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
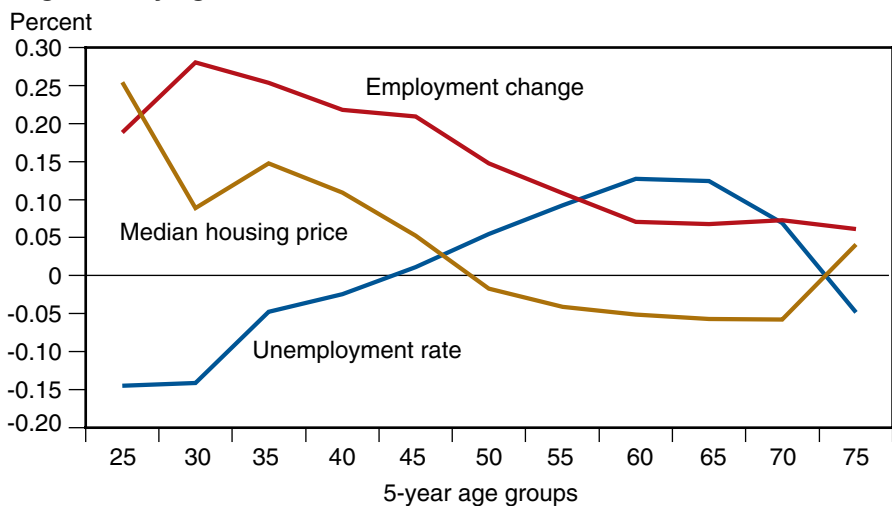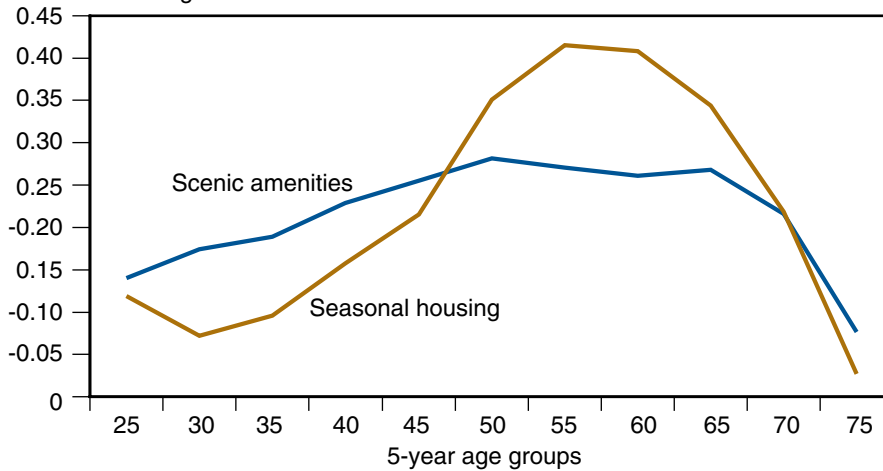

Source: USDA, Economic Research Service, using data from the U.S. Census Bureau and the Bureau of Economic Analysis.

Figure 5

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

Standardized regression coefficients

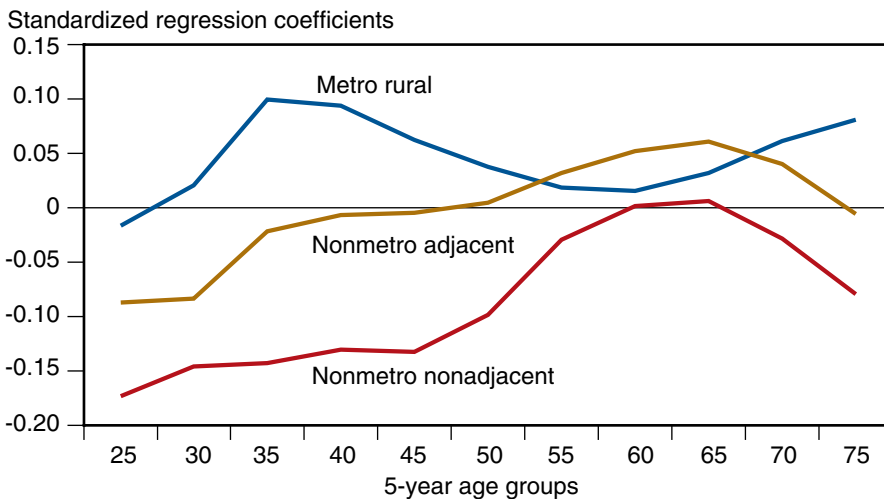Source: USDA, Economic Research Service, using data from the U.S. Census Bureau.

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

Standardized regression coefficients

5-year age groups

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.