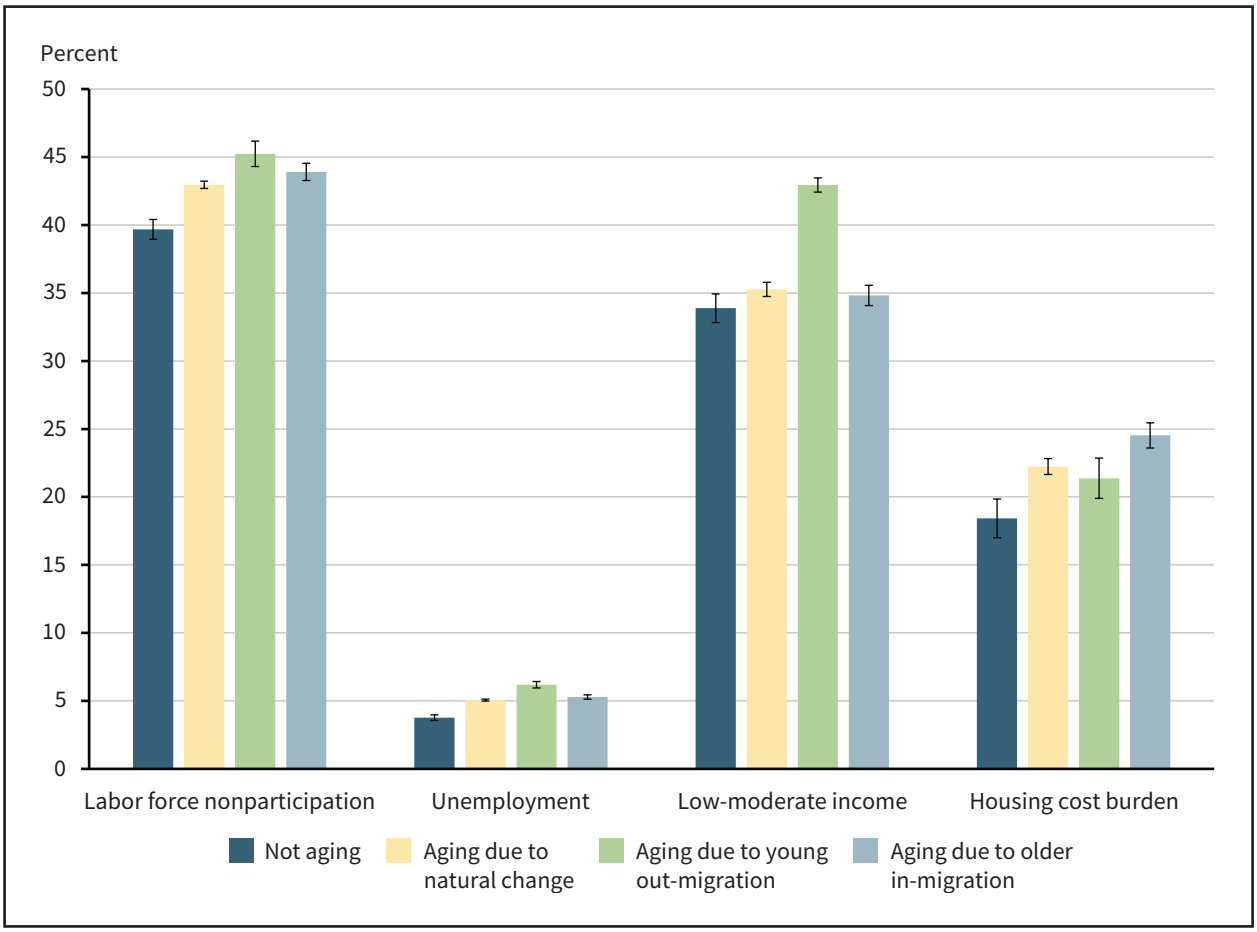
Combined, these results indicate a correlation between economic indicators and nonmetro population aging (and the factors most contributing to aging). This analysis cannot speak to whether aging (or factors contributing to aging) is causing economic impacts or if economic conditions are causing population aging via out-migration of younger people. Most likely, the relationship is bi-directional. The results suggest that young people may move away from counties with poor economic conditions (McGranahan et al., 2010; Niccolai et al., 2022), and/or that the counties where young people tend to leave face economic development and labor force challenges (McGranahan et al., 2010; Carr & Kefalas, 2009).

[21] The labor force participation rate is the number of people in the labor force as a percentage of the civilian noninstitutional population. The participation rate is the percentage of the population that is either working or actively looking for work (U.S. Federal Reserve Bank of St. Louis, 2025).

[22] The labor force non-participation rate indicates the percentage of the population that is not actively working or looking for work. This estimate includes the retirement-age population in the numerator, in contrast to the labor force participation rate. However, some retirees may be considered institutionalized if they are in facilities such as skilled nursing homes, and this subset of people would be excluded from both the numerator and denominator.

Figure 9

Comparing means for socio-economic indicators in counties that are aging for different reasons



Note: This figure shows mean values for labor force nonparticipation rates, unemployment rates, rate of low-to-moderate income households, and rate of housing cost burden among all households. Standard error bars are shown.

Source: USDA, Economic Research Service using data from the American Community Survey, 5-year estimates, 2016–20 (U.S. Department of Commerce, Bureau of the Census, 2022) and Egan-Robertson et al. (2024). *County-specific Net Migration by Age, Sex, Race, and Hispanic Origin, 2010–20.*

Counties aging due to net migration gains among older people were associated with less affordable housing

Counties where aging is primarily happening due to net migration gains of older age residents fared similarly to other aging counties in terms of labor force participation, unemployment, and low-to-moderate income populations. However, people living in these counties tended to spend more of their income on housing (24.5 percent cost burden) than people living in nonmetro counties that were aging due to other factors (22.2 percent or lower, figure 9). Counties where net migration gains among older adults contributed substantially to aging also had significantly higher median housing values on average (more than $185,000) than nonmetro counties not aging ($108,000), or counties aging due to out-migration of young people ($96,000) or natural change ($145,000). This pattern suggests that migration among older people may contribute to higher housing costs in these nonmetro counties, which are not accompanied by higher wages. This is especially true for retirement and recreation areas, where housing costs can be particularly high.

Counties aging because of out-migration of younger people fared worse on health measures

Examining health indicators shows how wellbeing varies across nonmetro counties in relation to population aging and drivers of aging. We examined health outcomes by looking at years of life lost due to premature death (deaths occurring before age 75; figure 10a) and self-reports of poor or fair health (figure 10b) (County Health Rankings and Roadmaps, 2025). We examined healthcare availability by describing the share of the population with adequate access to locations for physical activity (figure 10c) and ratios of the population to the number of primary care physicians, dentists, and mental healthcare providers (figure 10d). Results show that nonmetro counties that were aging in the 2010s due to out-migration of younger people fared significantly worse on each of these health measures than other nonmetro counties.

Despite a clear relationship, we cannot say from this analysis whether out-migration of younger people causes worse health outcomes and lower availability of healthcare services in nonmetro communities. Because migration tends to be selective by health, it may be that healthier people in these communities are more likely to move away, thereby leaving behind people with poorer health. It may also be that communities where many younger people leave have less economic incentive to invest in health services, that out-migration contributes to a general lack of optimism or social connections which have been shown to be related to health (Holt-Lunstad, 2022), and/or that these health measures are more directly related to the previously discussed economic conditions than to the out-migration of young adults. Some youth-loss counties may have too low a population to sustain specialized medical care, increasing healthcare challenges.

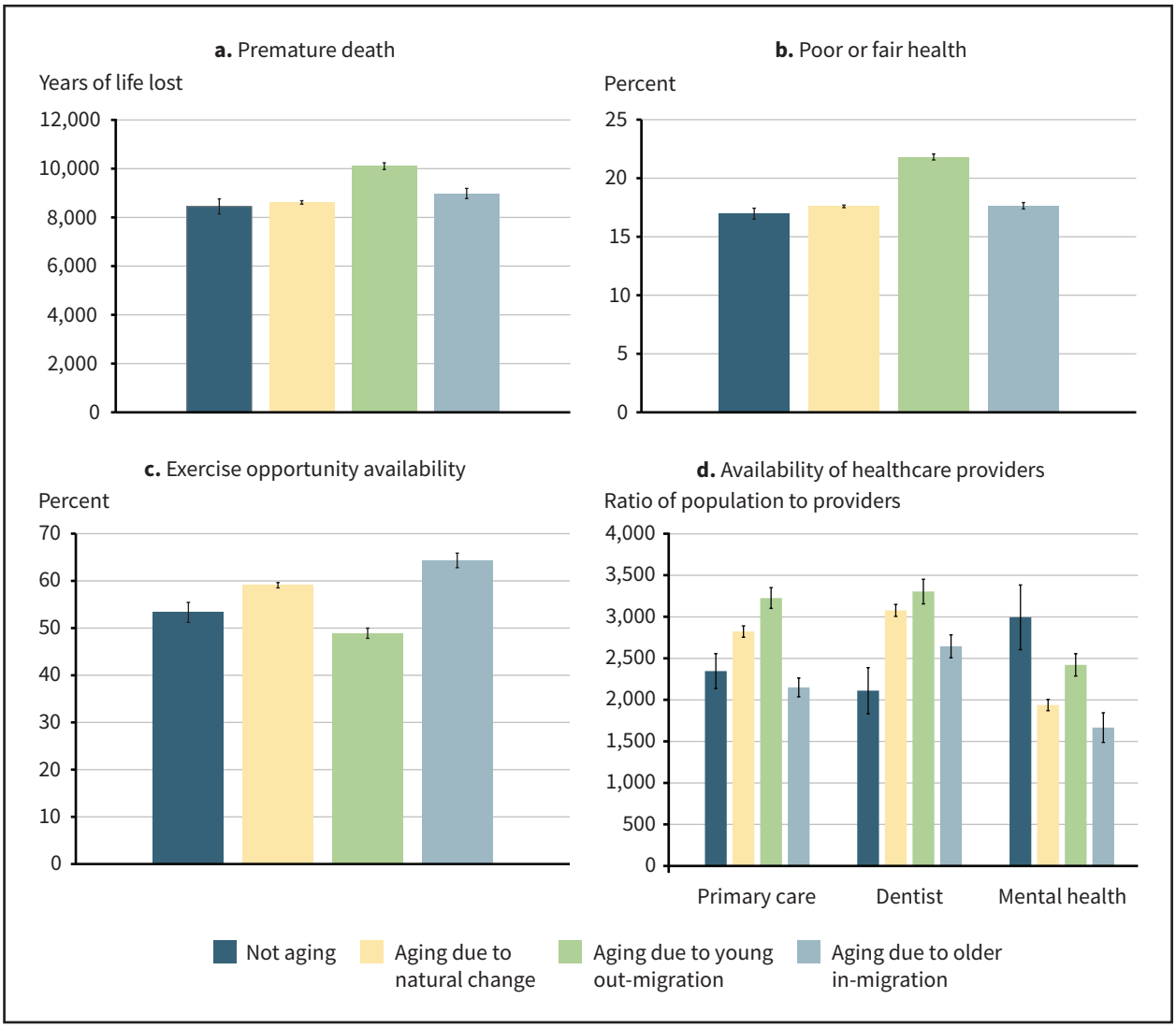
Counties aging due to in-migration of older people fared significantly better than other nonmetro counties with availability of exercise opportunities (figure 10c) and had significantly better availability of primary care physicians and mental healthcare providers (figure 10d). These findings suggest a relationship between the availability of healthcare services and retirement migration. It may be that communities with better healthcare availability attract more retirees and/or that communities that attract more retirees have greater incentive to invest in healthcare services. However, the rates of premature death and those with poor or fair health show little differences from those in counties not aging or those aging due to natural change.

Some caution should also be exercised when interpreting these results for several reasons. First, poor health is subjective and self-reported, rather than primary data (e.g., biometric measures, health records) and may also be correlated with age. However, the measures of poor health are age adjusted such that counties with older populations, who are predisposed to poor health, are not driven solely by the age profile. This adjustment can be seen, in part, through the differences between the types of aging counties. If the findings were driven by the age profile alone, one would expect the three aging categories to report similar health and the non-aging category to report a different measure. That one of the aging categories has a higher reported rate of poor or fair health and the other three categories have similar measures suggest it is not just the age profile of these counties driving the differences.

Second, the measures come from surveys, with survey weighting allowing for county estimates. Given many counties have small populations, they may be subject to higher error rates. That said, that patterns are relatively consistent across different measures suggests some consistency in the data reported. Furthermore, family-wise error bars across different tests within the same data set (which are also broadly larger for the self-reported health quality measure) should help account for biases that exist because of the data. They will also help avoid putting too much weight on any one county. Future research may enhance analysis of these relationships in a way that addresses small county sample sizes and self-reported data challenges.

Figure 10

Association between factors driving aging, health outcomes, and available health services



OM = out-migration; IM = in-migration.

Note: This figure shows mean values within each category. Standard error bars are shown. Years of potential life lost calculates years lost due to death before age 75 per 100,000 population (age-adjusted). Percentage of adults reporting fair or poor health is similarly age adjusted. Exercise opportunity availability is the percentage of population with available locations for physical activity. Availability of healthcare providers provides the ratio of population to primary care physicians, dentists, and mental health providers.

Source: USDA, Economic Research Service using data from County Health Rankings (2020) and Egan-Robertson et al. (2024). *County-specific Net Migration by Age, Sex, Race, and Hispanic Origin, 2010–20.*

Discussion and Conclusion

Populations in nonmetro counties are considerably older than populations in metro counties, mostly because of decades of age-specific net migration patterns that have redistributed younger people to more urban places and older people to more rural places. Still, the extent to which migration has contributed to nonmetro county aging has varied over time. Out-migration of younger people and in-migration of older people were important in the 1990s and 2000s. Yet aging in the 2010s was almost entirely driven by aging in place as the Baby Boomer generation reached older ages. In the 2010s, migration slowed across all age groups, and aging in place was the greatest demographic driver of aging in 91 percent of nonmetro counties. Migration trends from earlier decades contributed to the age structure of nonmetro populations in the 2010s, setting up more rural areas for more recent aging in place. These forces combined to push nonmetro counties to higher than ever shares of rural populations over age 65 and to further widen the age gap between rural and urban areas of the United States.

Nonmetro population aging and the demographic components contributing to it are associated with indicators of economic and health wellbeing. Knowledge about migration trends and their associations with economic and health trends can inform decisions about the provisioning of services and future scenario planning for community and economic development opportunities or challenges. While older population age structures pose some challenges for meeting service needs and workforce development, older populations also contribute to nonmetro communities in important economic, social, and cultural ways. The trends examined in this report point to the importance of planning for healthy aging in rural communities and draw attention to the nuanced ways in which age structures are changing to best support diverse and emerging community needs.

Nonmetro counties with small cities remain significantly younger than more rural counties and tend to attract younger newcomers. Exurban counties tend to attract prime working age adults, which helps to grow the workforce and provides some support for the relatively large number of residents who are aging in place. Maintaining a large enough workforce to support a healthy aging population could become a common concern for many other nonmetro counties. While many nonmetro counties attracted prime working age people in the 1990s and 2000s, many lost people at prime working ages in the 2010s due to both migration and natural changes in the population age structure, contributing to a diminished workforce. This was especially true in the most rural counties.

The findings in this report suggest that counties aging due to in-migration of older people may face housing affordability challenges and, at the same time, may have growing economic opportunities in the healthcare sector. Key to this potential scenario is the ability to attract a strong workforce. Attracting retirees has been an economic development strategy for many communities over the past several decades. Certainly, recreation and retirement destination counties saw more migration gain at most ages than other nonmetro counties in the 1990s, 2000s, and 2010s. However, nonmetro counties attracted fewer retirement-aged adults in the 2010s, despite the large number of Baby Boomers reaching traditional retirement ages. This unexpected finding could mean that future demographic, social, and economic conditions may not be as favorable for retirement migration as it once was. This creates challenges for counties that have relied on retirement migration as an economic development strategy because the number of potential retirement migrants should be expected to decline after the Baby Boomer generation passes through.

The report also shows that counties aging due to out-migration of younger people tend to face multi-faceted economic and health challenges. Out-migration may be a logical response to few opportunities or poor conditions in these communities, but it also further diminishes human capital as people move away. Many farming counties in particular have experienced decades of out-migration that have been associated with farm consolidation and agricultural adjustments (Beale, 1964; Johnson & Rathge, 2006; MacDonald et al., 2018) and may be particularly at risk. Interventions that can address the "hollowing out" of the workforce, while supporting broader community wellbeing, might help to stabilize such communities (Carr & Kefalas, 2009).

Despite a consistent pattern of young adult out-migration from nonmetro counties, rural counties tended to lose fewer young adults in the 2010s than in years prior. This could be an indication of increasing communication technologies and interconnections between rural and urban spaces. For example, the 2010s was the first decade in which high-speed internet began to be widely available in many rural areas, which opens economic, educational, entertainment, social, and cultural opportunities to rural young people without requiring them to leave rural places (Mack et al., 2024). Such broad social changes could potentially lead to shifts in what had been highly consistent age-specific net migration patterns over at least the two previous decades.

This report covers the period between 1990 and 2020. However, since 2020 nonmetro counties have seen a substantial shift towards population growth and positive net migration. Migration data by age since 2020 will not be available for rural counties until after the 2030 decennial census and it remains unclear which age groups may be driving the current shift. The onset of the Coronavirus (COVID-19) pandemic in 2020 appears to have changed previously entrenched migration dynamics at least for a short time (Petersen et al., 2024). What is clear is that nonmetro counties have continued to age since 2020 due to natural increase (aging in place), and any changes to the age-specific migration pattern would have to be large to offset the patterns of aging in place. Barring a dramatic shift and building on decades of distinct migration patterns by age, the foreseeable future will most likely find the rural United States continuing to age at faster rates than other areas of the country.

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Appendix A: Explaining the Components of Change Decomposition

To determine how much of a county's increase in older population was due to migration compared to natural population change (or aging-in-place), we used a decomposition method developed by Fuguitt (1980) and employed by Lichter et al. (1981), Fuguitt and Beale (1993), and Cromartie (2020). This method allows for "partitioning the difference between a proportion observed at two time periods into separate components of change" (Fuguitt, 1980). We decomposed changes in the absolute and relative size of the older population (proportion of the population age 65 and over) into the underlying demographic components. The method estimates the value of each component by averaging across older population shares resulting from the various possible combinations of net migration and natural change (Fuguitt & Beale, 1993). The remainder of the appendix describes how the decomposition method works.

The objective is to determine how much a change in the percentage of the older population is due to each of four factors: net migration of those 65 and over, natural change in those 65 and over, net migration for those under 65, and the natural change of those under 65. Following Fuguitt (1980), we define these factors as follows:

- Δc = net migration for those 65 and older,
- Δd = natural change in population of those 65 and older,
- Δe = net migration for those under 65,
- Δf = natural increase in those under 65.

The first two factors affect the numerator (population 65 or older) and all four factors affect the denominator (total population) of percent of older population. We additionally denote the initial population aged 65 and older (denoted *X*) and under 65 (denoted *Y*).

We denote the components of change (percent attributable to each factor) as capitalized versions of *Δc-Δf (C,D,E,F).* To quantify these components, we consider each treatment combination of potential changes to the population share. Each combination gives the share of the population aged 65 or older in the presence of a given number of components. For example, *cdef* is the presence of all four components, *def* is the presence of all components but the first, *ef* is the second two components, and so on. Finally, the presence of no components is defined as 1. Because *c* and *d* contribute to the numerator and all four contribute to the denominator, the calculation for *cdef* is therefore:

$$cdef = \frac{X + \Delta c + \Delta d}{X + Y + \Delta c + \Delta d + \Delta e + \Delta F}$$

Similarly, *def* is defined as:

$$def = \frac{X + \Delta d}{X + Y + \Delta d + \Delta e + \Delta F}$$

All other iterations are defined similarly.

To get each component, we take the average of the four differences between every treatment component, considering the contribution of the relevant factor. For *C*, this can be written as:

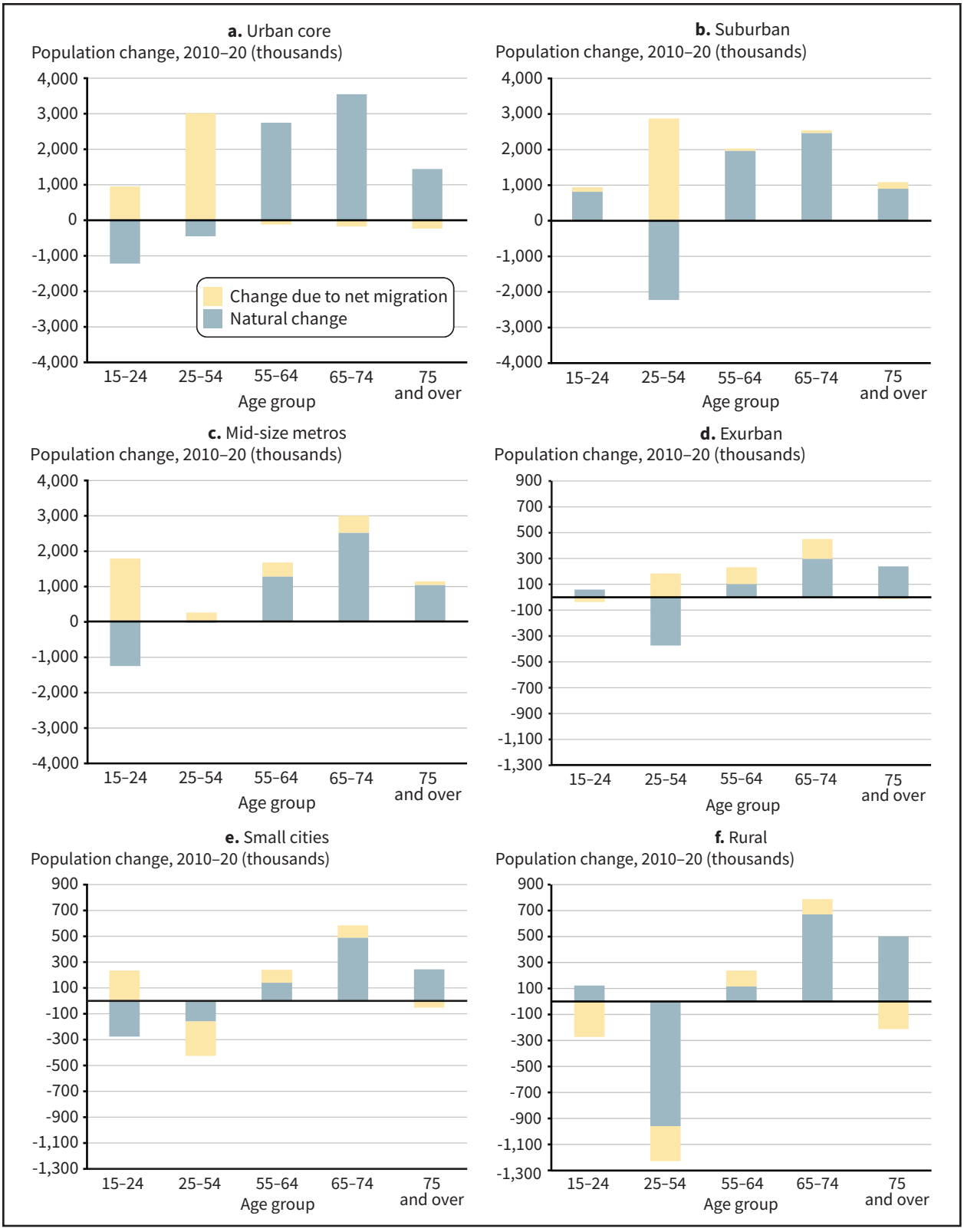
$$C = \tfrac{1}{4}\left[(cdef - def) + (cef - ef) + (cd - d) + (c - 1)\right].$$

The other components, *D*, *E*, and *F*, are calculated in an identical manner.

Appendix B: Additional Figures and Tables

Figure B.1

Population change due to natural changes and migration by age along a rural-urban continuum, 2010–20

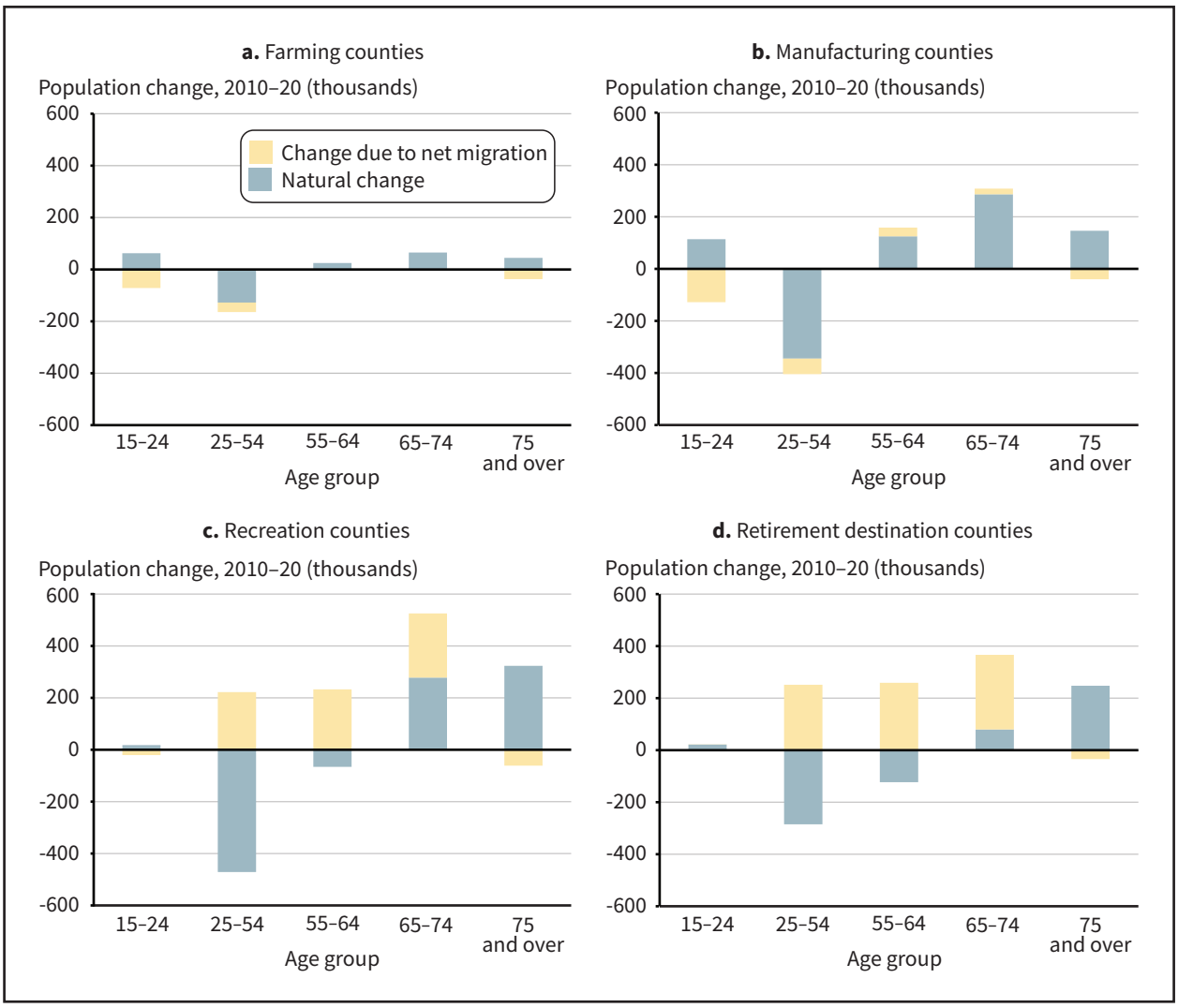


Note: Scale is different for the metropolitan (urban core, suburban, mid-to-small metros) compared to nonmetropolitan (exurban, small cities, and rural) county groupings. Age group represents age at the end of the decade.

Source: USDA, Economic Research Service using data from Egan-Robertson et al. (2024). *County-specific Net Migration by Age, Sex, Race, and Hispanic Origin, 2010–20*.

Figure B.2

Nonmetropolitan population change due to natural changes and migration by age and economic type, 2010–20



Note: Includes only counties in one of the three nonmetropolitan types. Economic types were designated as of 2024 and are not exclusive (counties may belong to multiple economic types). Age group represents age at the end of the decade.

Source: USDA, Economic Research Service (ERS) using data from Egan-Robertson et al. (2024). *County-specific Net Migration by Age, Sex, Race, and Hispanic Origin, 2010–20* and USDA, ERS County Economic Typologies 2025.

Figures B.1 and B.2 demonstrate natural change and net migration changes among different age groups across the rural-urban continuum and county typologies between 2010 and 2020. While net migration is simply the difference between those who move in and out of a county at a given age group, natural change is more complicated. Natural change for a given age group increases when people age in from the younger group and decreases when they age into the older group or die. For the middle three age groups (25–54, 55–64, and 65–74) where people age both in and out, one may expect a level of symmetry where losses in one group show up as gains in the subsequent group, but this is not the case. For example, in figure B.1 (f), the category aged 25–54 saw a large natural decrease because few people aged into the group and many more aged out of the group. The category of people aged 55–64 did not see a symmetric increase despite the large number aging in because many others aged out. This is made possible by the larger initial starting populations of the groups aged 25–54 and 55–64. Thus, each individual bar is not immediately comparable to the bars before and after them because they are determined by the population aging in, the population aging out, and the initial starting population.

Figure B.1 demonstrates that in the 2010s, natural change patterns for those aged 15–24 were the opposite of those aged 25–54, diminishing the impact of the "under 65" age group in tables 1 and 2. Similarly, migration patterns for those ages 65–74 were the opposite of those for the population 75 and older, limiting the effects of migration on the population aged 65 and older.

While aging in place contributed to population aging across the rural-urban continuum, migration worked differently in counties with different levels of rurality. Urban core counties experienced positive net migration for younger populations and negative for older populations, and suburban counties saw growth driven by prime-age migration. Small and mid-sized metropolitan counties saw positive net migration at all age groups. These counties still became older due to an aging population. By contrast, exurban counties were the only nonmetropolitan group to experience positive net migration of prime working aged people, but not large enough to exceed natural declines, so this age group still contributed to population aging. Small city and rural counties' natural loss of prime-age households was compounded by out-migration, contributing to significant population aging.

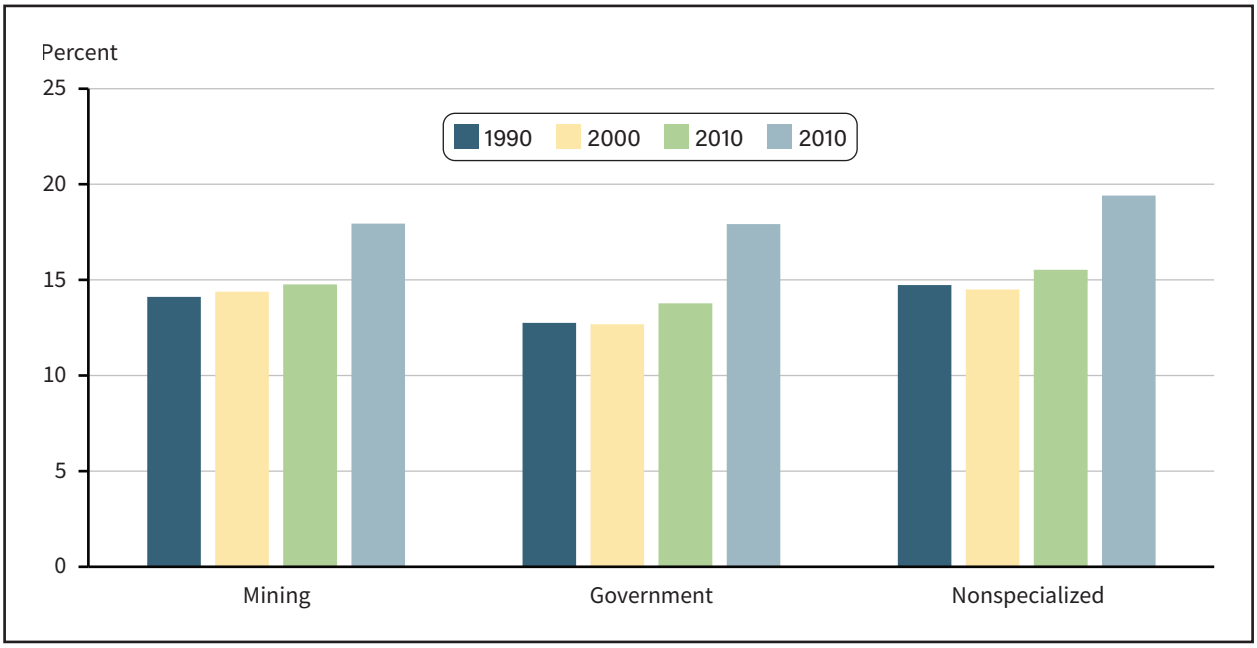
Net migration among those 75 and older was negative across all county types in the 2010s (figure B.2). Looking at more nuanced age groups demonstrates that out-migration among those 75 and over reduced population aging across all the county types, somewhat counterbalancing gains at ages 65–74. However, there were different patterns at younger ages. Among younger people, recreation and retirement destination counties saw net migration gains at prime working ages (25–54) but losses at ages 15–24. Farming and manufacturing counties saw both out-migration and large natural decreases in the prime working-age population, due to outmigration in earlier decades that limited both those who would have aged into this group, as well as new births.[23]

[23] While mining counties saw somewhat minimal movement in population from either migration or natural change, both government and nonspecialized counties saw more significant changes (appendix figure C.3). Both experienced significant natural increases at older age groups, but differing patterns among younger individuals. Government counties experienced high net migration and low natural change among those between 15–24, but the opposite for those between 25–54. For nonspecialized counties, they experienced positive natural change in the 15–24 group but negative net migration, with significantly negative natural changes in the prime working age group.

Appendix C: Figures and Tables for Additional U.S. County Typologies

Figure C.1

Percent of population ages 65 and older for nonmetropolitan counties by additional economic type, 1990–2020

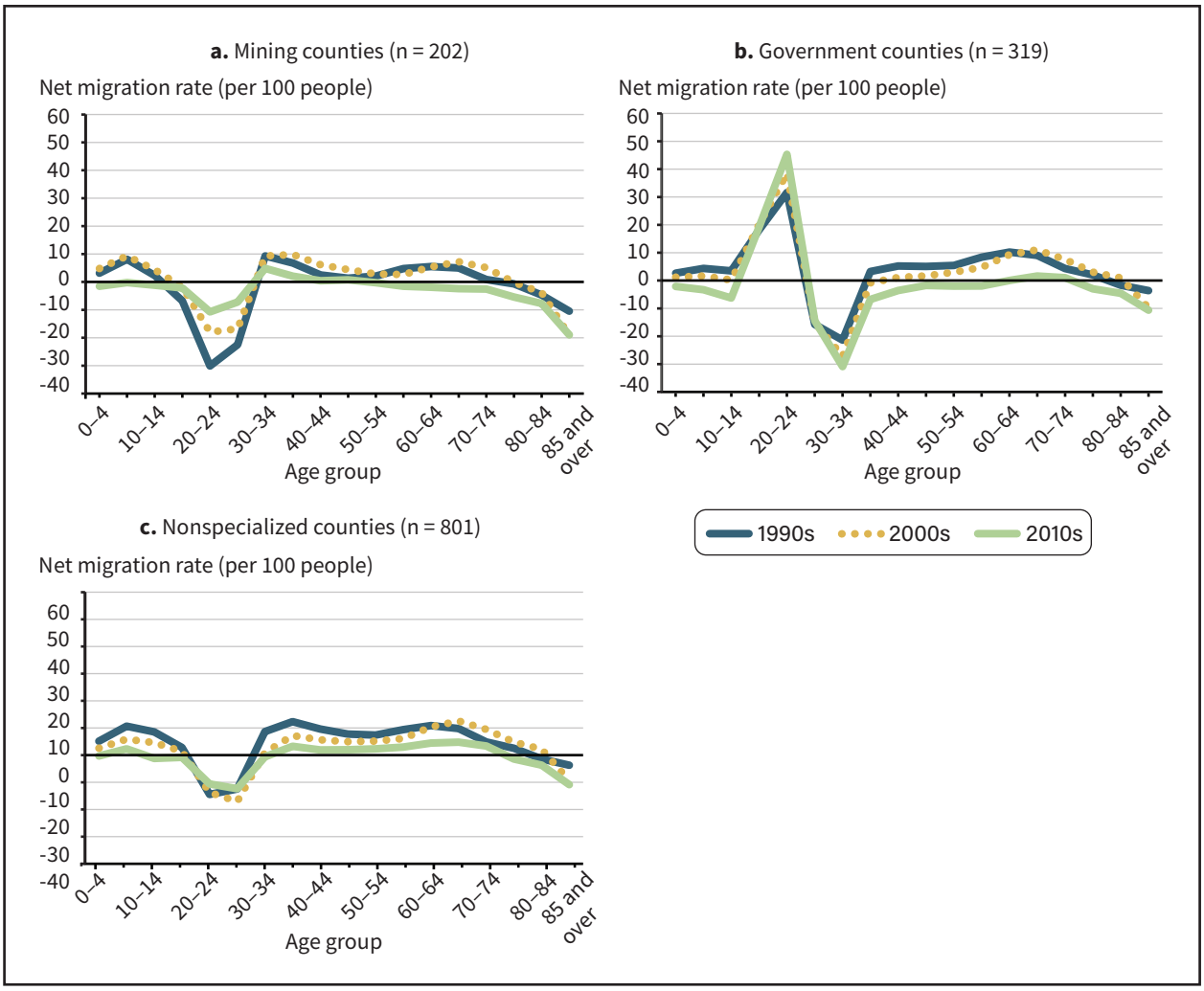


Note: These figures show the weighted average share of the population age 65 and over. Only nonmetropolitan counties (as defined in this report) are shown.

Source: USDA, Economic Research Service (ERS) using data from the U.S. Department of Commerce, Bureau of the Census's decennial censuses in 1990, 2000, 2010, and 2020 and from the USDA, ERS County Typologies 2025.

Figure C.2

Nonmetropolitan net migration rates by age and additional economic type: 1990s, 2000s, and 2010s

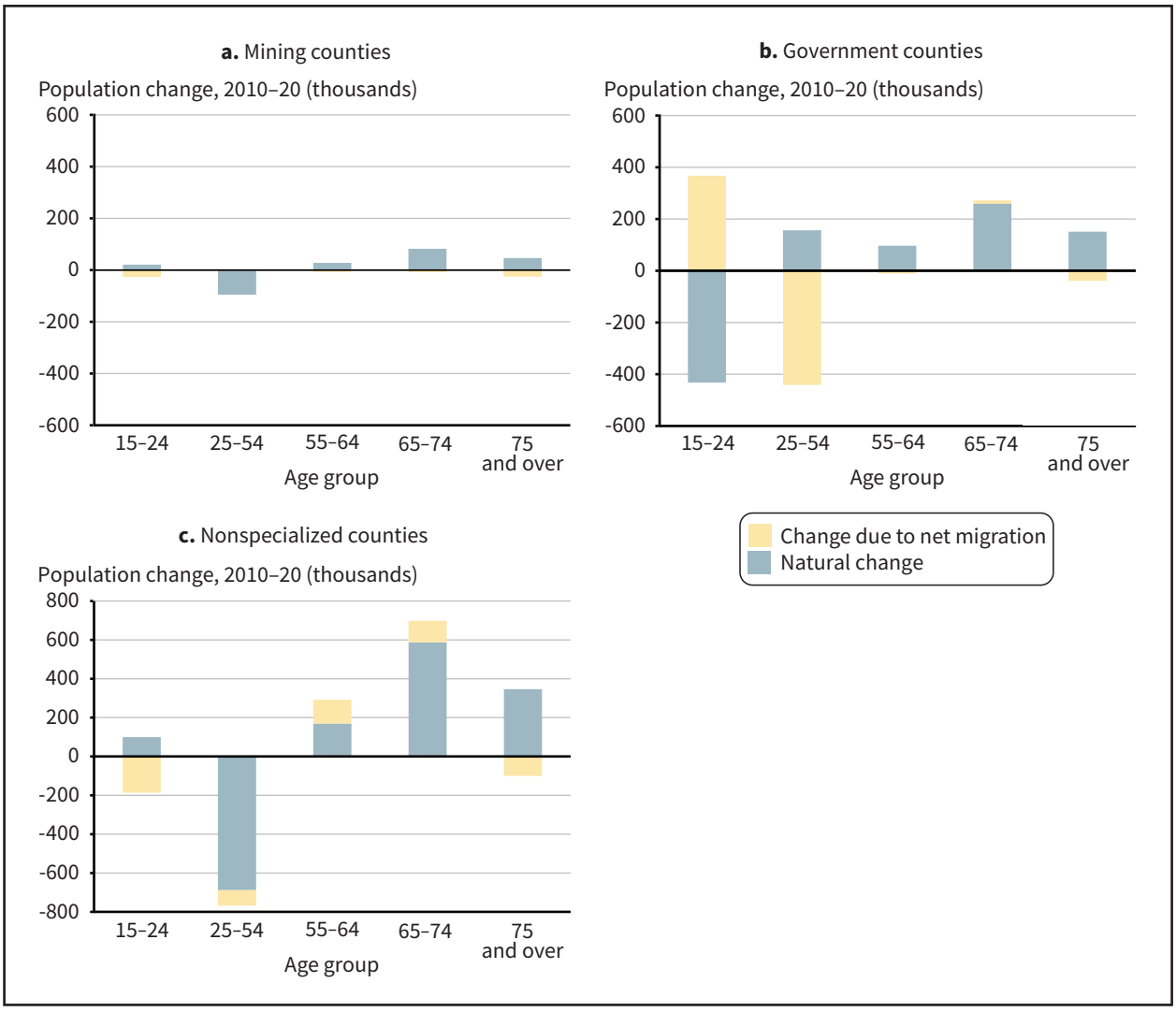


Note: This figure shows the average number of net migrants per 100 residents, weighted by population. The figure includes only counties in one of the three nonmetropolitan types (exurban, small city, and rural). Economic types were designated as of 2025 and are not exclusive (counties may belong to multiple economic types). Age group represents age at the end of the decade.

Source: USDA, Economic Research Service (ERS) using data from Egan-Robertson et al. (2024). *County-specific Net Migration by Age, Sex, Race, and Hispanic Origin, 2010–20* and the USDA, ERS County Economic Typologies 2025.

Figure C.3

Nonmetropolitan population change due to natural changes and migration by age and other economic types: 2010–20



Note: Includes only counties in one of the three nonmetropolitan types. Economic types were designated as of 2024 and are not exclusive (counties may belong to multiple economic types). Age group represents age at the end of the decade.

Source: USDA, Economic Research Service (ERS) using data from Egan-Robertson et al. (2024). *County-specific Net Migration by Age, Sex, Race, and Hispanic Origin, 2010–20* and the USDA, ERS County Economic Typologies 2025.

Table C.1

Components of change in the population age 65 and over for nonmetropolitan counties by additional economic type

	Population		Natural increase (NI)	Net migration (MIG)	Percent change	Components (percent)	
	Initial	Final				(NI)	(MIG)
1990–2000							
Mining	413,884	427,693	17,145	-3,336	3.34	4.14	-0.8
Government	1,042,782	1,126,992	49,740	34,470	8.08	4.77	3.3
Nonspecialized	3,209,240	3,416,538	90,446	116,852	6.46	2.82	3.6
Total nonmetropolitan	**7,601,033**	**8,214,947**	**296,367**	**317,547**	**8.1**	**3.9**	**4.2**
2000–2010							
Mining	424,324	452,771	29,774	-1,327	6.70	7.02	-0.3
Government	1,121,488	1,294,273	119,917	52,868	15.41	10.69	4.7
Nonspecialized	3,406,106	3,833,559	224,778	202,675	12.55	6.60	6.0
Total nonmetropolitan	**8,103,264**	**9,245,031**	**676,924**	**464,843**	**14.1**	**8.4**	**5.7**
2010–2020							
Mining	450,658	545,394	128,296	-33,560	21.02	28.47	-7.4
Government	1,286,233	1,662,978	404,256	-27,511	29.29	31.43	-2.1
Nonspecialized	3,811,031	4,756,066	934,341	10,694	24.80	24.52	0.3
Total nonmetropolitan	**9,186,829**	**11,714,884**	**2,440,680**	**87,375**	**27.5**	**26.6**	**1.0**

Note: This figure shows the results of comparing expected populations age 65 and over at the end of the decade under conditions of zero age-specific net migration to observed census populations at the end of the decade. Initial and final populations were adjusted for under/over enumeration each decade by the teams of demographers who constructed data available in the *Net Migration Patterns of U.S. Counties* datasets (Egan-Robertson et al., 2024). Because decadal migration datasets were published at different times with the data available at the time of publication, over- or under-counts of population in the census may not be corrected in earlier years. Thus, final population numbers from one decade do not exactly match initial population numbers for the next decade. Only includes nonmetropolitan counties, as classified in this report.

Source: USDA, Economic Research Service (ERS) using data from Egan-Robertson et al. (2024). *County-specific Net Migration by Age, Sex, Race, and Hispanic Origin, 2010–20* and the USDA, ERS County Economic Typologies 2025.

Table C.2

Components of relative change in the older population for nonmetropolitan counties by economic type

	Initial (percent)	**Final** (percent)	**Difference** (percent)	**Natural increase** (percent) (NI) (65+)	**Net migration** (percent) (MIG) (65+)	**NI** (percent) (<65)	**MIG** (percent) (<65)
1990–2000							
Mining	14.11	14.46	0.34	0.50	-0.10	-0.33	0.27
Government	12.75	12.74	0.00	0.51	0.35	-0.46	-0.41
Nonspecialized	14.73	14.57	-0.16	0.34	0.44	-0.36	-0.58
2000–2010							
Mining	14.38	14.83	0.46	0.85	-0.04	-0.23	-0.12
Government	12.68	13.83	1.16	1.14	0.50	-0.25	-0.24
Nonspecialized	14.50	15.62	1.11	0.79	0.72	-0.21	-0.19
2010–2020							
Mining	14.76	17.94	3.19	3.52	-0.92	0.37	0.21
Government	13.77	17.92	4.15	3.66	-0.25	0.48	0.26
Nonspecialized	15.53	19.41	3.88	3.15	0.04	0.60	0.10

Note: This figure shows the share of the total population who were age 65 and older and percentage point differences in that share by component of the change (NI = natural increase or natural population change, MIG = net migration). The four components represent part of the change in population growth over the decade and sum to the values in "Difference." Initial and final populations were adjusted for under/over enumeration each decade by the teams of demographers who constructed data available in the *Net Migration Patterns of U.S. Counties* datasets (Egan-Robertson et al., 2024). Because decadal migration datasets were published at different times with the data available at the time of publication, over- or under-counts of population in the census may not be corrected in earlier years. Thus, final population numbers from one decade do not exactly match initial population numbers for the next decade.

Source: USDA, Economic Research Service (ERS) using data from Egan-Robertson et al. (2024). *County-specific Net Migration by Age, Sex, Race, and Hispanic Origin, 2010–20* and the USDA, ERS County Economic Typologies 2025.