A street scene in a historic town, likely in the American South, featuring brick buildings, street lamps, and various signs. The street is lined with multi-story buildings, some with ornate architectural details. A prominent sign reads "UPTOWN DOWNTOWN". Other signs include "The Blueberry Carriage" and "The Corner". The street is paved and has a yellow curb. A street lamp is visible in the foreground on the left.

# Rural America

USDA/ERS • Volume 15, Issue 3 • September 2000

Turning the Corner  
Into the **21st**  
**Century**

**Douglas E. Bowers**, Executive Editor  
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**On the cover:**  
*Downtown Galena, IL*  
(Photo by Larry Lefever  
from Grant Heilman Photography, Inc.)



# Rural America

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As we enter a new century, it is appropriate to review where we have been and in what direction we are likely to go. This issue of *Rural America* begins with an article by David Freshwater looking at what factors have brought change to rural areas over the past century and what strategies might be best in shaping rural policy for the next century. Rural America, once almost synonymous with agriculture, has been dramatically changed by technology, urbanization, the shift to a service economy, globalization, and a number of other developments. For rural areas to remain vital, policymakers must deal with these changes. Doing so, however, will not be easy. It will require gaining urban support for rural interests, building coalitions, and crafting policies with the flexibility to address the growing diversity of rural conditions.

One of the more promising trends of the 1990's has been a renewal of migration to rural areas, after a decade of net outmigration. F. Larry Leistritz and his coauthors use a new survey of recent migrants to Nebraska and North Dakota to better understand who is moving to rural counties in these States and what motivates them. They found that, as a group, immigrants were younger and better educated than the overall population for those States. Quality-of-life factors—especially safe communities, closeness to relatives, and the natural environment—were usually more important than economic ones. These findings complement previous articles in *Rural Development Perspectives* issues dealing with the Great Plains (June 1998) and the West (August 1999).

Two articles address rural transportation issues. Fred Gale and Dennis Brown report on the problems that rural businesses have with airport service. ERS's 1996 Rural Manufacturing Survey found that the more rural a county is, the more likely it is that manufacturers there will cite poor airport access as a leading problem. Decisions on rural business development should take into account the importance of airport construction and regulation. Nina Glasgow examines the transportation patterns of older rural Americans, especially in New York State. Partly due to limited public transportation, older people in rural areas are even more likely to get around by car than their urban counterparts. Older people tend to regulate their driving as they age, driving less on highways and congested streets. As this population grows with the aging of Baby Boomers, policymakers will need to address the safety concerns of older drivers and find alternatives to private vehicles.

The farm sector has gone through substantial change in the past half century and so have debates on farm policy. Traditionally, farm policy has emphasized improvements in farm income through price or income supports, conservation programs, and other policies related to farm business decisions. Leslie Whitener and her coauthors explore several other ways by which a safety net might be built for low- to moderate-income farm households using regional median household income, 185 percent of the poverty line, average household expenditures, and median hourly earnings of the nonfarm self-employed. In general, these scenarios would benefit low-income farmers, though only one would cost less than current programs.

The final two articles deal with rural credit. Julie Dolan explores how the Gramm-Leach-Bliley Act of 1999 is likely to affect rural banks. The act gives rural banks broader access to low-cost advances from the Federal Home Loan Bank System. Although there are concerns that this new source of funds may lead to riskier loans by rural banks, the new legislation addresses the fear that increased competition in the banking industry may make it harder for rural banks to find local sources of funds. Finally, George Wallace discusses an unusual "sweat equity" loan program offered under USDA's Section 502 rural housing loan authority. This self-help program is especially popular among Hispanics in the West, where 10 to 12 borrowers get together to help each other build their homes. Most participants believe this program has helped them obtain improved housing in better neighborhoods at costs lower or similar to what they would have paid otherwise.

Douglas E. Bowers

# Rural America at the Turn of the Century

## One Analyst's Perspective

David Freshwater

**C**hange in rural places comes from many sources and often affects rural areas unevenly. The following list of factors important in rural change is not exhaustive, nor are the factors listed in order of importance. A minor force in one place can be the dominant force in another.

### **Resource Depletion**

Resource depletion is a fact of life in mining communities. Mines have a finite stock of materials. And even before mines are physically exhausted, most are abandoned when the costs of production become too high and the mines are no longer economically viable. When the mine shuts down, the community must find an alternative economic base or decline.

Other forms of resource depletion are less certain. Renewable resources, such as forests or fisheries, can be depleted to a point that the community can no longer sustain itself. The cod fishery in Newfoundland and New England, once seemingly inexhaustible, is

*The last 100 years have ushered in major change to the countryside. Once a majority, rural people are now a minority, while farmers have become a minority even in rural areas. Mines have opened and closed, creating and then eliminating communities. Forests have been harvested and restored. And in some rural regions, a wave of manufacturing has swept in and then largely disappeared. At the turn of the 21st century, one thing is clear: rural areas will not return to the way they were. If rural people and places are to benefit from ongoing changes, rural advocates must build coalitions, gain urban support, and promote sound policies.*

depleted. Western Federal lands have been overgrazed by ranchers with little stake in preserving their carrying capacity. In these cases, depletion is not inevitable but the effect is the same: the community must adapt or decline.

### **Changing Government Policies**

Numerous changes in national policy affect rural communities. The closing of military bases in the 1990's had major impacts in the Northeast and Central Plains States. The 1996 farm legislation, which shifted risk more directly onto farmers, will likely lead to further consolidation in agriculture. Deregulation of airlines, transport, telecommunications, and now electricity often reduces costs at the national level, but most rural areas see costs rise.

### **Changing Markets**

Shifts in markets affect rural areas. For example, American ranchers lost sales in Europe when restrictions were imposed on the sale of hormone-fed beef. Likewise, the introduction of syn-

thetic fibers after World War II caused cotton production to fall, only to recover later as new markets opened and the population grew. Other examples include the opening of new markets for specialty mushrooms and organic crops; the burgeoning rural tourism market; and, of course, the widely touted introduction of genetically modified crops and the mixed consumer response. In each case, the rural people and places that relied upon a specific market were greatly affected.

### **Technological Change**

Advancing technology is a driving force in rural America, with agriculture being the classic example. New equipment and new crop varieties have allowed ever fewer farmers to feed ever more people, thereby changing the nature of rural America. In other industries—steel, automobiles, and even health care—technology altered the minimum efficient scale, and brought about great change in rural areas. The mini-mill, for example, enabled steel production in small

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rural communities with access to scrap and cheap electricity, regardless of proximity to coal mines. The result: some small rural communities gained while others—coal mining ones—lost.

### **Globalization**

Rural America has always depended heavily on international trade, especially for resource-based products. Consequently, the increased integration of national economies has had major impacts on rural businesses. For example, flows of capital and goods now follow international price signals, and many of the firms in rural areas—those producing textiles, fabricated metals, and some agricultural commodities—are no longer competitive with foreign firms.

### **Shift to a Service Economy**

In the last 50 years, the production of goods has been eclipsed by the production of services and information. Modern services such as accounting firms, patent firms, investment banking, marketing, and management consulting generate large amounts of wealth but are rarely found in rural areas. Although it is possible to deliver these services from almost anywhere, there are clear advantages in being close to a major airport and in being near colleagues.

Even services like retailing and restaurants have changed in ways that affect rural places. Downtowns that consisted of small shops owned and operated by local residents have been displaced by large chain stores like Wal-Mart and fran-

chise restaurants out on the bypass. As a result, communities lose to corporate headquarters not only profits, but also local entrepreneurs who helped the community develop.

### **Lower Transport Costs**

Steady declines in the cost of moving goods, people, and information have also changed rural America. Better roads, vehicles, and communications systems mean there is little need for many of the communities that once were service centers in rural places. Towns can now be further apart with little drop in the timeliness of service. Likewise, lowering costs removed barriers to trade and opened rural firms to urban and international competitors. On the other hand, new opportunities for rural tourism have been created by allowing people other than the wealthy to travel.

### **Urbanization**

As the share of population living in cities increased, political and economic power eroded in rural areas. Congress, dominated by urban interests, focuses on urban issues and often ignores the effects of policies on rural areas. Examples include mandates to use the best available technology for waste treatment even though these technologies generally cost more and are no more effective than older technologies in rural environments, or developing job training programs that cannot be operated in rural areas because either too few people are eligible for the program or the minimum class size is so large that the graduates of the program would exceed the demand for workers with those skills. When attempts are made to modify policies to better fit rural places, they generally are limited to a sin-



Photo courtesy Economic Research Service, USDA.

gle adjustment for all rural places, which ignores the diversity of rural areas.

### **Rural Development Policy: Whose Role Is It?**

Rural development policy can help rural people and places adapt to change and benefit from it. Much analysis of rural policy in the United States focuses on national

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*... the Federal Government's biggest influence on rural areas today comes through policies that affect individuals irrespective of where they live.*

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policy, reflecting both the history of efforts to spur western expansion and the domination of farm policy in discussions about rural development. The West, however, has been settled, and the changes outlined above have created a rural America that no longer responds to a national policy focused on farming or any other single sector. Furthermore, it is becoming clear that the Federal Government—once the dominant force in rural development—has been less than effective in playing that role.

Why? First, increasing rural diversity makes it impossible for one or even a set of Federal policies to adequately address the needs of all rural places. In fact, a single policy will be ineffective in most places simply because it must be designed to suit average conditions, and rural places vary so much that the average is not a good approximation.

Second, and at the other extreme, tailoring unique policies to specific places is impossible to administer from the national level. Such an approach—requiring that the Federal Government design assistance packages specific to each rural community—obviously is not going to happen. Even a compromise approach—one in which the Government developed 50 policies, one for each State—would probably still be too general to succeed in most communities.

Third, except for brief periods in the 1930's and in the 1960's, the U.S. Government has not engaged in systemic efforts to foster economic development in rural areas. While specific programs—such as the infrastructure programs of USDA or the business assistance programs of the Department of Commerce—have been available, they have not been well coordinated, nor has there been sustained commitment to either long-term funding or to making program assistance available to specific communities over time.

Finally, in the past, when farm policy was a good proxy for rural development, it was possible to set goals for rural areas and pursue them. For example, if farm incomes were increasing and government outlays on farm policies were modest, then one could argue that rural development was taking place. Now it is less clear. We no longer have a single definition of rural development. Is it synonymous with economic growth, or more than simple expansion? Some argue that targeting beneficiaries is necessary; others argue that “a rising tide lifts all ships.” Some see development as a matter of stability and endurance. Still others consider development to be a process of continuous change.

Not surprisingly, then, we have no national rural development policy. And absent one, the Federal Government's biggest influence on rural areas today comes through policies that affect individuals irrespective of where they live. Social Security, Medicare, minimum wage legislation, and national environmental standards have a great influence on rural people and places. In fact, their influence is far greater than the meager funding appropriated for actual rural development programs.

The case for State government leading rural development is also a difficult one to make. Historically, State governments have played a limited role in rural development policy, in part because the Federal Government had a clearly established policy and because States had limited resources for economic development activity, which they preferred to focus on efforts with higher potential return and visibility. In the late 1980's, when rural conditions were depressed, the National Governors Association outlined a rural development policy that would have meant a much larger role for the States (John, Batie, and Norris). State governments would take the lead in rural development since they were closer to actual rural communities and could better articulate a development strategy that fit the conditions of the people and places in each State. Unfortunately, the proposal called for a large transfer of Federal funds to the States, while requiring little accountability from them. This suggested that the States did not believe enough in this new vision of rural development policy to commit their own funds. Indeed, most State governments had no better idea of appropriate development paths for rural places than

did the Federal Government. Consequently, the State plans would have simply substituted one top-down program for another.

These difficulties notwithstanding, State governments do play a major role in rural development. State policies determine where roads go and which ones are improved, set performance standards for school systems, determine hospital locations, and effectively control local government revenues and expenditures. Local government power and responsibility are assigned by State governments; for this reason alone, all local development approaches require enabling legislation by the State legislature.

On that note, the role of local government in rural development has only recently received the attention it has long been given in urban development. While cities have long been seen as playing a key role in their own development, the notion that local governments could influence rural development is relatively rare. Most regional economists and planners see rural areas as part of an urban sphere of influence, with the fate of the smaller place dependent on what happens in the city.

However, rural policy in the United States seems to be coming to grips with the necessity of involving local governments and local leaders in rural development (OECD; Shaffer; Radin; Rowley and Ho). Diverse needs and opportunities are the obvious reason for doing so. If you cannot conceive of a national or State rural development policy that is both flexible enough to serve most rural places' needs and cheap to administer, then you are driven to locally based policies that allow the use of a variety of Federal and State programs

in ways that are appropriate to that place. In addition, the notion of locally based development fits into the current political culture of making people responsible for their own future and requiring them to invest their own resources.

Nevertheless, a locally based development strategy has drawbacks. First, it sets up competition among communities in the search for employment and income. Inevitably, this competition results in higher levels of financial and other inducements to attract, retain, or create businesses. In the process, communities transfer wealth to businesses and by doing so make themselves poorer than they would have been absent the competition. While it may be possible to develop a cooperative development strategy that cuts across multiple places, there will always be a tension that reflects the incentive to maximize short-term self-interest.

Second, locally based programs mistakenly assume that the national or State interest is best served by the individual decisions of local communities, each of which optimizes its own situation. While it was efficient for cotton farmers in the South to replace unskilled labor with machines, the resulting mass migration contributed to major urban problems in the 1960's.

### **Rural Development in the New Millennium**

Regardless of which level of government takes the lead in rural development, rural citizens have a vital interest in influencing the decisions that affect them. With the exception of agriculture, however, rural Americans have been unsuccessful in channeling government policy. Success in the new millennium will depend upon build-

ing coalitions, gaining urban support, and promoting sound policies.

### **Build Coalitions**

To gain the support and access necessary to promote policies that make sense for rural America (and make the best of its remaining political capital), rural interests

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*While cities have long been seen as playing a key role in their own development, the notion that local governments could influence rural development is relatively rare.*

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must do what has so far been impossible: build a coalition able to advance the rural perspective on a broad range of issues.

To build such a coalition, rural groups will need to develop a new paradigm that allows them to see that their individual interests are best served by working to develop mutual interests. Unfortunately, rural residents generally lack the skills and experience necessary for organizing such partnerships and the rural ethos of independence and self-reliance is an impediment.

### **Gain Urban Support**

With the ebb of rural influence in the past century, urban concerns have come to dominate in economic, social, environmental, and political issues (Freshwater and Reimer; Swanson and Freshwater). Consequently, those promoting rural development must find a strategy that is acceptable to the urban majority. Rural support is no

longer enough, required now is the endorsement of urban people. Unfortunately, many urbanites see rural development efforts—such as the extractive use of natural resources or the building of dams, highways, and other infrastructure—as inconsistent with national interests in preserving rural amenities.

Gaining urban support will not be easy. Urban America has become increasingly suspicious of rural decisions and behavior. Rural residents are no longer seen unequivocally as stewards of the Nation's resources. In this urban view, loggers are a threat to endangered species. Corporate farms pollute rivers and eliminate wildlife habitat. Mining companies level mountains and dump toxic wastes in valleys. Rural manufacturing firms pay low wages and import illegal aliens to do work that is too degrading for U.S. citizens. In addition, rural America has its share of crime, drugs, and social dysfunction. In short, the behavior of rural people no longer fits the urban perception of rurality (Howarth). Although these behaviors may differ little from 30 or 40 years ago, they are now—through television, modern communications, and rapid transportation—highly visible and often disturbing.

Thus, at a minimum, rural areas must address the growing conflict over environmental preservation versus development. While the comparative advantage of many rural areas will remain in resource-based activities, the urban population—removed though it is—is in the position to set the terms in which rural residents interact with the natural environment. Unless rural policy can influence the development of social and economic policy, particularly environmen-

tal policies, rural residents will find the options for economic restructuring fairly limited.

### ***Promote Sound Policies***

The future of rural America rests upon its ability—with governmental assistance—to define and develop competitive industries to replace the resource extraction and low-skill manufacturing industries upon which it has depended. Entrepreneurship, tourism, recreation, and retirement are frequently touted, and there are many successful examples of each.

However, problems remain. While entrepreneurship does promote rural economic development, how should it be instigated? Similarly, tourism, recreation, and retirement provide opportunities for some rural places, but not all. Such development strategies require some minimum level of desirable environmental characteristics, like climate, topography, and historical or cultural significance. Absent these, efforts to attract visitors and retirees are likely to fail.

Making the transition to industries that can compete and support rural communities in the new era will be difficult, and may even be treacherous. An open economy based upon global markets threatens the survival of many rural businesses, such as the manufacturing of standardized commodities that uses low-cost labor and simple technology. In fact, many manufacturing firms are so exposed to foreign competition that they moved to rural areas as a way to reduce costs enough to make them competitive. Now, however, the competitive advantage offered by cheap land, labor, and electricity—and by lax regulations—has eroded and the same firms are moving out of the country to even cheaper loca-

tions (Rowley and Freshwater). Many rural areas, particularly in the South, must compete either with developing countries for low-wage, low-skill jobs (on the basis of better proximity to markets) or with regions in North America and Europe that have better trained workers for higher value work. The first course requires continued efforts to drive costs of production down, often at the expense of workers. The second path requires major investments in worker skills, production technology, and community infrastructure, with no promise of success.

Unfortunately, the small size of rural places makes such investments especially difficult. Not only are they expensive—in absolute terms and, even more so, in per capita terms—they are also risky. In a city, if a builder overestimates demand and builds three more warehouses than can be used immediately, it will not take much time or much of a discount to fill them. By contrast, one extra warehouse in a rural area can overhang the market for a number of years and significantly depress rents for all warehouses in the vicinity. On top of that, there is generally less reliable information in rural areas for making investment decisions. Nonetheless, if rural areas are to be competitive, they will have to make significant investments in people, companies, and infrastructure.

Because the transition among rural industries will be so difficult, other policies must also play a role. First, although agriculture no longer drives the rural economy, commodity programs continue to be a source of income for rural residents. Second, because rural areas depend heavily on government decisions about trade, environmental protection, and financial institu-

tions, these indirect policies must be made rural-friendly. Third, social policy must help rural people unable to work to get health care, food, and other necessities of living. Simply increasing funds for existing programs will not do the trick because, designed as they are with urban areas in mind, they are ill-suited to meeting the needs in rural areas (Greenstein and Shapiro). Thus, it is critical that rural interests work to increase program flexibility to ensure that rural

residents can obtain the greatest benefit from government outlays.

The challenges for rural people and places are great. And many of the characteristics that define rural America only increase the difficulty. The alternatives, however, are few. If rural areas fail in their attempts to build coalitions, gain urban support, and promote policies that enable them to compete and succeed in the new century, they may once again enter a period of decline.

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# Inmigrants to the Northern Great Plains

## Survey Results from Nebraska and North Dakota

F. Larry **Leistriz**  
Sam **Cordes**  
Randall S. **Sell**  
John C. **Allen**  
Rebecca **Filkins**

**P**opulation change is a major issue for rural decisionmakers. Migration underpins local population change, and yet it is difficult to predict. It transforms public infrastructure and service needs, labor supply, and housing requirements in both origin and destination communities. During the 1980's, much of the Great Plains suffered vast outmigration, with attendant hardship in rural communities. However, recent employment growth associated with successful economic development has reversed migration in some areas. Understanding the characteristics of these inmigrants, their motivations for moving, and their expectations of and satisfaction with their new community helps decisionmakers plan for

*New arrivals to Nebraska and North Dakota had higher educational levels than did the States' populations overall, but few fit the "lone eagle" profile—individuals engaged in high-paying, knowledge-based industries who telecommute to work or service distant clients. Migrants appeared to move for quality of life rather than economic incentives. Most often cited was a desire to be closer to relatives, a safer place to live, and quality of the natural environment. These promising new residents would augment the population lost by the outmigration of the 1980's.*

future needs and, perhaps, influence the size and character of the immigration stream.

In this article, we identify the salient characteristics of recent inmigrants to the Northern Great Plains (specifically Nebraska and North Dakota) and how they compare with existing residents. We examine the socioeconomic/demographic profile of recent inmigrants, what motivates them to move, how satisfied they are with living in Great Plains communities, and what their employment and workforce characteristics are.

### **New Residents: Who Are They?**

About 42 percent of new residents in North Dakota and 41 percent in Nebraska came from adjacent States or provinces. Among nonadjacent States, the Southwestern States were the leading points of origin for Nebraska inmigrants, with about 10 percent coming from California, 5 percent from Arizona, and 4 percent from Texas.

The origin of North Dakota's inmigrants was more varied; nonadjacent States included California (4.6 percent of new residents), Washington (4.5 percent), Texas (3.4 percent), Nebraska (3.2 percent), Wisconsin (3.0 percent), Colorado (2.9 percent), Illinois (2.7 percent), and Arizona (2.6 percent).

More than three respondents in four lived within the city limits of a city or town, while most others lived within 15 minutes of the nearest town. Only 4 percent of the new residents lived more than 15 minutes from town. Just over half (51 percent) of the new residents owned their current home, 38 percent rented, and the remainder reported other housing (e.g., military base).

Respondents were generally younger than Nebraska's and North Dakota's populations overall. Only 5 percent of North Dakota inmigrants and 13 percent of Nebraska's were 60 or older (table 1), compared with 19 and 18 percent of

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F. Larry Leistriz is a professor and Randall S. Sell is a research scientist in the Department of Agricultural Economics, North Dakota State University, Fargo. Sam Cordes and John C. Allen are professors, and Rebecca Filkins is a program manager in the Center for Rural Community Revitalization and Development, University of Nebraska-Lincoln. Partial financial support for this research was provided by USDA as part of the Regional Center for Rural Development in North Dakota, by the Partnership for Rural Nebraska, and by the Nebraska and North Dakota Agricultural Experiment Stations.

the State residents. The racial/ethnic background of the new residents was similar to that of the States' resident populations. Most respondents were married—70 percent for Nebraska and 68 percent for North Dakota, much higher rates than for the resident populations. Inmigrants were more likely to be divorced or separated, and less likely to be widowed or never married. The lower percentage widowed is likely related to their younger age generally.

The educational level of the new residents was substantially higher than that of the resident populations of the respective States.

About 51 percent of inmigrants to North Dakota and 44 percent to Nebraska were college graduates, compared with 28 percent of North Dakota's residents and 24 percent of Nebraska's (table 1). An additional 33 percent of North Dakota's inmigrants and 34 percent of Nebraska's reported some college or vocational/technical school attendance, compared with 21 percent and 24 percent of the resident population.

About 34 percent of the inmigrants lived in the metro counties of their respective States. The new residents in metro counties of both States were younger and better

educated than nonmetro inmigrants (table 1). For example, about 46 percent of inmigrants in nonmetro Nebraska counties were 40 or older, compared with 38 percent in the State's metro counties. About 55 percent of the inmigrants to North Dakota metro counties were college graduates, compared with 45 percent for nonmetro counties. Metro inmigrants also had higher income levels both before and after their moves. About 33 percent of inmigrants to Nebraska's metro counties had incomes over \$50,000 after their move, compared with 13 percent for nonmetro counties; the corresponding figures for North Dakota were 29 percent for metro inmigrants and 16 percent for nonmetro.

### Why Do New Residents Move?

About 59 percent of inmigrants to Nebraska and 63 percent to North Dakota were first-time residents with no clear metro/nonmetro pattern. In Nebraska, metro areas had a higher percentage of first-time residents, while in North Dakota the percentage of first-time residents was slightly higher in nonmetro areas. In general, the return migrants were older than the first-time residents and were more likely to be divorced, separated, or widowed.

When asked whether they would move to Nebraska (or North Dakota) if they had it to do over again, more than two-thirds of the respondents in each State said definitely or probably yes. Fifteen percent of Nebraska and 20 percent of North Dakota residents replied probably or definitely no, and these shares were similar between metro and nonmetro areas.

New residents most often cited the desire to find a safer place to

Table 1  
**Selected characteristics of inmigrants to Nebraska and North Dakota, 1996-97**  
*Most inmigrants are younger than 40 years*

Characteristic	Nebraska			North Dakota		
	Metro	Non-metro	Total	Metro	Non-metro	Total
<i>Number</i>						
Total sample	183	681	864	355	371	726
<i>Percent</i>						
Respondent age:						
Under 40	62	54	56	73	66	69
40 to 59	31	31	31	22	29	26
60 and over	7	15	13	5	5	5
Respondent education:						
High school or less	14	27	22	11	21	16
Some college or vocational	31	35	34	33	34	33
College graduate	55	38	44	55	45	51
Annual income before move:						
Less than \$20,000	24	33	28	28	30	29
\$20,000 to \$50,000	43	48	46	42	47	45
Over \$50,000	32	19	26	30	22	26
Annual income after move:						
Less than \$20,000	20	41	30	24	36	30
\$20,000 to \$50,000	48	47	47	48	47	48
Over \$50,000	33	13	23	29	16	22

Note: Totals may not add to 100 percent due to rounding.  
Source: Great Plains New Residents Survey.

Table 2

**Reasons for moving, by State and place of residence***Family and safety are most important reasons for moving to North Dakota and Nebraska*

Item	State		Place of residence		Overall
	Nebraska	North Dakota	Metro	Non-metro	
	<i>Percent</i>				
Looking for a safer place to live	57	59	53	61	58 <sup>1</sup>
To be closer to relatives	58	50	49	57	54 <sup>1,2</sup>
To lower cost of living	47	48	44	49	48 <sup>3</sup>
Quality of the natural environment	45	49	44	49	47 <sup>3</sup>
Quality of local grade/high schools	37	34	33	37	36 <sup>3</sup>
Outdoor recreational opportunities	34	38	34	37	36
Desirable climate	26	17	16	26	22
To obtain training/education	20	23	27	18	21 <sup>3,4</sup>
More cultural opportunities	16	16	16	16	16
To get more affordable health care	15	15	15	15	15
To lower cost of operating a business	7	6	4	8	6 <sup>2</sup>

<sup>1</sup>Metro and nonmetro respondents are significantly different at 1-percent level based on Chi Square test.

<sup>2</sup>Nebraska and North Dakota respondents are significantly different at 1-percent level based on Chi Square test.

<sup>3</sup>Metro and nonmetro respondents are significantly different at 10-percent level based on Chi Square test.

<sup>4</sup>Nebraska and North Dakota respondents are significantly different at 10-percent level based on Chi Square test.

Source: Great Plains New Residents Survey.

live and to be closer to relatives as reasons for moving to the Northern Great Plains (table 2). A lower cost of living and the quality of the natural environment also charted with at least 40 percent of all respondents. With a few exceptions—proximity to relatives and desirable climate—Nebraska and North Dakota respondents cited similar reasons for moving. Metro and nonmetro responses were also similar.

When asked about their reasons for leaving their previous location, respondents most often cited the fear of crime, high cost of living,

unsafe place to live, and urban congestion (table 3). Nebraska respondents were less likely to identify high State and/or local taxes as a reason for leaving their previous location than were North Dakota respondents (25 percent vs. 33 percent).

About 21 percent of North Dakota's immigrants and 14 percent of Nebraska's indicated that they definitely planned to move from their community within the next year. Of these, 77 percent (Nebraska) and 74 percent (North Dakota) expected to move out of State. Residents of nonmetro areas

in each State were slightly less likely to move and, if they did move, were more likely to relocate within the State.

**Moves Often Employment Related**

Job-related considerations often compel a move. Among the new North Dakota residents responding to the survey, 12 percent had been transferred by their current employer, 9 percent had received a military transfer, 27 percent had accepted new employment, and 6 percent had moved to start or take over a business (table 4). Including those who moved with a spouse or partner, about 65 percent of the households reported one or more job-related considerations as influencing their move. Nebraska's residents reported similar frequencies for most employment-related factors, except military transfers were less frequently reported by Nebraska's respondents (2 percent vs. 9 percent) and spouses (3 percent vs. 17 percent). The percentage of households that reported one or more job-related factors—particularly military transfers—was substantially higher for first-time residents (67 percent) than for return migrants (53 percent).

Most new residents (65-67 percent) in both States were employed full-time at the time of the survey (table 5). Prior to their move, 66 percent of Nebraska's respondents and 69 percent of North Dakota's had been employed full-time. After moving, 4 percent of Nebraska's respondents and 6 percent of North Dakota's were unemployed. Similar percentages were reported for spouses in each State.

About 14 percent of immigrants in Nebraska were retired, versus 6 percent in North Dakota. About 14 percent of the respondents in Nebraska were homemakers, com-

pared with 16 percent in North Dakota. Six percent of respondents in Nebraska were full or part-time students, compared with 8 percent in North Dakota.

The recent emergence of telecommuting has attracted increasing attention from policy-makers. Overall, about 6 percent of respondents reported that they were telecommuters, 2 percent full-time (table 5). Telecommuting was more common in metro areas (9 percent reported some telecommuting). In comparison, a recent study (Mokhtarian) estimates that 6 percent of the workforce nationwide is telecommuting.

In a related question, only 2 percent of Nebraska's respondents

and 4 percent of North Dakota's indicated that the availability of technologies—personal computers, fax machines, modems, and/or other telecommunications services—influenced their decision to move.

About 73 percent of new residents reported using a computer at work; 57 percent used fax machines, and 54 percent a voice mail/answering service (table 6). Rates of use for all types of equipment and services were lower in rural areas than in metro areas.

The prevalence of some types of equipment or services in homes appeared to be related to respondents' places of residence, while others were relatively uniform in

their distribution. For example, touch-tone phones and VCR players were ubiquitous across both rural and metro households in the study. In contrast, the following telecommunication items were considerably more likely to be found among metro households: telephone answering machines, cable TV, personal computers and modems, electronic mail, and fax machines. About 10 percent of the respondents reported that the telephone service available to their home would limit their ability to use one or more of the services listed. This percentage was about twice as high among rural households (12 percent).

### New Residents Generally Satisfied With Services and New Neighbors

The new residents of Nebraska and North Dakota were generally quite satisfied with their communities. Ratings of the community were most favorable in the rural areas. About 90 percent of respondents in both Nebraska and North Dakota indicated that they felt welcome or very welcome by local residents. There was little difference between metro and nonmetro residents or between first-time residents and return migrants in this regard.

The respondents also evaluated a variety of public services and community amenities. For each item that was available in their community, the respondents indicated their degree of satisfaction, ranging from very satisfied to very dissatisfied. Fire protection rated highest (96 percent of respondents were either very or somewhat satisfied), followed by church or civic activities (92 percent), and senior centers and sewage disposal (91 percent) (table 7). Least satisfactory were entertainment (54 percent),

Table 3

#### Reasons for leaving former location, by State and place of residence

*Crime and cost of living provided impetus for leaving former location*

Item	State		Place of residence		Overall
	Nebraska	North Dakota	Metro	Non-metro	
	<i>Percent</i>				
Fear of crime	45	45	39	48	45 <sup>1</sup>
High cost of living	42	39	31	45	41 <sup>1</sup>
Unsafe place to live	38	36	33	39	37 <sup>2</sup>
Urban congestion	36	33	31	37	35 <sup>2</sup>
High State and/or local taxes	25	33	28	29	29 <sup>3</sup>
Poor schools	20	20	18	21	20
Undesirable climate	19	16	16	19	18
Long commute	17	19	21	17	18 <sup>2</sup>
Quality of the natural environment	19	17	16	19	18
Lack of outdoor recreational opportunities	11	12	10	12	11
Too close to relatives	10	11	9	11	10
Few cultural opportunities	11	10	10	11	10
High cost of operating a business	9	7	5	9	8 <sup>1</sup>

<sup>1</sup>Metro and nonmetro respondents are significantly different at 1-percent level based on Chi Square test.

<sup>2</sup>Metro and nonmetro respondents are significantly different at 10-percent level based on Chi Square test.

<sup>3</sup>Nebraska and North Dakota respondents are significantly different at 1-percent level based on Chi Square test.

Source: Great Plains New Residents Survey.

Table 4

**Job-related considerations for moving, by State and history of residence***Job is an important component of moving*

Item	Nebraska	North Dakota	First-time residents	Return migrants	Overall
	<i>Percent</i>				
<b>Respondent:</b>					
Transferred by current employer	7	12	10	9	9 <sup>1</sup>
Accepted job with new employer	31	27	20	29	29 <sup>2</sup>
Start/take over business	8	6	6	8	7
Military transfer	2	9	8	2	5 <sup>1,3</sup>
<b>Spouse:</b>					
Transferred by current employer	8	10	11	7	9 <sup>4</sup>
Accepted job with new employer	24	23	24	23	24
Start/take over business	8	7	8	8	8
Military transfer	3	17	14	2	9 <sup>1,3</sup>
One or more job-related considerations (respondent or spouse)	58	65	67	53	61 <sup>1,3</sup>

<sup>1</sup>Nebraska and North Dakota respondents are significantly different at 1-percent level based on Chi Square test.

<sup>2</sup>Nebraska and North Dakota respondents are significantly different at 10-percent level based on Chi Square test.

<sup>3</sup>Metro and nonmetro respondents are significantly different at 1-percent level based upon Chi Square test.

<sup>4</sup>Metro and nonmetro respondents are significantly different at 10-percent level based on Chi Square test.

Source: Great Plains New Residents Survey.

public transportation (59 percent), retail shopping (61 percent), streets and highways (63 percent), and restaurants (66 percent). Levels of satisfaction were higher among metro residents than for nonmetro respondents—except for streets and highways.

Some services were reported to be unavailable, especially by nonmetro residents. For example, 23 percent of respondents reported a lack of public transportation, ranging from 4 percent for metro residents to 32 percent for nonmetro residents. Similarly, Head Start pro-

grams were not available to 4 percent of metro respondents and 11 percent of rural residents.

### Implications to Recruiters and Policymakers

Recent employment growth in the Northern Great Plains may be stimulating increased immigration to some rural areas, as well as to the region's larger cities, and additional immigration would help to sustain the region's economic momentum. Understanding the characteristics of the new residents, their motivations for moving, and

their expectations about and satisfaction with their new community is important for State and local decisionmakers.

When asked why they moved to the Great Plains, new residents most often cited looking for a safer place to live (58 percent), a desire to be closer to relatives (54 percent), lower cost of living (48 percent), quality of the natural environment (47 percent), quality of local grade/high schools (36 percent), and outdoor recreational opportunities (36 percent). These attributes could be emphasized by those seeking to encourage individuals or businesses to relocate to the Northern Great Plains.

Inmigrants appeared more responsive to quality-of-life factors than to economic incentives. The incomes of inmigrants were very similar before and after moving. Rather, these persons appear willing to move to the Plains because of perceived quality-of-life benefits, provided job opportunities allow them to maintain their previous income level. These findings are consistent with other research indicating that lifestyle preferences, environmental amenities, and other noneconomic factors may be increasingly important as motivations for migration. Hence, it appears that Northern Great Plains States like Nebraska and North Dakota can attract new residents from many parts of the country.

Despite their extensive use of modern telecommunications capabilities, few inmigrants appeared to fit the profile of the "lone eagle"—individuals engaged in high-paying, knowledge-based industries who telecommute to work or service distant clients via fiber optic networks and fax machines. When asked whether the availability of information technologies had any



Photo courtesy Economic Research Service, USDA.

### **GreatPlains New Residents Survey: Questionnaire Design and Survey Implementation**

Results reported here are based on similar surveys conducted in Nebraska and North Dakota. In each State, questionnaires were mailed to individuals who had moved to the State from some other State or country, and had subsequently surrendered their previous driver's license for a Nebraska or North Dakota license. Because both States require new residents to obtain a new driver's license within a short time (30 to 90 days) of establishing residence, this appeared to be the most comprehensive sample frame available (Cordes et al., Leistriz and Sell).

The Nebraska sample consisted of persons who surrendered licenses between May 1994 and April 1995, while the North Dakota sample consisted of persons who surrendered licenses between January and May 1997. The Nebraska survey used a stratified sample, with sampling rates ranging from 1.7 percent in metro counties to 23.7 percent in the most sparsely populated rural counties. A total of 864 usable surveys were obtained, out of 2,061 mailed, for a response rate of 42 percent. Eliminating the surveys returned by the postal service as undeliverable, the effective response rate was over 50 percent. In North Dakota, a total of 2,640 persons had surrendered licenses between January and May 1997, and questionnaires were mailed to all persons in this group. A total of 726 usable surveys were obtained, a response rate of 27.5 percent. Because of the mail system used, it was not possible to determine how many of the questionnaires that were not returned might have been undeliverable because of incomplete addresses or because the addressee had moved, as opposed to representing refusals to participate. In the analysis presented here, all of the observations (1,590) from the two surveys were given equal weights.

The survey analysis included comparisons of many respondent attributes and observations by place of residence. The counties where respondents resided were categorized into two groups:

- Metro*—six Nebraska counties and four North Dakota counties that are part of metropolitan areas,
- Nonmetro*—the remaining 87 counties in Nebraska and 49 counties in North Dakota.

Table 5

**Labor force and employment characteristics of immigrants after moving, by State and place of residence<sup>1</sup>**  
*Telecommuting is not common among immigrants*

Labor force status	State		Place of residence		Overall
	Nebraska	North Dakota	Metro	Non-metro	
			<i>Percent</i>		
<b>In labor force:</b>					
Employed full-time	65	67	70	64	66 <sup>2,3</sup>
Employed part-time	15	12	13	14	14
Unemployed	4	6	4	5	5
<b>Not in labor force:</b>	16	14	13	17	15
Respondent or spouse operate a business out of the home	20	14	11	20	17 <sup>2,3</sup>
Is respondent a telecommuter?					
No, not at all	95	94	91	96	94 <sup>4</sup>
Yes, 1 day or less per week	3	3	4	2	3
Yes, 2-3 days per week	2	1	2	1	1
Yes, full-time	1	2	2	1	2

Note: Totals may not add to 100 percent due to rounding.

<sup>1</sup>Full-time = employed at least 35 hours per week; Part-time = employed less than 35 hours per week; Unemployed = not employed and looking for work;

Not in labor force = not employed and not looking for work.

<sup>2</sup>Nebraska and North Dakota respondents are significantly different at 10-percent level based on Chi Square test.

<sup>3</sup>Metro and nonmetro respondents are significantly different at 1-percent level based on Chi Square test.

<sup>4</sup>Metro and nonmetro respondents are significantly different at 10-percent level based on Chi Square test.

Source: Great Plains New Residents Survey.

Table 6

**Equipment and services used at work, by residence**  
*Three-quarters of new residents use computers at work*

Equipment and services	Metro	Nonmetro	Overall
			<i>Percent</i>
Computer with keyboard	84	67	73 <sup>1</sup>
Fax machine or fax modem	68	51	57 <sup>1</sup>
Answering service or voice mail	63	49	54 <sup>1</sup>
Overnight or courier delivery of products and supplies	47	38	41 <sup>1</sup>
Electronic mail	51	28	36 <sup>1</sup>
Cellular telephone	36	31	33 <sup>2</sup>
Conference telephone capability	41	27	32 <sup>1</sup>
Internet	37	20	26 <sup>1</sup>

<sup>1</sup>Metro and nonmetro respondents are significantly different at 1-percent level based on Chi Square test.

<sup>2</sup>Nebraska and North Dakota respondents are significantly different at 1-percent level based on Chi Square test.

Source: Great Plains New Residents Survey.

effect on their decision to move, only 2 percent of Nebraska's immigrants and 4 percent of North Dakota's responded yes. Similarly, when asked whether the potential to work "long distance" for the same employer or clients influenced the decision to move, only 3 percent of Nebraska's respondents and 5 percent of North Dakota's indicated this was a factor. Finally, when asked whether they considered themselves to be telecommuters in their present job, 94 percent reported they did not telecommute at all and only 3 percent telecommuted more than 1 day per week.

Table 7

**Satisfaction with public services and community amenities,  
by residence**

*Nonmetro immigrants are not satisfied with entertainment opportunities*

Services and amenities	Metro	Nonmetro	Overall
	<i>Percent</i>		
Fire protection	98	94	96 <sup>1</sup>
Church or civic activities	94	91	92 <sup>2</sup>
Senior centers	92	91	91 <sup>1</sup>
Sewage disposal	95	89	91 <sup>1</sup>
Emergency medical services	94	87	89 <sup>1</sup>
Restaurants	84	55	66 <sup>1</sup>
Streets and highways	60	64	63
Retail shopping	80	50	61 <sup>1</sup>
Public transportation	74	50	59 <sup>1</sup>
Entertainment	72	43	54 <sup>1</sup>

Note: Respondents who indicated that they had “no opinion” or who indicated the service was “not available” were excluded. Figures shown are percentages of those who expressed that they were very or somewhat dissatisfied. The public services and community amenities shown are the top 5 and bottom 5 of a total list of 23 items.

<sup>1</sup>Metro and nonmetro respondents are significantly different at 1-percent level based on Chi Square test.

<sup>2</sup>Metro and nonmetro respondents are significantly different at 1-percent level based on Chi Square test.

Source: Great Plains New Residents Survey.

**For Further Reading . . .**

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# How Important Is Airport Access for Rural Businesses?

Fred Gale  
Dennis Brown

Air transportation is becoming essential to American businesses as they strive for greater efficiency and more timely order fulfillment. Air shipment of parts, components, and finished products facilitates increasingly popular “just-in-time” inventory management and flexible, or “lean,” manufacturing. Customers increasingly expect next-day delivery of orders. Advanced technology and equipment—as well as outsourcing of business services—necessitate frequent trips by vendors, consultants, or headquarters personnel, often by air. Thus, poor access to air transportation can handicap many rural communities hoping to attract and retain cutting-edge businesses.

Deregulation in 1978 lifted fare limits and eliminated minimum service requirements for air service in small communities. While deregulation led to generally lower fares and increased air traffic, air carriers cut flights to smaller communities as they concentrated operations around larger hub airports. This led to relatively high fares, infrequent

*Poor access to air service is a concern for many rural communities, as evidenced by a nationwide sample of manufacturing businesses. Manufacturers in the most rural areas are more likely than others to say that airport access is affecting their ability to compete. Inadequate airport access is one of the top five problems with location cited by manufacturers in the most rural counties. The use of outside technical expertise and location in the West South Central region also increased the probability of citing access problems.*

departures, and use of propeller-driven commuter planes (instead of jet aircraft) for low-volume routes to smaller communities.

Congress established the Essential Air Service Program as part of the 1978 Airline Deregulation Act to ensure that small communities would not lose air service (although it provided no assistance for places without air service that wanted to acquire it). Under this program, the Department of Transportation determines the minimum level of service needed in each eligible community and, where necessary, subsidizes a carrier to ensure adequate service. In 1998, the program received a substantial increase, boosting annual funding to \$50 million. Most benefits go to a few rural communities mostly in the Midwest, Rocky Mountain States, and Alaska.

Concerns about air service for small communities still surface in government reports and the media. States, local governments, and private groups have all undertaken ini-

tiatives to improve or expand service. Decisions about airport construction and improvements also frequently acknowledge the effect of airport access on economic development.

## **Most Nonmetro Counties Lack Access to Major Airports**

The facilities at smaller “general aviation” airports are often inadequate for business needs. For example, a small airport may lack lights and instrument capabilities to facilitate night and all-weather takeoffs and landings. In addition, runways are often too short for jet traffic.

Major hub airports that carry most air passengers are generally located in or near cities, which limits access to rural businesses. There are only 30 “large hub” airports, which account for most passenger traffic, and all are located in large metropolitan areas (see “Federal Aviation Administration Airport Classification,” p. 24). In addition, all 38 medium hub and 73 small hub airports are in metro areas.

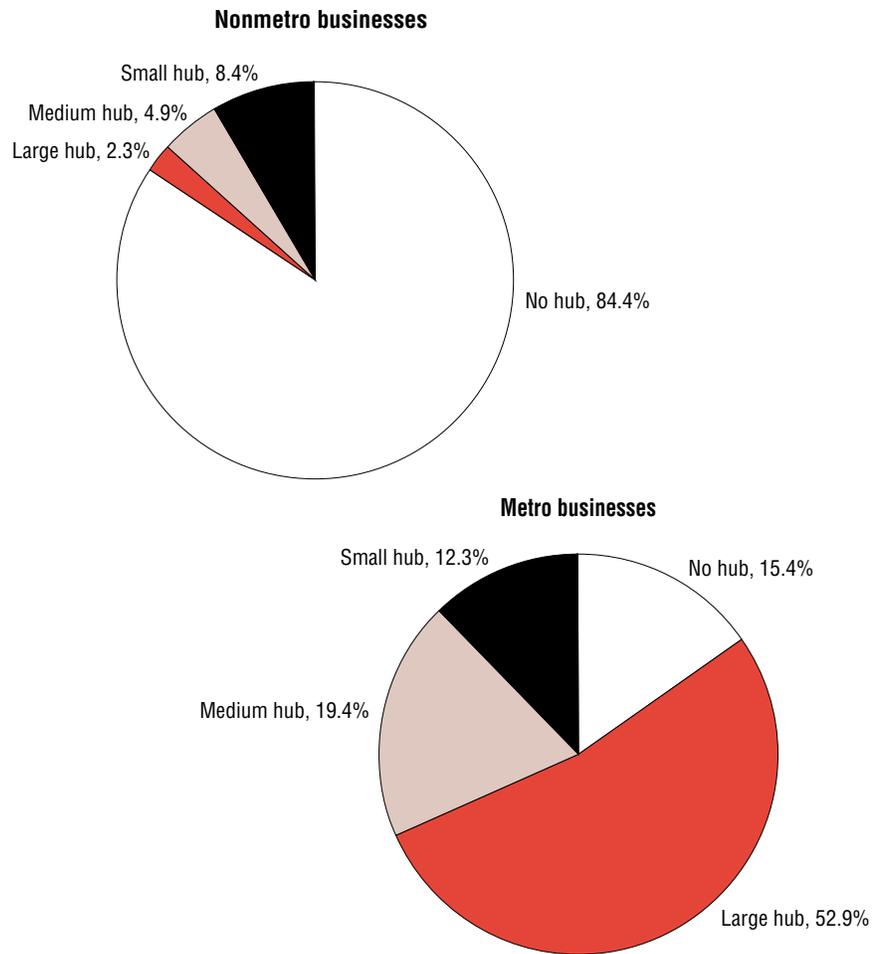
Fred Gale is an economist and Dennis Brown is a regional economist in the Rural Business and Development Policy Branch, Food and Rural Economics Division, ERS.

Over 1,900 nonmetro counties (of nearly 2,300 total) are not within easy commuting distance of a major airport. We identified the largest type of airport contained in each of 740 “commuting zones” (contiguous groupings of counties based on workforce commuting patterns). Forty-three nonmetro counties are in commuting zones that contain a large hub airport, 87 are in zones with a medium hub, and 180 are in zones with a small hub. That leaves over 1,900 nonmetro counties that do not have a hub airport within their commuting zone. Nearly all of those counties do contain smaller nonhub, nonprimary, or general aviation airports, but these smaller airports are generally served by fewer, if any, commercial carriers. They have fewer direct flights and fares are often higher.

### Does Limited Airport Access Hamper Rural Businesses?

Most studies of business location choices do not place airport access among the most important factors influencing location decisions (Reeder and Wanek). However, business and community leaders often cite lack of convenient, affordable air service as a disadvantage of rural business locations. For example, an economic development official in Casper, Wyoming, was quoted as saying, “We have...looked at the companies that considered Casper, and air service is always one of the top issues” (Frank Swoboda, “Stranded by Airline Deregulation,” *Washington Post*, Jan. 2, 1999, p. F1). While air service may not be the primary consideration in most business location decisions, it can tip the balance when other factors are equal. Air service is particularly important for attracting manage-

Figure 1  
**Metro and nonmetro businesses, by size of local airport, 1996**  
*Most nonmetro businesses are in commuting zones without a hub airport*



Note: "Hub" airports are defined by the Federal Aviation Administration. "Large hub" airports account for at least 1 percent of national enplanements, "medium hub" airports account for 0.24 - 0.99 percent, and "small hub" airports account for 0.05 - 0.24 percent.

Source: Calculated by ERS from 1996 County Business Patterns and Federal Aviation Administration data.

ment jobs and high-tech and business service industries.

In 1996, 84 percent of nonmetro business establishments were located in commuting zones without hub airports (fig. 1). By comparison, only 15 percent of metro businesses were in commuting zones without a hub airport, and more than half of metro businesses were in commuting zones with a large hub. However, despite limited access to airports, nonmetro

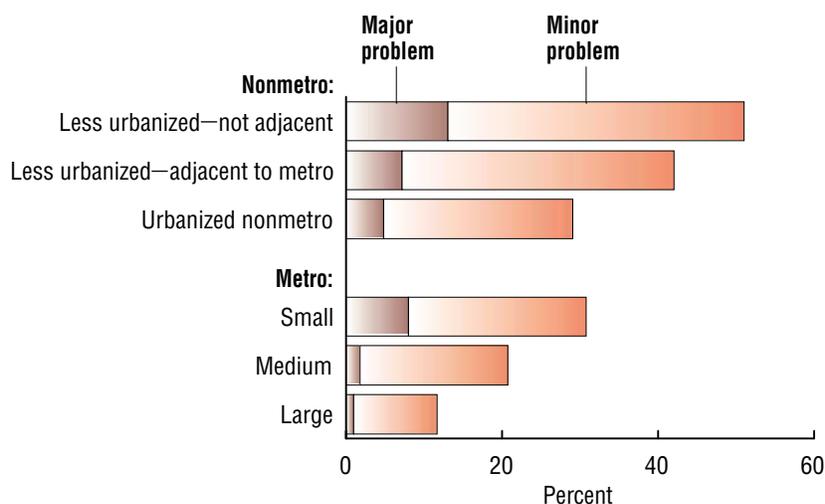
businesses in nonhub commuting zones created jobs at the same rate as nonmetro businesses in commuting zones with hub airports. Between 1991 and 1996, nonmetro employment grew by the same rate (about 17 percent) in commuting zones with and without hub airports.

A 1996 survey of rural manufacturing businesses asked owners and managers to evaluate the importance of access to airports

Figure 2

## Problems with airport access reported by nonmetro and metro manufacturers, 1996

Problems were reported most frequently by businesses in rural locations



Note: Chart shows percentage of establishments that said "access to airport facilities and services" was a major or minor problem affecting their ability to compete. "Less urbanized" are nonmetro counties with an urban population of less than 10,000. "Urbanized nonmetro" counties have urban population of 10,000 or more and are outside metro areas. "Small metro" areas have population less than 100,000. "Medium metro" areas have population of 100,000 to 999,999. "Large metro" areas have population of 1 million or more.

Source: Calculated by ERS from Rural Manufacturing Survey data, weighted for stratification.

and air service (see "Rural Manufacturing Survey"). Nine percent of manufacturers cited airport access as a major problem affecting business competitiveness, and 35 percent said it was a minor problem. The number of respondents indicating airport access as a major problem statistically represents 3,300 U.S. manufacturing establishments employing 460,000 workers, which would amount to 11.5 percent of all nonmetro manufacturing jobs in 1996. Thus, while the survey indicates that most rural manufacturing businesses do not view airport access as a problem, a significant minority does.

As might be expected, manufacturers in the most rural places reported airport access problems most frequently. In the most rural counties (urban populations under

10,000 and not adjacent to a metro county), 13 percent of manufacturers said airport access was a major problem, and half reported it as at least a minor problem (fig. 2). Of 21 potential barriers to competitiveness associated with their location, airport access was the fifth most frequently cited major problem—behind local labor quality, environmental regulations, State and local taxes, and attractiveness of the area to managers and professionals—by manufacturers in the most rural counties. Airport access was the ninth most frequently cited major problem by manufacturers in urbanized and less urbanized nonmetro counties adjacent to a metro area. Airport access was also one of the top five barriers cited as a minor problem in each type of nonmetro county. Nonmetro manu-

facturers reported problems with airport access more often than they reported problems with other modes of transportation (access to highways, railroads, and local roads and bridges).

Airport access problems were also frequently reported in small metro areas (population less than 100,000)—8 percent said it was a major problem and 23 percent said it was a minor problem. However, in medium and large metro areas, only 1 percent cited airport access as a major problem, ranking 20th and 21st as potential barriers to competitiveness.

## Problems Were Reported in All Regions

Airport access is usually considered a problem primarily in remote areas of the Great Plains and Mountain regions. A 1997 study found that airports in small and medium-sized communities of the East and Upper Midwest had experienced declines in quality and quantity of air service, while large communities in the West and Southwest had experienced increased service and lower fares (U.S. General Accounting Office, 1997). The report attributed regional differences to increased airline entry and competition in areas where economic growth was more rapid.

Nonmetro manufacturers reported airport access problems in every region of the country (fig. 3), with those in the West South Central region (Arkansas, Louisiana, Oklahoma, Texas) most likely to report a major problem (13.5 percent). Two other sparsely populated regions—the West North Central (Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska, Kansas) and Mountain (Montana, Idaho, Wyoming, Colorado, New

Mexico, Arizona, Utah, Nevada)—were among the most likely to report a major problem (about 10 percent). However, Mountain manufacturers reported minor problems relatively infrequently. East South Central (Kentucky, Tennessee, Alabama, Mississippi) establishments were the most likely to report a minor problem with airport access. As expected, problems were reported least often in the more densely settled Pacific and New England regions.

We also compared the frequency of airport access problems in commuting zones with and without hub airports (fig. 4). Nonmetro manufacturers in commuting zones without a hub airport reported a major problem with airport access

at twice the rate (9.6 percent versus 4.1 percent) of those in commuting zones with a hub airport.

Manufacturers in commuting zones without a hub airport were also more likely to report airport access as a minor problem.

### Rural Access Still Worse After Accounting for Business Characteristics

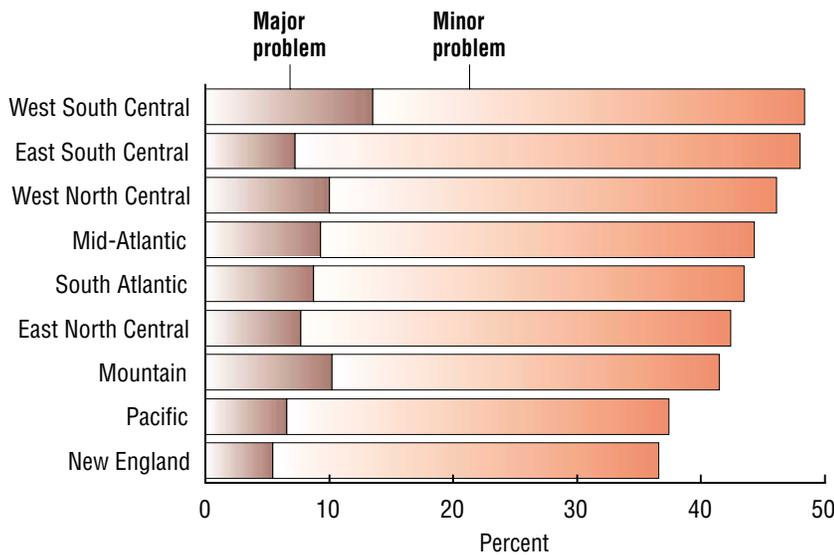
Air service is more critical to some types of firms than it is to others. For example, previous studies have asserted that establishments that are part of larger companies, those that do more business outside of their local area, and those that employ more highly skilled workers are more reliant on air travel. It is important to know

*It is important to know what types of businesses are more likely to view airport access as a problem in order to guide industrial recruitment in rural areas and to inform airport construction and regulatory decisions.*

what types of businesses are more likely to view airport access as a problem in order to guide industrial recruitment in rural areas and to inform airport construction and regulatory decisions.

We estimated a multivariate statistical model using the Rural Manufacturing Survey to investigate how reported airport access problems are related to business and location characteristics of nonmetro manufacturers. A multivariate model allows us to estimate how each characteristic affects the probability that a business reports problems with airport access, while holding other characteristics constant. We hypothesized that the likelihood of an establishment reporting a major or minor problem with airport access depends on its size, the type of plant (headquarters, branch, or single-unit establishment), whether a major expansion or modernization was recently undertaken, whether the plant uses just-in-time production management, the percentage of employees who are managers and professionals, the number of telecommunications technologies used in the plant, and the percentage of business done outside the local region. We also included measures of the “ruralness” of the establishment’s

Figure 3  
**Nonmetro manufacturers' airport access, by region, 1996**  
*Manufacturers in the West South Central region were most likely to report airport problems*

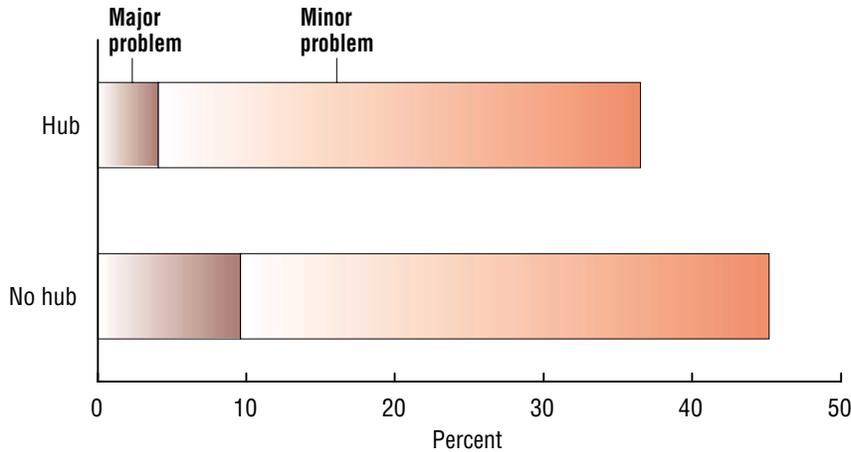


Note: Chart shows percentage of nonmetro establishments that said “access to airport facilities and services” was a major or minor problem affecting their ability to compete.  
Regions: New England--ME, NH, VT, MA, RI, CT; Mid-Atlantic--NY, NJ, PA; East North Central--OH, IN, IL, MI, WI; West North Central--MN, IA, MO, ND, SD, NE, KS; South Atlantic--DE, MD, DC, VA, WV, NC, SC, GA, FL; East South Central--KY, TN, AL, MS; West South Central--AR, LA, OK, TX; Mountain--MT, ID, WY, CO, NM, AZ, UT, NV; Pacific--WA, OR, CA, AK, HI.  
Source: ERS analysis of Rural Manufacturing Survey, 1996.

Figure 4

### Nonmetro manufacturers' airport access, by type of local airport, 1996

*Nonmetro businesses without a hub airport in their local area were more likely to report problems with airport access*



Note: Figure shows percentage of nonmetro manufacturing establishments that reported access to airport facilities and services as a major or minor problem by type of airport in their multicounty commuting zone. "Hub" airports are the largest 141 airports ranked by annual enplanements.

Source: ERS analysis of 1996 Rural Manufacturing Survey, weighted for stratification.

location, whether it has a hub airport nearby, and its region to determine whether characteristics of a business establishment's location are still important factors after taking into account the characteristics of the establishment.

Several business characteristics have strong statistical associations with the likelihood of reporting airport access problems (table 1). Not surprisingly, establishments that do more business outside of their local area are more likely to report airport access problems. The shares of nonlocal (more than a 1-hour drive) sales, of nonlocal input purchases, and of export sales were associated with greater probability of reporting airport access problems. Manufacturers that used outside experts for technical assistance were also more likely to report airport access problems. Larger establishments (with more employees) and those that had expanded or modernized in the previous 3 years

were also more likely to report airport problems.

Headquarters plants or branch plants of multi-unit companies were no more likely to report airport access problems than were manufacturers with only one location. This contradicts previous studies. Also surprising, the percentage of managers and professionals, the presence of a research and development unit, and the number of telecommunications technologies used was not associated with the likelihood of reporting problems. Previous writings suggested that air travel is more important to high-technology firms with professional employees. Use of telecommunications technologies (Internet, satellite communications, computer links with other companies) suggests stronger links with other companies and perhaps more frequent travel by employees, but telecommunications can also substitute for employee travel. Use of

just-in-time inventory and production management should also be associated with airport access problems because of the importance of regular, frequent shipments, but our model did not find any association.

In addition, we included indicators for 18 broad (2-digit Standard Industrial Classification) manufacturing industry classifications. Holding other business characteristics constant, establishments in the textile, apparel, lumber, furniture, printing and publishing, leather, primary metals, and miscellaneous manufacturing industries were less likely than those in other industries to report airport access problems. Most of these industries tend to be "low-tech" labor-intensive industries, while printing often serves a local clientele. Stone, clay, and glass manufacturers were more likely than other manufacturers to report airport access problems.

Location characteristics are important factors associated with airport problems, even after accounting for the effects of business characteristics. We classified nonmetro counties into four categories of ruralness using a modified version of the ERS Beale codes: county with a large town (county has urban population of 10,000 or more), adjacent or not adjacent to a metro area; and county with a small town (urban population of less than 10,000), adjacent or not adjacent to a metro area. As expected, manufacturers in counties with small towns not adjacent to metro areas were more likely than other nonmetro manufacturers to report airport access problems. The model predicted that an average nonmetro establishment in a county with a small town not adjacent to a metro area had a 10.7-percent chance of reporting a major problem with airport access, compared with 6.7 per-

cent for a similar establishment in a small-town county adjacent to a metro area. Manufacturers in small-town counties adjacent to metro areas were no more likely to report airport access problems than were those in counties with larger towns, whether adjacent or not adjacent to a metro area.

Manufacturers in commuting zones with a hub airport were less likely to report a major problem with airport access than those in commuting zones without a hub airport. West South Central estab-

lishments were more likely than those in other regions to report airport access problems, consistent with survey results. The model found no statistical difference among the other eight regions after accounting for the effects of other characteristics. We did not have enough respondents from Alaska to investigate whether problems were greater in that State, which has many remote areas dependent on air travel and has received a large share of airport spending.

We used the statistical model to calculate the effect of each characteristic on the probability that an average establishment would report a major or minor problem with access to airport facilities and services. This calculation allows us to compare the strength of association between airport access problems and the different characteristics in the model. We compared the

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***The reauthorization of air transportation legislation, scheduled for congressional debate in 2000, and decisions about airport construction, improvements, and regulation could guide economic development in rural communities.***

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strength of association between airport access problems and the various business characteristics by changing each characteristic one by one and calculating the resulting change in predicted probability of reporting a major and minor problem. Location characteristics are among the factors most strongly associated with airport access problems. Location in a county with a small town, not adjacent to a metro area, has the strongest effect, increasing the probability of reporting a major problem by 5.2 percent and the probability of a minor problem by 8.6 percent (fig. 5). Location in a commuting zone without a hub airport increased the probability of a major problem by about 3 percent and a minor problem by 5 percent. The effects of using outside technical expertise

Table 1

**Business characteristics associated with greater probability of reporting airport access problems**

*Larger, growing establishments, those that use outside expertise, those that do more business outside their local area, and those located in more rural counties were more likely to report problems with airport access*

**Characteristics associated with greater airport access problems:**

Location in:

- County with small town, not adjacent to metro area
- Commuting zone with no hub airport
- West South Central census division

Larger establishments (more employees)

- Undertook an expansion or modernization within previous 3 years
- Uses outside experts for technical assistance

Purchases a larger share of inputs from outside the local area

- Larger share of sales outside the local area
- Larger share of sales exported

**Characteristics not associated with airport problems:**

Type of establishment (headquarters, branch, company with single location)

Percent of employees who are managers and professionals

Establishment has a research and development unit

Uses just-in-time management

Uses advanced telecommunications technologies (Internet, satellite communications, intercompany computer links)

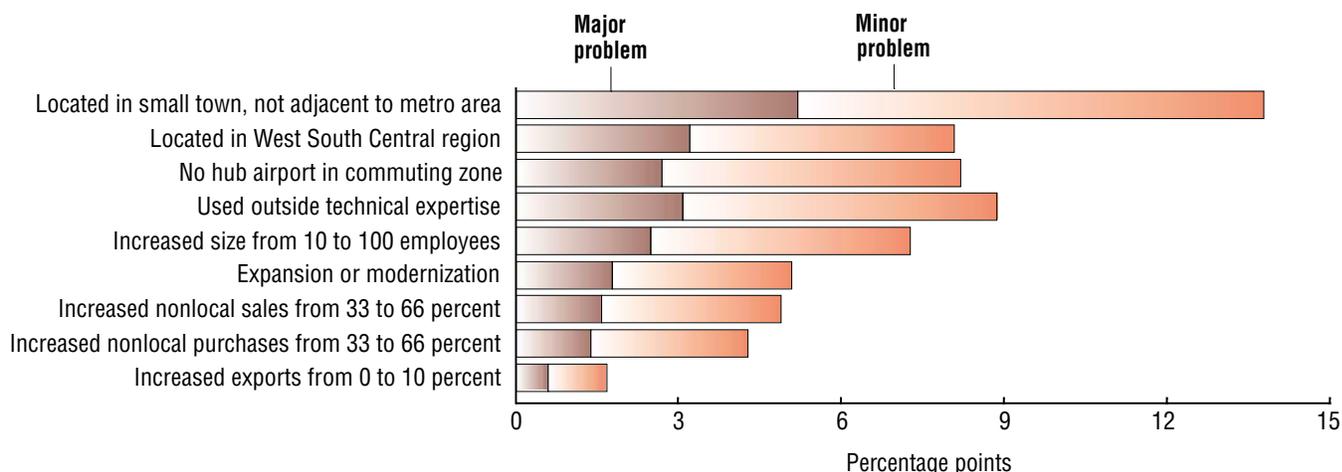
Note: Table is based on a multivariate ordered probit statistical model with dependent variable taking on values of 0, 1, or 2, depending on whether the establishment reported access to airport facilities and services as “not a problem,” “minor problem,” or “major problem,” respectively. The model was estimated with standard statistical procedures using a sample of 2,488 nonmetro manufacturing establishments. Characteristics associated with greater airport access problems had a statistically significant coefficient estimate. Those not associated with airport problems were included in the model, but their coefficient was not statistically different from zero. Indicators for 18 broad manufacturing industries were also included, but effects are not shown here.

Source: ERS analysis of the 1996 Rural Manufacturing Survey, weighted for stratification.

Figure 5

### Effects of business characteristics on the probability of reporting problems with airport access, nonmetro manufacturers, 1996

Location in small town, not adjacent to a metro area, had the strongest association with reported airport access problems



Note: Chart shows estimated effects of characteristics on probability that an establishment would report a major or minor problem with access to airports. Estimates are based on an ordered probit model estimated with standard statistical procedures using a sample of 2,488 nonmetro manufacturing establishments. Effects were calculated by computing predicted probabilities of reporting major and minor problems for "low" and "high" values, setting all other variables in the model equal to their mean values.

Source: ERS analysis of the 1996 Rural Manufacturing Survey, weighted for stratification.

#### Rural Manufacturing Survey

The 1996 Rural Manufacturing Survey asked a nationwide sample of 2,800 rural and 1,200 urban manufacturing establishments to rank 21 factors associated with their location that could affect their business's ability to compete (see Gale and others). The factors included "access to airport facilities and services" as well as access to other modes of transportation, local infrastructure, labor cost and quality, taxes, regulation, and access to customers and suppliers. The survey also asked about important characteristics, such as size, ownership, type of operations, and labor force, technology, marketing, and financing issues.

The interpretation of "airport facilities and services" and what constituted a problem was left up to the survey respondent. Thus, the answers could have varied, and some respondents were more likely to report all kinds of problems than were other respondents. This could have been due to true differences between the locations of the respondents or to differences in respondents' criteria as to what a "problem" is. We are unable to discern between these two. However, additional information can be obtained not only by looking at the frequency with which respondents identified airport access as a problem, but also by looking at the relative frequency with which airport access was reported.

The importance of airport access as a barrier to economic development may be understated by the comparisons in this article due to shortcomings of this survey. Many of the establishments surveyed may have chosen urban locations in order to have good airport access, while airport access may not have been very important to many of those who chose rural locations. This "self-selection" effect may explain why most respondents do not report problems with airport access. The survey does not measure how many urban firms have chosen an urban over a rural location due to better airport access in urban areas.

and location in the West South Central region were of similar magnitude. The effect of increasing establishment size from 10 to 100 employees was slightly smaller, and effects of expansion/modernization and share of nonlocal business were noticeably smaller.

### Many Nonmetro Manufacturers Hindered by Airport Access

The reauthorization of air transportation legislation, scheduled for congressional debate in 2000, and decisions about airport construction, improvements, and regulation could guide economic development in rural communities. The rural manufacturing survey data indicate that airport access is a common problem for businesses in the most rural counties, which contain about one-third of nonmetro manufacturing establishments. Air facilities, services, and fares are also important to tourist-related and service businesses in rural areas. While airport access was cited less frequently than labor quality, environmental regulations, taxes, and attractiveness of the area to professional workers (the top five problems for the most rural manufacturers), airport access was cited more frequently than 16 other infrastructure, access, and cost factors (table 2). For rural business locations, airport access seems to be a greater concern than is portrayed in studies of business location decisions, which generally found airports not to be a major concern. This probably reflects an urban bias in most previous studies (most business establishments are in urban areas), since we also found that airport access was one of the least cited concerns of manufacturers in large and medium-sized metro areas.

Table 2

### Problems cited by manufacturers in the most rural counties, 1996

*Airport access was one of the top five problems associated with business location*

Problem	Percent	
	Major problem	Minor problem
Quality of local labor	33	41
Environmental regulations	25	35
State and local taxes	22	41
Attractiveness of area to managers and professionals	18	36
<b>Access to airport facilities and services</b>	<b>13</b>	<b>38</b>
Access to training courses	12	39
Interstates and major highways	11	21
Quality of primary and secondary schools	10	26
Railroad access	9	14
Access to major customers	9	34
Water and sewer systems	9	25
Access to material suppliers	8	36
Cost of facilities and land	8	32
Local roads and bridges	7	27
Local cost of labor	7	28
Access to machinery and equipment suppliers	6	33
Access to information about markets	5	31
Access to financial institutions	4	23
Prevailing local management-labor relations	4	26
Police and fire protection	2	16
Access to legal services	2	24

Note: Table shows data for manufacturing businesses in nonmetro counties with urban population less than 10,000, not adjacent to a metro area.

Source: ERS analysis of the 1996 Rural Manufacturing Survey, weighted for stratification.

While poor airport access may be an important problem for many rural manufacturers, it appears not to be a major constraint on growth of rural businesses. Despite relatively poor airport access in the most rural counties, manufacturers in those counties added employees, undertook expansions or modernizations, and used outside expertise at the same rate as did businesses in metro and more urbanized nonmetro counties. We also found, contrary to expectations, that headquarters and branch plants, those with more management and professional employees, with research

and development units, and those using just-in-time or telecommunications technologies were no more likely to report problems with airport access. Most nonmetro manufacturers with these characteristics were operating in commuting zones without hub airports. These results conflict with previous findings and deserve more study. However, we studied manufacturing businesses only and did not consider other businesses like consulting, legal services, tourism, or other services that may be more reliant upon travel. Also, those businesses for which air service is crucial probably chose

### Federal Aviation Administration Airport Classification

The Federal Aviation Administration (FAA) classifies the United States' roughly 18,000 airports into categories based on the type of service available and the volume of traffic. In 1998, 547 airports were classified as offering commercial services, of which 418 were considered primary airports and 141 were classified as small, medium, or large hubs. FAA's definition of a "hub" airport is based only on the volume of traffic. An FAA hub airport is not necessarily a commercial airline "hub," an airport through which a particular airline routes most flights. FAA hubs may or may not be hubs for one or more commercial airlines.

#### FAA airport classification, 1998

Type of airport	Definition	Airports	Annual U.S. enplanements
		<i>Number</i>	<i>Million</i>
Commercial services	Regularly scheduled service and at least 2,500 annual enplanements		
Primary	At least 10,000 enplanements		
Large hub	At least 1 percent of U.S. enplanements	30	451.7
Medium hub	0.25-0.99 percent of U.S. enplanements	38	130.8
Small hub	0.05-0.24 percent of U.S. enplanements	73	51.4
Nonprimary	Offers regularly scheduled service and 2,500-10,000 annual enplanements	277	21.4
General aviation	Without regularly scheduled service and fewer than 2,500 annual enplanements	17,453 (estimate)	.8

Note: The term "enplanement" refers to a single occurrence of boarding an airplane.  
Source: Federal Aviation Administration.

a location with good airport access and would report no problems.

How can access to airport facilities and services be improved in rural areas? Major new airports are large, highly visible, and risky investments, usually unjustifiable in rural areas with limited potential traffic. Air traffic is highly concentrated in a few large airports. Reeder and Wanek suggest carefully targeted maintenance and upgrading of existing smaller local airports. Cost-benefit formulas for airport improvements should incorporate effects on local businesses as well as regulatory decisions that influence the cost, quantity, and quality of service at airports in small communities. Our study does not permit us to quantify the value of airport service to rural businesses, but the results do help show how important airport access is compared with other factors.

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# Older Americans' Patterns of Driving and Using Other Transportation

Nina Glasgow

**P**eople age 65 and older are the fastest growing segment of the U.S. population and the fastest growing group of licensed drivers. From 1985 to 1995, licensed drivers age 70 and older increased by almost 50 percent (National Center for Injury Prevention and Control). Moreover, older urbanites are almost as likely as their rural counterparts to drive a car as their primary mode of transportation.

With Baby Boomers entering the 65-and-older cohort between 2010 and 2030, the number of older drivers should continue to skyrocket. Government agencies, the media, and, to some extent, the general public have sounded an alarm concerning traffic safety once this generation reaches old age, should a majority continue to drive. Unfortunately, public transit and paratransit services (door-to-door transportation designed for older and disabled individuals who are unable to use public transit) are

*Most older residents — both urban and rural — drive as their primary mode of transportation. Between 1995 and 2025, the U.S. population age 65 and older is expected to approximately double in size, but the number of the Nation's drivers 65 and older is projected to increase by at least 2.5 times. Higher rates of public transportation use are unlikely unless the availability, quality, and convenience of services, especially in rural communities, are improved. This article examines rural-urban patterns and trends in driving, older people's use of other modes of transportation, and the quality-of-life consequences of driving versus using other transportation.*

limited or lacking in many, especially rural, communities. Thus, attention has also turned to the alternative transportation that public, private, and nonprofit agencies provide for older people, as well as to redesign within communities to accommodate the needs and capabilities of an older society.

Although home computers, the Internet, e-commerce, and telephone technologies allow individuals to conduct personal business and communicate from home, most people value face-to-face social interaction and activities outside of their homes (Glasgow and Blakely). In short, without adequate transportation, older people risk social isolation.

This study uses the National Personal Transportation Survey and the Cornell Transportation and Social Integration of Nonmetropolitan Older Persons Study, and focuses on daily rather than long-distance travel. National data are supplemented by New York data to illustrate that national averages do not capture the diversity across

places and regions. Different places have different transportation needs, and a uniform policy on the transportation mobility of older people is unlikely to work in all places. While most older U.S. residents—both rural and urban—continue to drive as the primary mode of transportation, older people in some places use public transportation at higher than average rates.

## Population Growth and Change and Older People's Projected Travel Patterns

The older population will double in size between 1995 and 2025, while the number of drivers 65 and older is projected to increase 2.5 times or more (Burkhardt and others). Among those currently over age 65, driving is more common among men than women, but driving is almost universal among both male and female Baby Boomers (Burkhardt and others; Rosenbloom). The large majority of women Baby Boomers will reach old age having driven as their primary mode of transportation

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throughout their adult lives, and they are expected to continue driving during old age. Thus, Burkhardt and colleagues project a faster growth rate in the number of older drivers than in older people.

The 65-and-older population of New York is projected to increase by 35 percent from 1995 to 2025 (New York State Office for the Aging). If New York's older drivers grow at a rate comparable to that projected for the Nation, the growth in New York's older drivers would exceed 50 percent between 1995 and 2025.

### Urban-Suburban-Rural Patterns of Mobility of Older Persons

The United States is an automobile-dependent culture; travel is mostly by private vehicle among younger and older residents of both rural and urban areas. However, individuals' preferences, limited availability and poor access to public transportation, as well as envi-



Photo courtesy Economic Research Service, USDA.

ronmental and personal constraints vary the modes of transportation and travel patterns of older people.

As a percentage of all trips, all older age groups were more likely in 1995 than in 1983 to use private vehicles, either as drivers or passengers, as their primary mode of transportation (table 1). Older people make approximately 90 percent of their daily trips in private vehicles, with rural older people more

likely than urban to travel by private vehicle. Older people mostly drive themselves; getting rides from members of their informal social network is the second most frequent mode of transportation (Glasgow, 2000).

Public transit use declined from 1983 to 1995 among urban older residents, but it increased slightly among the oldest-old (85 and older) rural residents (table 1). This slight

Table 1

### Primary modes of transportation of older rural and urban residents, 1983, 1990, and 1995

*Driving among older people is increasing; public transit use and walking are declining*

Mode	Ages 65-74			Ages 75-84			Age 85 +		
	1983	1990	1995	1983	1990	1995	1983	1990	1995
<i>Percent</i>									
Urban:									
Private vehicle	83	90	90	79	85	90	75	77	86
Public transit	4	2	3	1	3	3	8	3	2
Taxi	0	1	0	1	1	0	0	3	2
Walking	11	7	6	17	10	7	16	16	9
All others	1	0	1	2	1	1	0	1	2
Rural:									
Private vehicle	88	95	95	85	92	94	80	86	83
Public transit	0	0	0	0	0	1	0	3	2
Taxi	0	0	0	0	1	0	0	3	0
Walking	8	4	4	11	5	5	5	7	15
All others	1	0	1	2	1	1	0	1	0

Source: National Personal Transportation Survey, 1983, 1990, and 1995. Adapted from data analysis provided by John Eberhard, National Highway Traffic Safety Administration.

Table 2

**Total trips by selected modes, metro persons age 65 and older by gender, 1990***Central city and suburban older residents are almost equally likely to travel by automobile*

Mode	Central city		Suburbs	
	Men	Women	Men	Women
	<i>Percent</i>			
Private vehicle	88.5	85.1	91.5	89.1
Public transit	3.3	3.3	1.3	1.7
Taxi	.3	.8	.1	.3
Walking	7.0	10.2	6.7	8.0

Sources: 1990 National Personal Transportation Survey. Table adapted from Rosenbloom.

increase—to 2 percent of all trips—may relate to a small increase in the availability of public transit systems in rural areas. Overall, older U.S. residents use public transit for less than 3 percent of all trips (Rosenbloom, 1995). Walking also declined in rural and urban areas between 1983 and 1995, except among oldest-old rural residents.

Environmental barriers to using modes of transportation other than private vehicles are apparent in both rural and urban areas. As retail establishments and services in smaller communities grow fewer, travel distances to reach goods and services in larger communities increase. This may explain the increasing reliance on automobile travel among older rural residents. In urban areas, suburban sprawl increases distances traveled to access community services or to socialize. Moreover, segregated-use zoning, with areas zoned specifically for commercial/office use, retail use, or residential use, has lengthened distances traveled.

Older people's increasing dependence on private vehicles is exacerbated by the inadequacy of

public transit in many, especially rural, communities. Fear of crime may inhibit older people's use of public transit or willingness to walk (Rosenbloom). Distances among activities in suburban and rural communities, especially, have also reduced walking. (It is unclear why walking increased among oldest-old rural residents.)

Older men and women living in central cities versus suburban areas of metro counties are less likely to travel by private vehicle and more likely to use public transit (table 2). These differences, however, are small. When public transit corridors radiate from a city's center and passengers must make transfers, trip distances and duration lengthen (Carp). In general, public transit is unpopular and is perceived by many as primarily for low-income groups (Burkhardt and others).

Some communities do have high-quality, relatively convenient public transit; older people in those communities tend to use it more (Burkhardt and others; Carp). In New York City and other very large American cities with notorious traf-

fic congestion, the prevalence of driving private vehicles may drop off while walking and using public transit and taxis may be higher than the metropolitan average.

The proportion of drivers is considerably lower in metropolitan New York City than in metro and nonmetro areas (with remote rural communities) of upstate New York (table 3). Conversely, one would expect more frequent use of public transit, taxis, and walking among New York City residents than among residents of upstate areas. Drivers calculated as a proportion of individuals of driving age suggest that New York City's Baby Boomers will enter old age exhibiting a lower rate of driving than Baby Boomers residing in upstate metro and nonmetro communities. Variations in the proportion of drivers in different upstate metro and nonmetro areas (table 3) suggest place differences in the availability, quality, and convenience of public transit, but data are not available to address the issue.

Nationally, 77.5 percent of people 65 and older hold drivers' licenses (Burkhardt and others), but only about 60 percent of older New Yorkers do (New York State Department of Motor Vehicles). In New York, a large proportion of the State's older residents live in New York City (40 percent) and its suburbs (25 percent), where driving rates are lower. By contrast, in nonmetro counties of upstate New York, 85 percent of residents 65 and older are drivers (Glasgow, 1998, 2000). Such variations underscore the diversity of places and illustrate how differences among places affect transportation patterns and needs among older people.

## Characteristics of Older Drivers

### *Increased propensity to drive.*

The number of older drivers is increasing not only because of the aging of the population but also because rates of obtaining drivers' licenses have increased (Burkhardt and others; Rosenbloom).

Changing preferences, gender roles, and structures of communities all account for the rapid increase in driving among older individuals. Drivers' licensing rates have increased among women and men, but increases have been especially steep among women (Burkhardt and others; Rosenbloom). By age 65, women Baby Boomers will almost universally have been licensed drivers for approximately 30 years, and during old age they are expected to drive in record numbers and in approximately the same proportion as male Baby Boomers.

*To what extent is driving problematic for older people?* Driving underpins many older individuals' self-image much like starting to

drive is a rite of passage among young people. To older people, driving symbolizes freedom, independence, and competence. However, while most older people drive as their primary mode of transportation, the proportion of drivers declines precipitously after age 85. Thus, oldest-old individuals often reach a point where driving is no longer safe or feasible.

Depending on choice of statistics, older drivers compare favorably or unfavorably to other age groups. Older women and men have low crash rates per 100,000 licensed drivers, especially in comparison to drivers under age 25 (Burkhardt and others). However, older drivers compare unfavorably based on the number of crashes per million miles of driving. (Older people drive fewer miles per year than other age groups.) Crash rates per miles of driving are particularly high among people 75 and older and under the age of 25. Older people's high crash risk per miles is partly due to their driving more on

local streets and roads, where most accidents occur.

Older drivers and drivers under 25 have greater risks of fatality in a car crash than other age groups (Burkhardt and others). With advanced old age (75 and older), the risk of fatality is the highest of any age group. Older people's greater risk of death in a car crash is due to the frailty of their bodies.

Driving patterns tend to be more complex and streets more congested in more urban environments. Therefore, crash risks may be greater among urban than rural older residents, but the severity of accidents, and hence risk of fatality once involved in a crash, may be greater in rural areas where higher speed driving may be more common. However, these are both empirical questions for future research.

### *Self-regulation of driving.*

Diminished visual and hearing acuity, slowed reaction times, and cognitive impairments may accompany old age. Those in failing health and functioning often regulate or cease their driving, but the cognitively impaired may be unaware of the need to stop driving. On average, older people drive more miles annually now than in the past but still average fewer annual miles of driving than other age groups (Burkhardt and others; Rosenbloom). Most older people are retired and report driving less because of less need (Glasgow and Brown). Annual miles of driving taper off as older drivers grow older.

Older drivers frequently regulate their driving by not driving on interstate highways, staying on familiar roads, and driving only during daytime hours, in nonrush-hour traffic, and on less congested streets and roads (Burkhardt and

Table 3

### Drivers as a proportion of persons age 16 and over, by place of residence, 1995

*Percentage of drivers is lower in New York City than in rural and urban upstate New York*

Place	Number of persons age 16 and older	Number of drivers	Percentage of drivers
New York City and suburbs	8,627,165	5,838,614	67.7
Rochester	539,891	491,187	91.0
Syracuse	347,339	313,288	90.2
Poughkeepsie	200,300	180,160	89.9
Ithaca—Tompkins County	77,356	69,934	90.4
Small urban counties <sup>1</sup>	295,467	250,407	84.7
Small rural counties <sup>2</sup>	1,375,997	1,257,835	91.4
New York State	13,805,448	10,469,256	75.8

<sup>1</sup>Counties with urban places between 10,000 and 50,000 population but none larger.

<sup>2</sup>Counties with only places of less than 10,000 population.

Source: 1995 National Personal Transportation Survey. Analysis conducted from data provided by Nathan Erlbaum, New York State Department of Transportation.

Table 4

**Average daily trips per person, by age and place of residence, 1995**  
*Older New York City residents make fewer daily trips from their homes than older upstate residents*

Place	Under 65	65 and older
New York City and suburbs	3.81	3.22
New York City—5 boroughs	3.65	2.95
Manhattan	3.89	2.62
Rochester	4.36	3.56
Syracuse	4.36	3.31
Poughkeepsie	4.03	3.20
Ithaca—Tompkins County	4.46	3.71
Small urban counties	4.14	3.34
Small rural counties	4.09	3.34
New York State	3.96	3.29

Source: 1995 National Personal Transportation Survey. Adapted from data analysis provided by Nathan Erlbaum, New York State Department of Transportation.

others; Glasgow and Brown). Older women are more likely to limit when and where they drive than are older men, and they are more likely to stop driving altogether. Rural older women, however, are more likely than urban older women to continue driving during old age—probably because of the lower availability of public transportation in rural areas. Self-regulation of driving is affected by older individuals' assessments of their driving capabilities, gender roles, and whether they can afford a personal vehicle (Glasgow, 2000).

*Consequences of not driving.*

The inability or the choice not to drive affects the quality of life of older individuals. Older residents of New York City, with their lower rate of driving, simply do not average as many daily trips from their homes as upstate residents (table 4). In nonmetro counties of upstate New York, participation in work, volunteer, religious, and caregiving roles is higher among drivers than nondrivers, and drivers visit friends and neighbors more frequently than do nondrivers (Glasgow, 2000). The risk of social isolation thus is

objectively greater among older people who never learned to drive or who stopped driving.

No longer driving also hurts older individuals' subjective well-being. Nondrivers are less satisfied than drivers with their modes of transportation, and they are more likely to report being unable to go outside of their homes as often as they would like (Glasgow, 2000). Thus, forcing older individuals to stop driving should not be undertaken unnecessarily.

**Ways To Improve Older People's Mobility**

Current transportation mobility trends and patterns, as well as projected transportation needs of aging Baby Boomers, suggest the following policy options:

- Re-engineer automobiles to make them more protective of older drivers.
- Re-engineer roadways to improve safety for older drivers (e.g., use road signs with large lettering).

- Re-train older problem drivers, if they can be helped.
- Develop screening tests that accurately identify problem drivers of any age.
- Increase the availability, quality, and convenience of public transit and paratransit services, especially in rural communities.
- Provide educational programs on available public, private, and volunteer transportation and how to use different options successfully.
- Encourage older people to plan for having to stop driving. Involve family and friends because they often become responsible for providing rides.
- Encourage transit-oriented development that is user friendly to older people (e.g., kneeling buses, low-entry buses, and flexible routes).
- Implement mixed-use zoning to develop livable communities and pedestrian-friendly neighborhoods.
- Clearly identify the link between housing, land-use choices, and the transportation needs of an aging society.

### For Further Reading

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# Developing a Safety Net for Farm Households

Leslie A. Whitener  
and others

**A**t the beginning of the 20th century, much of the rural population was involved in producing the Nation's food and fiber. Today, less than 10 percent of the rural population lives on farms, and each year fewer rural residents depend on farming as their primary source of income. In the last 20 years alone, the percentage of the rural workforce employed in farming has declined from 14 to 8 percent (Economic Research Service).

Despite these changes, rural and farm communities are becoming increasingly interdependent. Job growth in rural areas is now less likely to come from farming, and more likely to come from rural industries related to farming, such as agricultural inputs, processing and marketing of agricultural goods, wholesale and retail trade of agricultural products, and agribusiness. In particular, processing of agricultural products adds value to a region's commodities and may create jobs that build upon the agri-

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This article is based on the work of a team of researchers including sociologist Leslie Whitener and economists Linda Ghelfi, Craig Gundersen, James Johnson, Kathleen Kassel, Ashok Mishra, Mitchell Morehart, and Laura Tiehen with USDA's Economic Research Service (ERS); Betsy Kuhn, Director of the Food and Rural Economics Division, ERS; and Susan Offutt, Administrator of ERS.

*Agriculture continues to be important for the rural economy in the 21st century. However, the number of farms continues its long-term decline and, despite increased reliance on off-farm sources of income, many farm households have incomes below the poverty level. There are many ways to provide support to the agricultural sector. This article examines four scenarios for government assistance to agriculture drawing on Federal programs that assist low- and middle-income households and that are based on the concept of ensuring some minimum standard of living. Only one scenario would generate lower costs than the current direct government payments to farms, but the distribution of total program benefits using any of the safety net scenarios would change dramatically by type of farm and region.*

cultural base in rural areas (Gale). These industries enhance the importance of farming in rural areas and result in greater integration between the agricultural sector and the rural economy. At the same time, individual farm households are increasing their dependence on the local economy to supplement their income. Today, over 80 percent of farm household income comes from off-farm sources, mostly from wages and salaries.

Farming continues to dominate the economies of many rural counties. Although fewer counties depend on farming for the major share of their income, almost a quarter of nonmetro counties rely on farming for at least 10 percent of their earned income, mostly in sparsely populated areas of the Nation's heartland (Kassel and Carlin). Growth in employment and population in these counties has lagged other rural areas, and many of these farming areas are struggling to adapt to the changing

industrial diversification in rural America. Keeping population, improving off-farm job opportunities, and providing public services will be critical challenges for these farming areas. Also, these are the communities likely to be affected the most by changes in farm financial conditions and farm policies. Not only is farming a major economic focus for the area, but the farm commodities produced are highly susceptible to competition from international markets. Federal agricultural commodity programs have historically held an important role in the local economies of these counties. Changes in farm policy and various government assistance strategies to improve the economic circumstances of farm households are likely to influence both the farm household and the local community.

Public discussions have raised fundamental questions about the ultimate goals of farm policy and the need for establishing a safety net for farm households. Yet most

popular conceptions of a safety net consider only traditional farm program instruments such as crop insurance, direct payments, and environmental conservation programs. There are many ways to provide support to the agricultural sector. This article investigates one means—a farm household safety net based on four alternative standards commonly used in the economics literature and in Federal assistance programs for low- to moderate-income households. Three of the four safety net scenarios ensure that farm households maintain an income or consumption standard relative to (1) regional median household income, (2) 185 percent of the poverty line, or (3) average household expenditures. A fourth scenario is based on the amount of compensation necessary to ensure that self-employed farm operators receive an adequate return to their labor and management.

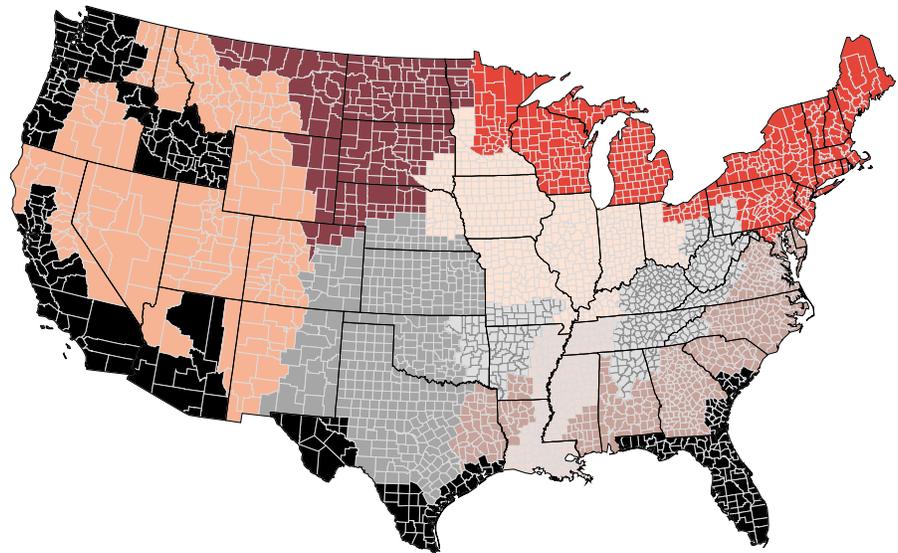
The farm sector is diverse. There is no “average” farm, and policy impacts vary depending on various farm characteristics. This analysis uses two approaches to capture this diversity. The first is a new ERS regional resource delineation that reflects geographic specialization in commodity production (fig. 1) (Morehart, Johnson, and Ryan). The nine resource regions merge information about land characteristics and commodity emphasis to create geographic areas that are homogeneous with regard to both resource and production activities.

The second approach is a new ERS farm typology that distinguishes farms and farm households based on size of the farm business, whether farming is the primary occupation of the operator, and in some cases, level of assets (see

Figure 1

### Resource regions

ERS's new resource regions reflect geographic specialization in commodity production



#### Resource Regions

■ Fruitful Rim	■ Heartland
■ Basin and Range	■ Eastern Uplands
■ Northern Great Plains	■ Southern Seaboard
■ Prairie Gateway	■ Mississippi Portal
■ Northern Crescent	

	Percentage of U. S. farms
Heartland	22.0
Eastern Uplands	15.0
Northern Crescent	14.5
Prairie Gateway	14.0
Southern Seaboard	10.6
Fruitful Rim	10.0
Mississippi Portal	4.7
Northern Great Plains	4.3
Basin and Range	4.3

Source: USDA's Agricultural Resource Management Study (ARMS).

“Farm Typology”). This typology identifies eight different categories, five of which distinguish farms with gross sales below \$250,000 and are used in this analysis (Hoppe, Perry, and Banker). Using these farm classification schemes, we compare the four safety net sce-

narios in terms of cost, distribution of farm household benefits, and rate of qualification for assistance, and contrast them with the amount and distribution of actual direct government payments to farms in 1997.



Photo courtesy Economic Research Service, USDA.

### What Is a Safety Net?

Dan Glickman, the Secretary of Agriculture, has called 1999 the “Year of the Safety Net.” Yet most discussions of the concept assume that assistance is needed, and furthermore consider only traditional farm program instruments. Some members of Congress even favor a return to price support policies. Alternatively, social scientists treat a safety net as a way of improving the well-being of the worst-off members of a group. Such a policy ensures a minimum income, consumption, or wage level for everyone in a society or in a subgroup of society. It may also provide individuals or businesses with protection against risks such as income loss, limited access to credit, or devastation from natural disasters. Examples of Federal safety net programs for U.S. households include the Food Stamp Program, the Earned Income Tax Credit, and Social Security.

The construction of a safety net first requires some concept of a minimum standard of living. Since Adam Smith in 1776, social scientists have linked poverty to the want of “necessities,” which Smith defined as “not only the commodities which are indispensably necessary for the support of life, but whatever the custom of the country renders it indecent for creditable people, even of the lowest order, to be without.” This minimum standard of living is usually translated into a dollar level, such as the poverty line. More recently, Peter Townsend added a social dimension by observing that people are “social beings expected to perform socially demanding roles as workers, citizens, parents, partners, neighbors and friends” (Townsend, p. 5). He defines economic security as sufficient income for people to “play the roles, participate in the relationships, and follow the customary behavior which is expected of them

by virtue of their membership in society” (p. 10).

### Is There a Need for a Farm Household Safety Net?

Many farm households have lower incomes than other American households. Over 500,000 farm households (25 percent of the total) had income below the \$16,400 poverty threshold for a family of four in 1997, a commonly used poverty measure when size of household data are not available. This finding is startling to many farm policy experts familiar with the well-known statistic that the average farm household income is roughly the same as average U.S. household income. Farm households had an average income of \$52,562 in 1997, only slightly higher than the \$49,369 average for households with no farm income. Clearly, the average masks income differences in poverty between farm and nonfarm households

(Gundersen and others). Also, these comparisons are made using 1997 data, a good year for the sector. Data for 1998 or 1999, when the sector performed more poorly than the general economy, would show a wider gap in poverty between farm and nonfarm households.

### Costs of Safety Net Scenarios Vary by Farm Type and Resource Region

This article illustrates several scenarios for providing government assistance to agriculture, drawing on Federal programs that assist low- and middle-income households and that are based on the concept of ensuring some minimum standard of living (see “Federal Program Precedents Help Define a Minimum Standard of Living”). A review of current Federal assistance programs reveals a variety of ways to provide a safety net using this concept. Guided by these examples, we examine four scenarios for assisting farm households.

Analysis of the three household scenarios is based on roughly 1.7 million (80 percent) of farm households identified in ERS’s 1997 Agricultural Resource Management Study (ARMS) data. Retirement farms and very large family farms with sales of \$500,000 or more are excluded because the first group are not active participants in the sector and the second group’s high household income precludes their eligibility for a safety net. A fourth farm safety net scenario would ensure that operators of farm businesses receive an adequate return to their labor relative to median hourly earnings of the nonfarm self-employed. This scenario is limited to operators of farm businesses who identify farming as their primary occupation and are

sole proprietorships, which includes about 700,000 farm businesses (36 percent of the total). Although this analysis considers the impacts on farm types and on regions separately, the information is aggregated by region, and the distribution of farm types within regions partially explains any differences in the regional impacts for a given scenario.

### Scenario 1: Regional Median Household Income

Scenario 1 would bridge the gap between median household incomes in each region and any individual farm household income that falls below the median. Farm household income is defined as income before taxes. The 1995 median U.S. household income was \$35,050, based on data from the Bureau of Census. The median

#### Farm Typology

##### Small family farms (sales less than \$250,000):

**Limited-resource farms.** Any small farm with: (1) gross sales less than \$100,000, (2) total farm assets less than \$150,000, and (3) total operator household income less than \$20,000. Limited-resource farmers may report farming, a nonfarm occupation, or retirement as their major occupation.

**Retirement farms.** Small farms whose operators report they are retired. (Excludes limited-resource farms operated by retired farmers.)

**Residential/lifestyle farms.** Small farms whose operators report they had a major occupation other than farming. (Excludes limited-resource farms with operators reporting a nonfarm major occupation.)

**Farming occupation/low sales.** Small farms with sales less than \$100,000 whose operators report farming as their major occupation (Excludes limited-resource farms whose operators report farming as their major occupation.)

**Farming occupation/high sales.** Small farms with sales between \$100,000 and \$249,999 whose operators report farming as their major occupation.

##### Other farms:

**Large family farms.** Sales between \$250,000 and \$499,999.

**Very large family farms.** Sales of \$500,000 or more.

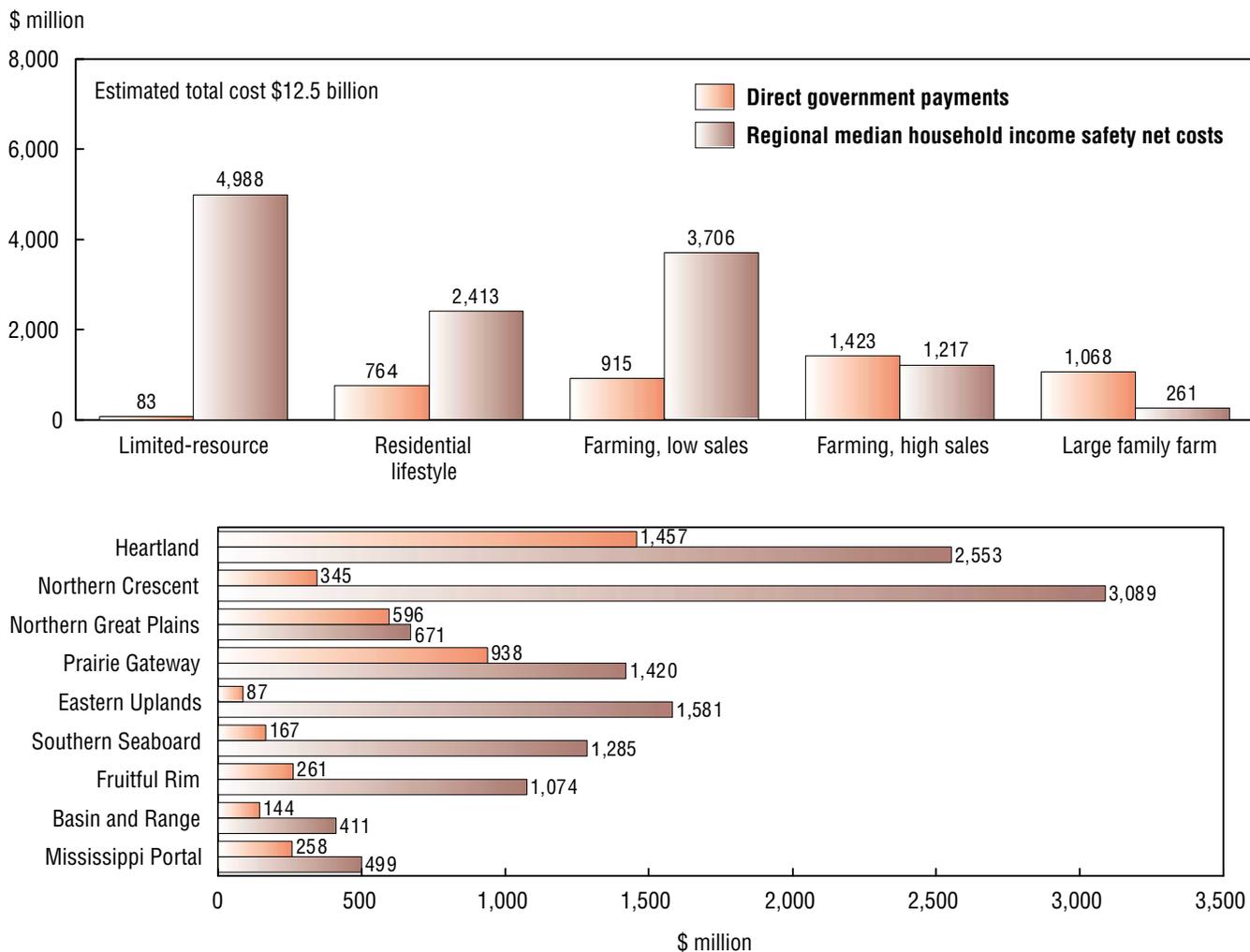
**Nonfamily farms.** Farms organized as nonfamily corporations or cooperatives, as well as farms operated by hired managers.

See Hoppe, Perry, and Banker for additional details.

Figure 2

**Costs of Scenario 1 (regional median household income) compared with direct government payments, 1997**

*Over half of benefits go to farm households in the Northern Crescent, Heartland, and Eastern Uplands*



Source: USDA's Agricultural Resource Management Study (ARMS).

ranged from \$39,756 in the Northern Crescent to \$28,666 in the Mississippi Portal. County incomes from which the U.S. median is derived were weighted by the number of county households and averaged to obtain regional median income estimates. The Consumer Price Index (CPI) was used to adjust these estimated regional median household incomes to 1997 values (see Gundersen and others for a discussion of safety net measures).

The annual costs of a safety net based on median regional household income was \$12.5 billion in 1997. This scenario would extend benefits to 730,000 farm households (about 42 percent of the 1.7 million farm households included in this analysis), with average benefits of \$17,275 per qualifying farm household (fig. 2). The majority (70 percent) of the program costs would provide benefits to limited-resource and farming occupa-

tion/low-sales farm households (where operators indicate farming as their primary activity and have farm sales of less than \$100,000 per year).

While there were farms with incomes below the threshold in each farm type, the proportion in need of assistance varied greatly (fig. 2). For example, in 1997 nearly all limited-resource farm households qualified for assistance using this safety net measure. In con-

trast, only 17 percent of large family farm households qualified. More than one in three farms designated as farming occupation/high sales (gross income between \$100,000 and \$250,000 with farming as the primary activity of the operator) qualified for assistance, but costs were higher for the residential lifestyle group, where 29 percent qualified for assistance. Costs of the safety net for the farm types depend on the number of households that qualify for assistance and the magnitude of the difference between household income and the threshold level.

Costs for the regional median household income scenario were highest in the Northern Crescent, Heartland, and Eastern Uplands regions, which together accounted for almost 60 percent of total safety net costs. Safety net costs were lowest in the Basin and Range region, although a high proportion of farm households in this region qualified as a result of the low household income of residential/lifestyle farms in that region. The regional distribution of farm households receiving benefits under this scenario reflects disparity in the performance of the nonfarm economy, because for the majority of residential lifestyle farm households, off-farm income more than offsets any negative farm income in terms of total farm household income. In 1997, only three regions—the Northern Crescent, Southern Seaboard, and Basin and Range—had 50 percent or more of farms qualifying for assistance using this safety net measure.

### **Scenario 2: 185 Percent of the Poverty Line**

Scenario 2 would bridge the gap between 185 percent of the poverty level and the actual income

of each farm household that falls below this level in each farm type and region. The poverty line for a family of four was \$16,400 in 1997, and 185 percent of this is \$30,340.

The annual cost of a safety net scenario based on 185 percent of the poverty level was \$7.8 billion in 1997, averaging \$15,120 in benefits (fig. 3). The threshold for Scenario 2 was about \$8,000 less than for Scenario 1—regional median household income. As a result, costs for Scenario 2 were nearly \$5 billion less than for Scenario 1. About 514,000 farm households (30 percent) would receive assistance under Scenario 2, compared with almost 730,000 households (43 percent) under Scenario 1.

As in Scenario 1, the bulk of benefits under this scenario would accrue to limited-resource and occupation farming/low sales farm households. These two groups have the highest proportion of farms that qualify for assistance, at 96 percent and 45 percent. Only about 12 percent each of residential lifestyle and large family farm households qualify for assistance. Average cost per recipient is highest for limited-resource and large family farm classifications, each having average costs of over \$18,000. This may indicate the chronically low household income for limited-resource farm households, versus more of a short-term cash flow problem (like that caused by poor weather) for the large family farm households.

The regional distribution of costs is similar for scenarios 1 and 2. Three regions—the Heartland, Northern Crescent, and Eastern Uplands—account for over 50 percent of the total costs under the poverty-based safety net (fig. 3). The Basin and Range, Northern Great Plains, and Mississippi Portal

regions were the lowest cost regions. The low cost for the Northern Great Plains was surprising given that this region had the largest concentration of farming occupation/low-sales farms and the lowest average household income at \$38,911 in 1997. However, many qualifying farm households in this region had income in 1997 that was not very far below the 185 percent of poverty threshold level. The proportion of farm households that qualified for assistance in 1997 ranged from 25 percent in the Fruitful Rim region to 43 percent in the Southern Seaboard.

### **Scenario 3: Average Adjusted Expenditures**

Scenario 3 bridges the gap between average adjusted U.S. household expenditures and the actual income of each farm household that falls below that level. U.S. household expenditures averaged \$33,797 in 1996, according to the Consumer Expenditure Survey. However, housing and transportation expenditures incurred by farm households are about half those incurred by U.S. households. To reflect this, average U.S. household expenditures were adjusted to \$25,863. This adjustment does not imply that farm households spend less on housing and transportation than other households, but that some of these expenses are commingled with the farm business.

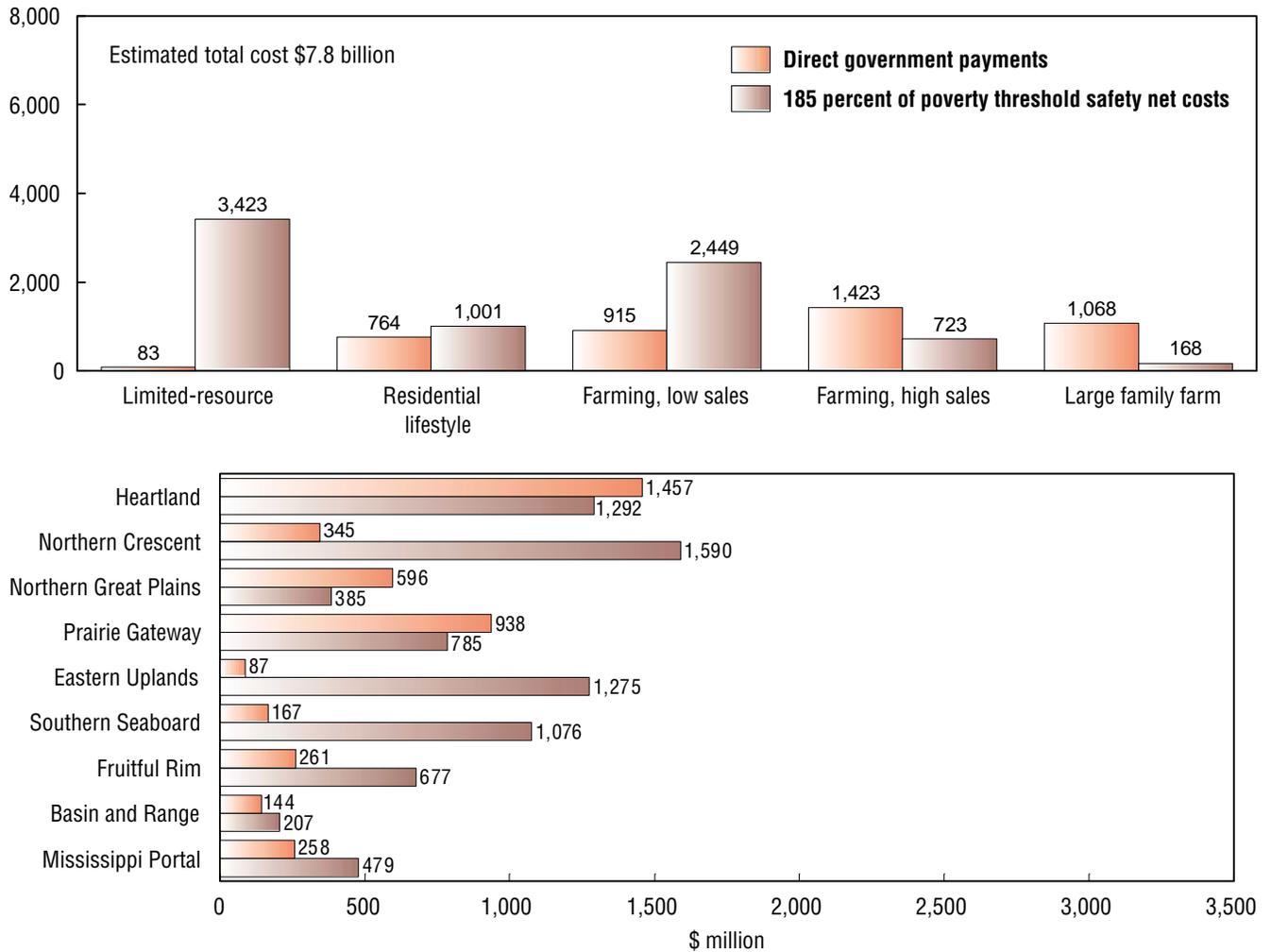
The total cost for 1997 of a safety net based on average adjusted expenditures is estimated at \$6.1 billion, averaging \$13,500 per qualifying household (fig. 4). This cost was lower than costs for Scenarios 1 and 2. About 450,000 farm households (27 percent of farm households considered in the analysis) would qualify for assistance in 1997.

Figure 3

**Costs of Scenario 2 (185 percent of the poverty threshold) compared with direct government payments, 1997**

*More than 80 percent of benefits would go to limited-resource and farming/low-sales farm households*

\$ million



Source: USDA's Agricultural Resource Management Study (ARMS).

Limited-resource and occupation farming/low-sales households accounted for more than 70 percent of the total cost of this safety net measure. Ninety percent of limited-resource households and 30 percent of occupation farming/low-sales households had incomes below this safety net threshold. In contrast, only about 10 percent of residential lifestyle and large family farms qualified for assistance.

The Northern Crescent and Eastern Uplands regions had the highest safety net costs for Scenario 3, estimated at \$1.2 billion and \$950 million. In the Northern Crescent, occupation farming/low sales farms account for the majority of costs. Limited-resource farms account for two-thirds of the cost in the Eastern Uplands. In the Fruitful Rim, which is characterized by relatively large specialty crop farms,

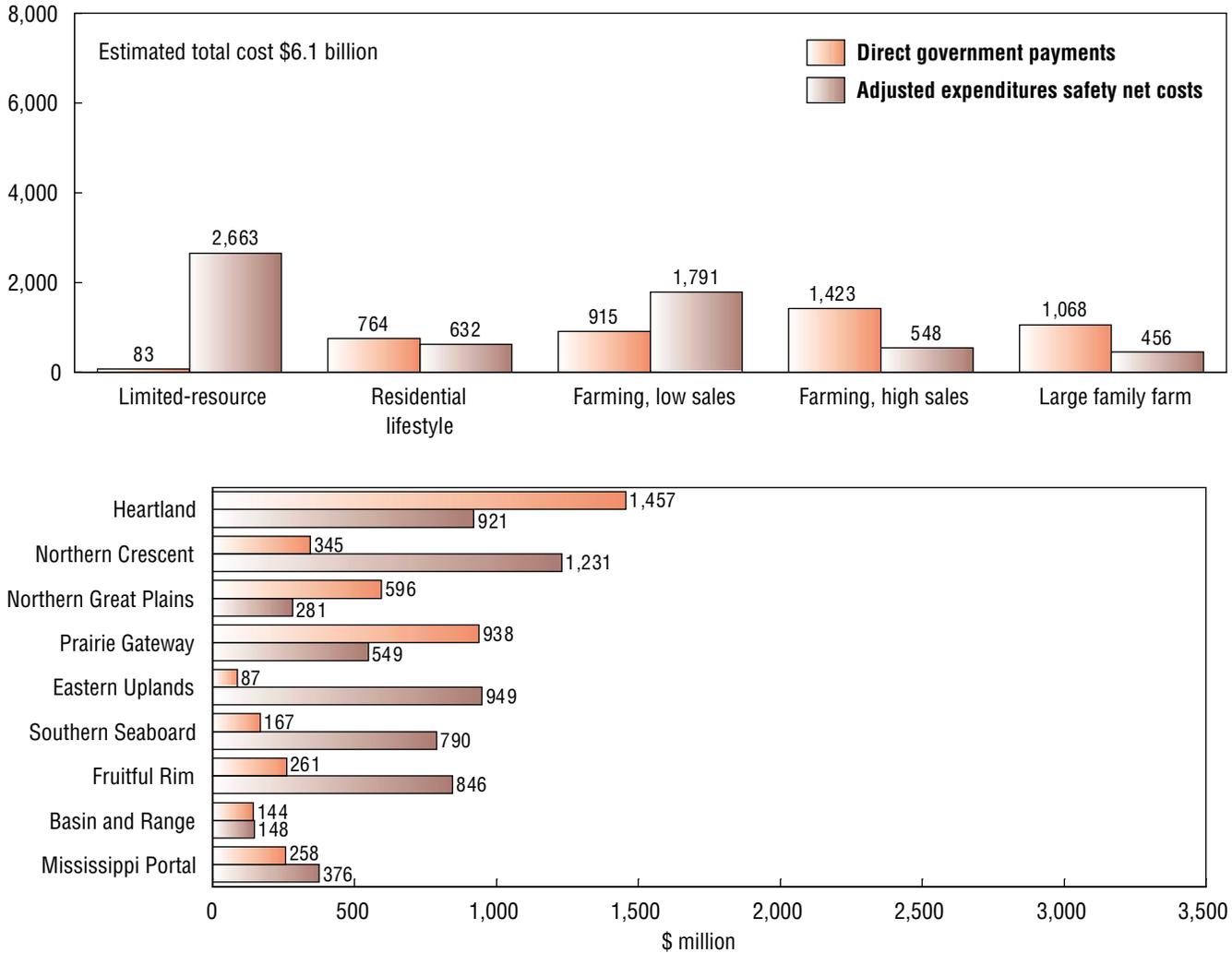
average cost per qualifying household is \$23,000, nearly two times higher than for other regions. Many specialty crop farms are large operations, which require the full-time employment of the operator and family. In this situation, the farm household is entirely dependent on farm income.

Figure 4

**Costs of Scenario 3 (adjusted expenditures) compared with direct government payments, 1997**

Costs are lower than other scenarios for all farm types and regions

\$ million



Source: USDA's Agricultural Resource Management Study (ARMS).

**Scenario 4:  
Median Hourly Earnings  
of Nonfarm Self-Employed**

This safety net measure focuses on the ability of farm businesses to provide an adequate return to the owners/operators, rather than focusing on farm household income. Farm households would benefit as earnings for the farm business are supplemented.

Median hourly earnings of nonfarm self-employed individuals (who worked at no other job) were \$10 per hour in 1997, based on data from the Current Population Survey. Safety net costs for Scenario 4 are based on the difference between the median hourly earnings of the nonfarm self-employed and the estimated hourly earnings of farm operators who identify their prima-

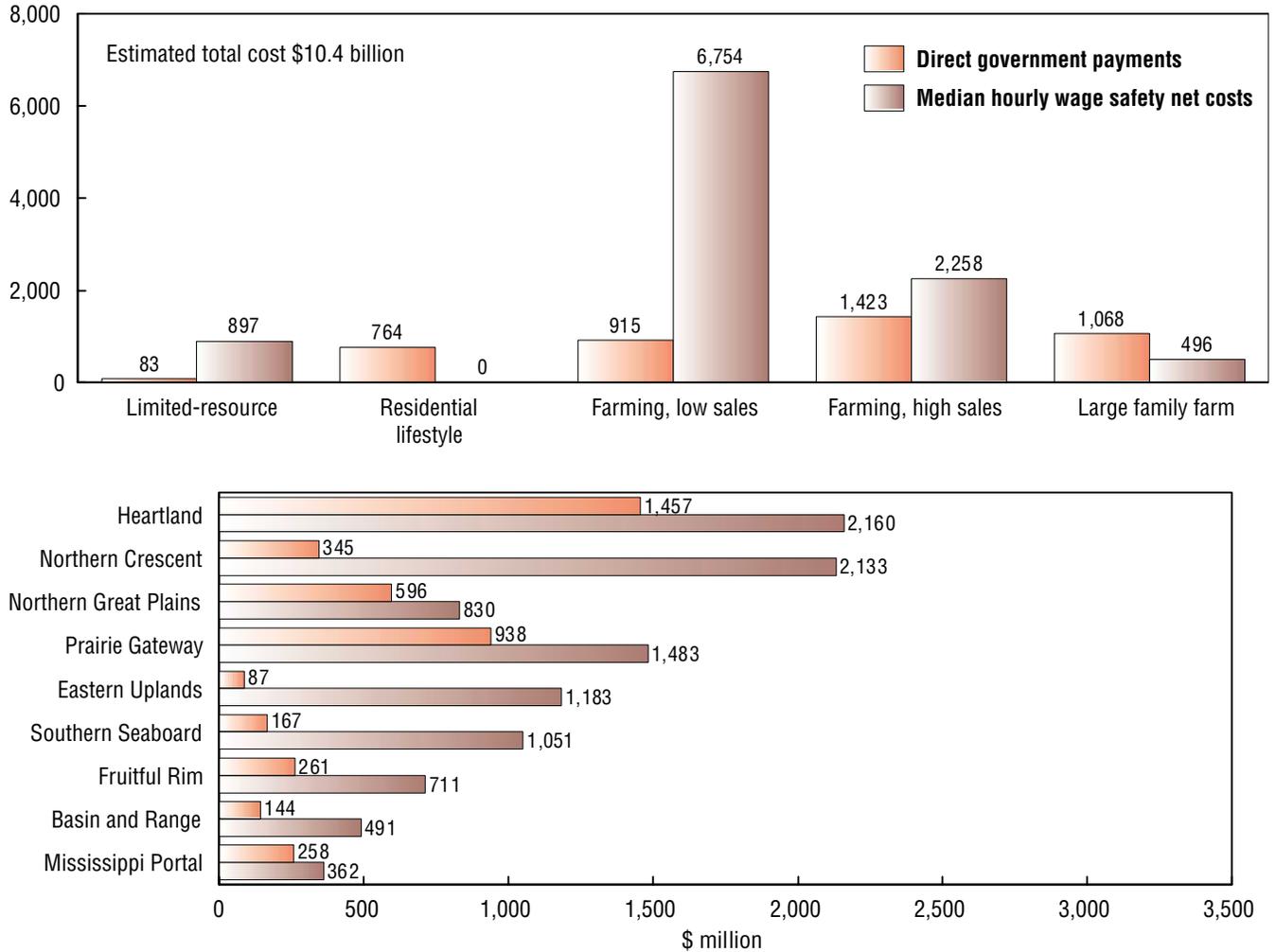
ry occupation as farming and have earnings lower than the nonfarm median. To calculate the earned income gap used to estimate costs and distributional effects, each farmer's hourly wage gap is multiplied by the annual hours worked by each qualifying farm operator and aggregated by farm type and region. Excluded from this scenario are residential/lifestyle farm-

Figure 5

**Costs of Scenario 4 (median hourly wage of the nonfarm self-employed) compared with direct government payments, 1997**

*Most costs are accounted for by farming/low-sales households*

\$ million



Note: Residential lifestyle farmers were excluded from this safety net analysis.

Source: USDA's Agricultural Resource Management Study (ARMS).

ers and about 77 percent of limited-resource farms because they do not identify farming as their primary occupation.

This earnings safety net scenario produces different results from the other three income scenarios. Annual cost is \$10.4 billion, averaging \$19,915 per qualifying farm. About 522,000 farm busi-

nesses qualified for assistance, nearly three in four farm businesses from the smaller sample. Occupation farming/low-sales farm businesses had the largest cost at \$6.7 billion (fig. 5). Most farms in this classification (86 percent) qualified for assistance, second only to the limited-resource group, where 98 percent of farm businesses had a

wage rate below the safety net threshold. Average cost per recipient ranged from \$14,000 for limited-resource farms to nearly \$24,000 for the occupation farming/high-sales category.

Two regions, the Heartland and Northern Crescent, accounted for over 40 percent of the wage rate safety net costs for 1997. These

regions had 36 percent of occupation farming/low-sales farm businesses in 1997. Average cost per recipient ranged from \$15,000 in the Eastern Uplands to over \$23,000 in both the Northern Great Plains and Basin and Range regions. The Eastern Uplands region had the highest share—88 percent—of farm businesses qualifying for assistance in any region.

### Only One Safety Net Scenario Results in Costs Lower Than Direct Farm Payments

In 1997, direct government payments to farms—including production flexibility contract payments, loan deficiency payments, and other program payments—totaled \$7.5 billion (paid to farmers and landlords). Estimated costs for Scenario 1 (based on regional median household income) and Scenario 4 (based on the median hourly wage of nonfarm self-employed) were higher at \$12.5 billion and \$10.4 billion (fig. 6). Only Scenario 3 (based on adjusted average expenditures) cost less.

However, the distribution of benefits for all four scenarios—by both farm type and region—is strikingly different from those for direct government payments (see figs. 2-5). Lower income farmers would benefit from these safety net scenarios, while farmers producing selected commodities benefit from current farm programs. These scenarios do not assume that safety net payments are either a substitute or an addition to current farm program payments.

The Federal Agriculture Improvement and Reform Act of 1996 shifted Federal farm programs toward increased operator control by removing acreage restrictions. Farmers with a historical production base for wheat, corn, grain

sorghum, barley, oats, upland cotton, and rice were eligible to sign production flexibility contracts. The legislation provides specific payments to farmers over a 7-year period, which generally decline after the first few years (except as modified by subsequent emergency legislation).

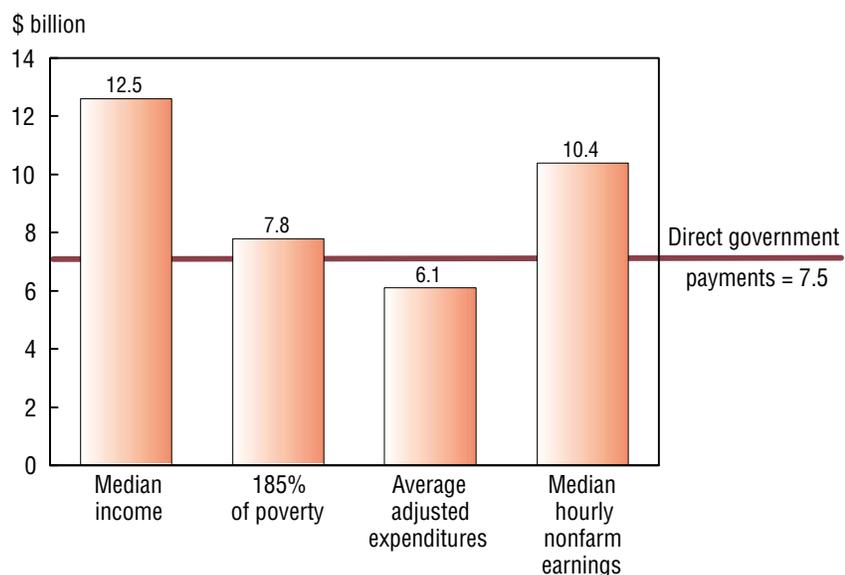
The 1996 Farm Act also provides for loan deficiency payments for major field crops, including oilseeds. Farmers are eligible for these payments when local spot market prices for commodities fall below the established commodity loan rate adjusted for local conditions. The third major component of direct government programs is environmental conservation programs, in which eligible farmers receive annual payments on the amount of environmentally sensitive acreage enrolled in these programs.

About 36 percent of all farms received some type of direct government payment in 1997, with an average payment of \$7,987 per participating farm. The share of farms receiving payments ranged from less than one-fifth of limited-resource farmers to three-fourths of farms in the occupation farming/high sales and large farm groups. With a safety net concept, the distribution of program benefits would change dramatically. Almost all limited-resource farm households would receive safety net payments. Even though a lower percentage of occupation farming/low-sales farm households would receive benefits, the payment per recipient is more than double. Payments to large and very large farms would be half the amount of direct payments to these farms in 1997.

Figure 6

### Costs of four scenarios compared with direct government payments, 1997

Only one scenario costs less than direct government payments



Source: USDA's Agricultural Resource Management Study (ARMS).

## Federal Program Precedents Help Define a Minimum Standard of Living

Current Federal assistance programs demonstrate various ways to provide a safety net, based on how the line is drawn to define a minimum standard of living. To ensure an adequate standard of living, safety nets have been based on the following:

### Income

Freddie Mac and Fannie Mae subsidize mortgage loans for low- and moderate-income families whose income is less than or equal to the area median family income.

USDA's Section 502 Single Family Direct Loan Housing program, which assists low- and moderate-income rural residents to purchase, construct, repair, or relocate a dwelling, targets households with incomes below 80 percent of the area median income.

### Income relative to poverty

The Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) and the National School Lunch and School Breakfast Programs are targeted to those with incomes less than 185 percent of the poverty threshold.

The Food Stamp Program targets households with incomes below 130 percent of the poverty threshold.

### Consumption

USDA's Rural Rental Housing Assistance Program, which provides affordable rental housing to low- and moderate-income rural families, is targeted to households spending more than 30 percent of their income on rent.

The Food Stamp Program sets benefit levels to keep households from spending more than 30 percent of their income on food purchases.

### Wages

The minimum wage ensures that workers in covered occupations earn at least \$5.15 per hour, the equivalent of \$10,700 in earnings from full-time, full-year employment.

The Earned Income Tax Credit provides a refundable tax credit to low-income workers. As earned income increases, benefits increase up to a certain point and are then phased out. A low-income household with two or more children can qualify for a credit of up to approximately \$3,800 per year. The credit is completely phased out at an earned income level of \$30,580.

Regional results show that the Northern Crescent, the Eastern Uplands, the Southern Seaboard, and the Fruitful Rim would receive a higher level and a greater proportion of benefits than under current programs. Farms in these regions produce dairy products, beef, hogs, other field crops, fruits, vegetables, and other farm products not under commodity programs.

## Safety Net Scenarios May Hold Promise for Future Farm Policy

There are many ways to provide support to the agricultural sector. This article investigates one means: a farm household safety net based on standards commonly used in the economics literature and in Federal assistance programs. The scenarios considered are meant to be illustrative. Safety nets can be defined in many different ways. Also, while implementation issues are not addressed here, these safety net approaches could be used with a

mix of commodity and conservation programs. Were this minimum-standard type of safety net concept introduced as policy, the amount of compensation would likely be adjusted to reflect lower threshold levels than used in this analysis, current tax benefits for the poor, and benefits from other Federal assistance programs. Any safety net threshold less than roughly \$30,000 in household income would result in a cost savings over current farm programs.

A primary benefit of applying to the agricultural sector a safety net concept based on supporting a minimum standard of living would be the consistency and economic efficiency: farm household income changes would be compensated up to some agreed-upon level year-in, year-out as commodity prices, production, or other factors changed.

The drawbacks of a safety net stem from negative behavioral incentives (see Gardner for a dis-

cussion of the negative consequences of the current farm safety net). For example, a farmer may see no need to make capital investments or business decisions to improve farm income, knowing that a safety net provides a reasonable and reliable income support without the risk. There are some farmers who, without a safety net, would no longer be farmers; with it, these farmers may instead continue farming.

Finally, the farm sector is clearly heterogeneous and a one-size-fits-all policy prescription cannot simultaneously fulfill all policy goals. A clear understanding of objectives and intended beneficiaries must be the starting point for discussions of future farm policy.

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# Rural Banks and the Federal Home Loan Bank System

Julie Dolan

*Increased competition within the financial services industry has raised concerns about the ability of rural banks to adequately fund local development. In an attempt to address these concerns, the Gramm-Leach-Bliley Act of 1999 broadened rural bank access to Federal Home Loan Bank (FHLB) financing. Rural banks that are experiencing higher interest rate risk, tighter net interest margins, and liquidity constraints seek FHLB membership and actively use advances to increase lending. Greater reliance on nondeposit funding may increase the risk profiles of banks.*

Since the 1980's, increased competition within the financial services industry due to changes in Federal legislation and regulation, as well as market and technological developments, has increased concerns about funding for small banks (assets under \$500 million). Since rural banks tend to be small, the potential constraints on loanable funds in rural financial markets could hurt economic development. Rural economies consist of small communities and small borrowers, who rely on these local banks for credit.

The Gramm-Leach-Bliley Act (GLB) of 1999 increased small bank access to Federal Home Loan Bank (FHLB) funds to finance agricultural, rural, small business, and low-income community development. Under their government-sponsored enterprise (GSE) status, the FHLB's extend low-cost advances to member institutions. In addition to a steady source of long-term funds, FHLB membership offers other benefits for rural banks. FHLB advances can provide rural credit markets with an alternate source of

liquidity, and they may also increase rural bank profitability since they are less costly than core deposits (Collender). Finally, membership and the use of advances can reduce risks, such as interest rate risk, by matching maturities on assets and liabilities held in portfolios.

## **Rural Bank Membership May Increase With Changes to the FHLB's**

Congress created GSE's as privately owned and operated entities in order to make credit more available and affordable to specific sectors of the economy, including rural areas, agriculture, education, and housing. Established in 1932, the 12 FHLB's acted as lender of first resort for its member thrifts, extending advances for home mortgages. Under the Financial Institutions Reform, Recovery, and Enforcement Act (FIRREA) of 1989, FHLB eligibility was extended to all qualifying depository institutions, such as credit unions and commercial banks, but advances were still mostly used to support home mort-

gage markets. The GSE status of the FHLB's allows them to borrow funds in capital markets at rates only slightly higher than those paid by the U.S. Treasury. Member institutions can use illiquid mortgages and government securities as collateral for the low-cost advances.

The GLB increased competition within the industry by changing the basis for FHLB membership, augmenting the purposes of advances, and expanding the types of collateral that can be pledged against advances. Before GLB, eligibility criteria included meeting capital and loan quality standards, taking domestic deposits, and holding at least 10 percent of total assets in mortgage-related assets. The GLB repealed the mortgage/assets ratio for small commercial banks (less than \$500 million in assets), increasing their access to nonlocal funding. The GLB authorized FHLB financing to any small bank for agricultural, rural development, small business, or low-income community development lending. And it extended the types of collateral against advances to include

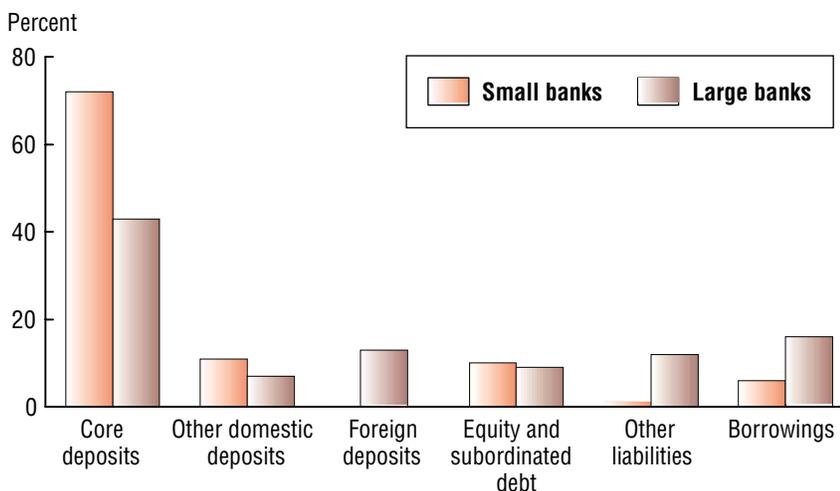
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secured small business, small farm, and small agribusiness loans (or securities representing a whole interest in these loans).

### Rural Banks Are Interested in Membership

Since 1994, over 90 percent of all commercial banks have been classified as small and over half of all small banks are rural. An increase in FHLB membership and use of advances by small banks is of concern for many reasons. By nature, agriculture is location-specific and concentrated in rural areas. Increased funding to small financial institutions will facilitate their continued service to underserved markets. Rural communities tend to have relatively few local sources of loanable funds, and so development is highly dependent on the ability of small banks to make new loans to local businesses, governments, and households.

Figure 1  
**Bank asset funding, year-end 1998**  
*Small banks rely more heavily on core deposit funding than do large banks*



Notes: Small banks are banks with less than \$500 million in total assets; core deposits are total domestic deposits less time deposits in excess of \$100,000 and brokered deposits less than \$100,000; borrowings include Federal funds purchased, repurchase agreements, FHLB advances, demand notes, and mortgages.  
 Source: Puwalski and Kenner.

FHLB advances allow access to a steady source of nonlocal funds, an alternative to local deposits for

financing investment opportunities. Recent studies reveal that deposit growth nationwide has been slow over the past decade. During the 1980's, increasing deposits accounted for over 30 percent of the increases in banks' financial assets, but less than 15 percent in the 1990's. This drop is especially worrisome for small banks since they tend to rely more heavily on deposits than larger banks. By year-end 1998, 72 percent of aggregate small bank assets were funded with core deposits, compared with only 43 percent for large banks (fig. 1).

Sluggish deposit growth may be partially attributed to the emergence of higher yielding investment alternatives, such as money market funds and mutual stock/bond funds. Nonbank institutions also offer financial services such as check writing, ATM's, and check cards with some money market accounts. In addition, advancing technology has lowered the relative costs of

Photo courtesy Economic Research Service, USDA.



## Data and Methods

Financial decisions involve a tradeoff between risk and return, where risk is characterized by deviations in expected returns. In general, financial institutions seek to increase returns while controlling risk. FHLB membership and advances gives banks additional tools with which to increase expected return for a given level of risk. Following portfolio theory, an empirical model was derived to test for characteristics of banks seeking membership in the FHLB's. This analysis also tests whether factors related to returns or risk influence the decision to become a member. The same analysis was used to determine which members used advances as an alternative funding source.

Characteristics of commercial banks that choose to join an FHLB and choose to use advances are estimated for the years 1994 to 1996. Balance sheet and income statement data were compiled using Call Reports from the FDIC and the Summary of Deposits data from the Federal Reserve. A year-by-year bivariate logit analysis was used in an attempt to eliminate time effects.

these nondeposit investments, so the share of household assets held as bank deposits has diminished (fig. 2).

This slow deposit growth may be fueling the record-high levels of loan-to-deposit ratios. Reduced liquidity, where loan growth exceeds deposit growth, was evident in 64 percent of all small banks during the 1990's (Puwalski and Kenner). In imperfect capital markets, slower growth in deposits is associated with slower growth in lending, especially in smaller banks (Jayartne and Morgan). Longer term funding options are relatively limited for small banks. Capital market instruments have high fixed costs, which make them relatively more expensive for small institutions that spread these costs over a smaller volume of business activity. Since smaller banks are not as well known, they are not easily evaluated by creditors and are forced to pay higher rates for borrowings than large banks.

FHLB advances are a viable nondeposit source of funding for small banks, and can be used as direct substitutes for deposits in

loan funding when short-term deposits are insufficient in satisfying local loan demand. In addition, advances have other attractive features: no withdrawal risk is associated with their use as a liability, no reserve requirements must be held

against them, and no insurance premiums must be paid.

The current increase in small banks' use of nondeposit sources of funds reflects the rising use of FHLB advances. In 1993, only 42 percent of all small banks held over 10 percent of total liabilities in non-core deposits; by second-quarter 1998, 75 percent did. And by year-end 1998, advances made up over 80 percent of all nonovernight borrowings (all borrowings other than Federal funds purchased and repurchase agreements) for small banks (Puwalski and Kenner).

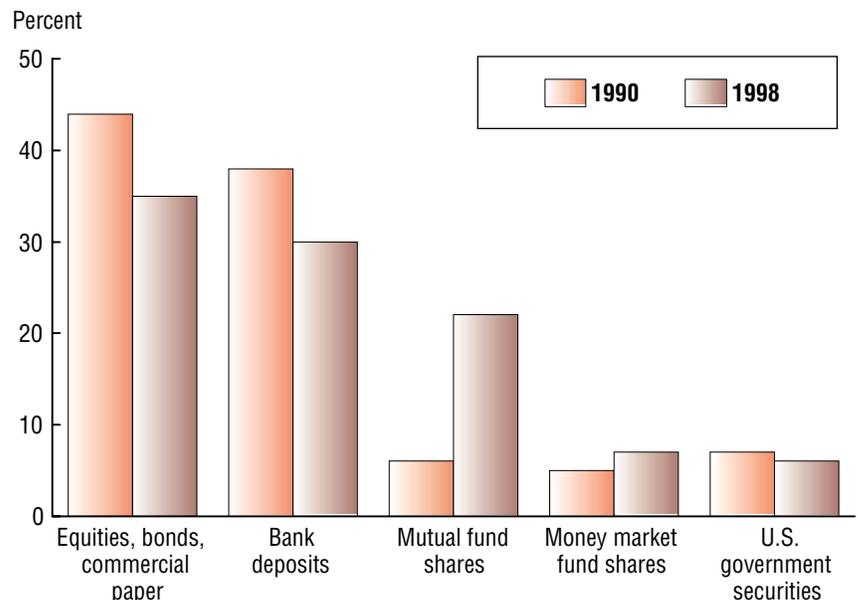
## Which Rural Banks Join and Use FHLB Advances?

In general, the residential mortgage loan constraint is binding for all commercial banks. Its alleviation through GLB will allow many more rural banks to join the FHLB's. Member rural banks are more likely to take out advances than urban

Figure 2

### Shares of liquid assets held in household portfolios, 1990 and 1998

The share of household assets held as bank deposits diminished during the 1990's



Source: Puwalski and Kenner.

Table 1

**Factors associated with FHLB membership and use of FHLB advances***The FHLB system is a potential risk management tool for rural banks*

Factor	Relationship with:	
	FHLB membership	Use of FHLB advances
Interest rate risk	positive	positive
Liquidity risk	positive	positive
Credit risk	negative	positive
Profit pressure	positive	positive
Rural bank classification	negative	positive

members due to rural banks being predominantly small and small bank funding options being relatively limited.

Financial institutions seek FHLB membership to manage risk and profit. Rural banks that are experiencing higher interest rate risk, tighter net interest margins, and liquidity constraints seek membership in the FHLB system and actively use advances as a source of funding to increase lending. Member rural banks are more likely to take out advances when experiencing higher levels of credit risk, such as during periods of increased loan defaults and delinquencies.

Interest rate risk is measured by asset-liability maturity gaps (see "Definitions" for an explanation of the technical terms used here). Banks with relatively large, positive maturity gaps (i.e., high interest rate risk) are significantly more likely to seek membership and have outstanding FHLB advances since movements in market interest rates may cause wide variations in net interest income (table 1). On average, deposits exist for 12 months, whereas the average life of a fixed-rate real estate loan is 15 years. Obtaining FHLB membership allows banks to finance long-term loans with longer term liabilities.

Credit risk occurs when loans carry high default risk and are illiquid. Loans constitute a major portion of banks' earning assets and generate the bulk of interest income. A bank with a relatively high level of credit risk will need a source of funds for liquidity purposes. Banks with higher credit risk, measured by higher net loan charge-offs or a higher percentage of nonperforming loans to total loans, are less likely to join an FHLB, often due to the failure of these banks to meet the minimum asset quality requirement when gross loan losses are exceptionally high. However, member banks experiencing higher credit risk actively use advances as a funding source. Interest rate risk can also be transformed into credit risk. That is, if rates on variable-rate or indexed loans rise by enough to make the new payments too high for the borrower, then the potential for default increases.

Liquidity risk arises when banks must honor deposit withdrawals or when they want to take advantage of profitable opportunities that the existing liability base cannot support. Liquidity is measured by the loan-to-core-deposit ratio, since core deposits are an important source of liquidity due to their sta-

bility and relatively low interest rate sensitivity. A loan-to-deposit ratio that is high or increasing indicates low or falling liquidity for small banks. During the 1990's, small bank loan-to-deposit ratios increased 14 percentage points to exceed 69 percent, on average, by 1997 (Keeton).

Banks facing increasing loan-to-deposit ratios are more likely to join an FHLB and to use advances as a substitute for deposits as a liquid asset. Increased liquidity allows banks to remain active in difficult lending environments, such as rural areas. Seasonal mismatches in loan demand and deposits create funding problems for rural banks. The homogeneity and isolation of rural economies makes diversification of loan portfolios difficult, so rural banks hold fewer loans as a percentage of deposits compared with the banking industry as a whole.

FHLB membership can also help banks increase profits. Reductions in net interest margins are used to measure increased profit/earnings pressure and to characterize those institutions with high marginal costs of funds and/or low returns on asset portfolios. Banks facing increased profit pressure are more likely to join an FHLB and to use advances since the marginal cost of funds may be lowered by doing so. In addition, an institution suffering from earnings pressure may be cash-flow constrained, leading to the need for an alternative source of funding. Profit pressure may entice institutions to raise loan-to-asset ratios by extending credit to marginal borrowers in search of higher returns. On average, this could lead to higher loan losses since more credit risk has been undertaken.

## Definitions

**Asset-liability maturity gaps.** The difference between an institution's asset and liability maturity structures. A positive maturity gap implies that assets (loans and investments) held in portfolio have longer maturity than liabilities (deposits and other sources of funds), where these mismatched maturities lead to higher interest rate risk.

**Core deposits.** Stable deposits that are not highly interest-rate sensitive. These include demand deposits, negotiable order of withdrawal (NOW) accounts, money market demand accounts (MMDA's), and small time deposits.

**Credit risk.** The risk that the borrower will default on his loan. High credit risk is displayed through significant loan losses.

**Interest rate risk.** The possibility of a change in cost of funds (market interest rate) without a matching change in rates charged on outstanding loans held in portfolio (fixed-rate loans).

**Liquidity risk.** Variation in net income due to difficulty in obtaining cash at reasonable cost.

**Net charge-offs.** Gross charge-offs (dollar value of loans written off as uncollectable) less recoveries (loans initially charged off that are repaid).

**Net interest margin.** Ratio of net interest income to earning assets; measures net interest returns on income-producing assets.

**Nonperforming loans.** Loans where the contracted interest and principal payments have not been made within 90 days after the due date or loans currently not accruing interest for the bank.

**Small banks.** Insured commercial banks with average total assets under \$500 million.

(FDIC) since bank and thrift failures impose huge costs on the Bank Insurance Fund and the Savings Association Insurance Fund. They include the direct costs of arranging mergers, assisting troubled firms, liquidating assets, and final payouts to depositors. FDIC officials worry that FHLB lending policies may at times enable rather than deter such risk-taking. Previous studies have indicated a negative correlation between FHLB advances to thrifts and thrift capital levels, a widely used indicator of riskiness (Ashley and others). FHLB lending to poorly capitalized thrifts increased Federal Savings and Loan Insurance Corporation losses during the 1980's. Advances allowed institutions to increase financial leverage and induced insured thrifts to undertake greater risks since profits would accrue to the owners while losses in the event of failure would fall on the insurer. Liens associated with the FHLB advances have priority over other security interests, such as insured deposits, in the assets of failed insured institutions, so deposit insurance funds are at risk if the FHLB's provide advances to troubled, federally insured banks or thrifts.

## Increased FHLB Membership Could Erode Deposit Insurance Funds

With more rural banks joining the FHLB system under GLB, safety and soundness become major concerns. For instance, the use of advances may prolong the life of a failing institution. Moreover, if those institutions that seek membership are suffering profit pres-

ures, then earnings pressure may entice these banks to engage in risky behavior. FHLB's low-cost, nonlocal funds may lead to rapid, unsafe growth in bank portfolios if these funds are used to extend credit to risky marginal borrowers.

These potential problems are a major concern for the Federal Deposit Insurance Corporation

## Conclusions

The FHLB's are intended to promote competition within the financial services industry and to strengthen small institutions by ensuring adequate liquidity to meet local credit demand. As a nondeposit funding alternative, advances provide a stable source of funds, better matching of asset cash flows,

greater flexibility in asset-liability management, access to liquidity and interest rate risk management tools, and a means of alleviating some profit pressure by potentially lowering the marginal cost of loanable funds. Member banks in rural financial markets can use FHLB advances to fund businesses, agriculture, rural development, and community development.

The GLB will increase small bank membership in the FHLB system. Moral hazard problems associated with this increase can be effectively managed with attentive regulation. Supervisors can evaluate whether or not banks are adequately capitalized and scrutinize an institution's risk management.

#### **For Further Reading . . .**

Lisa K. Ashley, Elijah Brewer III, and Nancy E. Vincent, "Access to FHLBank Advances and the Performance of Thrift Institutions," *Economic Perspectives*, Federal Reserve Bank of Chicago, Second Quarter 1998, pp. 33-52.

Robert N. Collender, "Would More Rural Bank Access to Nonlocal Funds Provide Public Benefits?" U.S. Dept. Agr., Econ. Res. Serv., *Issues in Agricultural and Rural Finance*, AER-724, Sept. 1998.

Jith Jayartne and Don Morgan, "Information Problems and Deposit Constraints at Banks," Federal Reserve Bank of New York, Research Paper No. 9731, Oct. 1997.

William R. Keeton, "Are Rural Banks Facing Increased Funding Pressures? Evidence from Tenth District States," *Economic Review*, Vol. 83, No. 2, Federal Reserve Bank of Kansas City, Second Quarter 1998, pp. 43-67.

Allen Puwalski and Brian Kenner, "Shifting Funding Trends Pose Challenges for Community Banks," *Regional Outlook*, Federal Deposit Insurance Corporation, Third Quarter 1999, pp. 11-17.

# USDA's Self-Help Loan Program Provides Unique Opportunities for Home Ownership

George Wallace

*USDA's 502 Direct Loan Homeownership Program offers a limited number of borrowers the option of participating in mutual self-help programs. Through these programs, nonprofit entities organize 5 to 12 borrowers into a self-help team that works together to complete each other's homes. Evidence from a survey of 502 borrowers suggests that the "sweat-equity" method of building a home improves the chances of successfully owning a modest home while enhancing the wealth of the borrower.*

The current economic expansion has produced several record years for new housing starts, but this statistic may misrepresent America's housing market. Even with the record expansion, many rural residents continue either to be without housing or to live in housing that is deemed to be inadequate. In 1995, 1.6 million nonmetro households lived in housing classified as substandard, many households—both nonmetro and metro—were burdened by housing costs that exceeded 30 percent of their income (Whitener). These adequacy and affordability problems occur in both growing and declining areas. In declining areas, demand for new housing may never arise and much of the existing housing stock may depreciate and/or deteriorate. In growing areas, demand may exceed supply, driving up housing prices and putting adequate affordable housing outside the reach of low-income households.

In response, the Federal Government has over the past 50

years enacted policies that recognize housing as a basic need and homeownership as a desirable goal (Mikesell). Subsequent programs include those operated through USDA, Housing and Urban Development (HUD), State and local governments, and nonprofit organizations such as Habitat For Humanity. USDA programs have provided home mortgages to very-low- and low-income rural families, resulting in higher levels of homeownership in rural communities. USDA's Rural Housing Service (RHS) offers the only direct loan homeownership program—the Section 502 program—available in rural areas (see "Section 502 Single Family Direct Loan Program").

For over a quarter-century, the common denominator in rural self-help housing has been operational funding for self-help organizations under USDA's rural housing program. Known as the Section 523 program, it provides grant funds to hire staff necessary to make mutual self-help housing a reality. When

coupled with home loans through the Section 502 program, these programs become a self-help-financing package, which has been the core of rural self-help housing efforts (Carey). This program substitutes "sweat equity" for cash outlays, reducing home construction and rehabilitation costs, as well as borrowers' capital contributions. Through their labor investment in the home, or "sweat equity," each homeowner pays less for his or her home and ends up having a larger initial equity stake. Each qualified applicant is required to complete 65 percent of the construction labor to build his or her own home. Beneficiaries and volunteers in the program receive training in construction and home repair techniques that increase the homeowners' capacity to extend the life of their housing stock. Since the program began in 1971, 28,217 mutual self-help homes have been built by grantees (nonprofit housing developers) in 45 States and territories. Currently, there are 121 grantees in

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operation, with an additional 26 that have applied for technical assistance grants to also administer the self-help program.

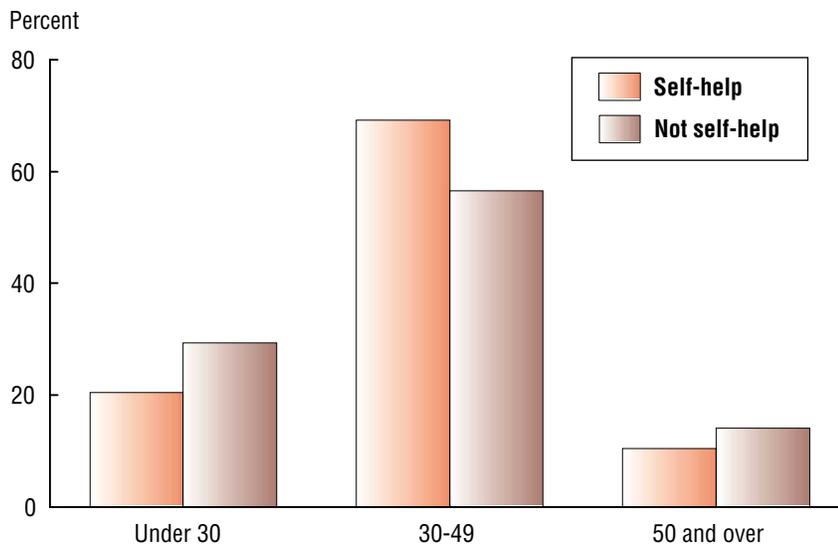
Technical assistance grants and site loans are provided to nonprofit and local government organizations, which supervise groups of 5 to 12 families in the self-help program. Members of each group work on each other's homes, moving in only when all the homes are completed. Once accepted into the self-help program, each enrollee generally applies for and receives a section 502 loan.

At the request of the USDA's Rural Development mission area, the Economic Research Service (ERS), in cooperation with the Social and Economic Sciences Research Center at Washington State University, conducted the 1998 Survey of USDA's Single Family Direct Loan Housing Program. This national survey provides detailed information on 3,027 section 502 borrowers who obtained loans between 1994 and

Figure 2

### Age of section 502 borrowers

The majority of self-help borrowers are between 30 and 49 years of age



Source: 1998 Survey of USDA's Single Family Direct Loan Housing Program, ERS.

1998. Of these, 230 respondents (7.7 percent) participated in a mutual self-help program (see "Survey Data").

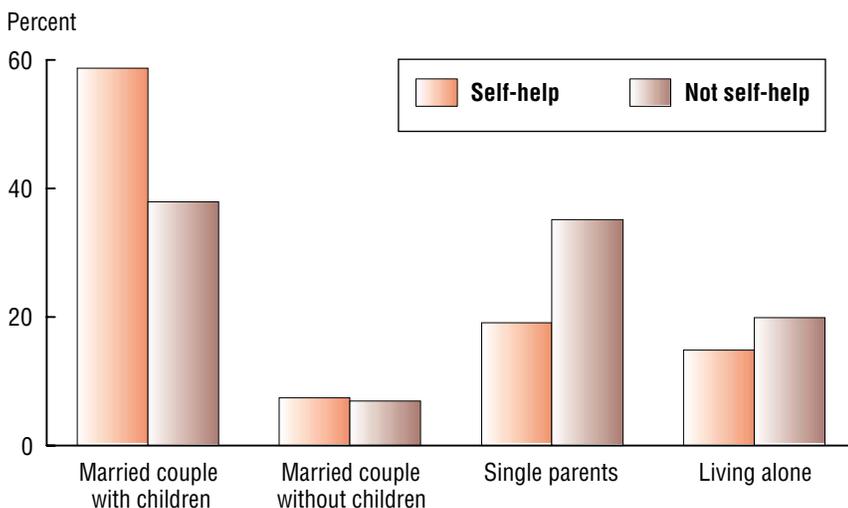
Because self-help borrowers typically qualify for the 502 direct

loan program in a manner similar to other 502 borrowers, they share many characteristics. But whereas an earlier analysis examined how the 502 program as a whole improves the well-being of its participants (Mikesell and others; Wallace and others), this article explores self-help program borrowers' circumstances, motivations, and opinions of the program.

Figure 1

### Household composition of self-help borrower households

Married couples with children are the predominant self-help household type



Source: 1998 Survey of USDA's Single Family Direct Loan Housing Program, ERS.

### Who Participates in the Section 502 Self-Help Program?

**Household Type.** The requirement that self-help borrowers contribute 65 percent of the construction labor needed to build their homes may discourage many applicants. Self-help borrowers are more likely to be married couples with children (59 percent), while other 502 borrowers are just as likely to be single parents as couples (fig. 1). Requiring that all team members' homes be completed before anyone can occupy their home suggests a significant com-

Table 1

**Financial measures of self-help and all other 502 households, 1998**

*Self-help borrowers have higher average incomes and larger returns to home equity*

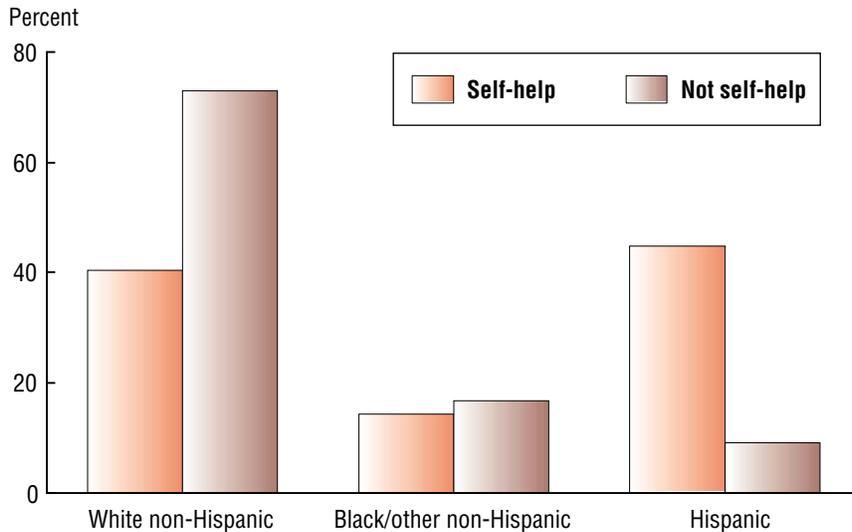
Item	Self-help households	Other 502 households
<i>Dollars</i>		
Total income:		
Overall household income	21,462	20,957
White non-Hispanic	22,448	21,709
Minority households	20,852	18,706
Single-parent households	18,615	18,947
<i>Percent</i>		
Annualized rate of return to equity:		
All households	16.4	7.8
White non-Hispanic	22.4	8.2
Minority households	10.5	6.2
Single-parent households	19.4	6.4

Source: 1998 Survey of USDA's Single Family Direct Loan Housing Program, ERS.

Figure 3

**Race/ethnicity of section 502 borrowers**

*Self-help borrowers are more likely to be Hispanic than other section 502 borrowers*



Source: 1998 Survey of USDA's Single Family Direct Loan Housing Program, ERS.

*Respondent Age.* Self-help borrowers tend to be older than other section 502 borrowers. The majority of both groups were between age 30 and 49, but more self-help borrowers (69 percent) fell into this age group (fig. 2).

Borrowers over 50 and under 30 participated in the self-help program, but in lower proportions than other 502 borrowers.

*Race/Ethnicity.* The largest group of self-help borrowers (45 percent) is Hispanic, whereas other 502 borrowers are predominately non-Hispanic Whites (fig. 3). The large proportion of Hispanics among self-help participants explains some of the other characteristics we report. For example, Hispanic households tend to be married couples with children and have larger than average households.

*Household Income and Its Sources.* The mean household income of self-help borrowers was \$21,462 in 1998, versus \$20,957 for all other 502 borrowers. However, racial/ethnic minorities in the self-help program have higher average incomes than other 502 minorities (table 1). The incomes of single-parent households are lower than those of other borrowers in both the self-help and other 502 groups. Both self-help and other 502 borrowers receive the majority of their income (94 percent) from wages and salary.

*Region.* Almost half of all section 502 borrowers are in the South, but only 4.3 percent of self-help borrowers are located there (fig. 4). Self-help borrowers are primarily in the West, where 32.6 percent of 502 borrowers participated in a self-help project. Location of self-help loans is determined in large part by the location of participating nonprofits. These organiza-

mitment of time. Single parents may have more difficulty working around schedule demands, such as work, or childcare. Married cou-

ples may be better able to divide their responsibilities so that one is working while the other contributes to home building.

tions plan, organize, and develop self-help building sites, thus giving self-help borrowers the infrastructure needed for a successful program.

### **Section 502 Self-Help Loans Lead to Improved Housing Conditions**

Self-help homes are new when the borrower moves in. The complementary USDA Section 523 program, which funds the development of the building sites, requires that these homes be served by adequate public infrastructure such as modern water and sewer systems and safe streets. However, most self-help site development is funded through programs other than USDA's. Self-help borrowers typically occupy new homes in planned developments.

#### **General Housing Characteristics**

Over 98 percent of self-help borrowers in the survey were first-time homeowners, compared with 35 percent of other 502 borrowers.

For both, single-family detached houses were most common, typically a three-bedroom unit with at least one full bath. Forty-eight percent of self-help homes had two bathrooms, compared with 24 percent of other 502 borrowers. Forty-six percent of 502 borrowers had only one bathroom, compared with 21 percent of self-help borrowers.

The average price for self-help homes was \$75,956, compared with \$64,000 for other borrowers. This likely results from more of the self-help homes being new and from differences in regional housing markets. The average price paid for a house was not significantly different when controlling for race.

#### **Indicators of Housing Improvement**

Almost 70 percent of self-help borrowers said their housing cost either declined or stayed the same. Housing costs include mortgage payments, taxes, insurance, utilities, and general maintenance. In con-

trast, more than 45 percent of other 502 borrowers indicated that their housing costs had increased. Over 90 percent of self-help borrowers believed that their new housing was better than their previous housing, compared with 82 percent for other 502 borrowers. And 62 percent of self-help borrowers indicated their new neighborhood was better than the previous one, versus 56 percent of other 502 borrowers.

The monetary dividends afforded to sweat equity can be deduced by comparing the self-help group's average rate of return to equity with those of other 502 borrowers. The return to equity measures in percentage terms how much the equity in possession of the borrowers has increased or declined. For our purposes, this percentage change has been annualized to control for differences in length of ownership. On average, self-help borrowers earned 16.4 percent on their equity, twice the 7.8-percent return to other 502 borrowers (table

### **Section 502 Single Family Direct Loan Program**

For over 50 years, USDA programs have provided home mortgages to low-income rural families. The Rural Housing Service (RHS), formerly the Farmers Home Administration, operates a broad range of programs to promote and support affordable housing development in rural areas. Through the Section 502 Single Family Direct Loan Housing Program, RHS offers subsidized homeownership loans to low-income rural families that are without adequate housing and cannot obtain mortgage financing elsewhere. Low-income families are those with adjusted incomes under HUD's applicable low-income limit, usually 80 percent of the median income of the local area; very-low-income families have adjusted incomes under 50 percent of the median income of the area. Loans can be used to build, repair, renovate or relocate a home, or to purchase and prepare sites, including providing water and sewage facilities. They may also be used to refinance debts when necessary to avoid losing a home or when required to make necessary rehabilitation of a house affordable.

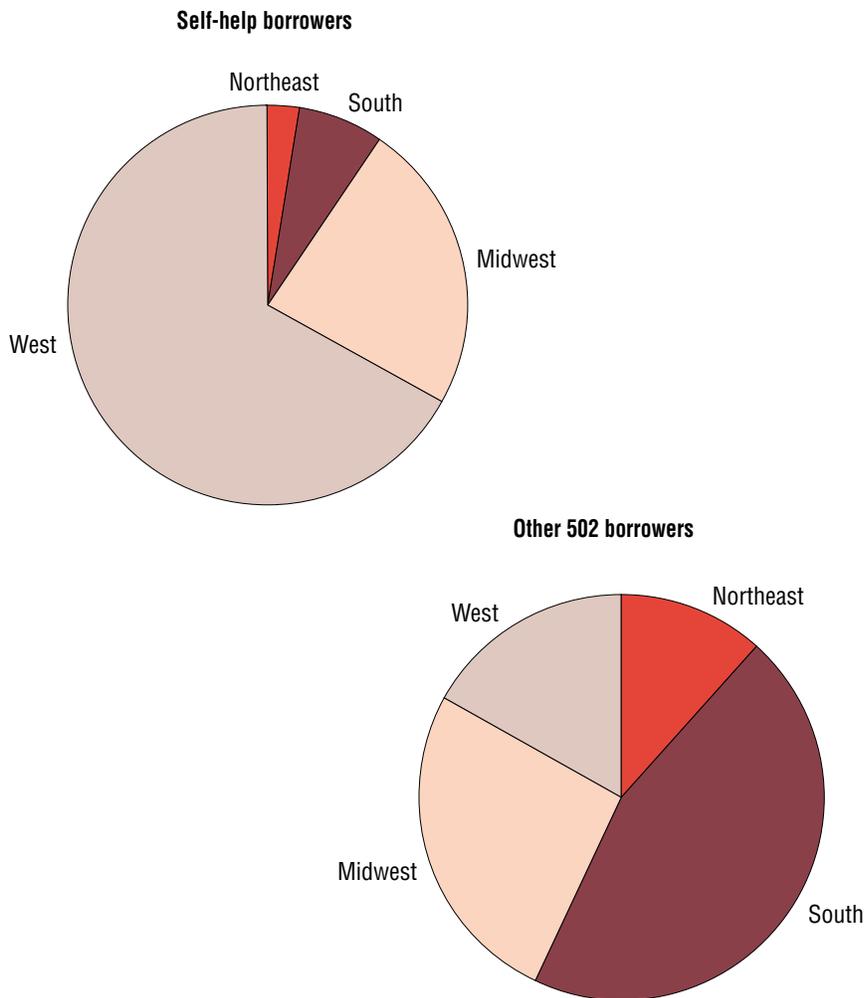
The program provides subsidized loans with effective interest rates as low as 1 percent. The term of the loan is usually 33 years (38 for very-low-income borrowers who cannot afford 33-year terms), no down payment is required, and closing costs can be financed in the mortgage. Interest rates are subsidized, but for most borrowers the payment amount is determined by their income level rather than by the interest rate. Housing must be modest in size, design, and cost. Modest housing is defined as costing less than the HUD dollar cap, which in 1997 was \$81,548, with adjustments for high-cost areas.

RHS provides assistance in rural portions of both nonmetro and metro counties. Eligible areas are defined as open country and rural places under 20,000 population or under 10,000 population in a metropolitan statistical area (MSA). Today, over 600,000 rural borrowers participate in the section 502 program.

Figure 4

### Regional distribution of self-help and other 502 borrowers

A plurality of 502 borrowers are in the South, but most self-help borrowers are in the West



Source: 1998 Survey of USDA's Single Family Direct Loan Housing Program, ERS.

1). However, when controlling for race/ethnicity, this difference in rate of return goes away. This may be a result of a racial or ethnic bias in how survey respondents interpreted the question about the value of their property, or it may suggest that racial/ethnic properties are located in depressed housing markets. Minority borrowers earned the lowest average rate of return among both self-help and other

502 borrowers. Surprisingly, single-parent households in the self-help program had significantly higher rates of return to equity than other single-parent 502 households.

Administrative data on delinquency rates (loans are reported delinquent when payments are 30 days past due) provides additional evidence that self-help borrowers realize a benefit from their sweat equity. The 502 borrowers have

delinquency rates above 15 percent; self-help borrowers average closer to 12 percent. This 3-percent difference persists regardless of the time period when delinquencies are reported.

### Self-Help Borrowers Give High Marks to Program

About half of self-help borrowers believed that it would have taken more than 2 years for them to afford a similar home, and another 45 percent believed they would never have been able to afford a home without the 502 program. In addition, over 65 percent of self-help borrowers rate their experience with Rural Development as having been good or very good. Less than 8 percent rated the experience as poor or very poor. These numbers are very similar to those of other 502 borrowers.

*Satisfaction With Housing.* Most recent self-help borrowers are satisfied with their homes. About 85 percent reported high satisfaction (score of 8 or higher out of 10). This level of satisfaction is similar to that reported by other section 502 borrowers. In addition, borrowers evaluated individual features such as the home's exterior appearance, construction quality, and adequacy of size. Over 80 percent of self-help borrowers rated appearance and size as good or very good. Self-help borrowers rated quality of construction lower than did other 502 borrowers. This disapproval may seem odd since self-help borrowers constructed at least 65 percent of their home structures. Both self-help and other 502 borrowers criticized the quality of subcontractor work. Still less than 3 percent of self-help borrowers rated any features (exterior appearance, quality of construction, size of home

## Survey Data

The 1998 Survey of USDA's Single Family Direct Loan Housing Program was conducted by the Economic Research Service, in cooperation with the Social and Economic Sciences Research Center at Washington State University, at the request of USDA's Rural Housing Service. The survey was designed to provide information on the characteristics of the low-income rural residents who participate. In 1998, a national telephone survey collected information from 3,027 recent participants in the section 502 rural housing loan program whose loans closed between 1994 and 1998. These individuals represent nearly 60,000 recent borrowers nationwide, excluding those in Guam, Puerto Rico, and the Virgin Islands. The survey collected information on the demographic, education, and employment characteristics of borrowers and their household members; current and past housing conditions and costs; satisfaction with current residence, neighborhood, and the USDA financing experience; extent of participation in public assistance programs; and sources and amounts of household income. The survey response rate was 70.3 percent, with a margin of error of  $\pm 1.7$  percent at the 95-percent confidence level. All differences reported in this article are significant at the 95-percent level. See Mikesell and others for more detail on the survey findings, methods, and reliability of estimates.



Photo courtesy Economic Research Service, USDA.

relative to needs) as poor or very poor.

*Satisfaction With Neighborhood and Services.* Self-help borrowers ranked neighborhood quality high, but consistently gave lower ratings on the convenience to services and safety/security of their neighbor-

hoods. Over 30 percent of self-help borrowers rated these neighborhood features as average, poor, or very poor.

Overall, results of this survey suggest that borrowers are generally satisfied with USDA's mutual self-help housing program.

## For Further Reading . . .

Peter Carey, "Mutual Self-Help Housing," in *A Home in the Country: The Housing Challenges Facing Rural America*, Washington, DC: Fannie Mae Office of Housing Research, 1995.

James J. Mikesell, "Federal Housing Assistance Promotes Homeownership," *Rural Conditions and Trends*, Vol. 9, No. 1, 1998, pp. 25-31.

James J. Mikesell, Linda M. Ghelfi, Priscilla Salant, George Wallace, and Leslie A. Whitener, *Meeting the Housing Needs of Rural Residents: Results of the 1998 Survey of USDA's Single Family Direct Loan Housing Program*, U.S. Dept. Agr., Econ. Res. Serv., RDRR-91, Dec. 1999, <<http://www.econ.ag.gov/epubs/pdf/rdr91/rdr91.pdf>>

George Wallace, Linda M. Ghelfi, James Mikesell, and Leslie Whitener, "Direct Loans Open Doors to Home Ownership," *Rural America*, Vol. 15, Issue 2, pp. 10-17.

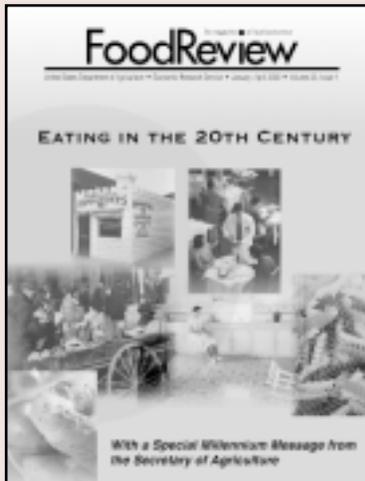
Leslie A. Whitener, "Measurement of Housing Poverty: An Application to Nonmetro Racial/Ethnic Minorities," Paper presented at the Rural Sociological Society annual meetings, Chicago, IL, Aug. 1999.

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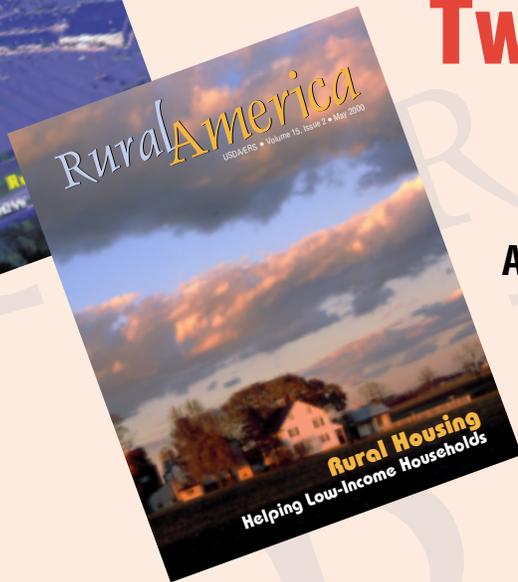
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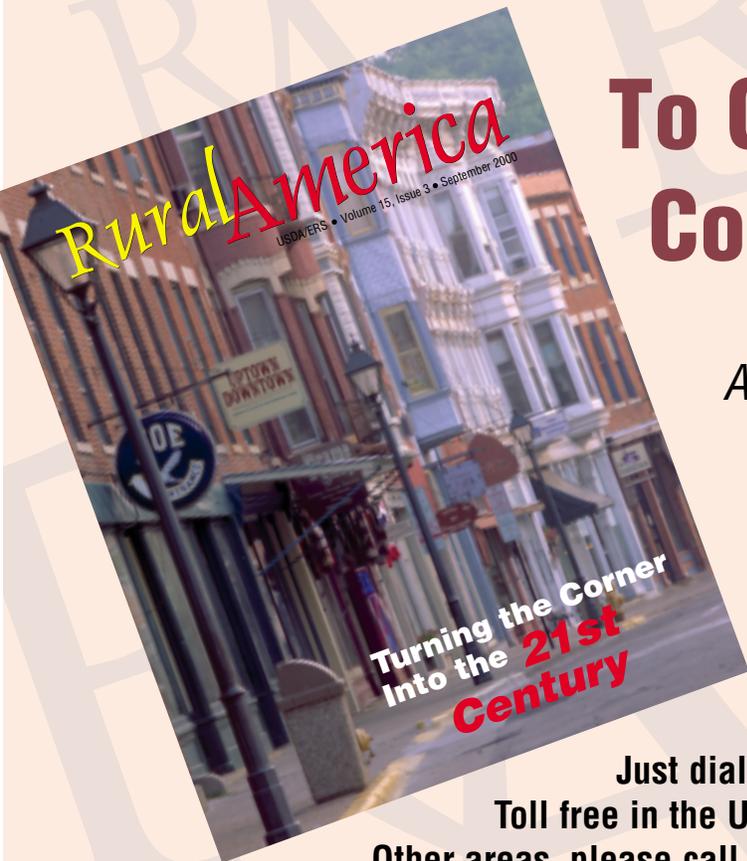
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