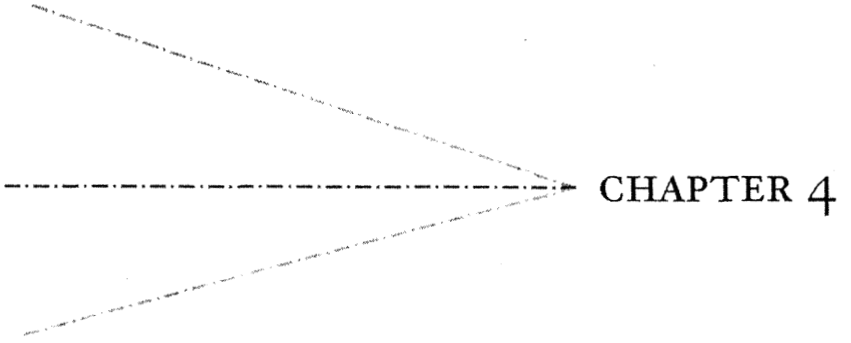
for only the second time in the century. Ralph Grossi discusses in Chapter 5 the accelerating consumption of open space in the nation during the 1990s, as evidenced by the National Resources Inventory provided by the U.S. Department of Agriculture. In Chapter 6, James Levitt and John Pitkin offer information showing that, at least in one survey, people moving to nonmetropolitan places such as Bend, Oregon, in part to take advantage of their natural amenities, are significantly more likely than others to use the Internet at home as part of their daily lives. Finally, in Chapter 7, Andrew Hansen and Jay Rotella look at how, in areas that offer magnificent natural amenities such as the Greater Yellowstone ecosystem, in-migration and open space consumption pose considerable threats to biodiversity. The authors hope that these investigations will be followed by many more that strive to understand historic changes under way on the North American landscape during the twenty-first century.



CHAPTER 4

The Rural Rebound of the 1990s and Beyond

Kenneth M. Johnson

During most of the twentieth century, rural America experienced widespread and protracted outmigration.[1] The magnitude of this loss varied from decade to decade, but the pattern was quite consistent: rural areas grew only when an excess of births over deaths offset the number of people who moved away from these communities. Many rural communities suffered population decline because outmigration was so substantial and persistent.

This historical pattern came to an unexpected end during the 1970s, when nonmetropolitan areas experienced a remarkable demographic turnaround. Fueled primarily by net in-migration, population gains in nonmetropolitan areas actually exceeded those in metropolitan areas for the first time in at least 150 years.

This turnaround generated considerable academic interest, but attention waned with the reemergence of widespread outmigration and population decline in rural America during the 1980s. In fact, the downturn of the 1980s led some to conclude that the turnaround of the 1970s was

	No. of cases	Initial population (thousands)	Population change			Net migration			Natural increase		
			Absolute change (thousands)	Percent change	Percent growing	Absolute change (thousands)	Percent change	Percent growing	Absolute change (thousands)	Percent change	Percer growir
1970–1980											
All non-metro	2,276	43,345	5,805	13.4	80.0	3,159	7.3	66.9	2,630	6.1	88.1
Nonadjacent	1,274	19,772	2,477	12.5	72.1	1,223	6.2	60.5	1,249	6.3	85.9
Adjacent	1,002	23,573	3,328	14.1	89.1	1,936	8.2	75.1	1,381	6.3	90.8
Metropolitan	834	158,884	17,146	10.8	88.6	5,948	3.7	3.4	11,198	7.0	97.8
Total	**3,110**	**202,229**	**22,937**	**11.3**	**82.0**	**9,107**	**4.5**	**68.7**	**13,830**	**6.8**	**90.7**
1980–1990											
All non-metro	2,305	49,578	1,320	2.7	45.1	–1370	–2.8	27.3	2,690	5.4	89.6
Nonadjacent	1,298	22,612	134	0.6	36.4	–1175	–5.2	20.7	1,309	5.8	87.0
Adjacent	1,007	26,966	1,186	4.4	56.3	–194	–0.7	35.8	1,382	5.1	92.9
Metropolitan	836	176,965	20,848	11.8	81.0	6575	3.7	57.7	14,271	8.1	97.7
Total	**3,141**	**226,543**	**22,168**	**9.8**	**54.7**	**5206**	**2.3**	**35.4**	**16,962**	**7.5**	**91.8**
1990–2000											
All non-metro	2,303	50,824	5,249	10.3	73.9	3,509	6.9	68.3	1,740	3.4	71.4
Nonadjacent	1,297	22,671	1,848	8.2	64.4	1,079	4.8	59.8	769	3.4	64.1
Adjacent	1,006	28,154	3,400	12.1	86.1	2,430	8.6	79.2	971	3.4	80.9
Metropolitan	837	197,963	27,383	13.8	90.1	12,044	6.1	77.5	15,338	7.7	95.2
Total	**3,140**	**248,787**	**32,631**	**13.1**	**78.2**	**15,553**	**6.3**	**70.7**	**17,078**	**6.9**	**77.8**

Notes: 1993 metropolitan status used for all periods.
Natural increase 1990–1999 from FSCPE. Natural increase projected to 4/2000 from FSCPE.
Sources: Census 2000 PL-94 data 1970-1990 Census and Federal-State Cooperative Population Estimates Program (FSCPE).

merely a short-term deviation from historical trends. Since 1990, however, most nonmetropolitan areas have again witnessed in-migration. This trend—combined with modest natural increase (more births than deaths)—has produced another large rural population gain.[2] Such a deconcentration of the U.S. population is likely to continue as overall population growth and technological and organizational innovations diminish the importance of distance.

Migration has played a particularly profound role in the remarkable growth of recreational counties over the past three decades. This growth partly reflects the substantial number of older Americans in the migration stream, but recent research suggests that younger age-groups are also well represented. The aging of baby boomers—together with economic gains—is likely to foster continuing migration to recreational areas. The resulting growth in recreational regions and other regions with abundant natural amenities will exert a significant impact on these environmentally sensitive areas.

The Changing Demographics of Rural Areas

Nearly 74 percent of counties classified as nonmetropolitan in 1993 gained population between 1990 and 2000—compared with 45 percent in the 1980s (see Table 4.1).[3] The nonmetropolitan population stood at 56.1 million in April 2000—a gain of nearly 5.3 million since April 1990. This contrasted with an increase of fewer than 1.3 million in these areas during the 1980s.

The nonmetropolitan population grew at a slower pace (10.3 percent) than the metropolitan population (13.8 percent) between 1990 and 2000, but the gap was much narrower than during the 1980s. Gains were prevalent in the Mountain West, the Upper Great Lakes, the Ozarks, parts of the South, and rural areas of the Northeast. Widespread losses occurred in the Great Plains, the western Corn Belt, and the Mississippi Delta (see Figure 4.1).

Migration gains accounted for 67 percent of the nonmetropolitan population increase between April 1990 and April 2000. These areas recorded a net inflow of some 3,509,000 people, compared with a net outflow of 1,370,000 during the 1980s. In addition, the net migration gain between 1990 and 2000 (6.9 percent) was greater than in metropolitan areas (6.1 percent). This is a sharp contrast to the 1980s, when nonmetropolitan

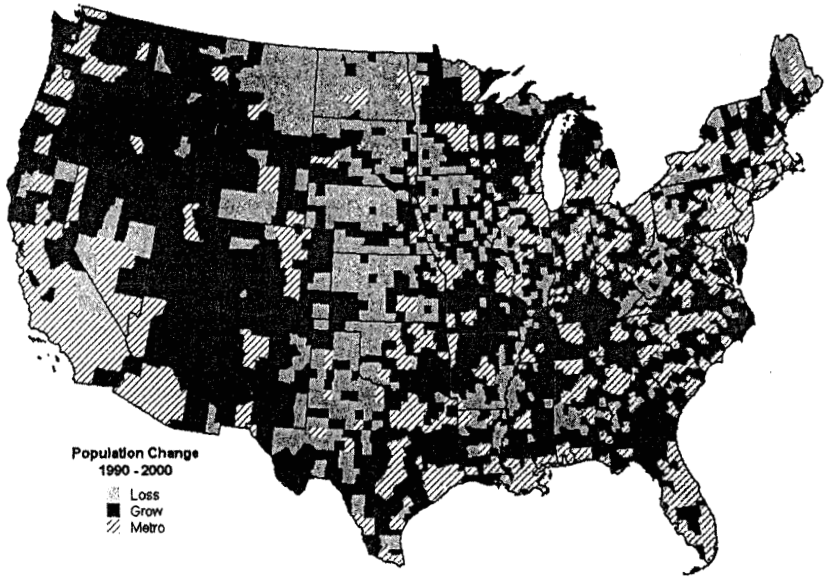


Figure 4.1: Although most nonmetropolitan counties experienced population growth between 1990 and 2000, the Great Plains, the western Corn Belt, and the Mississippi Delta lost population. (Map by Kenneth M. Johnson, Loyola University–Chicago, data from 1990 and 2000 U.S. Census.)

areas saw a net outflow of 2.8 percent, while metropolitan areas recorded a net in-migration of 3.7 percent. Migration gains were widely distributed geographically, though least prevalent in the Great Plains, West Texas, and the Mississippi Delta (see Figure 4.2).

Natural increase accounted for 33 percent of the nonmetropolitan population growth between 1990 and 2000, with births exceeding deaths by 1,740,000. However, natural increase in nonmetropolitan areas during this period was considerably lower than during the 1980s, while in metropolitan areas the rate of natural increase diminished marginally. This pattern of nonmetropolitan growth is similar to that during the turnaround decade of the 1970s, though smaller in magnitude.

The 1970s and 1990s represent a significant departure from historical demographic trends.[4] Through most of the past century, nonmetropolitan population growth was fueled entirely by natural increase, with migration losses diminishing these gains (see Figure 4.3).[5] In the 1990s and 1970s,

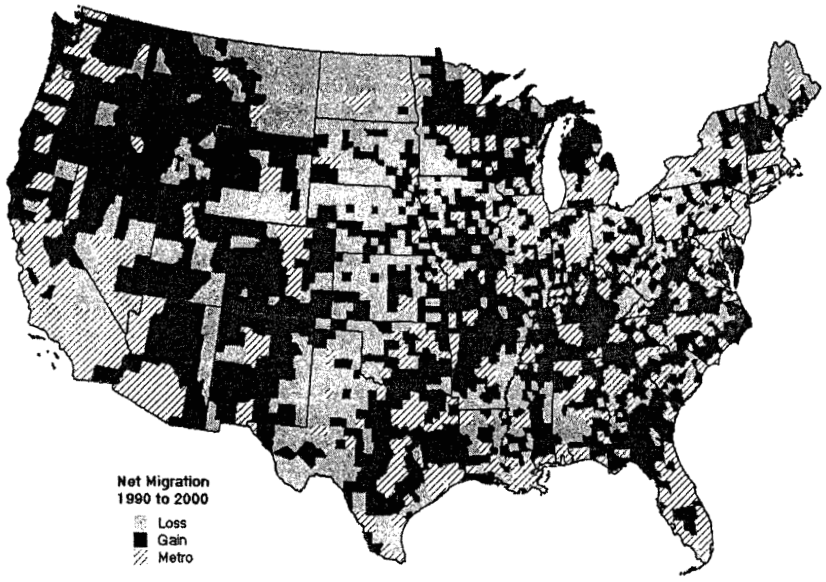


Figure 4.2: Migration gains accounted for most of the nonmetropolitan population growth between 1990 and 2000. (Map by Kenneth M. Johnson, Loyola University–Chicago, data from 1990 and 2000 U.S. Census and Federal-State Cooperative Population Estimates Program.)

in contrast, both net migration gains and natural increase fueled growth. Even the minimal migration losses and modest natural increase of the 1980s are a weak echo of the massive outmigration and substantial natural increases of the 1940s and 1950s.

The Factors Fueling Rural Growth

Part of the growth in nonmetropolitan areas is spillover from nearby metropolitan areas. More than 86 percent of nonmetropolitan counties adjacent to urban areas gained population in the 1990s, while 79 percent saw net in-migration (review data from Table 4.1). In fact, migration gains in adjacent nonmetropolitan counties (8.6 percent) significantly exceeded gains in metropolitan areas (6.1 percent). But even nonadjacent counties recorded net in-migration of 4.8 percent between 1990 and 2000, compared with a net migration loss (–5.2 percent) in

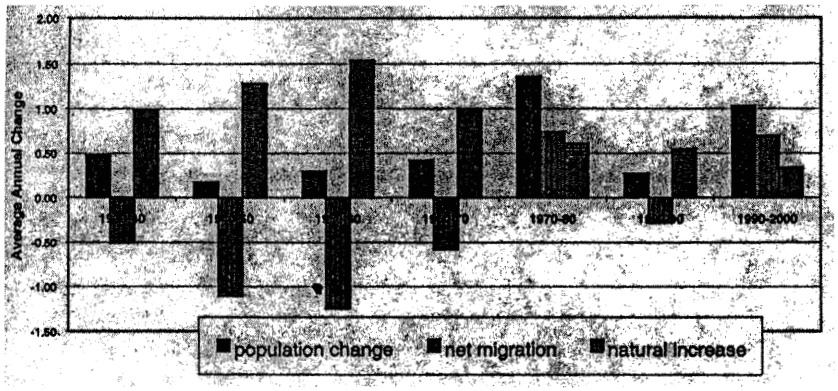


Figure 4.3: As in the 1970s, nonmetropolitan population growth in the 1990s was fueled by both net in-migration and natural increase (more births than deaths). (Data from U.S. Census 1930–2000.)

the 1980s.

Recreation centers and nonmetropolitan destinations for retirement-age migrants—largely in the Sunbelt, coastal regions, parts of the West, and the Upper Great Lakes—were among the fastest-growing counties during the 1990s (and also prominent growth nodes during the 1970s and 1980s).[6] In fact, all 190 nonmetropolitan retirement-destination counties gained population, and 99 percent saw net in-migration (see Table 4.2). Population and migration gains were also common in the 285 recreational counties.[7] Counties where much of the land is federally owned—which are concentrated in the West—similarly saw widespread growth in the 1990s, fueled by people attracted to their scenic and recreational amenities.

Counties where a large proportion of the workforce commutes to jobs in other counties, and those with economies dominated by service-sector jobs, also grew rapidly. Nonmetropolitan population gains were widespread—though more modest—in manufacturing- and government-dependent counties, with gains in the latter two types of counties more evenly balanced between natural increase and net migration.

Counties dependent on farming and mining were the least likely to gain population during the 1990s: only 49 percent of farming-dependent counties gained population. Natural decrease was also common in farming-dependent counties. Population gains were only slightly more

Table 4.2: Population Change, Net Migration, and Natural Increase in Nonmetropolitan Counties by Selected Variables, 1990–2000

		Population change		Net migration		Natural increase	
County Type	No.	Percent change	Percent growing	Percent change	Percent growing	Percent change	Percent growing
Retirement	190	28.4	100	25.9	99	2.5	59
Federal lands	269	22.3	90	16.4	83	5.9	83
Recreational	285	19.3	92	15.9	90	3.5	71
Manufacturing	506	9.5	87	6.1	76	3.4	86
Commuting	381	15.2	92	12.0	88	3.2	80
Government	243	11.5	85	5.2	74	6.3	77
Service	323	14.6	81	11.7	78	2.9	71
Nonspecialized	484	10.9	84	8.4	80	2.5	73
Transfer	381	8.5	75	6.5	69	1.9	60
Poverty	535	9.1	77	4.4	63	4.7	80
Mining	146	2.3	54	-1.5	44	3.8	81
Farming	556	6.6	49	3.9	49	2.7	53
Total non-metropolitan	**2,303**	**10.3**	**74**	**6.9**	**68**	**3.4**	**71**

Notes: 1993 metropolitan definition; 14 previously metro counties excluded from type analysis.
Percent change is aggregate change for all cases in category.
Recreational counties defined by Beale and Johnson (1998).
All other types defined as in Cook and Mizer (1994).
Counties are classified into one economic type (farming, mining, manufacturing, government, service and nonspecialized).
Other types are not mutually exclusive.

widespread in mining counties, with these areas experiencing net outmigration. However, even among these counties, population declines and migration losses moderated in the 1990s. Counties with persistent poverty also saw low growth rates during the 1990s, with natural increase—as in the case of mining and farming counties—accounting for most population gains.

Economic trends contributed to renewed rural growth. The recessions of the early 1980s had a more severe impact and lasted longer in nonmetropolitan areas, while the farm crisis of that decade also hurt many agricultural counties badly, resulting in widespread outmigration. However, rural employment began to recover in the late 1980s and continued to do so during the 1990s. In addition, the economic recession of 1990–92 had a greater impact on urban areas, undercutting the economic attraction of cities, particularly for rural young people.

Concern about such urban problems as crime, pollution, and poor-quality schools may also have attracted urban residents to rural areas and discouraged rural residents from moving to cities. Recent survey data suggest that many residents of the nation's largest cities would rather live in smaller places, whereas a substantial majority of rural residents are happy where they are.[8] Although these findings are consistent with earlier surveys, the diminished friction of distance—together with a healthy economy—has probably allowed more households to act upon their preferences.

The growing integration of rural communities into the national and international economy also contributes to nonmetropolitan growth. Recent improvements in transportation and communications infrastructure facilitate interaction between urban and rural areas, thereby diminishing the effect of distance. Location decisions for both firms and families now encompass a wider geographic sphere, and the result is that many now enjoy the social and environmental advantages associated with rural living while retaining easy access to metropolitan areas. For example, midwestern parts suppliers tend to cluster along interstate highways within a few hours' drive of auto assembly plants, where land is cheaper, wages are lower, and unions less common.[9] Such rural manufacturing plants contribute to widespread nonmetropolitan population growth.

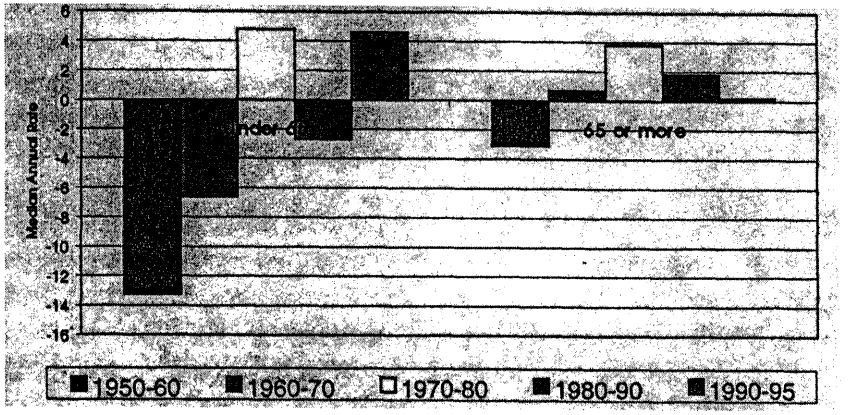


Figure 4.4: Data suggest that working-age people comprise a majority of the migrants into nonmetropolitan areas, which has significant implications for future growth and development in these areas. (Data from U.S. Census 1950–1990 and U.S. Census, Federal-State Cooperative Population Estimates Program, 1995.)

The Influence of Age on Rural Growth

Net migration to nonmetropolitan areas has always been age selective.[10] Young adults historically have left nonmetropolitan areas in substantial numbers, while the net flow of individuals at other ages has been less consistent. In some periods—notably the 1970s—rural areas saw a net influx of individuals at all ages except young adult, while in other periods such areas experienced a net migration loss of people of virtually every age.

Johnson and Fuguitt, who have examined these age-specific migration patterns in some detail, report one puzzling finding with significant implications.[11] Between 1990 and 1995, the net influx of people under age sixty-five to nonmetropolitan areas has been much higher than historical trends (see Figure 4.4), while the influx of adults sixty-five and older to such areas has been considerably less than expected. According to Fuguitt *et al.*, this pattern is consistent across regional groupings and county socioeconomic types.[12]

To be sure, retirement-destination counties have received a significant influx of older migrants, but many other areas have not. This is surprising given the historical propensity of older Americans to move to

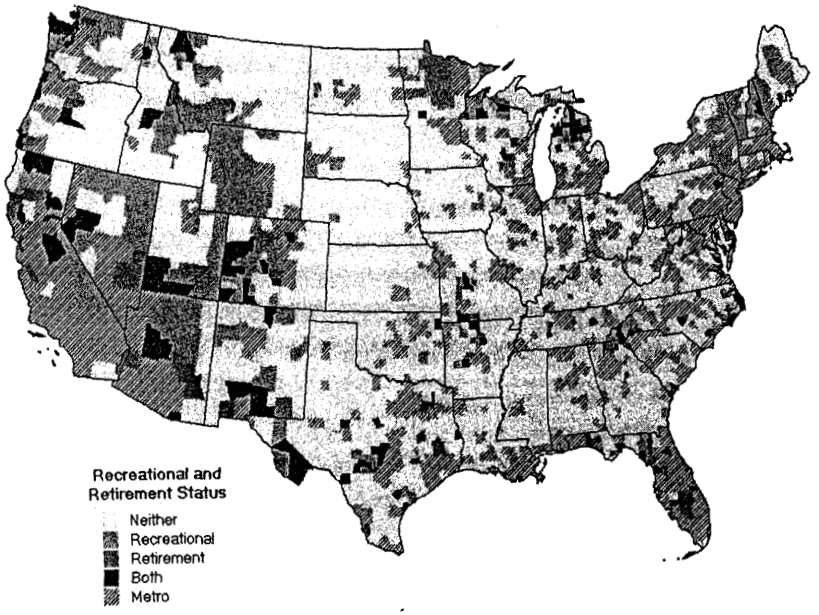


Figure 4.5: The population growth in recreational counties is likely to remain substantial. (From Beale and Johnson [1998] and Cook and Mizer [1994].)

and remain in nonmetropolitan areas. If further data substantiate this startling finding, it suggests that working-age people account for a considerable majority of the migration gain fueling the rural rebound. If the migration profile of nonmetropolitan areas is shifting, it holds significant implications for future growth and development in such areas, as the earning power, expertise, and expectations of working-age individuals and families differ from those of seniors.

A Focus on Recreational Counties

Recent population surveys show that annual migration gains in nonmetropolitan areas peaked in 1994–95 and have diminished each year since.[13] This slowdown in the late 1990s closely resembles the migration patterns during the 1970s. However, although little is known about why net migration to nonmetropolitan areas has slowed, the growth of recreational counties in particular promises to remain significant.

The nation's 285 counties with significant concentrations of recreational activity represent 16 percent of the year 2000 nonmetropolitan population and 12 percent of all counties. Recreational counties are widely distributed, but several regions contain significant concentrations (see Figure 4.5). In the Upper Great Lakes and the Northeast, many such counties are in traditionally summer-oriented lake regions, though most such areas now also encompass winter sports. In the West, many recreational counties contain popular national parks or the numerous ski resorts developed over the past generation. Recreational counties also encompass the southern Appalachians as well as the Ozarks and other nonmetropolitan regions of the Atlantic and Pacific coasts. The Great Plains, the Corn Belt, and the lower Mid-South (Louisiana, Mississippi, and Alabama) have a dearth of recreational counties.

Recreational counties enjoyed a substantial population gain of 19.3 percent between 1990 and 2000—compared with an overall growth of 10.3 percent for all nonmetropolitan counties and 13.1 percent for the nation as a whole (see Table 4.3). Migration fueled most of this growth, with the percentage gain from net migration more than twice that in nonmetropolitan areas and the nation as a whole. Newcomers are attracted to the scenic and leisure-time amenities of recreational areas, while fewer existing residents leave, because of the economic opportunities that growth fosters. Natural increase has contributed relatively little to recent population gains in these areas.

Growth rates in the 101 counties designated as both recreational and retirement destinations are the highest of any identified group. Both types of counties tend to offer natural amenities, temperate climate, and scenic advantages that attract vacationers and seasonal residents as well as retirees.[14]

Although many recreational counties are some distance from major urban centers, 105 are adjacent to metropolitan areas that contain nearly 100 million residents, and those counties are even more likely to grow than are other recreational counties. As the nation's metropolitan population continues to deconcentrate, areas near urban centers that contain scenic and recreational amenities are likely to be particularly appealing to people seeking both permanent residences and second homes.

Growth in recreational counties is not a short-term phenomenon: data spanning three turbulent decades show their sustained appeal.

Table 4.3: Aggregate Population Change, Net Migration, and Natural Increase by Recreational and Metropolitan Status, 1970–2000

	No. of cases	Initial population (thousands)	Population change: Absolute change (thousands)	Population change: Percent change	Population change: Percent growing	Net migration: Absolute change (thousands)	Net migration: Percent change	Net migration: Percent growing	Natural increase: Absolute change (thousands)	Natural increase: Percent change	Natural increase: Percent growing
1970–1980:											
Recreation	284	5,337	1,443	27.0	95.1	1,102	20.6	90.1	341	6.4	88.7
All nonmetro	2307	43,661	5,919	13.6	79.7	3,219	7.4	66.9	2,685	6.1	88.1
Metro	836	159,641	17,326	10.9	88.6	6,002	3.8	73.3	11,324	7.1	97.8
Total	**3142**	**203,302**	**23,245**	**11.4**	**82.1**	**9,221**	**4.5**	**68.6**	**14,009**	**6.9**	**90.7**
1980–1990:											
Recreation	285	6,780	934	13.8	79.6	515	7.6	61.8	420	6.2	88.8
All nonmetro	2305	49,577	1,321	2.7	45.1	−1,370	−2.8	27.5	2,690	5.4	89.6
Metro	836	176,965	20,847	11.8	81.0	6,576	3.7	57.7	14,271	8.1	97.7
Total	**3141**	**226,542**	**22,168**	**9.8**	**54.7**	**5,206**	**2.3**	**35.5**	**16,961**	**7.5**	**91.8**
1990–2000:											
Recreation	285	7,714	1,491	19.3	89.8	1,223	15.9	83.1	268	3.5	72.3
All nonmetro	2303	50,824	5,249	10.3	73.9	3,509	6.9	68.3	1,740	3.4	71.4
Metro	837	197,963	27,383	13.8	90.1	12,044	6.1	77.5	15,338	7.7	95.2
Total	**3140**	**248,791**	**32,632**	**13.1**	**78.2**	**15,553**	**6.3**	**70.7**	**17,078**	**6.9**	**77.8**

Notes: 1993 metropolitan status used.
Data for net migration and natural increase for 1990–2000 are estimates.

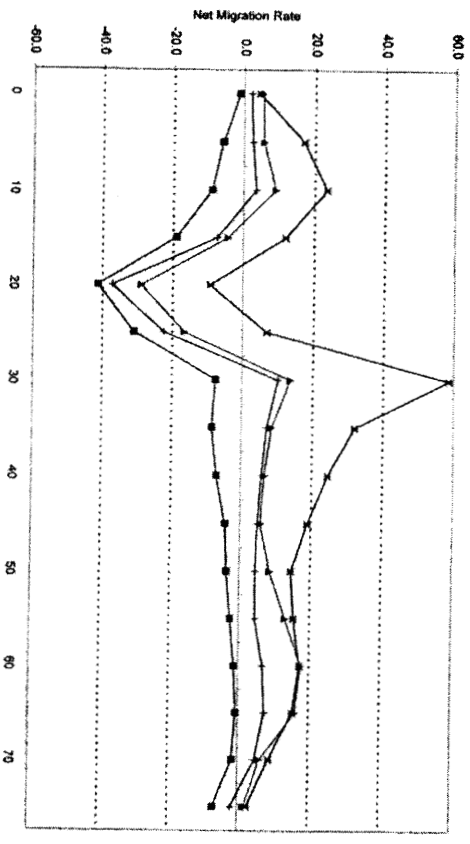


Figure 4.6: Recreational areas are experiencing population growth due to the migration of a broad age range of individuals and families. (From Johnson and Fuguitt [2000].)

During the rural population turnaround of the 1970s, gains in recreational counties were particularly rapid: 95 percent of these counties gained population, and 90 percent recorded net in-migration. During the 1980s, when most nonmetropolitan areas grew little, if at all, nearly 80 percent of recreational counties continued to gain population and more than 60 percent saw net in-migration. The population gain in recreational counties during that decade (13.8 percent) was more than five times that of all nonmetropolitan counties.

David McGranahan has documented the strong relationship between the capacity to attract and retain population and counties with high levels of natural amenities, such as a moderate climate, varied topography, and bodies of water.[15] The average 1970–96 population change in nonmetropolitan counties high on his amenity index was 120 percent, compared with 1 percent for counties low on his index.

The overall shape of the age-specific migration profile for recreational counties is consistent with that of nonmetropolitan America generally, with migration losses greatest and gains lowest among young adults. Migration gains among young adults were lowest during the

1950s and peaked during the turnaround decade of the 1970s, with the 1980s intermediate between these extremes—a pattern virtually identical to that among older adults.

Recent research suggests that recreational areas entice significant numbers of older migrants, but migration gains in such counties are also significant for adults age thirty and over and their children (see Figure 4.6). The fact that recreational counties are attracting a relatively broad cross section of the population has significant implications for planners and policy makers because demands on the environment and expectations for government services are age based.

The Impact of Growth in Recreational Regions

Recent studies suggest that rapid population change exacerbates fiscal problems in nonmetropolitan counties.[16] Such problems are likely to be especially severe in recreational counties, which face greater costs for infrastructure and personnel than do nonrecreational counties of the same size, because they must cope with the additional demands of a transient population.[17] Recent research also suggests that recreational visits to an area may represent the first link in a chain of activities that eventually leads people to migrate to the area.[18] Thus the widespread appeal of recreational and scenic areas for second homes is likely to foster even more in-migration over the next several decades as the large baby boom cohort disengages from the labor force.

Unfortunately, the scenic amenities that attract visitors and migrants often encompass fragile ecosystems. Lakes, coastal regions, and forests are likely to experience higher levels of environmental stress as the volume of human activity increases.[19] Such stresses are likely to be most pronounced at the human–nature interface. For example, many amenity areas were originally settled as small, seasonal second-home developments. However, once established, such areas have tended to grow quickly.[20] Recently, as the retirement-age population has grown and as technological and transportation innovations have made these areas more accessible, people have begun renovating and expanding modest second homes or tearing them down and replacing them with much larger year-round units. This is likely to increase the stress on water quality because septic systems designed for weekend use may not support the greater effluent produced by full-time or nearly full-time residents making frequent use of dishwashers, washing machines, and other water-hungry appliances.

Intensive development in amenity-rich areas affects riparian areas as well. As lawns and extensive landscaping replace native plants at the water's edge, runoff into lakes and streams rises because native species no longer provide filtering. Development also replaces wetlands, bogs, and fallen trees along the water's edge with docks and breakwaters. Growing use of boats and personal watercraft accelerates erosion and introduces foreign species into lakes and streams.

Population growth in amenity-rich areas also fragments forests. Such fragmentation makes it increasingly difficult to manage forests and vastly complicates the task of suppressing forest fires, because staff and equipment must be deployed to protect housing and lives along the forest edge. The use of controlled burns to manage forests is also much less feasible.

The Impact of Sprawl on Farms

Rural America was originally settled by people who subsisted—and sometimes flourished—by extracting food, fiber, and minerals from the environment. Although agriculture no longer dominates rural America as it once did, it remains an important element of the local economy and psyche in broad swaths of the country. The deconcentration of the U.S. population is exerting a significant impact on both the natural and the social environment in farming areas.

In agricultural regions, development can consume thousands of acres of prime farmland at an alarming rate. Development also fragments remaining agricultural land, making operations difficult for farmers. Rising traffic density on traditional farm-to-market roads makes moving heavy equipment from field to field difficult, and farmers must travel farther to reach dealers who service and sell parts for complex equipment and to deliver crops to wholesalers at grain elevators, dairies, and livestock yards. Development also pushes up land prices, so young farmers face enormous financial burdens getting started and older farmers have more difficulty passing their land on to the next generation. Rapid development also quickly makes farmers a minority despite their centrality to an area's character and appeal.

Rural population growth therefore jeopardizes the social as well as

the natural environment in nonmetropolitan areas. Many of these areas need and welcome additional population, but rural residents are concerned about how the influx of people and businesses will influence an area. Will new people and firms alter the style and pace of life that make such regions appealing? People who move to rural areas often want to escape problems associated with urban living, but they also often expect the services typically available in urban areas.

Newcomers bring more than expectations for better services; they also bring new talents, ideas, and ways of doing things. This influx of new people and ideas is both exciting and threatening. It is exciting because it represents an infusion of human capital into communities that have lost much through the years. Newcomers bring expertise and skills that may reinvigorate existing institutions and create new ones. But such an influx also is threatening because it challenges long-established social networks and procedures. Integrating new arrivals without destroying the sense of community that makes smaller places appealing is no less daunting a task than protecting the natural environment.

The deconcentration of the U.S. population underscores the fact that urban sprawl and smart growth are particularly significant for nonmetropolitan areas. Yet much discussion of smart growth might be better characterized as abatement of suburban sprawl. Such discussion is dominated by city and suburban interests maneuvering to protect turf and access to resources. Yet, for rural communities that have coped with declining populations and resources for years, managing an influx of people and businesses represents a serious challenge that many are not fully prepared to face.

These special needs must be considered in developing smart growth policies. To manage growth in rural areas, local governments need the staff, training, legal framework, and resources to produce and enforce plans that protect the environment, public access, open space, and farmland. Any serious discussion of smart growth must recognize nonmetropolitan areas as viable partners in the policy-making process.

The Future of Rural Expansion

The slowdown in migration to nonmetropolitan areas during the late 1990s underscores the complexity of forces shaping the demographic future of nonmetropolitan areas. Deconcentration is likely to continue as the U.S. population grows and both technological and organizational innovations continue to diminish the importance of distance, but such deconcentration is likely to be selective and sensitive to temporal and cyclical factors, such as the economy.[21]

The rapid growth of the older population after 2010, the process by which the baby boom generation disengages from the labor force, and the residential decisions baby boomers make will exert a profound impact on the rate and pattern of population deconcentration. The nation has never had such a large number of affluent, well-educated, and healthy older citizens. Although most older Americans do not migrate, those who do have enormous flexibility in where they settle. Should baby boomers be attracted to the same areas that have appealed to earlier cohorts of retirees, population growth in recreational and high-amenity areas could be substantial.

Future nonmetropolitan demographic change will likely depend even more on migration because recent rural fertility patterns, together with shifts in the age structure of rural populations, have diminished the contribution natural increase can make to rural growth. The rising dependence of such areas on migration, coupled with their greater integration into the national and international economic, communications, and transportation systems, will make rural America ever more sensitive to outside forces. That the pattern of future growth in the nation's vast nonmetropolitan regions should depend on such a broad array of forces underscores how information technology has altered the world and how closely the future of the natural environment is linked to human settlement patterns.

NOTES

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1. The terms *rural* and *nonmetropolitan* are used interchangeably here, consistent with literature on the subject. Definitions by the U.S. Census Bureau of rural and nonmetropolitan areas differ, but these distinctions are not relevant

to this chapter.

2. To avoid confusion regarding the two recent periods of rural demographic growth, the term *turnaround* is used to refer to the rural gains of the 1970s. The term *rebound* refers to the nonmetropolitan gains since 1990.
3. The 2000 population of each county comes from the PL-94 redistricting datasets released by the U.S. Census Bureau in March 2000. Natural increase between 1990 and 2000 was estimated using data from the Federal-State Cooperative Population Estimates Program (FSCPE). This FSCPE dataset reports births and deaths on an annual basis as of July 1 and covers the period from April 1, 1990, through July 1, 1999. To estimate natural increase for the nine-month period from July 1, 1999, to April 1, 2000, natural increase for the period from July 1, 1997, to July 1, 1999, was multiplied by .375 and added to natural increase from April 1, 1990, to July 1, 1999. Net migration from 1990 to 2000 was calculated as a residual of population change minus natural increase.

   Counties are the unit of analysis because they have historically stable boundaries and are a basic unit for reporting fertility, mortality, and census data. Counties are delineated as metropolitan or nonmetropolitan using criteria developed by the U.S. Office of Management and Budget. The United States contains 3,142 counties or county equivalents. As of 1993, 837 counties were defined as metropolitan and 2,305 were defined as nonmetropolitan. Based on empirical and contextual analysis, 285 counties were designated as recreational. Data used to identify recreational counties came from the Census Bureau's Census of Housing and Economic Census and from the Bureau of Economic Analysis. A detailed discussion of the creation of the recreational variable is presented in Calvin L. Beale and Kenneth M. Johnson, "The Identification of Recreational Counties in Nonmetropolitan Areas of the USA," *Population Research and Policy Review* 17 (1998): 37–53.
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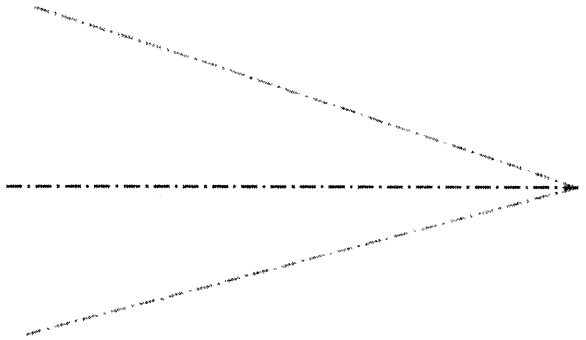

CHAPTER 5

Farmland in the Age of the Internet

"LET THEM EAT ELECTRONS"?

Ralph E. Grossi

Without doubt, the Internet is one of the great technological developments of our time, revolutionizing the way people communicate, learn, spend money, and pursue their livelihoods. As with all new developments, however, this one has benefits and drawbacks—and one of the unintended impacts of this new technology might be the destruction of vast areas of prime farmland, particularly on the outskirts of America's metropolitan areas.

No matter how many cables are stretched from town to town, and no matter how many communications satellites are sent into orbit, one factor never changes: the amount of land on Planet Earth. As we charge into the twenty-first century and the third millennium, the competition for that land is intensifying at an unprecedented rate. The symptoms of this competition are readily visible in the almost constant conflicts between private landowners and public interests over a wide range of values attached to the working landscape.

Used carefully and thoughtfully, the Internet and other modern technology could become a tool to mitigate the pressure of population growth