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Baby Boom Migration and Its Impact on Rural America

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Abstract

Members of the baby boom cohort, now 45-63 years old, are approaching a period in their lives when moves to rural and small-town destinations increase. An analysis of age-specific, net migration during the 1990s reveals extensive shifts in migration patterns as Americans move through different life-cycle stages. Assuming similar age patterns of migration, this report identifies the types of nonmetropolitan counties that are likely to experience the greatest surge in baby boom migration during 2000-20 and projects the likely impact on the size and distribution of retirement-age populations in destination counties. The analysis finds a significant increase in the propensity to migrate to nonmetro counties as people reach their fifties and sixties and projects a shift in migration among boomers toward more isolated settings, especially those with high natural and urban amenities and lower housing costs. If baby boomers follow past migration patterns, the nonmetro population age 55-75 will increase by 30 percent between now and 2020.

Keywords: Baby boomers, migration, rural development, life-cycle migration, population projections.

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Contents

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Summary

The size and direction of migration patterns vary considerably by age group, and baby boomers (those born between 1946 and 1964) have entered a stage in which their migration patterns will increase the population of rural and small-town settings. Many older boomers are ending child-rearing duties, changing housing preferences, and pondering early retirement options. Quality-of-life considerations are beginning to replace employment-related factors in decisions about when to move and where to live. Within clearly marked ranges, this report projects the level of net migration change for baby boomers through 2020 and measures its impact on the retirement-aged population in nonmetro areas.

What Is the Issue?

Population change as a result of net migration is unevenly distributed across the landscape. Rural jurisdictions face different demands for local goods and services and different opportunities for economic expansion, depending on population trends. Anticipating the types of areas that will receive large numbers of baby boomers in the near future could help communities plan for rising demands for housing, transportation, health care, and retail infrastructure.

Economic and social impacts from migration connect to broader age-related issues subject to debate at Federal and State levels. Places that emerge as migration destinations for Americans approaching or entering retirement today will be increasingly influenced by Federal policy decisions regarding Social Security adjustment, pension guarantees, workforce issues, and health care provision, among others.

What Did the Study Find?

Baby boomers are a heterogeneous group. Younger boomers are still in the middle of child rearing and career building, while older boomers are more likely to be "empty nesters." In this decade and the next, this cohort will pass through stages when moves to nonmetro counties increase, especially to areas with scenic and urban amenities, high second-home concentrations, and lower housing costs. Analysis of county net migration rates shows that employment considerations become much less important as migrants approach retirement. The influence of employment change on migration for 60-64 year olds is one-fourth as strong as that on 30-34 year olds.

Baby boomers have already demonstrated more of an affinity for moving to rural and small-town destinations than older or younger cohorts. They led a short-lived rural "rebound" in the early 1990s despite being at an age when career-oriented motivations strongly influence migration decisions. They are now poised to significantly increase the population of 55-75 year olds in rural and small-town America through 2020, with major social and economic implications for their chosen destinations.

Through this decade and the next, baby boomer migration will likely contribute to a deconcentration of population growth near metro areas. Assuming a midrange projection, net migration to core metro counties will

switch from a population gain of 979,000 during the 1990s to a population loss of 643,000 during the 2010s. Fringe metro counties had the highest rates of baby boomer migration in the 1990s, but these rates are projected to drop considerably during the 2010s. Migration gains in nonmetro counties adjacent to metro areas will remain relatively stable over the first two decades of this century, while more remote counties will see the most dramatic increases. After gaining only 277,000 boomer migrants during the 1990s, these nonadjacent counties will gain nearly 362,000 and 383,000 new boomer residents during the 2000s and 2010s, respectively.

Regardless of all but the most dire future economic and housing market conditions, baby boom migration will increase the overall size of rural America's retirement-age population. Assuming a midrange projection scenario and including the effects of migration, the rural and small-town population of 55-75 year olds will increase two-thirds, from 8.6 million to 14.2 million between 2000 and 2020. The rate of growth for this age group in nonmetro areas has likely tripled to 31 percent during the current decade, compared with that of the 1990s, and will remain close to 30 percent in the next decade. Without net migration, the rate of growth for this age group would be cut nearly in half to just 18 percent in this decade and 15 percent during 2010-20.

How Was the Study Conducted?

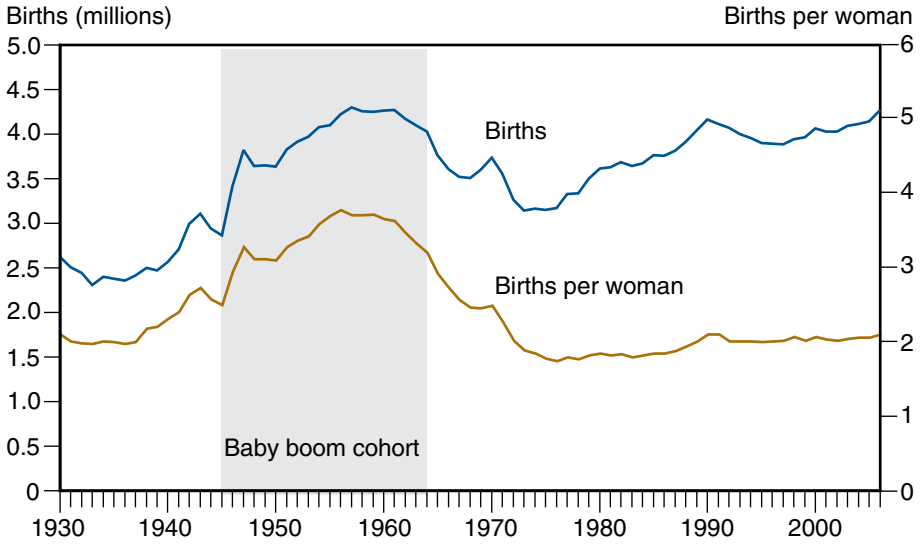
ERS analyzed age-specific net migration rates during the 1990s (the most recent data) to determine how net migration shifts geographically with age. Migration tends to persistently favor counties with specific attributes—employment opportunities, scenic amenities, reasonable real estate prices, proximity to large cities, among others. Age patterns of those migrating fluctuate within relatively narrow confines from one decade to the next, especially for older age groups. Thus, population projections for the baby boom cohort were constructed for different types of metro and nonmetro areas by asking: What will happen to future population trends if age-specific net migration patterns remain close to those measured in the 1990s?

The study used a regression model to measure the combined influence of employment trends, housing market characteristics, scenic and urban amenities, and other factors on age-specific net migration rates for different types of counties during the 1990s. Separate models by 5-year age groups capture the changes in migration patterns as people move through different life-cycle stages. Using migration rates derived from the models, the study projected the size and distribution of retirement-aged populations up through 2020. A range of projections provides upper and lower bounds for the likely size of baby boomer migration and its geographic variation.

Introduction

A dramatic jump in births in mid-1946 marked the beginning of the baby boom, as couples affected by the Great Depression and separated by war began to make up for lost family-building time. Widespread economic prosperity and family-friendly government programs helped sustain high birth rates for nearly 20 years—an unforeseen interruption in long-term U.S. fertility decline. Births surpassed 4 million per year between 1954 and 1963, and the fertility rate surged to over 3.5 children per woman (fig. 1). Today's 83 million baby boomers, ranging in age from 45 to 63 years old, represent 28 percent of the total U.S. population. Never before has such a large share of the U.S. workforce approached retirement. By comparison, 42 million people, or 17 percent of the population, were in these middle-aged years in 1990.

Figure 1
U.S. live births and total fertility rate



Note: Total fertility rate (births per woman) is the sum of age-specific birth rates for women ages 15-44.
Source: USDA, Economic Research Service, using data from the National Center for Health Statistics.

Between 2010 and 2020, "boomers" will make more than 200 million residential moves. Most moves will be within or between metropolitan (metro) regions, where 80 percent of this cohort now reside. However, boomers also will increase the size and reshape the demographic character of rural areas and small towns throughout the country. Older boomers are moving through a life-cycle stage marked by peak employment earnings, the end of child-rearing duties, changing housing preferences, and early retirement options. Quality-of-life considerations have begun to replace employment-related factors in decisions about when to move and where to live. Boomers as a group have already demonstrated, at times, a higher preference than older or younger cohorts for staying in or moving to nonmetropolitan (nonmetro) counties. Demographically speaking, they are poised to move rural and small-town America in new directions.

This report focuses on age-specific population change at the county level, particularly on change caused by net migration—the difference between the number of people moving into and out of a county. The research has two parts:

1. Analysis of age-specific net migration rates during the 1990s (the most recent data), which shows how county-level patterns of net migration shift with age.
2. Population projections for the baby boom cohort for different types of metro and nonmetro areas (see appendix). The projections are constructed by asking: What will happen to future population trends if age-specific net migration patterns measured in the 1990s stay the same?

The volume of migration flows into and out of rural areas shifts periodically, sometimes quite suddenly, as was the case with the "rural turnaround" of the 1970s and its subsequent demise (Beale, 1975; Johnson and Fuguitt, 2000). However, migration tends to persistently favor counties with specific attributes—employment opportunities, scenic amenities, reasonable real estate prices, proximity to large cities, among others (Cromartie, 2001). Age patterns of those migrating fluctuate within relatively narrow confines from one decade to the next, especially for older age groups (Johnson et al., 2005). Thus, recent net migration rates can be used to project a range of future population outcomes for different types of counties.

Counties are the unit of analysis because they are the smallest geographic unit used to report age-specific, net migration. The selection of counties characterized as "rural and small town" for purposes of this study includes those designated as nonmetro. Metro counties are divided into two groups—those that contain a predominantly urban core population and those on the periphery that are predominantly rural in character (see box, "County Classifications Used in This Report").

County Classifications Used in This Report

The classification of counties as "rural and small town" for purposes of this analysis includes a four-level typology that begins with counties designated as metropolitan or nonmetropolitan (nonmetro) by the U.S. Office of Management and Budget in 1993 (based on data from the 1990 Census). Projections for 2000 and beyond are based on counties considered to be nonmetro for the 2000 Census. Nonmetro counties are defined as those counties lying outside urban cores of 50,000 people or more and their immediately adjacent commuting zones. For more information on how metro and nonmetro areas are defined, see the Measuring Rurality briefing room on the ERS website: www.ers.usda.gov/briefing/rurality/newdefinitions/

We further divide nonmetro counties into those that are adjacent to metro areas and those that are more remote, based on the ERS Rural-Urban Continuum Code (Beale, 2004): www.ers.usda.gov/briefing/rurality/ruralurbcon/

We also divide metro counties into two types: those that include the urban core of the region and those on the periphery ("rural metro"), in which a majority of the population reside in census-designated rural territory. The official, census definition of rural includes people living in open countryside and places with populations less then 2,500. Most U.S. counties contain both rural and urban populations, whether or not they are classified as metro or nonmetro. ERS's Measuring Rurality briefing room includes a comparison of rural and nonmetro populations: www.ers.usda.gov/briefing/rurality/whatisrural/

Most of the 262 rural-metro counties included here were newly reclassified from nonmetro to metro in 1993. Many are in the middle of a transition to a landscape dominated economically and socially by suburbs but retain much of their rural character (Cromartie, 2006). They were among the most rapidly growing counties in the country in the 1990s. We include them in the regression analysis and discussion of results because they have been quintessential migration destinations for boomers seeking both rural "quality of life" and access to urban amenities.

Why Is Baby Boom Migration Important to Rural America?

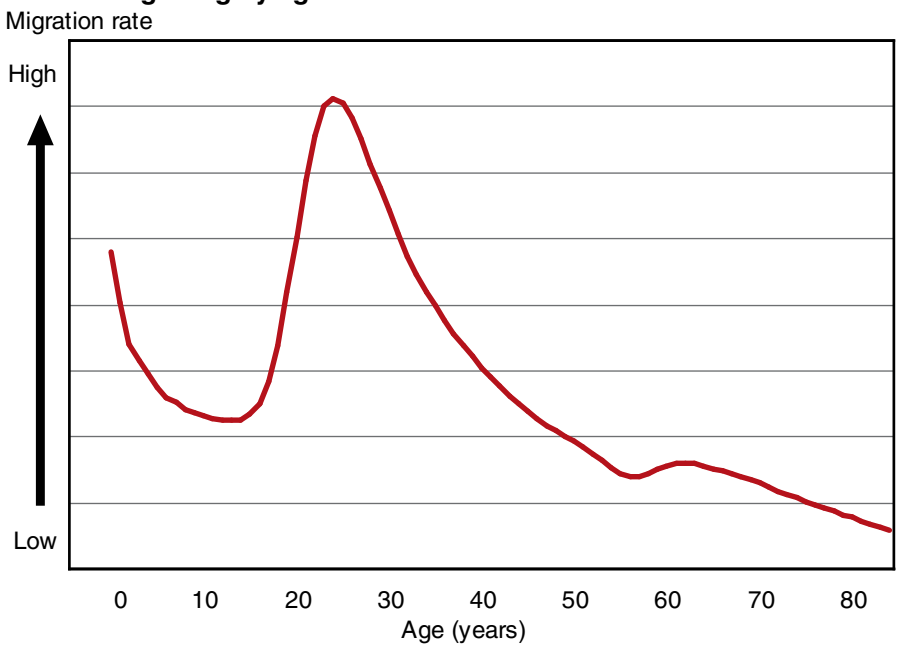
The migration of baby boomers, though just one segment of overall rural population change, will affect rural economies and rural development policy efforts for years to come. Economic and social impacts from migration connect to broader age-related issues subject to vigorous debate at Federal and State levels. Places that emerge as migration destinations for Americans approaching or entering retirement today will be influenced increasingly by Federal policy decisions regarding Social Security adjustment, pension guarantees, workforce issues (including immigration policy), and health care provision, among others. For example, communities that experienced retirement-related population growth in the 1990s showed a significant rise in government transfer payments as a proportion of their income base (Nelson, 2005). Also, many rural and small-town destinations for older Americans witnessed high levels of migration of Hispanics, who are finding work in sectors stimulated by the arrival of retirees (Nelson et al., 2009).

Population change from net migration is unevenly distributed across the landscape. Rural jurisdictions will face different demands for local goods and services and different opportunities for economic expansion, depending on population trends. New baby boom residents are likely to have a positive impact on income and employment levels in migration destinations. They may also increase infrastructure and social-service costs for local governments and require surrounding areas to make investments in health care and related services. Counties experiencing surges in population growth sometimes suffer from lack of planning and strained fiscal resources, while needs arise quickly for housing, transportation, and retail infrastructure. This report provides information that can be used to assess the potential impact of baby boom migration on rural and small-town areas. Within clearly marked ranges, the report projects the level of boomer migration for counties facing different economic or demographic scenarios.

Migration as a Life-Cycle Event

Each individual or family makes unique migration decisions, but commonalities exist at different life stages that affect the number of people moving and their destination choices (Taeuber, 1966; Stapleton, 1980; McHugh and Mings, 1996). Migration rates for children (who mostly follow parental decisions) decline from birth to very low levels during high school and then rise precipitously (fig. 2). Most migration occurs when people are in their twenties as they finish college, make initial career decisions, serve in the military, form families, or simply act out of a sense of restlessness. Nonmetro population loss from net migration is heavily concentrated among young adults, beginning with high school graduation (fig. 3). Urban destinations dominate among young singles seeking jobs, affordable rental housing, social opportunities, and creative cultural environments.

Figure 2
Percent migrating by age

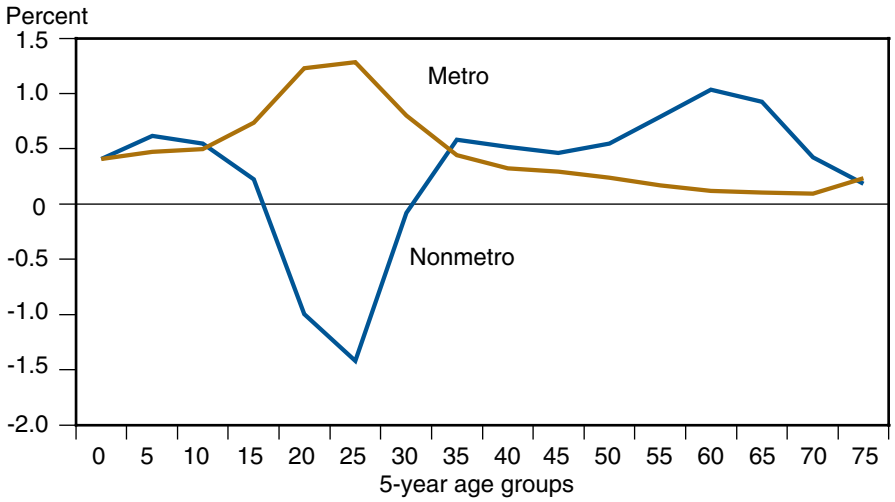


Source: USDA, Economic Research Service, using Pandit (1997a).

Migration rates decrease steadily and shift geographically through the working-age years. People in their midforties are half as likely to move as people in their early thirties. Individuals and families settle down as career decisions become more firm and children enter teenage years. Married couples with children place a higher premium on residential space, better schools, feelings of personal safety, and other qualities associated with suburban settings. Since 1960, nonmetro population loss from net outmigration has dropped to near zero after age 30 and even switched to gains in the 1970s and 1990s (Johnson et al., 2005). As families settle down, a significant proportion of return migration to nonmetro counties occurs and fewer people choose to leave rural and small towns.

For about 15-20 years after people reach their midfifties, the propensity to migrate stops decreasing and, in some cases, increases slightly. At the same time, the direction of migration shifts markedly toward lower density

Figure 3
Average annual net migration rates by age, 1980-2000



Source: USDA, Economic Research Service, using data from USDA-funded cooperative agreements (Fuguitt and Beale, 1996; Voss et al., 2004).

settings. Many suburban, "empty-nest" couples downsize and move closer to city centers to take advantage of cultural amenities, while others seek recreational opportunities, lower housing costs, increased feelings of personal safety, or a perceived slower pace of life by moving to the countryside (Glasgow and Brown, 2006; Litwak and Longino, 1987). As they age toward retirement, Americans are still much less prone to move than they are in their twenties, but they are much more prone to choose rural and small-town destinations when they do move.

Rural migration is highest early in the retirement process and declines sharply as physical activity becomes more limited and health care needs increase. The oldest baby boomers turn 74 years old in 2020 and, if long-term migration patterns persist, will be less likely to make moves to rural settings, will be more likely to move back to metro areas, and often will move to be closer to caretaker relatives.

Many people develop strong ties to particular places over an extended period while vacationing or visiting family and friends (Johnson and Rasker, 1995). Thus, retirement-related migration may begin long before retirement and progress slowly over several years rather than occur as a discrete, one-time event. Couples often purchase a second home or simply visit the same location annually or on weekends with their children, then visit more often and for longer stretches as children leave home. The Internet has greatly facilitated work from more remote locations and contributed to a notable increase in permanent moves to second-home destinations in the 1990s (Beyers and Lindahl, 1996; Beyers and Nelson, 2000).

Age patterns of migration are quite stable across diverse geographic settings, but the strong influence of employment change and other economic trends makes it difficult to predict all aspects of future population trends. Business cycles and industrial restructuring affect the size and direction of migration streams more than they affect patterns of fertility or mortality—the other two components of population change. Economy-driven migration volatility

tends to concentrate in younger age groups rather than in the life-cycle stages the baby boom cohort is currently entering. However, boomers have demonstrated a marked affinity for pioneering new migration paths that differ from those of preceding generations. Their migration history will undoubtedly influence their future decisions.

Migration Patterns of the Baby Boom Cohort

Baby boomers have followed well-established age-related migration patterns but have shown an increased preference for rural and small-town destinations, compared with older and younger cohorts. Their early childhoods coincided with a massive wave of rural outmigration and suburbanization. Many of their parents had come of age in the countryside during the Great Depression and World War II. Financial support through the GI Bill and federally subsidized mortgages enabled the parents of boomers to leave the farm or escape congested urban settings and move to newly constructed suburbs (Newman, 1993). The rural connections they maintained while raising urban and suburban families influenced the next generation's subsequent migration decisions.

Baby boomers who entered young adulthood in the 1970s faced increased labor and housing market competition due both to economic trends and the unprecedented size of their cohort. Extensive plant closures and layoffs throughout the northern, urban-industrial belt exacerbated the difficulty of absorbing rapidly increasing numbers of new workers (Bluestone and Harrison, 1987). In addition, increased housing demand coincided with rising interest rates and inflation. These conditions made it harder for many baby boomers to match the income expectations set by the previous generation, start a family, and buy a home (Plane and Rogerson, 1991; Pandit, 1997b). Boomers responded demographically by postponing marriage and remaining at home with their parents longer than earlier cohorts. Couples delayed childbearing and adopted multi-earner strategies, significantly increasing female labor-force participation, which further increased job competition (Newman, 1993).

Boomers also responded geographically. Net migration from the Northeast and Midwest regions to the South and West tripled in size during the 1970s. This sharp rise in what was an already-established population shift from "Rust Belt" to "Sun Belt" was tied directly to the migration adjustment of boomers in the face of increased labor market competition and escalating housing costs (Plane and Rogerson, 1991; Plane, 1992). At the same time, rural and small-town America experienced a remarkable demographic turnaround, as nonmetro population gains in the 1970s exceeded those of the previous four decades combined (Johnson and Cromartie, 2006). Many factors contributed to this "rural renaissance," including the economic stress of baby boomers (McGranahan, 1985). Decreasing urban job opportunities inhibited the rural-to-urban flow of young workers. Additionally, boomers already living in cities but unable to enter the housing market looked beyond metro boundaries to cheaper options in small-town and rural hinterlands. Overall, they still favored metro destinations as they aged through their twenties, but their net outmigration rate from nonmetro areas was less than half that of similar age groups during the 1960s (Johnson et al., 2005).

The ebbs and flows of nonmetro population change since the 1970s have been strongly linked to the migration of baby boomers (Nelson et al. 2004). An exceptionally severe farm crisis and economic recessions heavily focused on goods-producing industries made it harder for rural areas to retain current residents or attract new migrants in the 1980s. Large metro regions in

particular regained much of the economic momentum lost in the 1970s. The demographic response to these regional economic shifts came largely from boomers in their late twenties and early thirties migrating more to increasingly career-friendly urban centers (Nelson and Sewall, 2003).

Later, baby boomers led a short-lived rural "rebound" in the early 1990s, stimulating recreation-based economies and boosting population growth in the intermountain West, the southern Appalachians, the Upper Great Lakes, and other scenic locations (Nelson et al., 2009). In 1995, baby boomers were 31-49 years old and still strongly career oriented. Much of their nonmetro migration fueled rapid suburban expansion into counties adjacent to metro centers. Many of those moving to more remote settings, most notably in the intermountain West and other scenic regions with recreation opportunities, benefited from expanding airline services and the Internet, which enabled them to stay connected to urban-based employers and customers. Whether driven by technological changes, increased wealth, changing lifestyle preferences, or a combination of factors, areas once popular as recreation and tourist destinations became increasingly popular as permanent residences. If these geographic patterns mark a socioeconomic transition toward retirement, it is the beginning of a migration trend that will have increased over the current decade and will persist well into the next (Bures, 1997).

Factors Driving Age-Specific Net Migration, 1990-2000

Previous studies show that it is possible to measure the degree to which factors driving migration shift from one age group to the next (Plane, 1992; Plane, 1993; Pandit, 1997b; Pandit, 1997a; Nelson et al., 2004). The regression models estimated in this study measure the combined influence of employment and housing market factors, recreation and natural amenities, urban influence, demographic characteristics, and regional variation on age-specific, county-level net migration rates during the 1990s (see box, "Data Sources"). Separate models by 5-year age groups capture the life-cycle variation of these effects (see appendix).

Employment and housing market factors driving net migration patterns include employment change, unemployment, and median home values. Job-related factors are expected to be more strongly associated with migration among younger cohorts. Home values reflect the importance of equity transfers as older populations capture the gains in highly priced real estate markets and move to areas with lower housing costs (Karlgaard, 2004; Nelson, 2004).

The importance of recreation and the attraction of scenic landscapes are among the most important drivers of nonmetro migration (Rudzitis, 1993; McGranahan, 1999; Nelson, 1999; Vias, 1999; Power and Barrett, 2001; Reeder and Brown, 2001). To capture these effects, this study uses the ERS Natural Amenities Index along with the percent of housing units used seasonally or occasionally.

Three variables capture dimensions of urban influence. The first is a four-tier classification of counties along a continuum from metro centers to isolated, nonmetro counties, from which three of four dichotomous variables are used: rural-metro, nonmetro-adjacent, and nonmetro-nonadjacent dummy variables measure the relative proximity to the omitted tier (urban-metro). They distinguish three progressively more isolated sets of counties (see box, "County Classifications Used in This Report" on page 3). While this classification captures the relative position of counties in the metro-nonmetro hierarchy, the other two urban influence variables—percent urban and population density—describe the character of the county itself.

Demographic characteristics include the percent of households made up of married couples with no children living at home and the percent foreign born. The former captures the extent to which baby boomer migrants are arriving in destinations characterized by higher concentrations of "empty nest" households. The latter identifies any linkages between these domestic migration streams and streams that may originate from abroad (Walker et al., 1992; Wright et al., 1997; Frey and Johnson, 1998; Frey and Liaw, 1998).

Initial model results based on these variables indicated that regional differences remained in the unexplained portions of cohort migration rates. Dummy variables for residence in three census divisions—South Atlantic, East South Central, and West South Central—best explained the remaining variation and were added to the model.

Full results include identical sets of regression coefficients for 11 age groups, from 25-30 year olds to 75-80 year olds (app. table 3). The coefficients measure the degree to which a given variable, such as county unemployment rate, affects the variation in net migration among counties. The coefficients allow comparison among these effects, for instance, to determine whether unemployment rate shows a stronger effect on net migration than does employment change. Most importantly, they measure the shifts in net migration influences over different life-cycle stages.

Data Sources

County-level, net migration estimates by 5-year age groups for 1990-2000 were tabulated as part of a USDA-funded cooperative agreement that used population data from the U.S. Census Bureau and vital statistics from the National Center for Health Statistics (Voss et al., 2004). Researchers employed a "forward-survival" technique similar to previous net migration estimates for each decade since 1950 (Bowles and Tarver, 1965; Bowles et al., 1975; White et al., 1987; Fuguitt and Beale, 1996). Net migration represents the difference between the actual county population for an age group as recorded in the 2000 decennial census and an "expected" population. This analysis used birth and death data from the 1990 decennial census to estimate the expected number of survivors in each age group. If the actual population was higher than expected, the difference was attributed to net inmigration. If lower, then the residual was counted as net outmigration. For each 5-year age group, cohort migration rates were calculated by dividing net migration by cohort population (see appendix).

Most other data used in this report were obtained from the 1990 and 2000 decennial censuses (Census Bureau, U.S. Department of Commerce). We calculated the change in employment from 1990 to 1993 using data from the Bureau of Economic Analysis, U.S. Department of Commerce. In addition to the typologies used to characterize counties along an urban-rural continuum (see box, "County Classifications Used in This Report"), the ERS Natural Amenities Index was included in the analysis of net migration to measure physical characteristics of a county area that enhance the attractiveness of a location as a place to live. The scale combines six measures of climate, topography, and water area that reflect environmental qualities most people prefer (McGranahan, 1999).

The U.S. Census Bureau's classification of States into Census Divisions was used to measure regional effects on net migration. Three of the nine Divisions were included in the analysis:

South Atlantic—Delaware, District of Columbia, Florida, Georgia, Maryland, North Carolina, South Carolina, Virginia, and West Virginia.

East South Central—Alabama, Kentucky, Mississippi, and Tennessee.

West South Central—Arkansas, Louisiana, Oklahoma, and Texas.

Employment and Housing Market Factors

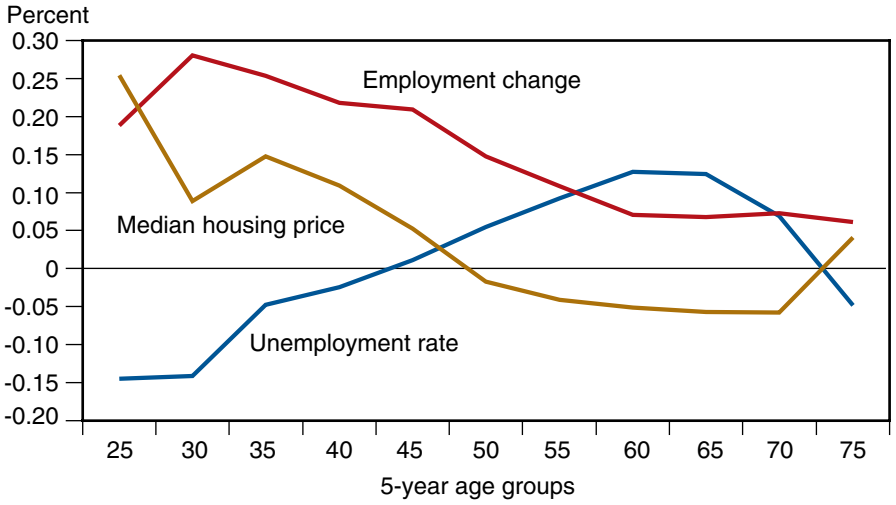
Populations age 30-34 showed the greatest attraction to areas with strong employment growth in the 1990s (fig. 4). Younger baby boomers were still in the middle of their working careers and thus strongly affected by job growth. However, employment trends exerted a much smaller influence on older baby boomers, who were loosening their ties to the job market in the 1990s. Models for older ages show that these connections will continue to weaken. The influence of employment change on migration for 60-64 year olds is one-fourth as strong as that for 30-34 year olds (beta values of 0.07 versus 0.28, respectively). The effect of unemployment rates on net migration shows important age differences as well. Individuals between age 25 and 49 are directed away from areas with high unemployment to the greatest extent. As individuals reach age 50, migration is actually directed into areas with higher unemployment rates.

If age patterns of migration hold, baby boomers are likely to be strongly influenced by housing market characteristics in their future decisions about where to live. Model results show that populations age 55 and older are moving away from areas with higher median home prices, even when controlling for factors such as metro status, employment growth, and scenic amenities. The effects are most pronounced for those in their early sixties and early seventies, the ages that the largest group of baby boomers will be passing through in the coming decade.

Natural Amenities and Recreation

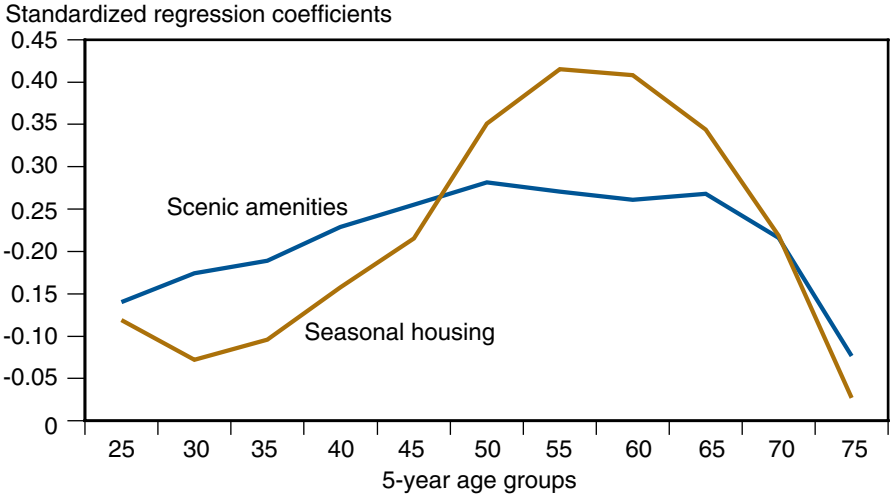
The effects of both natural amenities and seasonal housing on net migration increase dramatically with age, as expected (fig. 5). All ages are attracted to areas with higher levels of natural amenities. However, the coefficient for 25-29 year olds (0.14) is half that of 50-54 year olds (0.28). Seasonal housing has virtually no effect on younger cohorts, but the relationship becomes positive and quite strong for populations over age 40. This result suggests that

Figure 4
Effects of employment and housing market factors on net migration by age, 1990-2000



Source: USDA, Economic Research Service, using data from the U.S. Census Bureau and the Bureau of Economic Analysis.

Figure 5
Effects of recreation (as measured by seasonal housing) and scenic amenity factors on net migration by age, 1990-2000



Source: USDA, Economic Research Service, using data from the U.S. Census Bureau.

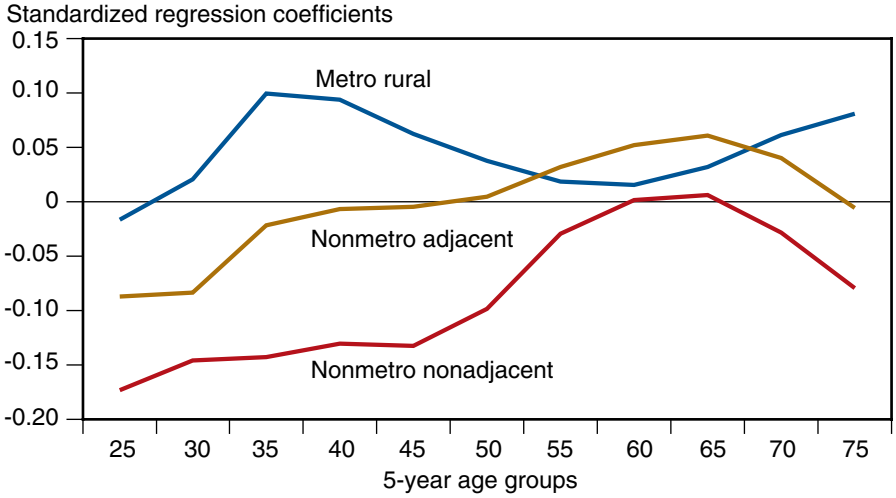
areas popular as second-home destinations become destinations for permanent migration. This effect is most pronounced for those age groups (55-64) through which older boomers are just now crossing. If these migration patterns persist, population in seasonal and recreation-based areas is likely to increase substantially in this decade and in the future.

Urban Influence

The ages older baby boomers are currently entering (late fifties and early sixties) show the strongest migration toward nonmetro destinations, regardless of adjacency (fig. 6). All things being equal, net migration of boomers to suburban destinations (measured here using rural-metro counties) should drop substantially during the next 10 years, while nonmetro counties adjacent to metro areas emerge as primary destinations. However, baby boom migration to more isolated, nonadjacent counties should increase relative to migration to adjacent counties. The effect of remoteness, or nonadjacency, becomes slightly positive for migrants in their sixties, and the gap between coefficients for adjacent and nonadjacent counties narrows. If these geographic patterns hold, nonmetro population growth in the coming years, rather than being concentrated near metro regions, will spill over into the areas remote from the metro regions as well.

After controlling for proximity to metro centers, the effects of county population density and percent urban are shown to capture additional aspects of age-specific net migration (app. table 3). Population density is strongly associated with net migration only during ages when suburbanization is most likely, when people move into counties with relatively lower population densities. Migration to more urbanized counties (controlling for density) drops precipitously between ages 30 and 34 but then increases steadily after that. Independent of their status as metro or nonmetro, adjacent or more isolated, counties with larger shares of their population in urban settings (towns with at least 2,500 people) are relatively more attractive for age groups nearing or entering retirement. This effect may be capturing increased migration to the rural West, where counties can be quite isolated but generally have popula-

Figure 6
Effects of metro and nonmetro county types on net migration by age, 1990-2000



Source: USDA, Economic Research Service, using data from the U.S. Census Bureau.

tions that are much more concentrated in cities and towns. It also may reflect a desire for older cohorts to seek out areas with higher levels of cultural amenities, retail services, and hospitals.

Demographic Factors

Demographic variables exert the expected influence on cohort migration rates. Age increases the tendency for migration streams to be directed toward areas with higher concentrations of "empty nest" households. Surprisingly, this variable's effect on migration is stronger than that of scenic amenities for cohorts in their sixties (app. table 3). The presence of foreign-born populations acts to decrease net migration for those in their thirties and, like population density, appears to be associated with the move from central cities to suburbs. The effect's impact on net migration decreases with age but is still significantly negative for those approaching retirement.

Regional Variation

For virtually every age group with the exception of those in their early thirties, the effect of southern destinations is positive, indicating strong regional shifts that were not entirely explained by employment, demographic, and amenity differences in the 1990s. This finding is consistent with the strength and duration of "Sun Belt" migration. In addition, the particularly strong pull of Florida and other States in the South Atlantic region reflects a long association with older age migration. The effect is strongest for the 65-74 year-old age groups.

Net Migration Projections, 2000-20

Population projections answer "what if" questions, in this case, about future population change from net migration. Post-2000 data on age-specific, net migration will not be available at the county level for several years. Even so, it is possible to project population growth from net migration in rural and small-town areas, for this decade and the next, using data from the 1990s. Net migration projections are combined with projected estimates of the overall size of age groups and the effect of immigration to project the size of future baby boom cohorts in different types of metro and nonmetro counties (see appendix for more details).

Migration flows between counties are affected by employment trends, housing prices, and other factors subject to much uncertainty, especially given current economic conditions and prospects. Also, baby boomers may pioneer new migration paths that differ from those of preceding generations as they age into retirement. Projections provide useful analytical and planning information, but they must be considered within a probable range of outcomes. As is typical of most population projections, three scenarios are calculated here representing high, medium, and low possibilities in terms of nonmetro population change for baby boomers during this decade and the next.

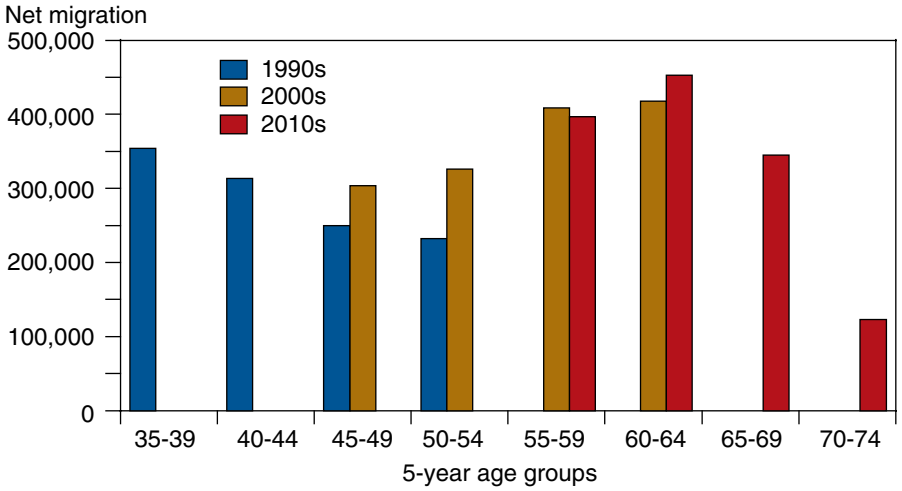
Projected Population Change from Net Migration of Baby Boomers

Net migration increased the number of baby boomers living in nonmetro areas by 1.1 million during 1990-2000. If baby boomers continue to demonstrate an increased proclivity for living in nonmetro areas, as they did in the 1970s and 1990s, but otherwise follow the same patterns of migration as their predecessors, their presence in nonmetro locations will increase by 1.5 million in this decade and 1.6 million during the 2010s. If they do not continue to exhibit an increased preference for nonmetro areas but simply follow the patterns of older cohorts during the 1990s, nonmetro population will grow from net migration of boomers by 1.2 million and 1.1 million for this decade and the next. A midrange projection can be calculated as the average between these two scenarios—1.3 and 1.4 million, respectively.

These projections represent a substantial increase in nonmetro population growth for the age groups they represent—45-64 year olds in 2010 and 55-75 year olds in 2020—compared with growth in previous decades. For the baby boom cohort, the midrange projection for each decade represents an increase in the cohort's already large gains during the 1990s, despite the sharp decline in the overall propensity to migrate as people age beyond their thirties and forties toward and into retirement.

Baby boomers span a wide range of ages and thus will experience their peak nonmetro population gains at different times (fig. 7). In the current decade, nonmetro population growth among 45-54 year olds will likely increase at a higher rate than in the 1990s because of the younger cohort of baby boomers, but older boomers will account for the bulk of net migration gains. In the coming decade, older boomers will be entering their early seventies, the age

Figure 7
Net migration of baby boomers in nonmetro counties by 5-year age groups, 1990-2000



Source: USDA, Economic Research Service, using data from the U.S. Census Bureau and the National Center for Health Statistics.

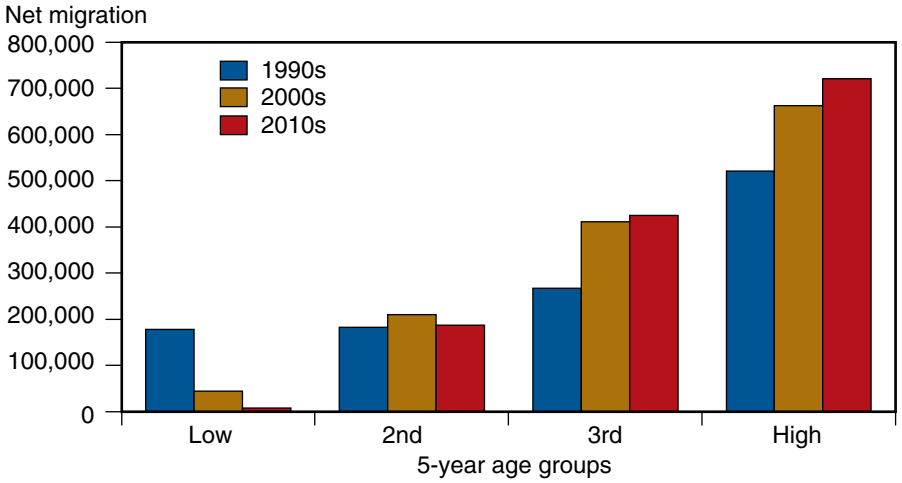
when rates of net migration to nonmetro counties begin to fall. The impact of this decrease in migration for older age groups will be offset by strong net migration growth for the younger boomers, who will then be in their late fifties and early sixties.

During 2000-20, baby boomer migration will likely contribute to a significant deconcentration of the population. Assuming the midrange projection between the two sets of outcomes described earlier, baby boomer net migration to core (predominantly urban) metro counties will switch from a gain of 979,000 during the 1990s to a loss of 643,000 during the 2010s. Fringe (predominantly rural) metro counties experienced the highest rates of baby boomer migration in the 1990s (a 17-percent increase, compared with a 9-percent increase for nonmetro counties) but are projected to see boomer migration decline to 8 percent during the 2010s. Fringe counties, along with adjacent nonmetro counties, received the bulk of past suburban expansion, but movement to metro fringe areas is a declining component of migration among baby boomers.

Measured in terms of relative change, populations in more remote (nonadjacent) nonmetro counties will experience the most dramatic changes from baby boomer migration. While nonadjacent counties gained 277,000 in population during the 1990s from baby boomer net migration, midrange projections indicate that boomer net migration will increase these counties' populations by nearly 362,000 and 383,000 during this decade and the next.

Whether adjacent to big cities or less accessible, counties with desirable physical attributes—pleasant climates, mountains, beaches, lakes—are likely to increase their already high share of baby boomer migration. Among the 500 nonmetro counties with the lowest ERS Natural Amenities Index scores, net migration is projected to decrease from 180,000 in the 1990s to near zero in the 2010s (fig. 8). At the same time, boomer net migration in the 500 counties with the highest scores will increase from 520,000 in the 1990s to 720,000 in the 2010s. Counties in the third highest quartile of amenity scores

Figure 8
Net migration of baby boomers in nonmetro counties by natural amenity quartiles, 1990-2000



Source: USDA, Economic Research Service, using data from the U.S. Census Bureau and vital statistics from the National Center for Health Statistics. Scenic amenities were measured using the ERS Natural Amenities Index (McGranahan, 1999).

are also projected to experience a large increase in baby boomer population during this decade and the next, compared with their increases in the 1990s.

Differences between projected and actual population outcomes are potentially greater for rapidly growing counties, such as those with scenic amenities and booming recreation-based economies. In the past, net migration has declined as such areas "fill up," often in response to higher housing prices. Counties in the third quartile, with attractive physical features but possibly not the most desirable qualities, could gain in attractiveness among boomers in reaction to this filling up of the highest quartile counties. The current mortgage foreclosure crisis, particularly strong in recreation towns that experienced a recent housing boom, creates uncertainty about filling up and future demographic trends in scenic areas.

Projected Impacts of Baby Boom Migration on the Nonmetro Retirement-Age Population

Except under the most dire future economic and housing market conditions, baby boom migration will increase the size of rural America's retirement-age population. Assuming a midrange projection, the rural population of 55-74 year olds will increase by two-thirds, from 8.6 million to 14.2 million, between 2000 and 2020 (table 1). The overall rate of growth among this age group has probably more than tripled to 30 percent during the current decade, compared with growth in the 1990s, and will remain close to 30 percent in the next decade. Without net migration, the rate of growth for this age group would drop by about half, 18 percent in this decade and 15 percent during 2010-20.

The coming increase in nonmetro populations age 55-74 will vary geographically. These trends are projected to affect not just traditional retirement regions in the South and West but nonmetro areas throughout the country. The biggest absolute increases will be in the South, where the nonmetro population age 55-74 is projected to increase by almost 2.5 million between

Table 1
Recent and projected nonmetro population change among 55-74 year olds by region

U.S. region	Nonmetro population ages 55-74				Population growth rate		
	1990	2000	2010	2020	1990s	2000s	2010s
	Millions				*Percent*		
Northeast	0.886	0.925	1.276	1.686	4.4	37.9	32.1
Midwest	2.633	2.685	3.235	3.944	2.0	20.5	21.9
South	3.480	3.868	4.972	6.272	11.2	28.5	26.1
West	0.957	1.152	1.708	2.251	20.3	48.2	31.8
Total	7.957	8.631	11.191	14.152	8.5	29.7	26.5

Source: USDA, Economic Research Service using data from the U.S. Census Bureau and the National Center for Health Statistics.

2000 and 2020. The largest percentage increase will be in the nonmetro Northeast, which is projected to grow slightly faster than the nonmetro West during the 2010s. The Midwest is also projected to increase in population growth rates among this age group, from just 2 percent in the 1990s to over 20 percent in both the current and next decades.

Conclusion

Baby boomers today are between the ages of 45 and 63. Many younger members of the cohort are still in the middle of child rearing, while those in their fifties are more likely to be empty nesters. Separate analyses of net migration by 5-year age groups reflect such diverse life-cycle situations. Differences by age group in the effects of employment growth, housing prices, urban influence, natural amenities, and other socioeconomic characteristics on county-level net migration reflect expected changes in migration decisions by age group.

Employment considerations still exert a strong influence on younger boomers, but these effects will decrease in the coming decade. Boomers are increasingly drawn to areas with a combination of scenic amenities, recreation or cultural opportunities, and reasonable housing costs. Nonmetro destinations for baby boomers will likely become more dispersed across the landscape and not as concentrated around metro areas.

The presence of seasonal housing is a particularly strong indicator of an area likely to attract retirement-related migration. This association reflects the importance of recreation and leisure activities for those building ties to future residential destinations. Many people identify a future migration destination while vacationing or visiting family and friends. Retirement-related migration may not be a discrete event that occurs in a finite period of time. Individuals or families may purchase a second home to visit for a few weeks a year or on weekends. Then, when children leave home, sojourns to the second home become more frequent and the "cottage" or condo may be renovated into a more substantial residence. Modern telecommunications technology and increased airport accessibility have made work from these more remote locations possible and increased permanent moves to second-home destinations in recent years. Projections of baby boomer population growth reflect the fact that areas once popular as recreation destinations are becoming increasingly popular as permanent residences.

Net migration increased the number of baby boomers living in nonmetro areas by 1.1 million during 1990-2000 and is projected to add similar or higher numbers of boomers during 2000-10 and 2010-20, despite declines in their overall propensity to migrate. The nonmetro population of 55-74 year olds is projected to increase two-thirds between 2000 and 2020 as a result of net migration trends among baby boomers.

Anticipating the types of areas where large numbers of baby boomers will migrate in the near future could prove useful. Development professionals in areas already attracting large numbers of baby boomers often emphasize traditional strategies designed to attract manufacturing jobs to their communities. Infrastructure investments geared toward fostering this type of export-based employment growth likely will have minimal or negative influence on the rising number of footloose baby boom migrants more attracted to scenic amenities, recreation, or cultural opportunities and affordable housing. Other specialists realize that to attract well-to-do boomers, development strategies need to be expanded or revised to cater to the interests of boomers. They realize this cohort can bring significant new money into a county's economy

and boost development opportunities (Beyers and Nelson, 2000; Nelson, 2005). Implementing strategies to attract older migrants requires alternative views about what drives regional economies, which could be aided by increased knowledge of key factors attracting baby boomers moving to rural and small-town America.

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Appendix: Regression Analysis and Population Projections

Typically, life-cycle perspectives are applied in studies explaining patterns of individual-level migration behavior (see, for example, Bailey, 1993; Bailey, 1994; McHugh et al., 1995). Here, regression analysis is used to study the aggregate effects of migration decisions on different types of rural destinations. This analysis builds on previous studies that address this broader, age-cohort context in which individual life-cycle paths evolve (Plane, 1992; Plane, 1993; Pandit, 1997b; Pandit, 1997a; Nelson et al., 2004).

Multivariate regression measures the effects of county-level, socioeconomic attributes on net migration in the 1990s. Separate models by 5-year age cohorts capture the life-cycle variation of these effects. Using predicted cohort migration rates derived from the models' parameter estimates, along with data on expected death rates and immigration, this analysis projects the size and distribution of boomer migration to different types of counties through 2020. Low-, middle-, and high-range projections provide upper and lower bounds for the likely impact on nonmetro counties.

Model Specification and Variables

In these models, county-level, cohort-specific, net migration rates are set as the dependent variables. The county migration rates (CMR) were calculated for 5-year age cohorts and represent the population growth from net migration (NM) for age group a in county j during the 1990s by ages as of 2000. These rates are expressed as a percentage of the population (P) in age group a-10 in 1990:

$$CMR_{j,a,1990-2000} = \frac{NM_{j,a\ 1990-2000}}{P_{j,a-10,1990}}$$

Results are reported for 11 age groups, covering 5-year age cohorts from 25 to 79 years old (app. table 1). The models use the same set of county-level

Appendix table 1
Cohort migration rates, 1990-2000

Age range (years)	Mean	Minimum	Maximum	Standard deviation
25 to 29	-0.078	-0.909	4.773	0.320
30 to 34	0.187	-0.876	7.000	0.387
35 to 39	0.154	-0.557	2.981	0.236
40 to 44	0.112	-0.636	1.586	0.174
45 to 49	0.089	-0.755	1.263	0.145
50 to 54	0.086	-0.645	4.667	0.172
55 to 59	0.103	-0.399	1.586	0.183
60 to 64	0.107	-0.500	2.187	0.199
65 to 69	0.084	-0.545	2.130	0.175
70 to 74	0.032	-0.414	1.145	0.107
75 to 79	0.011	-0.548	0.644	0.079

Source: USDA, Economic Research Service, using data from the U.S. Census Bureau and the National Center for Health Statistics.

independent variables, measuring socioeconomic conditions as of 1990, which is the beginning of the migration period being analyzed (or 1990-93 in the case of employment change). Independent variables measure employment and housing market conditions, recreation and natural amenities, urban influence, demographic characteristics, and regional location variables representing selected census divisions (app. table 2).The endogeneity of migration and employment change is difficult to disentangle and biases modeling results if not adequately addressed. Migrants are simultaneously attracted to areas with high employment growth, but their migration stimulates further employment growth. Here, the analysis follows established methodology by using a lagged variable that measures employment change for the early 1990s to "explain" net migration measured for the entire decade (Partridge et al., 2007). Diagnostics show that this reduces endogeneity sufficiently but still captures a strong positive relationship between employment and migration among younger age groups.

Independent variables were converted to z-scores so that the measures could be expressed in relative rather than absolute terms. This is necessary because migration is a closed system—higher inmigration in one area assumes higher outmigration somewhere else. Higher unemployment in a county should not affect migration if that county's position relative to others does not change

Appendix table 2
Independent variables

	Mean	Minimum	Maximum	Standard deviation
Employment and housing market factors				
Percent unemployed, 1990	6.7	0	30.5	3.1
Employment change, 1990-93[1]	1.5	-12.8	180.3	3.9
Median home value, 1990	53,670	0	500,000	33,356
Natural amenities and recreation				
ERS Natural Amenity Index	0.1	-6.6	11.2	2.3
Percent seasonal housing units, 1990	5.7	0	75.4	9.4
Urban influence				
Urban metro, 1990[2]	0.19	0	1	0.35
Rural metro, 1990	0.08	0	1	0.28
Nonmetro adjacent, 1990	0.32	0	1	0.47
Nonmetro nonadjacent, 1990	0.41	0	1	0.49
Percent urban, 1990	36.5	0	100	29.8
Population density, 1990	226	0.1	68,157	1,705
Demographic characteristics				
Percent of married couples with no children, 1990	32.7	11.6	51.2	4.2
Percent foreign born, 1990	2.2	0	45.1	3.6
Regional location				
South Atlantic	0.19	0	1	0.38
East South Central	0.17	0	1	0.32
West South Central	0.15	0	1	0.35

[1]Average annual change in total employment, 1990-93, as a percent of 1990 total employment.
[2]In the regression analysis, this is the omitted category of the 4-tier urban-rural classification.
Note: For data descriptions, see boxes, "Data Sources" and "County Classifications Used in This Report."
Source: USDA, Economic Research Service, using data from the U.S. Census Bureau and the Bureau of Economic Analysis.

(i.e., unemployment increases in all counties). But net migration for a county would decrease if unemployment grew at a faster rate than in other counties.

Further diagnostics revealed no significant violation of assumptions of linearity, independence of the error terms, and error distribution. Variance inflation factors showed no signs of significant multicollinearity among the predictors. Scatter plots of residuals versus fitted values showed little evidence of heteroscedasticity.

Parameter estimates from variables that have been converted to z-scores allow comparison of effects across and within age-specific models (app. table 3). There is much variation by age in the overall explanatory power of the chosen set of independent variables, as reflected in the (adjusted) r-square values. The model explains around 30 percent of the variation in cohort migration rates for 25-29 and 30-34 year olds but improves to over 50 percent for 55-59 and 60-64 year olds. Migration models in general are more powerful in explaining the migration flows for those life-cycle stages through which boomers are currently passing. The high level of explanatory power also may reflect the impact of cohort size on migration "effectiveness," the degree to which population growth from inmigration is not offset by an

Appendix table 3

Regression coefficients for cohort migration rates, 1990-2000

	Age range (years)										
Independent variables	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79
Employment and housing market factors											
Percent unemployed	**-0.145**	**-0.141**	**-0.047**	-0.024	0.011	**0.054**	**0.093**	**0.128**	**0.124**	**0.069**	**-0.048**
Employment change	**0.188**	**0.281**	**0.253**	**0.218**	**0.209**	**0.148**	**0.108**	**0.070**	**0.068**	**0.073**	**0.061**
Median home value	**0.125**	**0.088**	**0.148**	0.109	**0.052**	-0.017	**-0.041**	**-0.051**	**-0.057**	**-0.058**	**0.055**
Natural amenities and recreation											
ERS Natural Amenities Index	**0.140**	**0.174**	**0.189**	**0.229**	**0.255**	**0.282**	**0.271**	**0.261**	**0.268**	**0.216**	**0.036**
Percent seasonal housing units	0.119	**0.072**	**0.096**	**0.157**	**0.215**	**0.351**	**0.415**	**0.408**	**0.344**	**0.218**	0.027
Urban influence											
Rural metro	-0.016	0.021	**0.099**	0.094	**0.062**	**0.038**	0.019	0.015	0.032	**0.061**	**0.081**
Nonmetro adjacent	**-0.087**	**-0.083**	-0.021	-0.007	-0.004	0.005	0.032	**0.052**	**0.061**	0.040	-0.005
Nonmetro nonadjacent	**-0.173**	**-0.146**	**-0.143**	**-0.130**	**-0.133**	**-0.099**	-0.029	0.002	**0.006**	-0.029	**-0.080**
Population density	0.029	0.024	**-0.033**	**-0.033**	-0.007	0.027	**0.033**	0.034	0.013	**-0.037**	**-0.107**
Percent urban	0.027	**-0.243**	**-0.187**	**-0.129**	**-0.092**	**-0.059**	-0.012	**0.039**	**0.097**	**0.190**	**0.251**
Demographic factors											
Percent of married couples with no children	**-0.131**	**0.170**	**0.253**	**0.283**	**0.293**	**0.297**	**0.334**	**0.378**	**0.378**	**0.320**	**0.096**
Percent foreign born	0.001	-0.020	**-0.099**	**-0.105**	**-0.112**	**-0.081**	**-0.060**	**-0.044**	**-0.041**	-0.025	**-0.070**
Regional dummies											
South Atlantic	**0.151**	**-0.055**	-0.024	**0.052**	**0.114**	**0.170**	**0.176**	**0.196**	**0.212**	**0.224**	**0.128**
East South Central	**0.135**	**-0.049**	-0.018	**0.049**	**0.093**	**0.126**	**0.098**	**0.097**	**0.091**	**0.109**	**0.063**
West South Central	**0.043**	-0.018	-0.016	0.009	0.018	**0.038**	**0.035**	**0.041**	**0.029**	0.026	-0.023
R-square	**0.340**	**0.289**	**0.351**	**0.374**	**0.406**	**0.490**	**0.541**	**0.538**	**0.459**	**0.274**	**0.121**

Note: The number of observations in each model was 3,087. U.S. counties total 3,141, but Alaska and Hawaii were excluded and Virginia independent cities were combined with adjacent counties. Coefficients for rural metro, nonmetro adjacent, and nonmetro nonadjacent dummy variables measure effects relative to the omitted category: urban metro. Coefficients in bold were statistically significant at the .05 level.
Source: USDA, Economic Research Service, using data from the U.S. Census Bureau and the Bureau of Economic Analysis.

equal number of outmigrants. Large birth cohorts tend to have more effective migration patterns (Plane and Rogerson, 1991, Plane, 1992, Pandit, 1997a).

Less efficient migration flows among younger age groups, as well as smaller birth cohorts, likely account for the lower goodness-of-fit values for the cohorts following the baby boomers.

Projecting Population Growth From Migration

These projections were constructed by asking: "What will future migration patterns look like if the most recently measured age-specific migration rates (from the 1990s) stay the same?" Although population projections by metro and nonmetro categories are uncommon, the methodology employed here is similar to that used to project U.S. State populations by the Census Bureau (http://www.census.gov/population/www/projections/projectionsagesex.html). Age affects migration in relatively predictable ways that can be statistically measured. The overall size of age cohorts is also easy to project into the future using forward survival methods because age-specific death rates are relatively fixed (Arias, 2006). Immigration's relatively small impact on older age groups can be measured using the Census Bureau's "best guess" estimates of future, age-specific immigration flows. Thus, projections can be made of the size of future baby boom cohorts in different types of metro and nonmetro counties.

Projections are made of population change from migration for this decade and the next, starting with the 1990s regression models:

$$CMR_{1990-2000,j,a} = \alpha_0 + \beta_{i,a}\left|Var_{1990,i,j}\right| + \varepsilon$$

where β refers to unique regression coefficients for each cohort a and independent variable i measured for each county j. With the exception of employment change (measured for 1990-93) and the ERS Natural Amenities Index (which uses relatively fixed environmental measures), the regression models measure independent variables as of 1990 to model 1990-2000 net migration. To project cohort migration rates for 2000-10 for each county j and age group a, we compiled the same set of county-level independent variables i from the 2000 census and 2000-2003 employment data (app. table 4). Cohort migration rates for 2000-10 were estimated by multiplying the regression coefficients for a given age group a by the updated independent variables:

$$CMR_{2000-2010,j,a} = \alpha_0 + \beta_{i,a}\left|Var_{2000,i,j}\right| + \varepsilon$$

An initial estimate of population change from net migration (NMI) for age group a in county j was calculated as:

$$NMI_{2000-2010,j,a} = \frac{Population_{2000,j,a}}{CMR_{2000-2010,j,a}}$$

A final adjustment was needed to ensure that the sum of all net domestic migration added to zero. This was accomplished in three steps: first, the immigration portion of NMI was subtracted (using Census projections of

age-specific immigration); second, a domestic migration weight was calculated (*DMW*) as each county's proportion of total domestic net migration for each age group; and third, a final estimate of population change from net migration (*NM*) was calculated as:

$$NM_{2000-2010,j,a} = NMI_{2000-2010,j,a} - \left(NMI_{2000-2010,j,a} * DMW_{2000-2010,j,a}\right)$$

For the 2010-20 period, the analysis used the estimated cohort migration rates for 2000-10 but applied them to projected 2010 populations. The 2010 populations were calculated by adding the estimates of net migration and the Census Bureau's estimates of immigration, and subtracting expected age-specific deaths.

Example of County-Level Net Migration Projection

The projection procedure is shown here for 50-54 year olds (as of 2000) in hypothetical "Logan County," NH (app. table 4). In 1990, Logan County was a nonmetro, nonadjacent county with a median home value of $87,000 and 17 percent of housing units designated for seasonal or occasional use (column 1). These values were slightly higher than the national average as reflected in the z-scores greater than 0 (column 2), and Logan County's unemployment and employment change was lower than average.

To estimate the 1990-2000 cohort migration rate for Logan County based on the regression results, the individual z-scores were weighted by their respective coefficients (column 4) and then summed. This resulted in a predicted cohort migration rate for 50-54 year olds of 0.0696.

Appendix table 4

An example of cohort migration projection for hypothesized Logan County, New Hampshire

	(1) Actual values (1990)	(2) Z-score	(3) Regression coefficients	(4) 1990-2000 estimation (2*3)	(5) Actual values (2000)	(6) Z-score	(7) 2000-10 estimation (5*6)
Constant	NA	NA	0.0541	0.0541	NA	NA	0.0541
Percent unemployed	0.06	-0.2232	0.0041	-0.0009	0.04	-0.5120	-0.0021
Employment change	0.13	-0.0868	0.0850	-0.0074	0.12	0.3186	0.0271
Median home value	87000	0.9992	-0.0140	-0.0140	94300	0.2080	-0.0029
Natural amenity index	-0.57	-0.2734	0.0259	-0.0071	-0.57	-0.2750	-0.0071
Percent seasonal housing	0.17	1.2270	0.0357	0.0438	0.14	0.8344	0.0298
Percent urban	0.00	-1.2256	-0.0062	0.0076	0.02	-1.2329	0.0077
Population density	37.64	-0.1105	0.0092	-0.0010	40.21	-0.1122	-0.0010
Percent married couples no kids	0.31	-0.3278	0.0410	-0.0134	0.38	0.2400	0.0098
Percent foreign born	0.02	-0.1033	-0.0018	0.0002	0.02	-0.3458	0.0006
Rural metro	0	0	-0.0123	0	0	0	0.0000
Adjacent	0	0	0.0143	0	0	0	0.0000
Non-adjacent	1	1	0.0078	0.0078	1	1	0.0078
South Atlantic	0	0	0.0714	0	0	0	0.0000
East South Central	0	0	0.0553	0	0	0	0.0000
West South Central	0	0	0.0224	0	0	0	0.0000
Predicted net migration rate (sum of columns)				**0.0696**			**0.1237**

Note: NA=not applicable

Source: USDA, Economic Research Service, using data from the U.S. Census Bureau and the Bureau of Economic Analysis

By 2000, Logan County's median home value had increased to $94,300 but had decreased relative to other counties (columns 5 and 6). Employment change in 2000-03 had decreased slightly from 1990-93 but had increased relative to other counties. Weighting these newer values once again by the coefficients generated in the regression analysis gave us a projected cohort migration rate for the period 2000-10 of 0.1237 for 50-54 year olds (as of 2010). The increase in the projected rate from the 1990s to the 2000s was driven mostly by the change in relative home values and employment conditions, as well as an increase in the percent of married couples with no children.

To calculate population change from net migration during 2000-10, the estimated rate of 0.1237 was applied to the cohort that would be 50-54 in 2010. The population of 40-44 year olds in Logan County in 2000 was 2,623, indicating that the county had increased its population by 324 in this age cohort. A small adjustment to this estimate was made to ensure that total domestic net migration adds to zero. Population change during 2010-20 was derived by applying the same estimated net migration rate for 50-54 year olds in Logan County to the estimated population for the cohort of 40-44 year olds in 2010.

Projection Ranges

Almost all projections include low, middle, and high alternatives, based on different assumptions about future demographic trends. For instance, the U.S. Census Bureau offers different scenarios for the U.S. population in 2050 depending on potential changes in fertility, mortality, and immigration rates (http://www.census.gov/population/www/projections/usinterimproj/idbsummeth.html). Published statistics usually focus on the middle series projections (http://www.census.gov/population/www/projections/projectionsagesex.html).

For this report, projection alternatives differ in terms of their impact on population change among baby boom cohorts in nonmetro locations. A low projection comes from a straightforward application of 1990-2000 regression results to 2000 Census indicators and 2000-03 employment changes. The findings for baby boomers represent what will happen if they respond to county characteristics in a fashion similar to their predecessors in the 1990s. This is considered a low expectation because, in the past, baby boomers have shown a higher preference for rural and small-town settings, especially where scenic amenities are high and housing prices are low. Employment change during 2000-03 also was quite low, leading to a more conservative projection series.

The high projection series was constructed by increasing the parameter estimates for the ERS Natural Amenities Index, the percent seasonal housing units, and, where significant, the nonmetro location coefficients. It is impossible to predict future employment trends with a high degree of confidence, but current economic conditions lend credence to the decision to calculate a more conservative projection series by maintaining the low employment change conditions of 2000-03. Most of the findings shown in this report are from a middle projection series, which was derived as the average of the high and low series.