

formulated to encourage or discourage such an outcome.

It is beyond the scope of this article to consider the desirability of such intervention. However, the issue of whether to attempt to influence telecommunications availability and use in rural America should be placed on the public agenda for two reasons. First, the telecommunications infrastructure and utilization decisions that will influence rural development possibilities in the 1990's and beyond are already being made. Second, how the population is distributed is important to all Americans. It involves many tradeoffs affecting people's quality of life, such as effects of urban congestion versus broader job possibilities. Because of such consequences, the issue seems too important to leave only to rural residents or only to urban residents or only to market forces to decide. Policy discussions need to commence now, when the focus can be future-oriented rather than remedial. Placing information technology issues onto the public policy agenda represents perhaps our most important and pressing rural development challenge.

RDP

### For Additional Reading...

Harlan Cleveland, "The Twilight of Hierarchy: Speculations on the Global Information Society," *Public Administration Review*, 1985, Vol. 45, p. 185.

Don A. Dillman, "The Social Impacts of Information Technologies in Rural North America," *Rural Sociology*, 1985, Vol. 50, No. 1, pp. 1-26.

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Timothy S. Parker and Leslie A. Whitener

# Farmers And Their Search For Off-Farm Employment

*Labor force analysts predict that as many as 300,000 farmers may leave farming by the turn of the century while many others will take supplemental off-farm jobs to enable them to remain in farming. However, many farmers will have difficulty competing for nonfarm jobs because they are generally older and have less education than others in the local labor force. Another obstacle: Farmers tend to live in areas where employment opportunities are limited and wages are low. Best prospects are in the Northeast.*

Continued economic pressure on farming will induce many operators to shift partially or entirely to off-farm work. Their success in finding good jobs will depend on the characteristics of the local labor market, the number and types of off-farm jobs and the wages they pay, as well as on how effectively farmers can compete with other job seekers in terms of education, skills, and work experience.

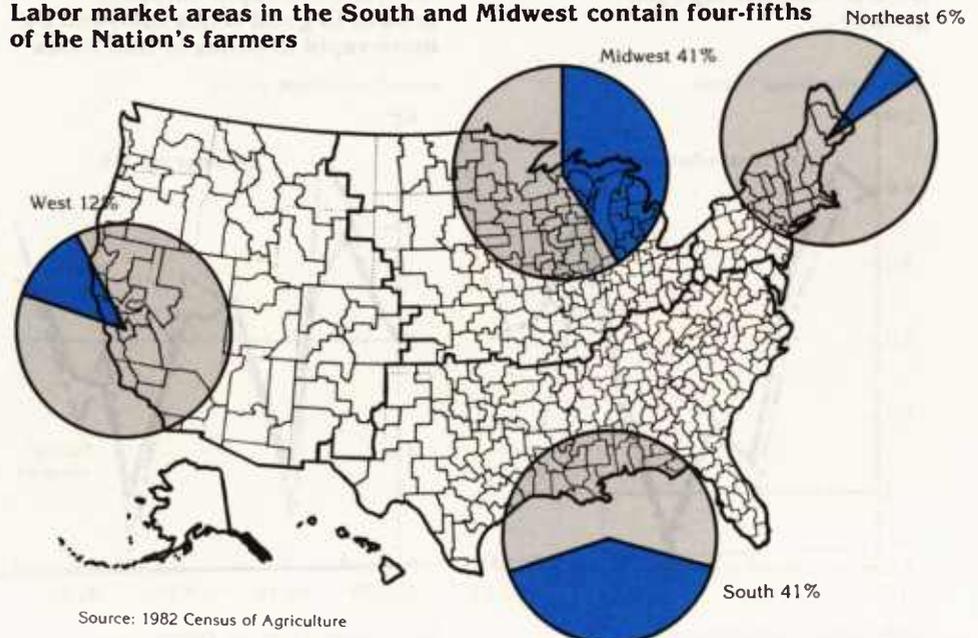
Timothy Parker and Leslie Whitener are sociologists with the Agriculture and Rural Economy Division, ERS.

Some farmers will have trouble finding off-farm work because their individual characteristics make them weak competitors for good jobs, or because the economic conditions of their local labor market limit their employment and wage opportunities, or both.

While the effects of the 1980's farm crisis have eased in recent years, long-term trends in farm consolidation and technological advances point to continued declines in the numbers of farms and farm operators. Since 1945, the number of farmers has fallen by over 3.6 million, a decline of over two-thirds. The Bureau of Labor Statistics predicts that these trends will continue, with a loss of an additional 300,000 farmers by the year 2000. Also, as economic pressure continues, many farmers will be forced to rely more heavily on nonfarm earnings. The Census of Agriculture reports that over half of the Nation's farmers did some off-farm work in 1982 and two-thirds of these worked 200 or more days at their nonfarm jobs. For some farmers, supplemental off-farm

Figure 1

**Labor market areas in the South and Midwest contain four-fifths of the Nation's farmers**

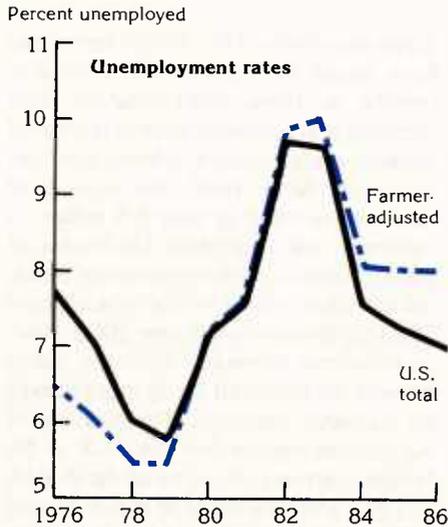


earnings make it possible to have an adequate standard of living; for others it keeps them from losing their farm.

Unlike other studies that examine off-farm employment opportunities for farmers in various communities or counties, our research examines these opportunities in the context of broader local labor market areas (see box, "What's a Labor Market Area?"). We initially assessed the average

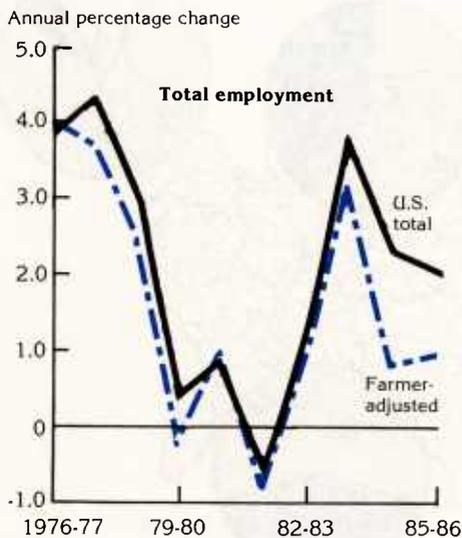
**Figure 2**  
**Farmers tend to live in LMA's with:**

**Higher than average unemployment rates**



Source: Bureau of Labor Statistics

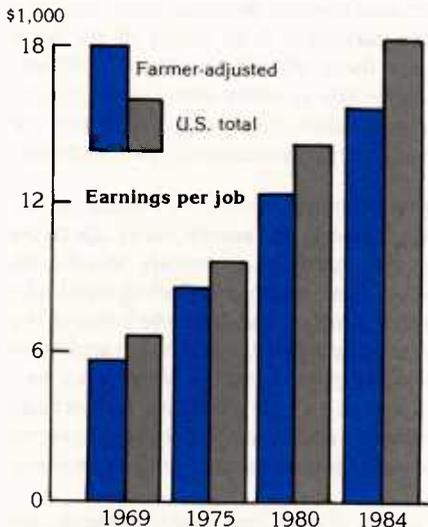
**Figure 4**  
**Slower than average job growth . . .**



Source: Bureau of Labor Statistics

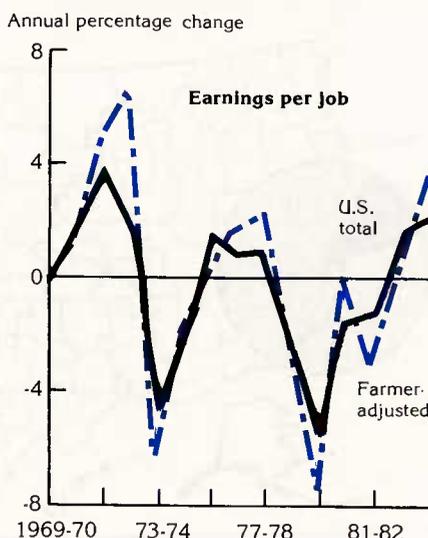
labor market situation facing all farmers by developing a weighting scheme that takes into account the unequal distribution of farmers throughout the country and the diverse characteristics of local labor market areas (see box, "Our Measurement Procedures"). We looked at both national averages and regional differences in farmers' off-farm employment opportunities using the labor market areas (LMA's) shown in figure 1.

**Figure 3**  
**Lower than average earnings**



Source: Bureau of Economic Analysis

**Figure 5**  
**. . . and more rapid earnings growth in good times followed by more rapid declines in bad times**



Source: Bureau of Economic Analysis

**Farmers Tend To Be Older Than Other Workers...**

Age and education are good general indicators of workers' ability to compete for employment with other members of the labor force. We compared the age and educational level of farm operators with those of their local LMA labor pool as well as the total civilian labor force.

Farm operators tend to be older than most of the labor pool in their LMA's and the civilian labor force in general. According to the 1980 Census of Population, 41 percent of farm operators are between the ages of 45 and 64, and another 23 percent are over 65, leaving only 36 percent under 45. By contrast, over 70 percent of the local labor pool and the total labor force are under 45 years of age (table 1).

Most farm operators over 65 will probably not look for alternative or supplemental off-farm work. However, even if these older farm operators are removed from the analysis, the remaining farmers are still considerably older than most workers in the local labor force, and may have some difficulty competing with younger workers.

The age difference between farmers and their local labor force is apparent in all regions, and is greatest in the West. About 45 percent of the farmers in the West are between 45 and 64 while less than a quarter of the average local labor force are in this age group. Thus, farmers in this region are likely to face stiff job competition from younger workers. The age gap between farmers and their local labor pool is smallest in the South.

**...And Have Less Education**

Farm operators in 1980 tended to have slightly lower levels of education than their local labor pool or the total civilian labor force. Of the farmers age 25-64 (the group most likely to look for off-farm employment), 67 percent completed high school, compared with about 74 percent of the local labor pool and 76 percent of the U.S. labor force (table 1). Lower educational levels suggest that farmers may have difficulty competing for the better jobs in their local LMA's. At the same time, farm operators will face even greater competition for jobs outside of their local labor market areas where the

labor force has even higher educational levels.

Despite farmers' generally lower educational levels, two points must be emphasized. First, most of the education gap between farmers and the local labor pool occurs among the least educated (less than 9 years of school) and the most educated (attended some college) groups. About equal proportions of farmers and the local labor pool completed high school. This suggests that farmers may

have less difficulty competing for jobs requiring a general education but will face stiffer competition for higher-paying jobs in more specialized or technical fields. Second, more recent data from the 1987 Agricultural Work Force Survey suggest that the educational levels of farmers have increased since 1980 and the gap between farm operators and the civilian labor force, although still there, has narrowed. Thus, farmers may be more competitive in the future.

For the present, however, the educational gap between farmers and the local labor pool, particularly in the Northeast and South, is sizeable. Farmers in these areas face stiff job competition from a more educated local workforce. In contrast, the educational gap in the West is negligible. Farmers in the West have little problem competing with the local labor force.

### Farmers Tend to Live Where Unemployment is Greater...

Farm operators face higher unemployment rates in their local labor market areas than the civilian labor force (fig. 2). Farm operators lived in labor market areas with an average unemployment rate of 8 percent in 1986, compared with 7 percent for the U.S. total. However, this pattern has been apparent only since the end of the 1980-82 recession. Before 1980, farmers lived in areas with lower unemployment rates than the total labor force. Although the unemployment rate where farmers lived in 1986 is an improvement over rates of almost 10 percent during the early 1980's, the local unemployment conditions faced by farmers looking for off-farm employment is still fairly bleak.

While farmers in general faced an average unemployment rate of 8 percent, the situation varied by region. Farmers in the South and West lived in areas with even higher unemployment levels (8.7 and 8.9 percent), while farmers in the Northeast and Midwest confronted unemployment rates in their local LMA's almost a point lower than the rate facing all farmers.

### ...Earnings per Job are Lower

An examination of earnings levels helps to assess the wage structure of one area relative to another. Farmers are more likely than the civilian labor force in general to live in LMA's with relatively low

**Table 1—Farmers are generally older, have less schooling than the local labor force**

Item	Farmer- U.S. adjusted total LMA's <sup>2</sup>		
	Percent		
Age:			
Less than 25 years	22.6	23.4	6.5
25-34	27.5	26.9	14.3
35-44	19.2	18.9	14.9
45-54	16.0	15.8	18.7
55-64	11.6	11.5	22.8
65 and over	3.1	3.5	22.8
Education for those 25 years and older <sup>1</sup> :			
0-8 years	10.5	12.4	18.6
9-11	13.1	13.4	14.6
12	36.5	39.1	40.5
13 and over	39.9	35.1	26.3

<sup>1</sup>1980 data. Educational data for farm operators excludes those farmers 65 years and older who would most likely not be seeking off-farm employment.

<sup>2</sup>See box, "Our Measurement Procedures," for explanation.

Source: 1980 Census of Population.

wages and limited higher-paying job opportunities. In 1984, farmers lived in LMA's with average labor and proprietor earnings per job of \$15,751, about \$2,400 (14 percent) lower than the average earnings per job for the Nation as a whole (fig. 3). This earnings gap has not improved over the last 16 years ranging from 12-15 percent each year.

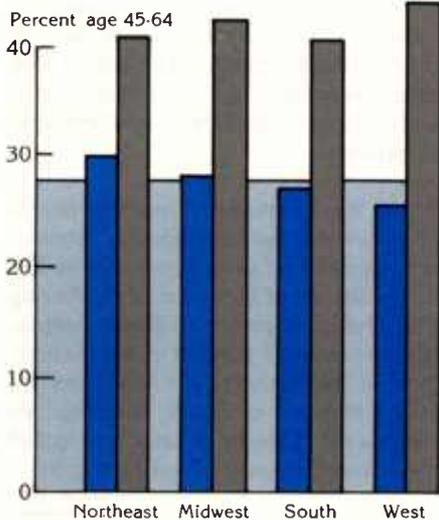
Average earnings varied by region, with farmers in the Northeast living in LMA's with the highest average earnings per job (\$17,199) and southern farmers in LMA's with the lowest (\$15,317).

### ...Employment Growth is Slower

Farmers are also likely to be competing for jobs in areas that have less employment growth than average. Except during the 1980-82 recession, farmers were in LMA's where average annual employment growth from 1976-86 was slower than the national average (fig. 4). Rates of employment change were the same in the recession.

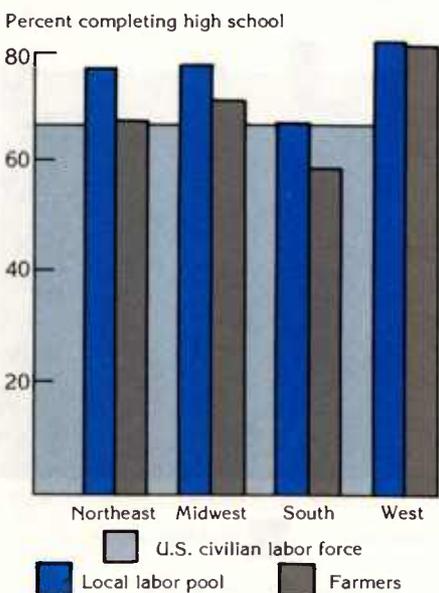
Patterns of employment growth and loss in LMA's where farmers lived were generally similar to those for the Nation between 1976 and 1984. However, farmers tended to live in LMA's that did

**Figure 6  
Farmers tend to be older in all regions . . .**



Source: 1980 Census of Population

**Figure 7  
. . . and have less schooling except in the West**



Source: 1980 Census of Population

not recover as quickly or as strongly from the 1980-82 recession as the Nation overall, growing at less than half the national rate during 1984-86. Thus, farmers face more limited employment opportunities than the overall labor force.

### ...And Earnings Growth is Erratic

Farmers tend to be concentrated in areas that have unstable patterns of labor and proprietor earnings growth per job (fig. 5). While farmers faced recessionary and expansionary changes similar to those nationally, farmers were more likely to be in LMA's that had greater swings in earnings growth and loss. During periods of expansion, farmers tended to be in LMA's characterized by higher earnings growth than the Nation as a whole. During periods of contraction, however, farmers were likely to live in LMA's with higher rates of earnings loss. Thus, in bad economic times, many farmers may be forced to look for off-farm jobs at a time when the opportunities for such jobs are most limited.

Since the end of the 1980-82 recession, average earnings per job at the national level have grown rapidly. However, farmers tend to be concentrated in LMA's where postrecession earnings rose faster than for the Nation as a whole. Between 1983 and 1984, farmers lived in LMA's where earnings grew at twice the national rate. This higher growth may foreshadow improved opportunities for farmers in the near future.

However, the employment picture facing farmers measured by these employment and income growth patterns is not consistent throughout all regions. Example, the Midwest is recovering more slowly than other regions from the 1980-82 recession. Its farmers are in LMA's where employment grew at less than half the rate of other regions from 1982-86.

When we look at change in earnings, however, we see a different pattern. Farmers in the West experience greater disadvantage than other farmers because they tend to live in LMA's characterized by slow earnings growth, which can impair employment and earnings opportunities. The West suffered the greatest declines in earnings growth during the recession and has not recovered as quickly as other

regions. In contrast, midwestern farmers' earnings growth exceeded that of the Nation as a whole.

### Regional Picture Varies

Our analysis suggests that farmers seeking off-farm employment opportunities are disadvantaged both by their individual characteristics (age, education) and by the structural characteristics of their labor market areas. However, this aggregate level analysis conceals a great deal of diversity in different regions of the country. We selected two indicators of labor force competition and four indicators of labor market conditions to compare the off-farm employment opportunities of farmers in different regions. By examining the relative rankings of the four regions on each of these six indicators we can draw some general conclusions about the overall employment opportunities facing farmers in different parts of the country (table 2).

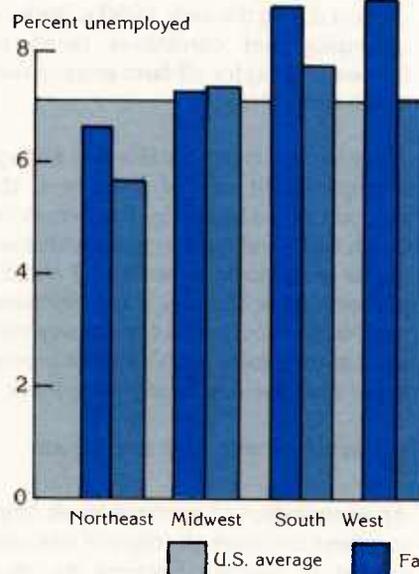
In this analysis, we do not assign greater importance to one indicator than another in examining the labor market disadvantages of farmers. Instead, we use these indicators to measure different dimensions of employment and wage opportunities for farmers. Regions with

several unfavorable indicators probably pose more problems for farmers looking for off-farm work than regions with fewer unfavorable indicators.

The total scores shown at the bottom of table 2 suggest that farmers in the Northeast have the fewest employment disadvantages (lowest score). Northeast farmers score relatively low (that's good) on five of six indicators. Only in terms of the educational gap do Northeast farmers score poorly. In contrast, farmers in the West are more disadvantaged, scoring relatively high on four of the six indicators. These farmers appear to have little problem competing with their local labor force in terms of education, but may have more problems finding "good" jobs in their local labor markets because of high unemployment and slow growth in jobs and earnings. The Midwest and South fall in between.

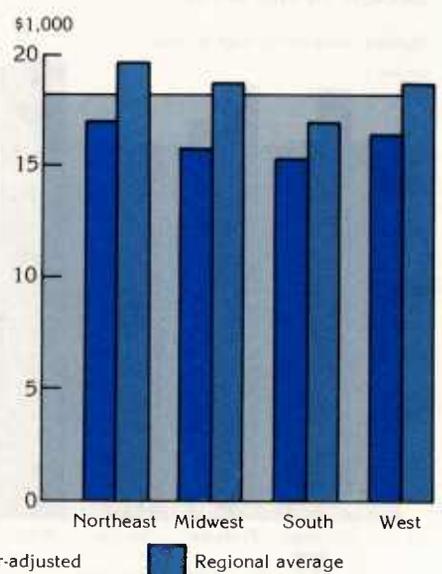
While the Northeast offers the fewest employment disadvantages for farmers, only 6 percent of all farmers live there (fig. 1). At the same time, the West, having the greatest employment disadvantages, contains only 12 percent of the farmers. Most of the Nation's farm operators live in the Midwest or South, so these two regions will probably account for most of the farmers looking for off-farm jobs.

Figure 8  
**Farmers in the South and West face higher unemployment rates than other farmers (1986)**



Source: Bureau of Labor Statistics

Figure 9  
**Farmers in the South and Midwest tend to live in LMA's with lower average earnings per job (1984)**



Source: Bureau of Economic Analysis



Farmers, more than other workers, tend to live in areas, like open country or smalltown areas, with few job alternatives. That makes it harder for them to find a second job or to leave farming without moving out of the area.

The Midwest has been particularly hard hit in recent years by changing financial conditions in the agricultural sector, leading to serious economic problems for many farmers. Between 1978 and 1982 alone, the number of farms in the Midwest dropped by over 42,000, considerably more than declines in the South. At the

same time, midwestern farmers have been less likely than other farmers to do supplemental off-farm work. In 1982, about half of the midwestern farmers held off-farm jobs compared with about two-thirds of southern farmers. With continued economic pressure, it is likely that large numbers of midwestern farmers

**Table 2—Rankings of regions for selected indicators of labor force competition and labor market conditions**

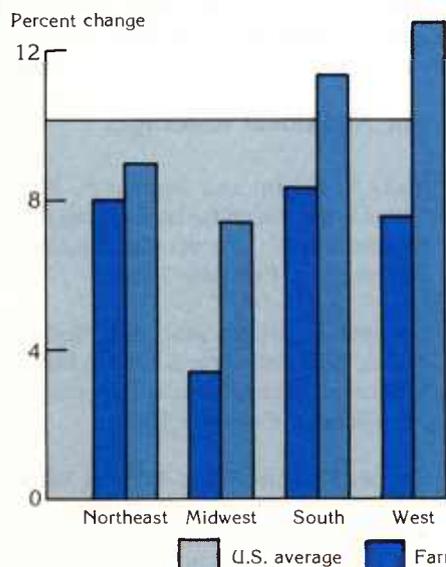
Item	North-east	Mid-west	South	West
<i>Rank</i>				
Labor force characteristics:				
Age gap, 1980 <sup>1</sup>	1	3	2	4
Education gap, 1980 <sup>2</sup>	4	2	3	1
Labor market conditions:				
Unemployment rate, 1986	1	2	3	4
Earnings per job, 1984	1	3	4	2
Employment growth, 1982-86	2	4	1	3
Earnings growth, 1982-84	2	1	3	4
<b>Total</b>	<b>11</b>	<b>15</b>	<b>16</b>	<b>18</b>

Numbers refer to the relative rankings from low to high of the 4 regions on each of the 6 indicators (1 = best opportunities; 4 = worst opportunities).

<sup>1</sup>Proportion of the local labor pool in farmer-adjusted LMA's aged 45-64 minus the proportion of farmers aged 45-64.

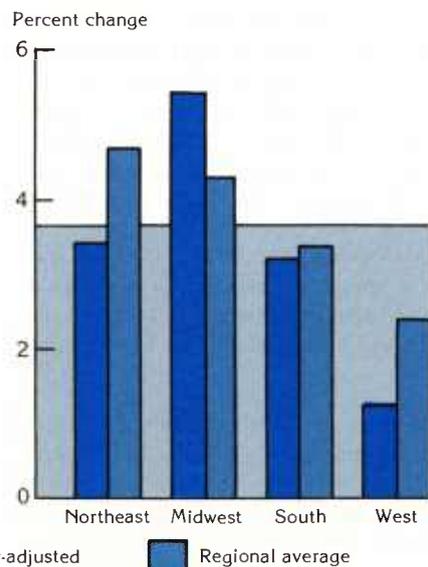
<sup>2</sup>Proportion of the local labor pool in farmer-adjusted LMA's completing high school minus the proportion of farmers completing high school.

**Figure 10**  
**Farmers in the Midwest tend to be concentrated in LMA's with especially slow employment growth (1982-86)**



Source: Bureau of Labor Statistics

**Figure 11**  
**Farmers in the West tend to be concentrated in LMA's with especially slow growth in earnings (1982-84)**



Source: Bureau of Economic Analysis

## What's a Labor Market Area?

Much of our information on labor market conditions of U.S. workers is based on county level data. However, local labor markets frequently extend beyond county boundaries because individuals often cross county lines to work. Researchers at the U.S. Department of Agriculture and several State universities in the South recently analyzed commuting-to-work data from the 1980 Census of Population to identify groups of counties that encompass both the place of residence and the place of work for a local population. That work identified 382 labor market areas (LMA's)—groups of counties in which a majority of the population lives and works (fig. 1).

Matrices of data were constructed to indicate the relative number of workers who lived in one county and commuted to work in another. The cells in the matrix represented the strength of the commuting ties between pairs of counties. These matrices were then analyzed using a statistical procedure called hierarchical cluster analysis. The results of the cluster analysis were used to identify groups of counties (LMA's) that exchanged relatively large numbers of inter-county commuters. These LMA's come closer to capturing the location of the exchange between workers and jobs than previously used geographic proxies based on county, State, or regional aggregations. (For more detail about the procedures used to delineate these LMA's, see *Labor Market Areas for the United States*, listed in the suggested readings at the end of this article).

## Our Measurement Procedures

There are difficulties in evaluating the average employment opportunities of farmers vis-a-vis the total labor force because farmers are widely and unequally distributed throughout the Nation. Each of the 382 LMA's used in this study contained some farm operators, ranging from around 600 in an LMA in Alaska to over 20,000 in a Nebraska LMA. At the same time, the labor force characteristics and labor market conditions in LMA's vary widely. The 1986 unemployment rates in LMA's, for example, ranged from 3.0 to 22.3 percent. These variations must be considered when developing average statistics to judge the employment competitiveness of farmers and the labor market conditions they face.

For example, an LMA in Missouri contained about 20,000 farm operators and had an area unemployment rate of 4.8 percent. In contrast, an LMA in Louisiana had about 6,000 farmers and an unemployment rate of 17.1 percent. A straightforward unweighted average of these two LMA's would result in an unemployment rate of 11.0 percent (4.8 plus 17.1 divided by 2). However, if we recognize that farmers are distributed differently in these LMA's and weight the unemployment rates based on the number of farmers in each LMA, we would compute an unemployment rate of 7.6 percent ((4.8 times 20,085 farmers) + (17.1 times 5,887 farmers)/the total number of farmers (25,972)). Although the Louisiana LMA has a considerably higher unemployment rate, it has less than a third of the farmers found in the Missouri LMA. Use of these weighted averages provides a clearer picture of the competition and conditions facing all farmers.

Following this procedure, we developed various measures of labor force competition and labor market conditions for each LMA, weighted them by the number of farm operators in the LMA, and averaged these data over all LMA's. The resulting farmer-adjusted statistics represent measures of the average labor force competition and labor market conditions facing U.S. farmers. We then compared these statistics with average statistics for the U.S. civilian labor force as a whole. We followed similar procedures for each of the four regions shown in figure 1.

will enter the nonfarm labor market to take supplemental or alternative off-farm jobs.

## Ways to Help

What are the implications of these findings for public officials who wish to create programs or policies to make it easier for farmers to find off-farm work? Our analysis suggests that such programs need to be keyed to the type and extent of the disadvantage that farm operators face in their local area. To the extent that farmers are disadvantaged by their individual characteristics, training and education programs aimed directly at farmers are important. To the extent that their local labor markets offer few good job opportunities, programs directed toward local economic development may be more relevant.

In some regions, programs to help farmers find off-farm jobs would need to address both the human resource limitations of farmers and the lack of opportunities in the local labor market. However, these programs would require close coordination. It makes little sense to spend local money to train people for jobs that do not exist in the local or regional labor market. At the same time, creating new jobs in an area where local workers do not possess the required skills to fill them will not directly benefit local workers unless training programs are implemented. Development strategies to assist farm operators in their job search and help ease the labor adjustment process in local communities will be most effective when tailored to local conditions.

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## For Additional Reading...

Molly S. Killian, and Thomas F. Hady, "What is the Payoff for Diversifying Rural Economies?" *Rural Development Perspectives*, February 1988.

Leonard E. Bloomquist and Molly S. Killian, "Specialization is Tied to Natural Resources, People," *Rural Development Perspectives*, February 1988.

Charles M. Tolbert and Molly S. Killian, *Labor Market Areas for the United States*, Agriculture and Rural Economy Division, Economic Research Service, U.S. Department of Agriculture. ERS Staff Report No. AGES870721, August 1987.

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