Rural Conditions and Trends

July 1996, Vol. 7, No. 1

This is the inaugural issue of our new three times-a-year publication schedule. Each of the three issues will be dedicated to a specific topic area—rural industries, rural socioeconomic characteristics, and rural effects of Federal policies and programs. The issues will no longer be referred to by season because they will be published as soon as possible after we receive the most up-to-date data on the topics.

As promised in the Fall 1995 issue, this issue provides much more detailed information on rural industries than we had published under the old format. Some articles are enriched by information on value of production, productivity, or value of exports, adding to our understanding of employment conditions in rural industries.

The articles report on current trends in farm-related industries, mining, manufacturing, retailing, banking, and government. Additional articles discuss recent changes in the general economy which affect rural areas and the significance of international trade to rural areas. Obviously, not all rural industries are covered. Next year's Rural Industries issue will include articles on additional services industries, forestry, and other industries not included in this issue.

This is my last issue of *Rural Conditions and Trends*. Serving as executive editor since summer 1991 provided me with the very rewarding opportunity to work closely with authors to put out informative, timely situation and outlook reports on rural America. Nevertheless, I am happily moving back into research here at ERS while Douglas Bowers moves from research to the executive editorship. I would like to thank the readers who provided positive feedback and constructive criticism during my tenure. I hope that you will continue to provide Doug with that support.

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National Growth Continues to Benefit Rural Industries

The rural economy has grown faster than the national economy since the recession of the early 1990's. Growth has been strongest in services industries while employment in some other sectors, such as agriculture and mining, has continued to decline.

Rural industries continue to fare well as the national economy grows following the 1990-91 recession. Employment in most major rural industries increased in the early 1990's. The exceptions were farm and mining employment, which fell, and employment in finance, insurance, and real estate, which held steady. Overall, rural job growth has outpaced urban growth. The earnings gap between urban and rural jobs narrowed in 1993 for the first time since 1979, suggesting that rural earnings may at least be starting to hold their own relative to urban earnings. Population in rural areas has also rebounded as migration from urban to rural locations has overtaken rural-urban migration. The national economy's slower growth during 1995 may have affected rural areas less than urban because of strong exports and durable goods manufacturing, both of which are important to rural areas.

These trends are a change from the 1980's when urban areas held a clear advantage in job, earnings, and population growth. Coming off a prosperous decade in the 1970's, rural areas in the 1980's suffered from the 1980-81 recessions, foreign competition in manufacturing and agriculture, and a farm financial crisis which reduced land values and forced many highly leveraged farmers out of business.

Long-Term Trends Show Growth in Services, Declines in More Traditional Rural Industries

As in the rest of the economy, rural areas have shown the strongest growth in service industries. Broadly defined, services include wholesale and retail trade; transportation and utilities; the finance, insurance, and real estate sector; and a variety of other industries in recreation, food service, education, and health care. Services accounted for 50.7 percent of all rural employment in 1993, compared with 65.1 percent for urban areas. In both metro and nonmetro areas, services have been steadily increasing their share of jobs. Nonmetro employment in services is spread more evenly across the country than is the case for natural resources and manufacturing. Nonmetro counties with unusually high service employment, however, are often those that specialize in providing particular services like tourism, recreation, regional trade, or services related to retirement.

Employment in the relatively high-paying natural resources jobs, including farm proprietors, miners, and forest products workers has continued its downward trend. The change has been especially dramatic in farming. In 1940, farmers accounted for nearly 20 percent of the national labor force, and over half the rural population still lived on farms. Today only 2 percent of the workforce is directly engaged in farming, and farm families make up less than 10 percent of the rural population. Productivity improvements have enabled a much smaller number of farmers to produce more food on an area of land only slightly smaller than it was a half century ago. Moreover, many of the remaining farmers depend on nonfarm jobs for most of their household income. This shift away from farming has done more than any other single factor since World War II to change the makeup of the rural economy. Future job declines in farming are likely to continue but at a slow pace.

Nevertheless, the farm sector and its associated industries remain a vital part of the U.S. economy. Farming and related industries involving the production, processing, and marketing of agricultural products is the subject of two articles in this issue. The many jobs associated with agriculture account for a quarter of rural jobs and nearly a sixth of all jobs nationally. Employment continues to shift from jobs close to the farm to service jobs closer to consumers. The first article, on farm and farm-related employment, uses 1992 County Business Patterns data to show how jobs have dropped in farm production, forestry, fishing, and agricultural inputs while rising sharply in wholesale and retail trade, partly in response to the growing trend to eat away from home and to consumer demand

for prepared foods. The second article uses input-output analysis to show the importance that the production, processing, and marketing of farm products has for the national economy. By estimating employment in the food and fiber sector in the States, it becomes clear that this sector is an important contributor of jobs in every part of the country, although of less significance in the Northeast. These two different approaches result in some different employment numbers, but the conclusions are similar: despite the steady decline in farm jobs, the sector as a whole retains a large role in the economy.

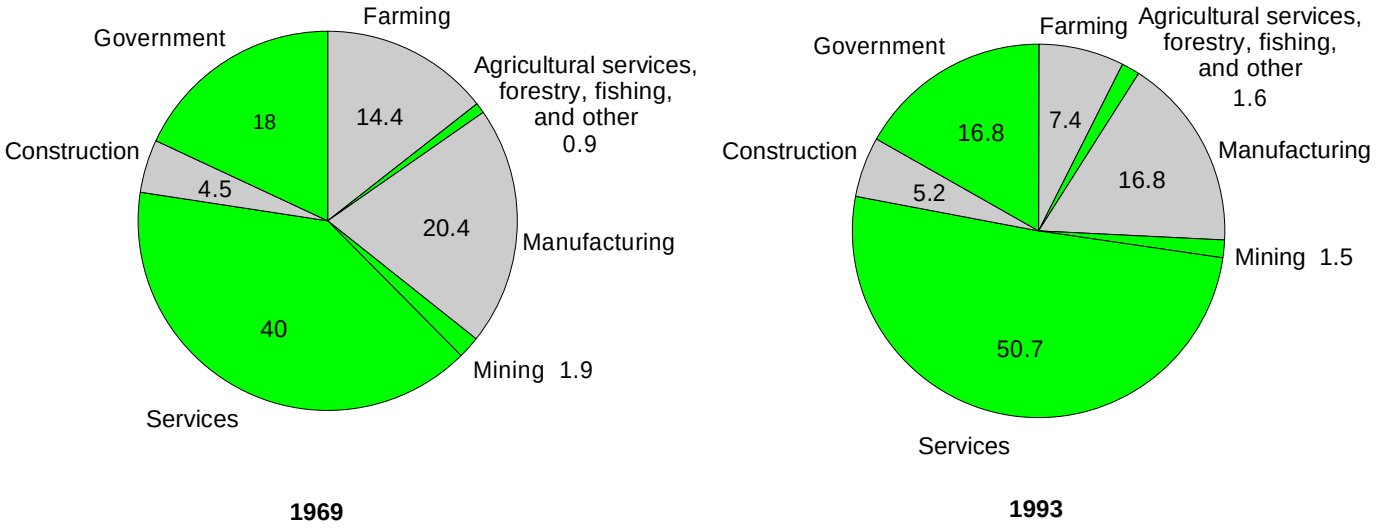
Agricultural exports have long been important to the farm economy, but since the early 1970's production for export has been especially strong. During fiscal year 1995, these exports set a new record of $54.2 billion. Agricultural exports generated about 791,056 jobs in 1994, about a third of them in rural areas. Every region benefits from export-related jobs, especially the Corn Belt and Northern Plains where much of the grain produced for export originates.

Employment in mining and forestry, like in farm production, has sharply dropped. Productivity improvements have enabled mining, oil, and gas companies to reduce their labor forces while increasing output. In forestry, the long-term trend toward mechanization has permitted a smaller number of workers to produce almost twice the output of timber products as the industry did 40 years ago. Because of the geographical concentration of mining and forestry, job losses in these industries have been especially hard on rural communities in West Virginia and the Rocky Mountain States.

Manufacturing employment has grown slightly in rural areas since 1991 in contrast to a decline in urban areas. Much rural manufacturing is routine work performed by workers who are less highly trained and paid than urban manufacturing workers. Rural manufacturers have been affected by inexpensive imports produced in countries with lower labor costs. Companies requiring complex skills have often preferred to locate in urban areas where they can find a larger, more varied pool of trained workers and a higher concentration of services. Nevertheless, manufacturing accounts for almost 17 percent of rural jobs. The spread of advanced technology in rural areas, especially in communications, may make those areas more attractive in the future to companies offering higher wage jobs.

Nonmetro employment by industry

Service industries have increased their share of nonmetro employment over the past quarter century while natural resource industries have decreased their share



Source: Calculated by ERS using data from the Bureau of Economic Analysis.

Jobs in government have been in a long-term upward trend for many years. Government employment is responsible for 16.8 percent of rural jobs. The great majority are State and local jobs, which have grown along with population. The number of Federal employees in rural areas is expected to decline over the next few years as a result of downsizing. Some of the functions currently performed by Federal employees may be handled by State and local employees in the future.

The Future May Bring More Consolidation and Global Competition

Consolidation has been a major industrial trend in rural as well as in urban areas. Farms today average almost three times their 1940 size. The number of firms engaged in mining and forestry has dropped considerably in recent years. Manufacturing and financial service companies are experiencing a wave of mergers and restructurings. In the service area, restaurant and retail chains have made inroads in towns where small, independently owned businesses had been the norm. These changes reflect not only new technologies but the increasing integration of the rural economy with the national economy.

The rural economy is also being affected more than it used to be by global economic developments. Manufacturers have had to compete against the lower wage bases of less developed countries. However, the relatively low value of the dollar has benefited companies and farmers that produce export goods. The recent General Agreement on Tariffs and Trade (GATT) and North American Free Trade Agreement (NAFTA) point to a future of freer trade with more competition as well as new opportunities for rural industries.

Articles in this issue report on current trends in the farm-related industries, mining, manufacturing, retailing, banking, and government. Additional articles discuss recent changes in the general economy which affect rural areas and the significance of international trade to rural areas. Obviously, not all rural industries are covered. Next year's Rural Industries issue will include articles on additional services industries, forestry, and other industries not included in this issue. *[Douglas E. Bowers, 202-219-0484, dbowers@econ.ag.gov]*

Economic Growth Moderates in 1995

U.S. economic growth slowed in 1995 compared with 1994, with inflation up slightly. Rural areas likely benefited from strong export and durable goods growth. Consumer spending growth will determine the strength of Gross Domestic Product growth in 1996.

The U.S. economy slowed in 1995 as GDP growth fell to an estimated 2.1 percent, down from 1994's 3.5 percent. Industrial production—mining, manufacturing, and utility output—which had increased a strong 5.0 percent in 1994, still grew a healthy 2.5 percent in 1995. Growth in business equipment spending dropped to 7.5 percent—down from 1994's stellar 10.0 percent. Employment was up over a million jobs in the last half of 1995 compared with the end of 1994, while over 100,000 manufacturing jobs were lost. Rural jobs increased slightly by 1.3 percent in the third quarter of 1995 over the third quarter of 1994.

Consumer Spending Keeps Economy Growing

Consumer spending for 1995, based on the preliminary GDP estimate grew about 2.4 percent—down from 1994's 3.0-percent growth. Relatively low interest rates, strong consumer balance sheets, widely available credit, improved cash flow from 1994's mortgage refinancing boom, and good growth in employment and disposable income in 1995 kept consumer spending strong. The growth in durables spending came largely in furniture and appliances spending, as auto sales fell from 1994's high levels. Spending on clothing increased modestly, leading lackluster growth in nondurable spending. Services spending grew strongly, reflecting good disposable income growth and high levels of consumer confidence. Consumer prices increased about 2.8 percent, up only slightly from the 2.6-percent increase in 1994.

Investment, Government Spending, and Trade Present Mixed Picture

Business investment—inventory accumulation, business equipment spending, and business plant spending—was mixed in 1995. As most analysts expected, inventory accumulation slowed through most of the year. Because the inventory-to-sales ratios rose in 1995 from 1994's very high ratios, inventory accumulation is expected to slow more in the next several quarters. The boom in business equipment spending slowed from 1994, but outpaced other major spending categories due to favorable financial market conditions and high business profits. Business plant spending growth increased substantially as new plants were built responding to recent high capacity utilization rates. Producer price increases were modest for the year. Higher energy prices, induced by cold weather, brought a sharp end-of-year rise of 0.5 percent in producer prices. Few analysts saw this as a sign of accelerating inflation.

National economic indicators

GDP growth slowed in 1995; unemployment declined with modest inflation increase

Item	1994	1995
	Percent	
Real gross domestic product growth, percent, annualized[1]	3.5	2.1
Consumer Price Index growth, percent, annualized	2.6	2.8
Prime rate, percent	7.1	8.8
Unemployment rate, percent	6.1	5.6
Industrial production, annualized change in index	5.9	3.2
Industrial production, manufacturing, annualized change in index	6.6	3.5

[1] GDP growth is measured using the 1992 chain-weighted index.

Source: Calculated by ERS, based on data from the Bureau of Economic Analysis, the Bureau of Labor Statistics, and the Federal Reserve Board.

Lag in Real Wages Could Dampen Consumer Spending

Real wages have been linked both cyclically and secularly—along a trend—with productivity. Most economists agree that real wage increases come from productivity increases. That is, employers can only afford to pay higher real wages if labor productivity rises. In addition, productivity usually rises very sharply 1 or 2 years after the beginning of an economic expansion. After the 1981-82 recession, real wages rose 1.4 percent in 1983 while labor productivity rose 1.3 percent. Above-average real productivity gains were made during 1983-86. Although real wages actually declined, benefits rose. Some observers suggest that total labor compensation, wages and benefits, is a better measure of earnings. Indeed, the employment cost index, a measure of labor compensation, shows that real compensation growth matched the productivity increases of the 1980's. For rural areas, however, real compensation increases fell short of those experienced in urban areas, as measured by the employment cost index.

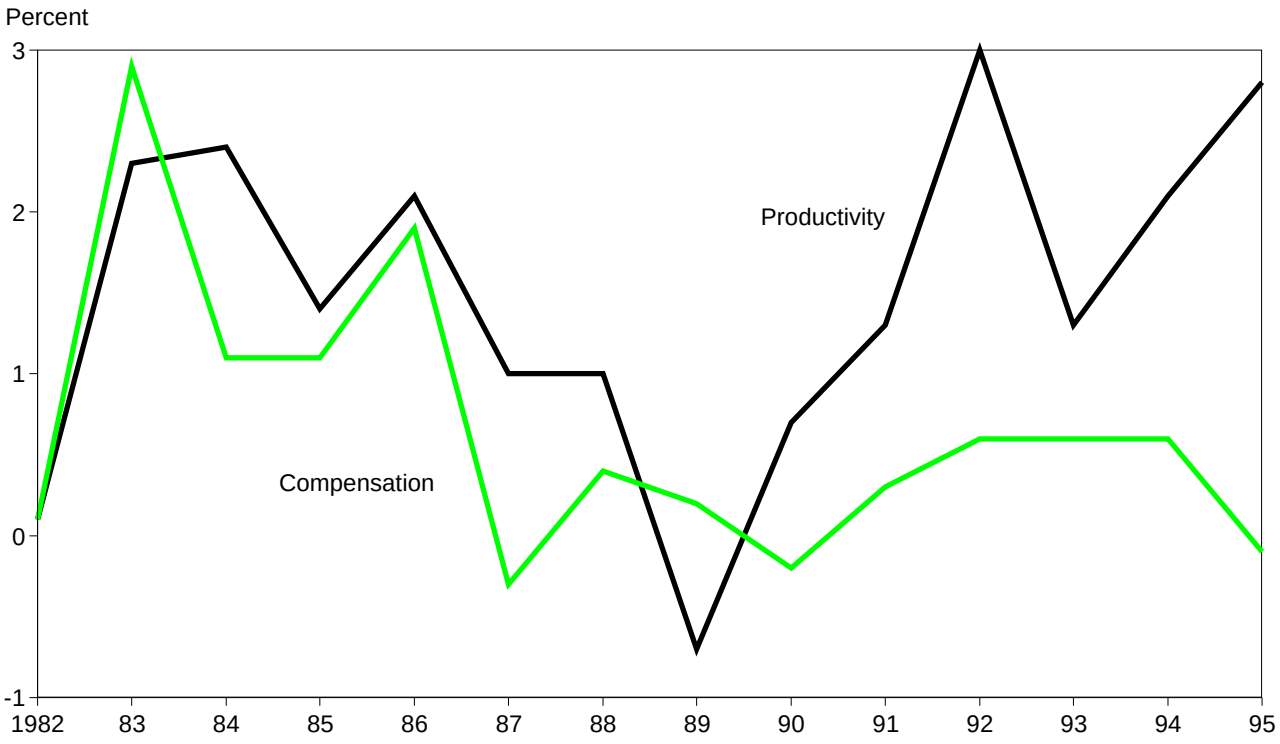
The current economic expansion has seen strong productivity growth but weak growth in real compensation. Real compensation growth has been only one-half a percent per year during 1991-94, while productivity growth has averaged about 2 percent per year. For the first half of 1995, real compensation declined by 0.1 percent versus the first half of 1994, while productivity rose 2.8 percent, yielding the largest excess of productivity gains over real compensation growth since the employment cost index was first reported in 1981.

This real compensation growth has been weak despite strong disposable income growth. Over 1991-94, real per capita disposable personal income grew an average of 1.0 percent a year, with a growth rate of 1.4 percent in 1994. Preliminary data indicate that real disposable income growth was stronger in 1995.

If indeed real compensation growth continues to be slight, it will probably hamper growth in consumer spending. Over the last year, aggregate consumption has been able to rise despite small real wage and benefit increases largely because employment has expanded.

Annual change in productivity and the Employment Cost Index, 1982-95

Since 1990, productivity has increased faster than compensation



1995 is first half only.
Source: Bureau of Labor Statistics

Government spending, despite a notable increase in the third quarter, slowed growth for the year. Exports, motivated by the strength of the German mark and the Japanese yen, grew 8.3 percent despite stagnation in the Japanese economy and in the economies of other major trading partners, such as Canada and Mexico. Concomitantly, sales of imports grew 7.9 percent. However, since the 1994 level of imports was substantially higher than exports, the real trade balance for 1995 deteriorated. This $5.5 billion-increase in the real trade deficit was a drag on domestic economic growth.

Rural Economy Sensitive to Changes in Trade, Manufacturing

Little rural data from 1994 and 1995 are currently available; however the data that are available indicate that the employment growth in rural areas continued over 1995, albeit at a slower pace than in 1994. In addition, rural unemployment appears to have held fairly steady over the first three quarters of 1995. It is very likely that the strong performance of U.S. exports has helped rural areas keep unemployment down over 1994-95. ERS research suggests that U.S. exports, being predominantly manufacturing and agricultural goods, have larger effects on rural unemployment than on general unemployment. Rural areas probably benefited from the good growth in consumer durables spending in 1995. Rural areas have a larger share of employment in manufacturing than urban areas, and in particular, rural areas had disproportionately more durable goods employment in 1993 (the latest data available), 8.4 percent of rural jobs are in durable manufacturing versus 6.8 percent of urban jobs. Although manufacturing jobs decreased nationally during 1995, durable-goods employment held steady.

Outlook Is for Modest Growth through 1996

Continued good financial market conditions as reflected in relatively low interest rates and a relatively weak dollar provide the background for the 1996 outlook. The near-term outlook is for moderate GDP growth of 2.2 percent. The trade deficit is expected to improve, although there may be some volatility from quarter to quarter. The improved trade situation will be driven by exports as the U.S. dollar continues to be soft and as the economies of the major U.S. trading partners experience slightly higher GDP growth than in 1995. Agricultural exports are among the areas expected to be strong. Larger exports in 1996 and stronger growth in the manufacturing sector should benefit rural economies.

Aggregate investment will boost overall growth, but less than it has in the last 3 years. Plant and equipment investment growth are both expected to continue, but more slowly than in 1995. The rate of inventory accumulation is likely to decrease. Given that investment and exports are expected to be strong, manufacturing output growth should be stronger than that of the overall economy. A final factor moderating GDP growth is that government spending will be down from 1995.

Consumer Spending Is the Major Question Mark

Consumption—the largest component of GDP—is expected to grow modestly in the near term. Many analysts expect that real wages per capita will grow, causing disposable income per capita to grow. Combined with an expected slight increase in employment, these factors should lead to modest growth in aggregate consumer spending. The increase in real wages is expected for two reasons. The U.S. economy has seen high productivity growth over the last 2 years without substantial real wage increases, despite shortages of workers in some labor markets. Real wage increases historically follow productivity increases. Since real wages have not yet risen substantially during this expansion, the coming year will likely see some increase. Recent high corporate profits increase the ability of firms to pay higher future wages.

The risk in the outlook is that if real wages do not increase as expected, and if indeed employment growth is modest, then consumer spending could stagnate. As consumption is two-thirds of GDP, stagnant consumer spending could significantly lower GDP growth in 1996. *[Data as of February 26, 1996. David A. Torgerson, 202-501-8447, dtorg@econ.ag.gov, and Karen S. Hamrick, 202-219-0789, khamrick@econ.ag.gov]*

Service Industries Expected to Dominate 1994-2005 Job Growth

Rural employment is more concentrated than urban employment in industries and occupations expected to decline or grow slowly over the next 10 years. However, a large share of rural employment is still in occupations expected to grow.

The Bureau of Labor Statistics (BLS) has recently released its projections of employment from 1994 to 2005, updating projections released in 1993. [See U.S. Department of Labor, Bureau of Labor Statistics, *Monthly Labor Review*, Vol. 118, No. 11, Nov. 1995 for more details.] BLS does not specifically project rural employment trends; however their national projections have rural implications. BLS projects employment losses in agriculture, mining, and manufacturing, industries with larger shares of rural than urban employment. BLS projects growth in all major occupation groups, except for the group including agriculture, forestry, and fishing which is projected to lose 112,000 jobs.

BLS Long-Term Projections

The prospects for employment by industry and specific occupations depend primarily on major economic developments. Projections of these developments are relatively uncertain very far in the future. Thus, BLS considers three scenarios: low growth, moderate growth, and high growth. Several features are common to all scenarios. Total labor force growth is expected to be slightly less than that in the 1980's, Federal spending generally, and defense spending particularly, is expected to decrease, and the trade balance is expected to improve. The labor force will, on average, grow older as baby boomers continue to move into the 45-64 year-old age group. The BLS moderate-growth scenario assumes annual GDP growth of 2.3 percent, less than the 1983-94 annual average growth rate of 2.9 percent, whereas annual rates of 1.6 percent and 3.0 percent are assumed for the low and high scenarios.

Service Industries Projected to Grow Fastest

BLS projects 18 million new jobs under the moderate-growth scenario. Almost all of these jobs will be in the service sector. Half will be in the services industry of the services sector, that is, in the hotel and other lodging and personal services industries. Large employment gains are also expected in the health services, business services, and retail trade industries of the services sector. BLS stresses, however, that there will be job openings for workers in all industries and at all levels of education and training due to 32 million job openings expected to replace departing workers.

Employment is projected to decline in agriculture, mining, and manufacturing during 1994-2005 under the moderate-growth scenario. All these industries had larger shares of rural employment than urban employment in 1993. Between the low- and high-growth scenarios, employment change ranges from -5.3 to -7.2 percent for agriculture, from -25.1 to -15.3 percent for mining, and from -11.4 to -1.6 percent for manufacturing. The agriculture industry is projected to have fewer jobs under a high-growth scenario due to higher productivity necessitating fewer workers and to a high-growth economy generating more job opportunities outside of agriculture. By comparison, the number of agriculture jobs increased and the number of mining and manufacturing jobs declined during 1983-94. Agriculture gained 115,000 jobs (3.3 percent), mining lost 351,000 jobs (36.9 percent), and manufacturing lost 126,000 jobs (0.7 percent).

Among the projected growth industries, rural areas had about the same proportion of employment in construction and in retail trade as urban areas, but a lower proportion in services in 1993. The services industry is expected to grow the most with projected national growth between 36.6 percent and 41.8 percent. Services also had the largest employment gain from 1983 to 1994, 60.0 percent.

Industry employment

Agriculture, mining, and manufacturing employment expected to shrink in next 10 years...

Industry	1993 employment distribution		1983-94 national change	1994-2005 projected change, moderate-growth scenario
	Nonmetro	Metro	Percent	
Agriculture[1]	9.0	2.0	3.3	-6.2
Mining	1.5	.5	-36.9	-27.0
Construction	5.2	4.9	26.9	9.8
Manufacturing	16.8	12.6	-.7	-7.2
Transportation, communications, utilities	4.1	4.8	21.1	7.1
Wholesale trade	3.3	5.0	16.2	6.8
Retail trade	17.0	16.7	31.1	13.0
Finance, insurance, and real estate	4.4	8.0	26.8	6.3
Services	21.9	30.5	60.0	39.0
Government	16.8	15.0	20.5	9.8
Total employment	100.0	100.0	24.0	13.9

[1] Includes farm, agricultural service, forestry, and fishing industries.
Source: Bureau of Economic Analysis data and Bureau of Labor Statistics projections.

Occupational employment

Along with shrinking employment in agricultural occupations

Occupation	1993 employment distribution		1983-94 national change	1994-2005 projected change, moderate-growth scenario
	Nonmetro	Metro	Percent	
Executive, administrative, and managerial	8.3	12.8	34.5	16.8
Professional specialty	11.4	14.7	37.0	29.3
Technicians and related support	3.1	3.9	30.2	19.7
Marketing and sales	9.2	11.3	33.3	18.0
Administrative support occupations, including clerical	14.2	18.0	22.8	4.3
Service occupations	15.9	14.3	29.9	22.7
Agricultural, forestry, fishing, and related occupations	3.3	1.2	1.3	-3.0
Precision production, craft, and repair	12.4	10.0	10.3	5.9
Operators, fabricators, and laborers	22.2	13.8	11.5	4.4
Total employment	100.0	100.0	24.0	13.9

Source: Current Population Survey data and Bureau of Labor Statistics projections.

Employment Expected to Grow in All Major Occupations Except Agriculture

Despite declines in some industries, employment in all major occupational groups is expected to increase under the moderate growth scenario, except for agricultural occupations which are projected to lose 112,000 jobs. BLS projects that three of the four fastest growing occupational groups will be those requiring relatively high levels of education or training: executive, administrative, and managerial; professional specialty; and technicians and related support. Rural areas have proportionately fewer of these workers than urban areas. Rural areas also have a larger share of workers employed in precision production, craft, and repair, and operators, fabricators, and laborers—occupational groups that are expected to have substantially less employment growth than in other groups.

Below the major group level, projected growth rates vary widely among specific occupations. The five specific occupations that are expected to generate the most jobs are cashiers, janitors and cleaners, retail salespersons, waiters and waitresses, and registered nurses. About 10 percent of rural employment is in these five occupations, which is about the same share as of urban employment. The five occupations expected to lose the most jobs are farmers, typists and word processors, bookkeeping clerks, bank tellers, and sewing machine operators who sew garments. Rural areas have a slightly larger proportion of employment in these occupations, 3.4 percent of rural employment versus 2.8 percent of urban employment.

Prospects for Rural Employment Growth

Over the last 10 years, employment in rural areas has decreased as a share of total U.S. employment. Although a large share of rural employment is now in occupations expected to grow the most by 2005, employment in industries and occupational groups with projected declines or slow growth are concentrated in rural areas. This suggests that rural economies are somewhat disadvantaged in their positioning for the expected work force changes over the next 10 years. Recent experience, however, showed that many rural areas were able to increase employment through manufacturing, although manufacturing jobs decreased nationwide. If rural areas do not utilize their comparative advantages or do not adapt their industry and occupational structure, rural employment will continue to be a shrinking share of the national labor force. *[Karen S. Hamrick, 202-219-0789, khamrick@econ.ag.gov]*

Farm and Farm-Related Industries Provided a Quarter of Nonmetro Jobs in 1992

Farming and its related industries provide almost 25 percent of total nonmetro employment. Farm production and its closely related industries have suffered from a long-term decline in employment while retail food industries have enjoyed substantial job gains.

Farming and its related industries provided 21.6 million jobs in 1992, the most recent year for which we have data. Almost 6 million of these jobs were in nonmetro counties, accounting for a quarter of all nonmetro employment. Farm production, plus associated agricultural services and forestry and fishing, accounted for slightly over 2 million of the farm and farm-related jobs in nonmetro areas. Agricultural wholesale and retail trade industries, including grocery stores that provide the final linkage between farmer and consumer, contributed the largest number of nonmetro farm-related jobs, almost 2.5 million. Industries in nonmetro counties that process and market agricultural goods after they leave the farm accounted for another 1.2 million jobs. Agricultural input industries, such as farm machinery manufacturers and suppliers, added about 200,000 jobs. Indirect agribusiness, like chemical and fertilizer mining and food products machinery manufacturing, supplied another 131,000 positions.

Share of Jobs in Farm and Farm-Related Industries Varies by Region

Nonmetro counties in the Corn Belt and Appalachia contain the largest number of farm and farm-related jobs. Together these two regions account for over one-third of all farm and farm-related employment in nonmetro areas. While farm and farm-related industries provide about 25 percent of total nonmetro employment, the Northern Plains depends the most on these industries for jobs—they account for almost 30 percent of the region's total nonmetro employment. In contrast, these industries provide only 18.5 percent of the nonmetro jobs in the Northeast.

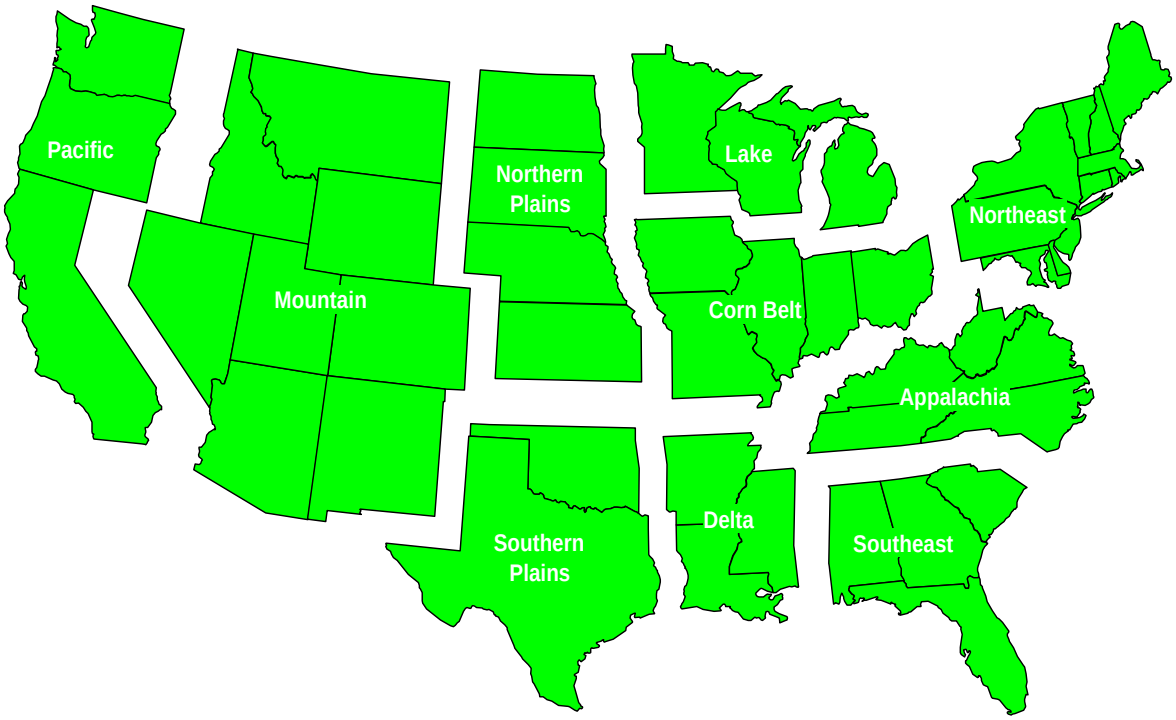
The heavily farm-dependent Corn Belt leads all regions in nonmetro jobs in farm production and its closely associated industries. With its reliance on farming, the Corn Belt unsurprisingly has almost twice as many agricultural input jobs as any other region. The largest number of agricultural processing and marketing jobs are in Appalachia and the Southeast. Most of the processing jobs in these two regions, about 75 percent, are in apparel and textile manufacturing. The Corn Belt and Appalachia also surpass other regions in agricultural wholesale and retail trade employment. Employment in these industries is not driven by farming activity but rather by population and related consumer demand. Nonmetro populations of 8.8 million in the Corn Belt and 8.4 million in Appalachia, far exceeding the nonmetro population in other areas, explain the larger number of jobs in agricultural wholesale and retail trade industries in these regions.

Many Farm and Farm-Related Jobs Are in Nonfarm Counties

At the county level, farm and farm-related industries accounted for almost 40 percent of the jobs in nonmetro counties where farming is the primary economic activity. A county's primary economic activity is determined through the Economic Research Service's classification of nonmetro counties into six economic types: farming-dependent, mining-dependent, manufacturing-dependent, government-dependent, services-dependent, and nonspecialized. Although farm and farm-related jobs are most important in farming-dependent counties as a percentage of total county employment, large numbers of these jobs are located in manufacturing- and services-dependent and nonspecialized counties. Farm and farm-related jobs in these county types account for about 25 percent of total county employment.

Farm production contributed greatly to the total number of jobs in some types of counties which were not principally dependent on farming. Three-quarters of all farm production, agricultural services, forestry, and fishing jobs were located outside farming-dependent counties, especially in nonspecialized and manufacturing-dependent counties. As a percentage, though, farm production and its associated jobs provided 22 percent of the employment in farming-dependent counties while they accounted for 10.4 percent of

U.S. farm production regions



Note: Alaska and Hawaii are not part of the farm production region classification scheme, although they are included in U.S. totals.

Nonmetro farm and farm-related employment by region, 1992

Wholesale and retail trade accounted for most farm and farm-related employment

Region	Total	Farm production, agricultural services, forestry, and fishing	Agricultural inputs	Agricultural processing and marketing	Agricultural wholesale and retail trade	Indirect agribusiness
			Number of jobs			
United States	5,972,611	2,015,597	195,844	1,178,961	2,451,273	130,936
Appalachia	1,001,859	290,992	18,766	313,953	354,316	23,832
Corn Belt	1,038,085	403,114	50,950	147,514	408,053	28,454
Delta States	437,690	132,874	15,206	117,364	159,792	12,454
Lake States	553,036	208,376	23,123	66,542	242,658	12,337
Mountain	446,821	143,576	12,036	34,594	244,115	12,500
Northeast	498,600	101,791	8,070	83,649	295,921	9,169
Northern Plains	460,291	218,777	26,881	67,083	145,420	2,130
Pacific	298,413	109,642	8,393	24,551	151,168	4,659
Southeast	670,031	145,872	17,030	250,269	236,286	20,574
Southern Plains	492,435	241,539	14,694	60,442	170,939	4,821

Source: Calculated by ERS using U.S. Department of Commerce data.

employment in nonspecialized counties and only 6.5 percent in manufacturing-dependent counties.

Jobs in the wholesale and retail trade of agricultural products accounted for the largest share of farm and farm-related jobs in most county types. Farming-dependent counties were the exception. In these counties the wholesale and retail trade industry provided only 8.7 percent of the employment compared with farming's 22 percent share. Population in farming-dependent counties is generally low, thus limiting the demand for wholesale and retail outlets and their associated employment.

Industries Peripheral to Agriculture Drive Employment Gains During 1975-92

Farm and farm-related employment in nonmetro counties increased 8.7 percent, a gain of 478,000 jobs, during 1975-92. Most of this increase occurred before 1982. Although the overall number of jobs rose, the gain was restricted to those industries peripherally related to farming, principally agricultural wholesale and retail trade and indirect agribusiness. Employment growth in agricultural wholesale and retail trade industries exceeded 77 percent, a gain of almost 1.1 million jobs. Job growth in wholesale and retail trade industries, closely linked to growth in population, is also related to income increases and demographic changes. Increased personal income has shifted some food preparation to retail outlets. Expanding numbers of dual-income and single-parent families, pressed for time to cook meals, have changed consumer habits, such as dining out more frequently or purchasing prepared foods. Compared with wholesale and retail trade, job gains in indirect agribusiness were much smaller, only 27,000 jobs.

Nonmetro employment change for farming and its most closely related industries was quite different compared with that in peripheral industries. Farm production, along with agricultural services, forestry, and fishing, lost 548,000 jobs, or a 21.4-percent decline during 1975-92. Farm employment suffered from long-term trends in farm consolidation and persistent increases in productivity that continue to reduce labor requirements needed to produce agricultural goods. Industries closely related to farming also suffered employment declines. Agricultural input industries lost 44,000 jobs, an 18.3-percent decline, while employment in agricultural processing and marketing industries decreased by 24,000 jobs, down 2 percent. Processing and marketing employment was negatively affected by mergers and acquisitions which swept the industry during the 1980's. This consolidation, plus the replacement or retooling of labor-intensive plants to rely on more automated machinery, reduced labor needs.

Job Growth Strongest in Mountain States

The Mountain States gained the largest number of nonmetro farm and farm-related jobs, over 120,000 positions or almost a 37-percent increase during 1975-92. Almost all the growth was in agricultural wholesale and retail trade industries, which gained about 124,000 jobs, a doubling of these jobs since 1975. Much of the agricultural trade industry growth was tied to the region's almost 1-million-person gain in nonmetro population. Job losses in farm production employment, which partially offset overall employment gains in other regions, remained relatively minor in the Mountain States, declining only 5.4 percent.

Decline in the Corn Belt contrasted with job growth in the Mountain States. The Corn Belt, one of only two regions where nonmetro farm and farm-related jobs declined, lost the most employment, over 26,000 jobs. A loss of over 135,000 farm production and agricultural service jobs, combined with employment declines in agricultural input and processing and marketing industries, contributed to the overall poor performance of the Corn Belt. The region's severe losses in these sectors were mitigated by strong gains in agricultural wholesale and retail trade.

Only in the nonmetro Northeast did agricultural processing and marketing industries fare worse than in the Corn Belt. Over 44,000 processing jobs, a 34.5-percent decline, were lost in nonmetro counties of the Northeast. Most of the losses in the region were in industries that manufacture apparel, textiles, and leather goods as these industries faced stiff competition from other regions and foreign producers.

Nonmetro farm and farm-related employment by primary economic activity of county, 1992

Large numbers of farm and farm-related jobs are in counties in which farming is not the primary economic activity

County type	Total	Farm production, agricultural services, forestry, and fishing	Agricultural inputs	Agricultural processing and marketing	Agricultural wholesale and retail trade	Indirect agribusiness
			Number of jobs			
All nonmetro counties	5,972,611	2,015,597	195,844	1,178,961	2,451,273	130,936
Farming[1]	794,335	456,025	45,671	108,806	179,195	4,638
	(38.4)[2]	(22.0)	(2.2)	(5.3)	(8.7)	(.2)
Mining	8,356	215,665	66,363	3,984	18,529	118,433
	(18.4)	(5.7)	(.3)	(1.6)	(10.1)	(.7)
Manufacturing	1,932,041	492,538	52,339	602,513	714,224	70,427
	(25.4)	(6.5)	(.7)	(7.9)	(9.4)	(.9)
Government	566,994	167,535	11,863	61,407	317,084	9,105
	(18.6)	(5.5)	(.4)	(2.0)	(10.4)	(.3)
Services	1,081,367	307,170	34,137	127,690	598,091	14,279
	(21.8)	(6.2)	(.7)	(2.6)	(12.0)	(.3)
Nonspecialized	1,346,137	514,219	47,616	256,723	504,060	23,519
	(27.1)	(10.4)	(1.0)	(5.2)	(10.2)	(.5)

[1]County components may not add to total because of nonclassified counties.
[2]Numbers in parenthesis are percent of total nonmetro employment in each county type.
Source: Calculated by ERS using U.S. Department of Commerce data.

Employment change in nonmetro farm and farm-related industries, 1975-92

Job losses in farm production were outweighed by gains in wholesale and retail trade

Region	Total	Farm production, agricultural services, forestry, and fishing	Agricultural inputs	Agricultural processing and marketing	Agricultural wholesale and retail trade	Indirect agribusiness
			Number of jobs			
United States	487,091	-548,142	-43,757	-23,955	1,067,077	26,868
	(8.7)[1]	(-21.4)	(-18.3)	(-2.0)	(77.1)	(25.8)
Appalachia	86,431	-87,527	-2,483	-6,420	177,835	5,326
	(9.4)	(-23.2)	(-11.7)	(-2.0)	(100.8)	(28.8)
Corn Belt	-26,030	-135,285	-23,605	-13,046	135,618	10,288
	(-2.4)	(-25.1)	(-31.7)	(-8.1)	(49.8)	(56.6)
Delta States	874	-78,832	-3,314	17,283	64,253	1,484
	(0.2)	(-37.2)	(-17.9)	(17.3)	(67.3)	(13.5)
Lake States	43,250	-59,084	-446	2,450	98,541	1,789
	(8.4)	(-22.1)	(-1.9)	(3.8)	(68.4)	(17.0)
Mountain	120,349	-8,152	-1,346	-1,702	123,538	4,607
	(36.9)	(-5.4)	(-10.1)	(5.2)	(102.5)	(58.4)
Northeast	71,083	-21,605	-2,637	-44,083	138,779	629
	(16.6)	(-17.5)	(-24.6)	(-34.5)	(88.3)	(51.3)
Northern Plains	-5,093	-57,363	-5,590	14,001	43,137	722
	(-1.1)	(-20.8)	(-17.2)	(26.4)	(42.2)	(51.3)
Pacific	68,411	-7,648	79	3,459	73,983	-1,462
	(29.7)	(-6.5)	(1.0)	(16.4)	(95.9)	(-23.9)
Southeast	49,738	-68,985	-2,962	-3,594	121,727	3,552
	(8.0)	(-32.1)	(-14.8)	(-1.4)	(106.3)	(20.9)
Southern Plains	28,781	-29,364	-1,738	-1,879	61,815	-53
	(6.2)	(-10.8)	(-10.6)	(-3.0)	(56.6)	(-1.1)

[1]Numbers in parentheses are percent change, 1975-92.
Source: Calculated by ERS using U.S. Department of Commerce data.

The Food and Fiber System Remains an Important Source of Rural Employment Despite Declining Farm Employment

The Food and Fiber System generates significant employment in both metro and nonmetro areas. Nearly every State has an important share of its nonmetro jobs in the system.

The farm portion of the American economy produces grains, livestock and poultry, fruits, vegetables, tobacco, cotton, greenhouse and nursery goods, and other products. It requires myriad inputs such as machinery and parts, fertilizer, pesticides, petroleum, and electrical power. It provides downstream employment for transportation and processing at various levels. The Food and Fiber System (FFS) defines this farm-related segment of the economy. We have used an input-output model to identify the levels of economic activity in the various sectors required to support the final demands of the FFS.

The FFS accounts for a higher share of employment in nonmetro areas than in metro. Of the estimated 23.6 million workers in nonmetro areas, 4.7 million, or 20 percent, worked in the FFS. Only 18 percent, or 17.6 million out of 99.4 million were similarly employed in metro areas. The FFS employed 17.1 percent of the total labor force in the U.S. economy in 1994.

The significance of the Food and Fiber System varies by region and by State. Two-thirds of States which have the largest percentage of nonmetro FFS workers are Southern, Midwestern, and Plains States. Because many States do not fit that pattern, however, we decided to examine nonmetro FFS employment by dividing the States into three categories: those States who have the largest share of FFS nonmetro employment; those in the middle third of the FFS nonmetro employment rankings; and the remainder where the FFS makes up the smallest share of nonmetro employment (see map).

States with a High Share of Nonmetro FFS Employment

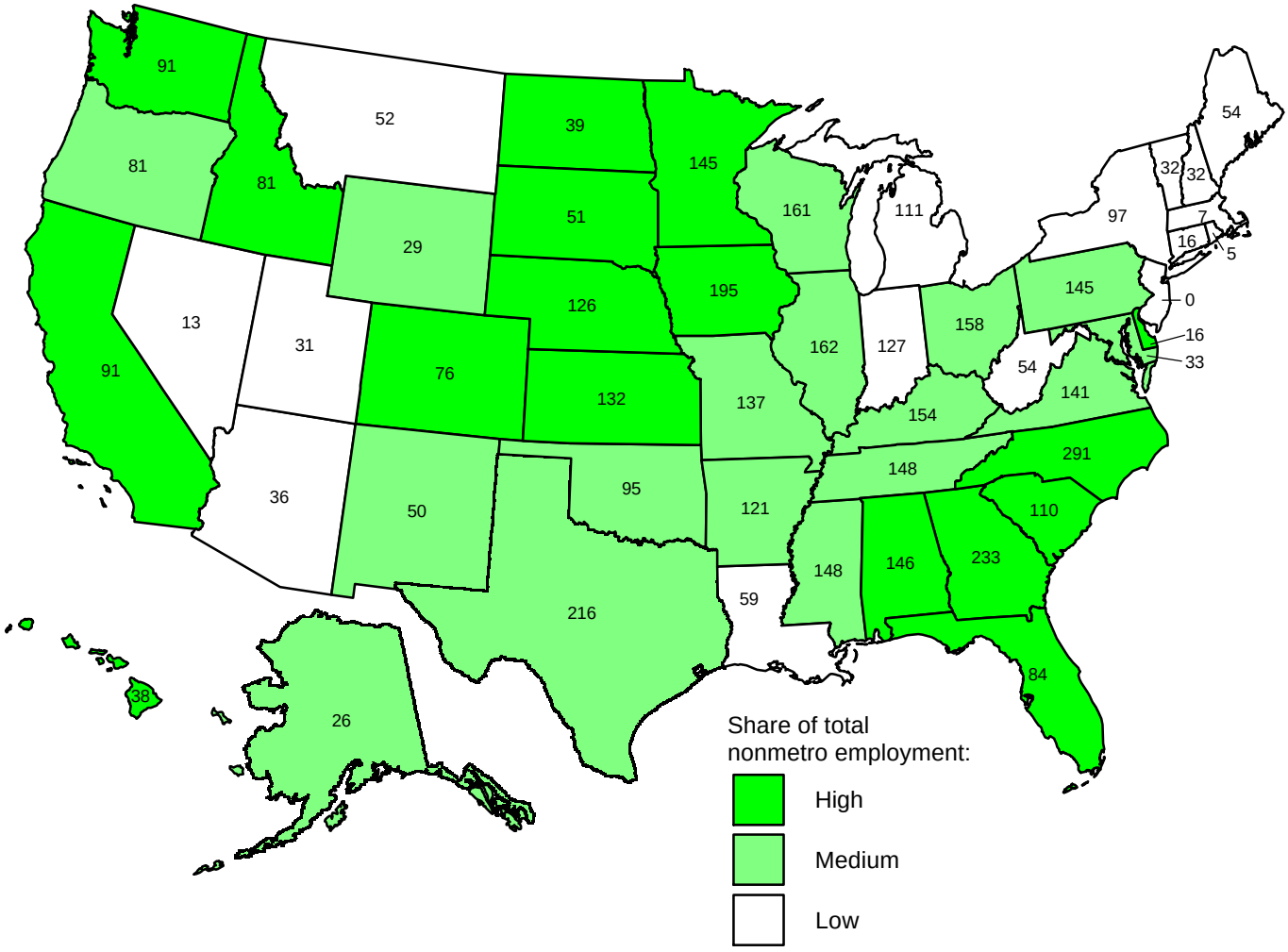
Almost all States in this division show the growth of service industries in recent decades by the relatively large percentage of nonmetro workers in the FFS who are employed in eating and drinking establishments and other wholesale and retail trade jobs. Most of these States, however, have at least one other prominent FFS industry. Overall, these States have 21-31 percent of their nonmetro employment in FFS. Nebraska, with 31 percent, has the largest share of nonmetro FFS employment. North Carolina has the largest number of nonmetro FFS employees with 291,000, followed by Georgia, and Iowa.

Alabama and North and South Carolina have large farm sectors, but the textile industry is the largest nonmetro FFS employer in these States, engaging 30 to 40 percent of the FFS nonmetro workers. California and Florida are largely metro States, but the FFS is strong within their nonmetro areas. In the Dakotas, the farm sector employs as much as 40 percent of all nonmetro FFS workers. Broiler raising and processing both tend to be located in nonmetro areas. Three major broiler producing States—Georgia, Alabama, and Delaware—appear in this group. In similar fashion, beef processors have usually built new plants in nonmetro areas near the supply of finished cattle rather than as earlier in central markets such as Chicago. Moreover, since the cattle industry has moved toward finishing stock in large commercial feedlots located in drier climates, this combination of economic forces has put Nebraska, Kansas, Colorado, and Idaho in this group.

Iowa and Minnesota are both prominent in farming and food processing, which makes FFS employment important in their nonmetro areas. Colorado and Washington have a somewhat similar employment pattern where FFS employment is important in nonmetro areas.

Nonmetro food and fiber employment, 1994

Georgia and North Carolina each have over a quarter million nonmetro food and fiber jobs; they and other States rely on the sector for a high share of their total nonmetro employment



Notes: Food and fiber employment shown in thousands.
New Jersey and the District of Columbia have no nonmetro areas.
Source: Estimated by ERS.

Moderate-Share States

In various States in the moderate group, the FFS share of all nonmetro employees ranges from 17 to 21 percent. Of this group, Texas, Wisconsin, and Illinois have the largest numbers of nonmetro employees in the FFS—Texas, with over 216,000 and the others with about 160,000 each. Only in Texas does the farm sector rank as the largest nonmetro FFS employer, the other States having more FFS jobs in the service industries sectors. The growth of the service industries is again shown in this category. In 2 of the 17 States, employment in either eating and drinking establishments or in other wholesale and retail trades ranks first. The farm sector is first in Texas and Oklahoma while the textile sector leads in Virginia, Mississippi, and Tennessee. The farm sector is tied with eating and drinking in Illinois, reflecting the importance of the Corn Belt. In Mississippi, traditionally thought of as a strong agricultural State, the post-World War II revolution in farming has left that sector in fourth place as a nonmetro FFS employer. Oregon, Kentucky, and New Mexico all have relatively large nonmetro farm sectors, but even the mining and forestry sector (included in "All other" in the table) contributes by providing between 1 and 5 percent of all FFS nonmetro employment in these States. Twenty-two percent of all nonmetro FFS jobs in Alaska are in the mining and forestry sector, the second largest catagory behind transportation, trade, and retailing.

Low-Share States

This group has the greatest diversity in the percentage of nonmetro employees engaged in the FFS, ranging from 16 percent in Montana, Utah, Maine, Indiana, Arizona, and Vermont to none in New Jersey and the District of Columbia, which have no nonmetro areas to count.

All of the New England States along with New York and New Jersey form a solid block in this division. Indiana and Louisiana, often seen as agricultural, may seem as anomalies here, but each has become strongly metro in terms of workplace. Most of these States have very small rural areas and those areas tend to be close to large metro areas. Production agriculture is not important in most of these States (the exceptions being New York, Indiana, and Louisiana). Nonmetro FFS employment is largely in the wholesale and retail trades, eating and drinking places, and other services sectors. Taken as a whole, the FFS is still an important provider of jobs and employment even in the few nonmetro areas of the largely urbanized Northeastern States that dominate this bottom one-third.

Conclusion

All things, particularly in a developed economy, are interrelated. The estimation procedure for the Food and Fiber System recognizes these interrelationships and presents an estimate of the role of agriculture in a rural area's economy. The challenge is achieving this simple expression from a complicated web of interrelationships.

Our estimates show how important the Food and Fiber System continues to be for rural areas as well as for the national economy. While the percentage employed by the food and fiber system has declined somewhat since 1982, the numbers employed in the system have remained stable. Decreasing farm employment has been made up by increases in other sectors. Similarly, the value added by the food and fiber system has kept up with inflation, even though it has slipped as a percentage of the domestic economy. In nonmetro areas, FFS employment remains important in nearly every State, however much the sources of that employment vary from State to State. *[William Edmondson, 202-219-0777, wedmonds@econ.ag.gov; Lowell K. Dyson, 202-219-0786, lkdyson@econ.ag.gov; Chinkook Lee, 202-501-8340, chinlee@econ.ag.gov]*

Agricultural Exports and the Rural Economy in the 1990's

Improved international trade conditions in the 1990's have resulted in increased exports. Agricultural exports in 1994 were responsible for about 791,000 jobs in the U.S., including 259,000 in rural areas.

U.S. agricultural exports generate employment, income, and purchasing power in both rural and urban areas. To export agricultural products, farmers purchase fuel, fertilizer, and other necessary inputs. Agricultural exports also spur economic activity down the line in the manufacturing, trade, and transportation sectors.

In the early 1980's, agriculture, the textile industry, forestry, and the extraction of gas, oil, and coal depended heavily on foreign trade and also were important sources of rural employment. During the decade, the strength of the U.S. dollar and the worldwide recession resulted in a sharp reduction in demand for many U.S. products abroad, including many products of these four important rural industries.

Exports Have Rebounded in the 1990's

In the 1990's, however, both the weaker dollar and American support of multilateral trade liberalization, which worked to open up other countries' agricultural markets, resulted in strong exports for U.S. products. Natural resource-based products share this growth. U.S. agricultural exports, for example, which amounted to only $35.3 billion in 1988, increased to $42.4, $42.5, and $45.7 billion in 1992, 1993, and 1994. In 1994, agricultural exports supported an estimated 791,056 civilian jobs, including 485,000 in the nonfarm sector. Furthermore, *Foreign Agricultural Trade of the United States* (*FATUS*, Nov.-Dec. 1995) reports that agricultural exports set a record of $54.2 billion for the fiscal year 1995, which was almost $11 billion greater than the previous year. This striking expansion resulted in part from a 37-percent rise in bulk exports to $24.1 billion. Almost half the gain came from corn, soybeans, and cotton. Corn shipments during fiscal year 1995 reached 58.6 million tons, valued at $6.6 billion, compared with 33.1 million tons, worth $3.8 billion, a year earlier. Soybean and rice exports rose in similar fashion both in tonnage and in value. Moreover, high-value product exports climbed for the 10th year in a row, advancing by 16 percent to a new record of $30.1 billion.

America's rural economy is extremely diverse. Among the 10 farm regions, bulk exports benefit four in particular—the Corn Belt, the Pacific, and the Northern and Southern Plains. Those exporting regions rely on differing mixes of the six leading export commodities: feed grains and products, soybeans and products, wheat and products, live animals and meat, vegetables and preparations, and fruit and preparations. In 1994, the Corn Belt States exported 51 percent of the total value of feed grains and products ($3.025 billion) which the Nation exported. By adding the export sales from four adjacent States the total rose to $4.868 billion (79 percent). The Corn Belt also exported $3.445 billion in soybeans (61 percent). The addition of five adjacent States brought sales to $4.666 billion (83 percent). The four States of the Northern Plains accounted for 41 percent ($1.770 billion) of exported wheat sales. The two Southern Plains States and the Canadian border tier of Minnesota, Montana, Idaho, and Washington increased wheat sales to $3.165 billion or 74 percent of the total. Three Plains States, Nebraska, Texas, and Kansas, sold 41 percent of live animals and meat exported, in addition to their sizeable grain exports. The Pacific States sold 62 percent ($2.169 billion) of exported vegetables and preparations, while California alone sold 49 percent ($1.473 billion) of all fruit and preparations exported. The Pacific States together exported $2.089 billion (70 percent) in fruit and preparations and Florida added another 18 percent ($555 million).

A Third of Farm Export-Generated Jobs Are in Rural Areas

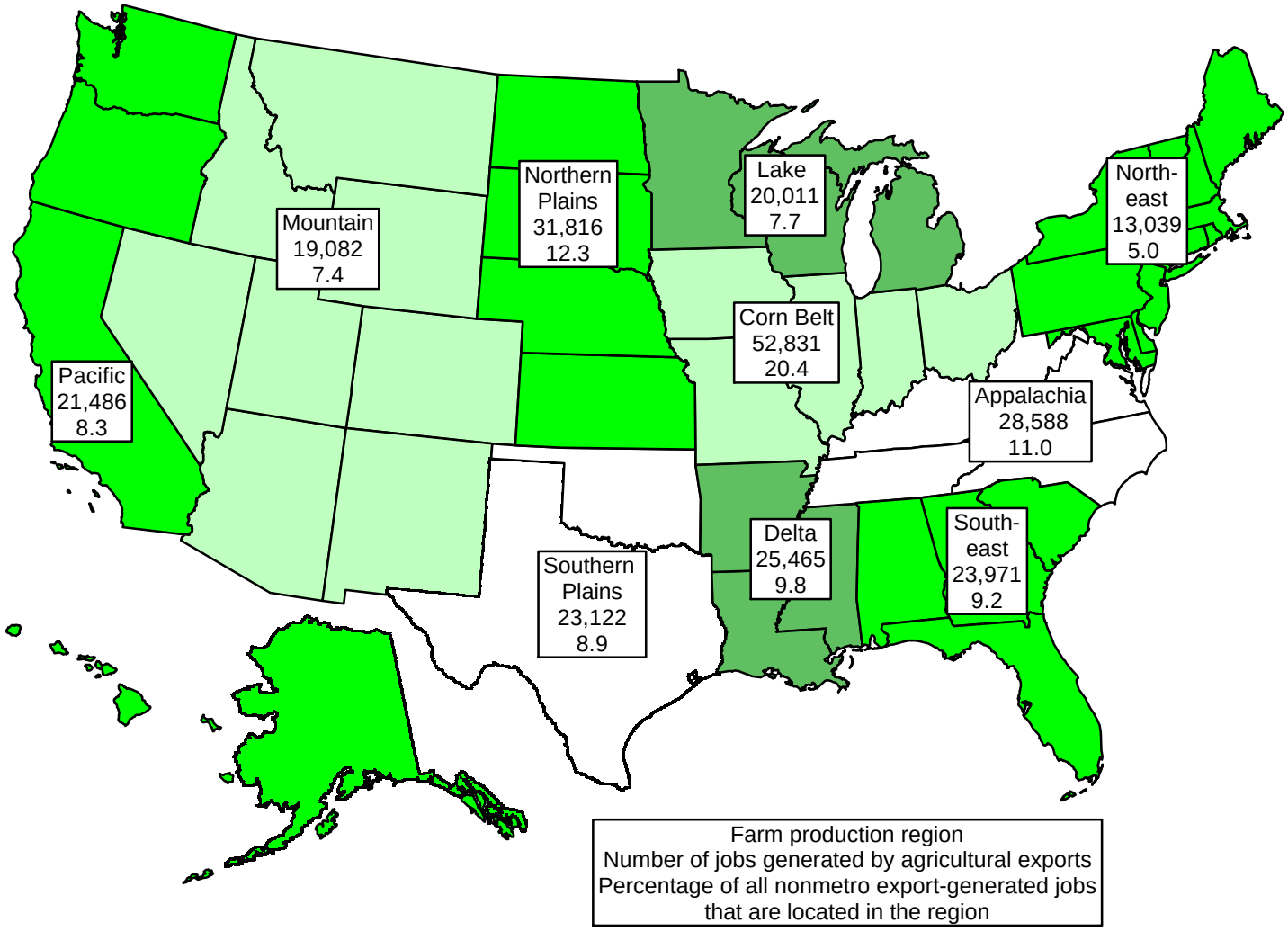
What are the implications of agricultural export growth to the rural economy? Using the 524-sector Input-Output (I/O) model and adjusted County Business Patterns data, we estimated the employment effect of 1994 agricultural exports on rural and urban areas of each State. These exports, amounting to $45.7 billion in 1994, generated 791,056 jobs. An estimated 259,412 of the generated jobs, or 34 percent, were in rural areas. As might

be expected, agricultural exports from the Corn Belt accounted for the highest number of jobs, 52,831, which was 1.3 percent of the total rural employment in the region. The Northern Plains, with 31,816 jobs, had the highest share (2.3 percent) among the regions. And within the Northern Plains, Nebraska had the highest State share in the Nation, with 2.9 percent of rural jobs in the State created by agricultural exports.

Nonmetro employment is much more concentrated in some sectors than others. For example, out of 524 sectors analyzed, there are 48 sectors whose nonmetro share of total employment is more than 50 percent. However, most of these industries are natural resource-based, such as mining, forestry, and energy, which show minimal employment effects due to agricultural exports. For example, the pulp mill sector employs 85 percent of its workers in nonmetro areas, but agricultural exports generated only 128 full-time nonmetro jobs in that sector. The coal mining sector employs 82 percent of its workers in nonmetro areas but only 626 nonmetro jobs resulted from agricultural exports in 1994. Because they are labor intensive, some industries, such as wholesale and retail trade, services, and food and feed processing and related manufacturers, have higher levels of employment due to agricultural exports. Agricultural exports generate indirect economic activities in these sectors which result in additional nonmetro employment.

Nonmetro employment generated by agricultural exports, 1994

Corn Belt and Northern Plains gained the most nonmetro jobs from agricultural exports



Note: Alaska and Hawaii were included in the Pacific farm production region for this analysis.
Source: Estimated by ERS.

Nonmetro employment generated by agricultural exports, 1994

The Corn Belt, Northern Plains, and Appalachian regions lead in export-related jobs

Item	U.S total	Northeast	Lake	Appalachia	Southeast	Delta
			Number			
Total nonmetro employment	23,624,100	2,661,042	2,247,634	3,714,069	2,444,652	1,763,258
			Percent			
Region's share	100	11.2	9.5	15.7	10.3	7.5
			Number			
Employment due to agricultural exports	259,412	13,039	20,011	28,588	23,971	25,465
			Percent			
Share of total nonmetro employment	1.1	.49	.89	.77	1	1.4
Region's share	100	5	8	11	9	10
			Number			
Export-generated employment by sector:						
Farm	166,583	4,763	11,671	15,425	13,771	17,009
			Percent			
Share of nonmetro farm employment due to agricultural exports	64	37	58	54	57	67
			Number			
Dairy farm products	2,207	340	696	150	72	55
Poultry and eggs	7,675	528	427	1,214	1,798	1,893
Meat animals	29,879	328	1,932	1,590	690	611
Miscellaneous livestock	3,416	273	123	935	202	681
Cotton	18,431	0	0	1,591	2,019	8,393
Food grains	12,148	69	658	291	128	1,523
Feed grains	16,402	243	1,698	585	211	268
Grass seeds	231	1	4	2	6	3
Tobacco	5,560	70	44	4,587	712	0
Fruits	11,504	986	849	397	2,106	91
Tree nuts	6,104	50	5	217	786	75
Vegetables	8,915	608	1,114	471	1,378	186
Sugar crops	329	5	79	0	29	37
Miscellaneous crops	772	47	32	38	24	19
Oil-bearing crops	34,909	271	3,374	2,079	2,500	3,048
Forest products	150	6	9	45	19	8
Greenhouse and nursery products	7,952	939	626	1,234	1,092	117
Agricultural services	7,909	674	693	778	949	568
Food processing	26,087	1,811	2,587	3,112	2,796	3,240
Textiles	722	46	26	219	293	26
Tobacco manufacturing	491	0	0	490	1	0
Agricultural chemicals	2,067	49	50	270	617	306
Prepared feeds	3,372	199	290	294	337	218
Other nondurables	7,920	929	763	1,483	948	765
Durables	4,637	474	552	692	436	316
Eating and drinking	1,364	157	142	189	128	77
Wholesale and retail	13,866	1,437	1,326	1,960	1,270	1,055
Transportation	7,978	751	679	1,325	816	675
Other services	12,937	1,577	1,108	1,822	1,279	907
Mining and forestry	3,480	171	126	528	330	305

—Continued

Nonmetro employment generated by agricultural exports, 1994—Continued

The Corn Belt, Northern Plains, and Appalachian regions lead in export-related jobs

Item	Corn Belt	Northern Plains	Southern Plains	Mountain	Pacific
			Number		
Total nonmetro employment	4,176,115	1,360,902	1,766,023	1,979,374	1,511,026
			Percent		
Region's share	17.7	5.8	7.5	8.4	6.4
			Number		
Employment due to agricultural exports	52,831	31,816	23,122	10,082	21,486
			Percent		
Share of total nonmetro employment	1.3	2.3	1.3	1	1.4
Region's share	20	12	9	7	8
			Number		
Export-generated employment by sector:					
Farm	36,034	24,450	16,277	11,804	15,378
			Percent		
Share of nonmetro farm employment due to agricultural exports	68	77	70	62	72
			Number		
Dairy farm products	306	117	133	187	151
Poultry and eggs	784	113	622	108	188
Meat animals	6,363	9,243	4,660	3,879	585
Miscellaneous livestock	161	255	311	337	138
Cotton	758	1	4,339	552	778
Food grains	866	4,751	1,377	1,827	658
Feed grains	6,899	4,113	899	1,177	309
Grass seeds	21	9	6	58	122
Tobacco	148	0	0	0	0
Fruits	323	8	66	361	6,307
Tree nuts	31	91	1,167	829	2,852
Vegetables	395	546	530	1,866	1,821
Sugar crops	2	49	11	77	38
Miscellaneous crops	122	109	6	88	286
Oil bearing crops	17,717	4,893	907	104	18
Forest products	14	2	6	2	40
Greenhouse and nursery products	1,124	141	1,238	353	1,088
Agricultural services	1,138	592	908	678	932
Food processing	4,605	2,999	1,917	1,591	1,430
Textiles	54	15	15	18	10
Tobacco manufacturing	0	0	0	0	0
Agricultural chemicals	388	57	81	196	52
Prepared feeds	948	425	475	136	51
Other nondurables	1,568	202	408	335	520
Durables	1,351	370	203	134	109
Eating and drinking	245	85	84	147	110
Wholesale and retail	2,696	1,162	980	1,135	846
Transportation	1,488	582	436	619	605
Other services	2,064	761	947	1,448	1,025
Mining and forestry	253	117	390	842	419

Source: Calculated by ERS from supporting ERS economic models using data from the Bureau of Economic Analysis, Bureau of Labor Statistics, Bureau of the Census, and USDA/ERS.

The table shows 14 aggregated sectors for which agricultural exports are particularly important. As might be expected, the farm products sector receives most of the employment generated in rural areas from agricultural exports. The 17 subsectors in the farm products sector have 64 percent of the nonmetro jobs generated by agricultural exports in 1994. More than 70 percent of all employment in four of those sectors (food grains, meat animals, oil bearing crops, and feed grains) is in nonmetro areas.

The remaining 13 groups in the table also had substantial numbers of rural jobs generated by agricultural exports. Food processing obtained 26,087 jobs, followed by 13,866 jobs obtained by wholesale and retail trade and 12,937 jobs obtained by the other service sectors.

In terms of a regional breakdown, the Corn Belt had 52,831 jobs in nonmetro areas as the result of agricultural exports in 1994, 20.3 percent of national nonmetro jobs generated by agricultural exports. Farm workers accounted for 36,034 of the Corn Belt jobs and, of these, 17,717 produced oil crops. In fiscal year 1994, the U.S. exported 24.1 million metric tons ($6.9 billion) of oilseed and products. The Nation also exported 40.5 million metric tons ($4.7 billion) of feed grains and products, and growing numbers of feedlots in the Corn Belt fattened cattle for export which created further demand for grain.

In the Northeast, not a major producer of export commodities, farm products accounted for only 37 percent (4,763 jobs) of the region's total nonmetro employment generated by agricultural exports—13,039 jobs. Yet, 8,276 nonfarm jobs supported agricultural exports. This region gained supporting employment from agricultural exports originating in other regions.

Freer Trade Promises Further Gains for Rural Economy

Agricultural exports are important for rural America. Domestic markets have reached a stage of maturity. The United States has a comparative advantage in agricultural exports, and that is where potential growth is in the future. Agricultural trade, which has often been constrained by the policies of many countries, has been moving toward multilateral and regional free trade through GATT and NAFTA agreements and the general acceptance of the World Trade Organization. This trade liberalization, which continues to open up more agricultural markets, should result in strong exports for U.S. products, with concomitant gains in employment for rural America. *[Chinkook Lee, 202-501-8340, chinlee@econ.ag.gov; William Edmondson, 202-219- 0777, wedmonds@econ.ag.gov; Lowell K. Dyson, 202-219-0786, lkdyson@econ.ag.gov]*

The Food and Fiber System and the domestic economy, 1985-94

Nonfarm-sector employment increases as farm employment falls

Item	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
					Millions of jobs					
Employment:										
Total food and fiber	22.5	22.3	22.3	23.0	23.4	23.3	22.8	22.0	22.1	22.4
					Percentage					
Share of domestic labor force	19.1	18.9	18.6	18.9	18.9	18.7	18.2	17.3	17.3	17.1
					Millions of jobs					
Farm sector	2.0	1.9	1.9	2.2	2.0	1.9	1.9	1.6	1.7	1.7
Nonfarm sectors	20.1	20.4	20.4	20.9	21.3	21.4	20.9	20.4	20.4	20.7
Food processing	1.7	1.7	1.6	1.6	1.6	1.6	1.5	1.5	1.4	1.4
Manufacturing	2.9	2.9	2.7	2.8	2.9	2.8	2.8	2.7	2.6	2.6
Transportation, trade and retailing	6.6	6.7	6.7	6.8	7.0	7.0	6.8	6.7	6.7	6.8
Eating	6.0	6.1	6.4	6.6	6.7	6.8	6.6	6.5	6.6	6.7
All other	2.9	3.0	3.0	3.1	3.2	3.2	3.1	3.1	3.0	3.0
Total domestic economy	115.5	117.8	119.9	121.7	123.9	124.8	125.3	127.0	128.0	131.1
					Billion dollars					
Value added by activity:										
Total food and fiber	654.7	679.4	708.7	759.0	800.7	839.3	850.4	877.7	893.9	939.2
					Percentage					
Share of domestic economy	16.2	15.9	15.6	15.5	15.2	15.1	14.9	14.6	14.1	13.9
					Billion dollars					
Farm sector	49.0	48.0	52.2	54.4	62.7	65.1	61.1	65.0	59.3	63.7
Nonfarm sectors	605.6	631.3	656.5	704.6	738.0	774.3	789.3	812.7	834.6	875.5
Food processing	87.8	93.3	91.7	98.1	102.2	106.1	108.0	108.5	110.3	114.7
Manufacturing	117.1	121.5	119.9	125.3	133.5	134.5	135.8	139.3	138.9	145.5
Transportation, trade and retailing	200.7	204.7	214.3	228.7	237.1	248.0	251.0	256.5	262.0	275.1
Eating	81.7	83.6	92.2	99.2	101.7	109.0	110.5	112.5	117.0	124.4
All other	118.2	128.3	138.4	153.3	163.5	176.7	183.9	196.0	206.4	215.8
Total domestic economy	4,038.7	4,268.6	4,539.9	4,900.4	5,250.8	5,546.1	5,724.8	6,020.2	6,343.3	6,738.4

Source: Calculated by ERS from supporting ERS economic models using data from the Bureau of Economic Analysis, Bureau of Labor Statistics, Bureau of the Census, and USDA.

Rural Mines Increase Productivity, Decrease Employment

Mining is one of the most productive, capital-intensive rural industries and its various sectors are geographically concentrated. Mining employment in recent years has declined sharply from a peak in 1981.

During the 19th century, mining was a pioneering industry that followed explorers and fur traders into the West. Like the frontier society of which it was a part, mining was also a rambunctious industry that experienced extravagant bouts of "boom and bust." Less extreme cycles of expansion and contraction have continued in the 20th century. The accompanying graph shows the industry's roller-coaster trajectory as it responded to the "energy crisis" of the 1970's by doubling nonmetro employment and then to the oil and metals glut of the 1980's by shrinking that work force back to the 1969 level. Since the 1980's, nearly every State has become less dependent on the energy industries. The Federal Reserve Bank of Dallas predicts that this trend will continue throughout the 1990's but at a slower rate.

The mining industry is generally divided into four main groups—(1) coal; (2) metals; (3) nonfuel nonmetallic minerals; and (4) oil and gas. Wages in all four groups are above the national average. Thus, unless replaced by other types of well-paid jobs, a drop in mining employment results in an overall decline of high-wage jobs in rural America.

Coal—the Most Rural of the Mining Industries

The U.S. coal industry is concentrated in three main geographical regions—Appalachia, the West (including Texas), and the central and lower Midwest. Five States—Wyoming, Kentucky, West Virginia, Pennsylvania, and Texas—account for 64 percent of total national production. With 81 percent of its workers living in nonmetro counties (1992 data), coal is also the most rural-oriented of the major mining industries.

Electric utilities are the primary consumers of coal. Their consumption grew from a 17 percent share of production in 1949 to an 88 percent share in 1994. On the other hand, consumption by all other economic sectors in 1994 was lower than it had been in 1949. The largest declines took place in the transportation sector, where railroads switched to petroleum, and in the residential and commercial sector. In 1994, only 1 percent of U.S. coal was consumed in these sectors.

In 1994, the average prices of bituminous, lignite, and anthracite coal were less than half of what they had been in 1975. The decline in coal prices resulted from gains in productivity, the expanded use of longwall mining in underground mines, and the increased use of cheaper western coal. Overall production, however, is now more than 50 percent greater than it was in 1975. Since World War II, coal has been the major U.S. energy export. Coal exports peaked at 113 million short tons in 1981 and from 1982 to 1994 fluctuated between 71 million and 106 million short tons. In 1994, Japan (10 million short tons), Canada (9.2 million short tons), and Italy (7.5 million short tons) accounted for 38 percent of U.S. coal exports of 71.4 million short tons.

Coal Production Shifting West

U.S. coal production, which had averaged nearly 1 billion tons per year during 1989-92, dropped to 945 million tons in 1993. A United Mine Workers strike and a decline in exports account for most of the decrease in 1993. Coal production in the West in 1993 rose 7 percent above the 1992 level to 369 million short tons, with Wyoming accounting for 86 percent of that increase. Eighty-six percent of Wyoming's production was concentrated in Campbell County, which accounted for nearly 20 percent of the U.S. total. The increase in Wyoming coal production was the result of greater demand for low-sulfur coal from the Powder River Basin. Much of the additional coal output from Wyoming was shipped to electric utilities in Texas and the Midwest, particularly in Illinois, displacing indigenous high-sulfur coal. Because of these changes in coal production in 1993, the western region's share of the U.S. coal output rose from 35 percent in 1992 to 39 percent in 1993. Appalachia's production share dropped to 43 percent from 46 percent in 1992

while the Midwest's share fell from 20 to 18 percent. This continues a trend begun in the early 1980's, when Appalachia claimed half of the Nation's coal production. One result of the westward shift in production has been a greater utilization of lands leased from the Federal Government and Indian Tribes. In 1993, over 30 percent of coal output as measured in sales volume came from Federal and Indian lands. Within the next few years, the West will begin to dominate national production since two-thirds of the recoverable coal reserves are located west of the Mississippi River and 93 percent of these reserves are at surface mines, which have an average recovery rate of 91 percent compared with 56 percent for underground mines. For instance, Wyoming has 69.5 billion short tons of proven coal reserves. About 16.5 billion short tons is "compliance coal," meeting the Clean Air Act mandate of 1.2 pounds of sulfur dioxide per million British thermal units. At current production rates, Wyoming miners can produce "compliance coal" from surface operations for another 75 years.

Mining employment and wages

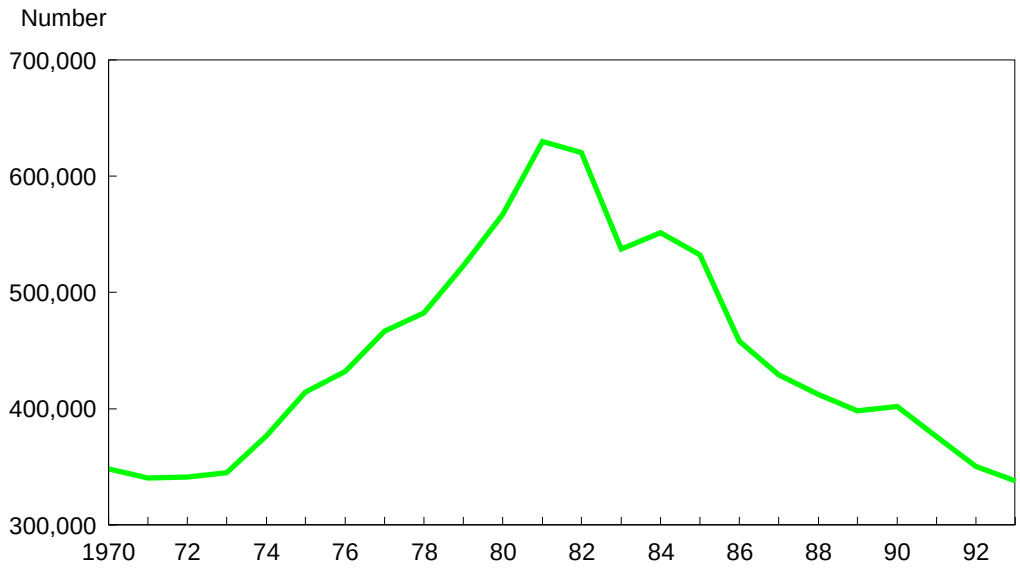
Mining employment and wages have fallen but wages remain above national average

Item	U.S. employment 1992	U.S. employment 1995	1995 average earnings
	Thousands		Dollars per hour
Metal mining	52.7	50.7	16.67
Coal mining	126.3	107.1	18.88
Oil and gas	352.3	316.7	14.48
Nonmetallic minerals	101.3	103.8	13.32
Total mining	632.6	578.3	15.28[1]
Total private employment	89,958.8	96,963.6	11.40

[1]Weighted average.
Source: Bureau of Labor Statistics.

Nonmetro mining employment

Mining employment peaked in 1981, and has fallen steadily since then



Source: Bureau of Economic Analysis.

Amendments to the Clean Air Act (CAA) requiring lower sulfur dioxide emission limits by 1995 and 2000 have resulted in research and development to meet these new requirements. Such research will benefit mines in Appalachia whose coal generally has a higher sulfur content than those in the West. Coal-burning utilities are being evaluated for compliance with the CAA, and those not meeting standards must switch to lower sulfur coal or "scrub" coal with a gas desulfurization system. The use of scrubbing systems would allow for continued use of more Appalachian coal and increase demand for lime and limestone.

An Older, Smaller, More Productive Workforce

The number of U.S. coal mines dropped 10 percent from 2,748 to 2,475 between 1992 and 1993. This is slightly less than half the number of coal mines that existed in 1984. Virtually all of the decline from 1992 to 1993 resulted from the loss of mines in Appalachia. The closing of mines is in part responsible for a pronounced "greying" of the work force. In 1986, the average age of miners was 39 years but by 1992 it had increased significantly to 45 years. Perhaps another reason for the aging of the work force has been that significantly fewer miners are now needed to produce a relatively constant amount of coal. During 1984-1993, productivity at U.S. coal mines increased at an average annual rate of 6.6 percent. During that same period total coal mining employment declined from 177,848 to 101,322.

Despite the westward shift in production and the "greying" of the work force, coal still has considerable socioeconomic importance in Appalachia. For instance, in 1992 an average of 91 short tons of coal was produced for every person in West Virginia, higher than any other State except Wyoming, compared with a national average of 4 tons per person. However, a comparison of size, employment, and the number of mines gives a more accurate picture of the socioeconomic impact of coal in West Virginia. West Virginia is approximately a fourth the geographic size of Wyoming, but it employs 24,000 people in the coal industry or about four times as many as in Wyoming. In 1992, Wyoming had 32 mining operations versus 1,600 in West Virginia. Also, in West Virginia, about 600 other facilities such as preparation plants, stockpiles, loading areas, refuse disposal areas, and haulageways support these mining operations.

Metal and Nonmetal Nonfuel Minerals

Federal mining policy has been a much-debated subject recently. In 1872, Congress passed the Mining Act permitting prospectors to acquire fee simple title to Public Domain land for $2.50 per acre upon demonstrating the existence of profitable deposits of metalliferous ore. That act undoubtedly stimulated the western mining industry, but for over a century secretaries of the Interior and various commissions have criticized it for unnecessarily allowing the alienation of public property. In recent decades, environmentalists have attacked it for its supposed adverse effect on land and water quality. Beginning in the 1970's, chairpersons of various interior and natural resource committees in Congress have attempted to move to a leasing system similar to that governing coal, oil, and gas on public lands but each time were thwarted by the industry's considerable political persuasiveness. In 1995, leaders in the U.S. House of Representatives proposed increasing the sale price of mineralized land to reflect the market value of "surface" resources only. In addition, a small royalty payment would be assessed on the output of new patented claims. Environmentalists and their congressional supporters consider these changes to be insufficient. The Mining Act of 1872 will probably be amended in the near future but the extent of change is still in doubt.

During the early 1980's, western mining industries (especially copper) suffered a severe downturn. They rebounded later in the decade, led by a surge of gold mining in Nevada where improved processing methods allowed the recovery of gold from deposits previously considered unprofitable. Nevertheless, because of foreign competition, environmental controls, the exhaustion of profitable deposits, and the development of more efficient ways to use metals, the long-term trend line for the U.S. metals industry points downward.

The nonfuel minerals industry is concentrated in a few States, although the degree of concentration is less than in other mining industries. Ten States accounted for 54.5 percent of nonfuel mineral production in the United States in 1992. Nonfuel mineral industries are less rural-oriented than coal. Sixty-two percent of the work force of metals industries lived in rural counties, while 44 percent of the work force of other nonfuel minerals industries have rural residences. Much of the stone, gravel, cement, and clays are mined in States with low proportions of rural counties.

The Ten Leading Nonfuel Mineral-Producing States

Arizona (9.89 percent of U.S. nonfuel mineral production)—Arizona remained the 1992 national leader in nonfuel mineral production, a position it first assumed in 1989. Arizona produced 65 percent of the Nation's copper. Its total of 1.15 million metric tons ($2.73 billion) constituted 86 percent of the State's total nonfuel mineral value. Arizona remained an important gold producer and was nationally significant in terms of several byproducts of copper production - lead, molybdenum, rhenium, silver, and sulfuric acid. According to a study prepared by the Western Economic Analysis Center, the Arizona copper industry contributed $6.56 billion, directly and indirectly, to the 1992 State economy, up sharply from $5.65 billion in 1991. In 1992, 1.6 million Arizonans worked in the nonagricultural sector and 12,600 of those were in mineral mining (0.8 percent). This was down from 14,900 in 1991, which reflects a general trend toward greater productivity in the mineral industry.

Nevada (8.09 percent)—Mined gold made up 87 percent of Nevada's total nonfuel mineral production in 1992. Nevada produced 60 percent of all the Nation's gold and accounted for approximately 9 percent of the world's output. Silver, almost all as a byproduct from gold production, accounted for an additional 3 percent of Nevada's nonfuel mineral production and placed it first among silver-producing States. Relatively low prices, uncertainties regarding access to Federal lands, and more restrictive State and Federal regulations resulted in a substantial decline in exploration activity since the peak in 1988. In December 1992, 12,900 workers were employed in the Nevada mining industry, a 0.8-percent decrease from 1991 and an 8-percent decline since the 1990 peak of 15,000.

California (7.33 percent)—The 1992 value of minerals was down 7.5 percent from 1991. California was the sole producer of boron and tungsten and led all States in the production of asbestos, Portland cement, diatomite, calcined gypsum, rare-earth concentrates, and construction sand and gravel. It was second in natural calcium chloride, gold, magnesium compounds, pumice, industrial sand and gravel, and soda ash. Construction sand and gravel, Portland cement, gold, and boron, in order of value, were the four principal mineral commodities. Industrial minerals were about 82 percent of the value of California's nonfuel mineral production. Continuing declines in industrial minerals prices, due in part to a continued weak construction market in the State, caused the drop in value from 1991. In December 1992, the California mining industry employed 7,900 workers, down about 7 percent from the previous year. Of these, 2,200 were metal mining jobs and 5,700 were nonmetallic mineral mining jobs.

Michigan (4.96 percent)—Michigan's 1992 nonfuel mineral production was valued at $1.6 billion, a 6 percent increase over 1991's amount. In order of value, Michigan's leading mineral commodities were iron ore, Portland cement, sand and gravel, and crushed stone. Industrial minerals constituted about 60 percent of the State's nonfuel mineral value. Although statewide unemployment declined from 9.2 percent to 8.8 percent, in the Upper Peninsula where mining is important the rate rose from 10.4 percent to 10.8 percent. About 9,000 persons were employed in mining throughout the State, the same figure as in 1991. In the Upper Peninsula 3,400 worked in the industry, also reflecting little change from the 1991 figure.

Florida (4.50 percent)—In 1992, Florida's nonfuel mineral value was $1.439 billion, an increase over the 1991 figure of $1.396 billion. An increase in sales was reported for the major industrial minerals produced in the State - cement, phosphate rock, construction sand and gravel, and stone. For most of the 20th century, phosphate rock has the been the leading mineral mined in Florida. More than 95 percent of Florida's phosphate rock production is used by

Oil and Gas

During the last 25 years there have been three oil "price shocks" with lasting effects. Employment in the oil and gas industry has risen and fallen with these price changes. U.S. oil production peaked in 1970, and since that year the U.S. has been importing a greater percentage of the oil it consumes. However, the ratio of energy consumption to gross domestic product (GDP) has been falling over time, reducing concern about U.S. dependence on foreign energy suppliers. According to the forecast of the Federal

the fertilizer industry, and the phosphate industry produces approximately 80 percent of U.S. fertilizer needs and 30 percent of worldwide demand. Historically, sales of fertilizer and phosphoric acid have exceeded 50 percent of the State's mineral value. The annual rise or fall in the value of the State's minerals has been controlled by both fertilizer and phosphoric acid demand and sales to the domestic and world's phosphate fertilizer market. The break-up of the Soviet Union temporarily disrupted an important foreign phosphate market.

Minnesota (4.26 percent)—Minnesota's 1992 mineral production was valued at about 1.4 billion, a $75-million increase over the amount reported in 1991. In order of value, Minnesota's three leading mineral commodities were iron ore, construction sand and gravel, and crushed stone, all of which increased in value in 1992. Minnesota continued to lead the Nation in iron ore production. The industry underwent considerable change in 1992. Lower demand for iron ore, foreign competition, and competition from steel mills that produce steel from scrap (minimills) caused companies to lower production, reduce employment, and even temporarily shut down operations at most of the State's seven taconite iron ore operations. Employment in Minnesota's mining industry averaged 7,621 in 1992, a decline of about 3.2 percent from 1991. The monthly average number of workers employed in the metal mining sector was 6,017 in 1992, a drop of 274 from the figure reported in 1990. Industry's moves to lower taconite production costs caused most of the job lost in the State's mining industry.

Utah (4.21 percent)—Utah's mineral value increased from $1.18 billion in 1991 to $1.35 billion in 1992. Production and value of beryllium, copper, gold, magnesium, molybdenum, and silver all increased from 1991 levels. Utah was one of only three mercury-producing States. The State ranked second in copper and magnesium metal; third in gold, iron ore, and molybdenum, and sixth in silver production. Mining employment constituted approximately 1 percent of the State's total work force. Utah's economy performed well in 1992 and mining production increased but the State's mining employment declined slightly from 8,596 in 1991 to 8,487—another example of the national trend towards greater mine productivity and declining employment.

Georgia (4.21 percent)—Georgia experienced a 3.1-percent increase in mineral value, going from $1.31 billion in 1991 to $1.35 billion in 1992. The State's two leading mineral commodities, clays and crushed stone, accounted for more than 90 percent of the total value produced. Georgia continued to be the largest State producer of several types of clays and also in the quantity of granite and barite production. Mining employment declined from 7,700 in 1991 to 7,500 in 1992, a drop of 2.6 percent.

Texas (4.07 percent)—Texas has been the Nation's leading oil and gas producer since the 1920's and has also been an important producer of Portland cement, crushed stone, magnesium metal, and construction sand and gravel. It led the Nation in the production of magnesium metal, common clay, and zeolites and was second in the production of Portland cement, salt, sodium sulfate, and talc. Jobs in the metals and coal subcategory averaged about 9,000 in 1992, down 500 from 1991. This compares to 161,600 oil and gas jobs, down from 175,600 in 1991.

Wyoming (2.97 percent)—Unlike coal production which is concentrated in one county, 19 of Wyoming's 23 counties contributed to the 1992 nonfuel mineral value of $951 million, up 2 percent from 1991. Wyoming continued to be the Nation's leading producer of bentonite clays and soda ash, and the second largest producer of total clays and Grade-A helium. The minerals industry in Wyoming continued to be the single largest contributor to the value of that State's economy, according to the Wyoming Department of Commerce. It accounted for 8.5 percent of total nonagricultural employment in 1992. In that year nonfuel mining employment was 4,000, a drop from 4,400 the previous year.

Reserve Bank of Dallas, oil prices are unlikely to experience sharp sustained changes during the next decade. Gas prices will move parallel to oil prices but will remain below oil prices for equivalent amounts of energy.

Oil and gas are the least rural of the mining industries, with only 36 percent of their work force located in rural counties. Oil and gas operations sometimes occupy only a few acres of land and usually require less land disturbance than coal and metal mining operations. Thus, they can often fit compatibly into metro environments. Secondly, crude oil and natural gas can more easily be transported to urban processing plants than coal or metal ores. Thirdly, a significant amount of production comes from off-shore wells. For instance, in 1994 gross withdrawals of natural gas from wells totaled 24 trillion cubic feet. Texas, Louisiana, and Oklahoma accounted for 61 percent of total U.S. production. Most of the withdrawals came from onshore wells and State offshore wells, but 5.2 trillion cubic feet (22 percent of the total) were Federal offshore withdrawals.

In 1992, Congress passed the Energy Policy Act (EPACT), which affects virtually all sectors of the energy industry with a range of research-and-development provisions, conservation and fuel requirements, tax incentives, Federal mandates, and regulatory changes. The oil and gas sectors are affected both directly and indirectly. Independent oil and gas producers are helped by changes to the alternative minimum tax system, which took effect at the beginning of 1993. These changes may increase the profitability of their operations and could encourage substantial additional investment. Independent producers account for significant percentages of crude oil and natural gas reserves and for about three-fourths of annual well completions.

Producers of natural gas may also be favorably affected by broad changes EPACT made to the 1935 Public Utility Holding Company Act. These amendments establish a new class of independent power producers (IPP's), who will now have access to utility-owned transmission lines. The IPP's will be able to sell their power directly to utilities. IPP's tend to favor gas power plants because of lower initial costs.

The production of U.S. natural gas rose each year from 16.62 trillion cubic feet in 1987 to 18.41 trillion cubic feet in 1993. Future expansion will be due to a number of factors, including stronger economic growth and increasing gas-fired generating capacity. Increase in demand is supported by a growth in interstate pipeline capacity. Increased demand by electric utilities and by the industrial sector account for virtually all of the increase in natural gas demand. Residential and commercial demand is predicted to remain largely unchanged.

During the same period domestic crude oil production declined in every year but one from 8.349 million barrels per day to 6.870 million barrels per day. The continuing decrease in production reflects low levels of domestic exploration and development during the past several years as a result of prices that are substantially lower in real terms than in most years since 1974. Also, opportunities abroad have been better recently. *[Dennis Roth, 202-501- 8321*, *droth@econ.ag.gov]*

Manufacturing Jobs Continued to Shift to Nonmetro Areas in 1993

Lower labor costs are probably one of the reasons for the stability of nonmetro manufacturing jobs while metro manufacturing jobs decrease. Manufacturing wages in nonmetro plants are 25 percent lower than metro wages, and nonmetro output per worker is 23 percent lower. However, a comparison of technology use in five technology-intensive industries shows little metro-nonmetro difference.

The nonmetro share of manufacturing employment rose steadily from 20 to 23 percent during 1985-93. Metro manufacturing jobs declined in all but 1 year over that period, while nonmetro manufacturing employment grew or remained stable in each year except the 1990-91 recession period. From 1992 to 1993 (the most recent years for which metro-nonmetro data are available), nonmetro areas added 90,000 manufacturing jobs, while metro areas lost 61,000. Nearly all of the nonmetro manufacturing job growth was in three regions: the Southeast, Great Lakes, and Plains. The nonmetro Southwest and Rocky Mountain regions added 7,000 manufacturing jobs each, while the New England, Mideast, and Far West experienced small job losses. Manufacturing is an important source of employment for nonmetro economies, accounting for 16.8 percent of jobs. The Southwest, Rocky Mountain, and Far West nonmetro regions are least dependent on manufacturing, while manufacturing dependence is highest in the Southeast and Great Lakes nonmetro regions.

National employment data for 1995 suggest that the rise in nonmetro share of manufacturing employment may have slowed during 1995, as most rural-oriented industries lost jobs or grew slowly. Employment in textiles and apparel fell 7 percent and 2.5 percent, respectively, and employment fell less than 1 percent in the furniture and paper products industries. Jobs in food processing and lumber and wood products grew by less than 1 percent in 1995. Most manufacturing job growth in 1995 was in fabricated metal products, industrial machinery and equipment, and electronic equipment. These industries are largely urbanized, but still account for about 20 percent of nonmetro manufacturing jobs.

Nonmetro Manufacturers Lag in Wages and Productivity

Manufacturing firms are often attracted to nonmetro locations by proximity to raw materials, a more hospitable regulatory environment, and cost advantages. As a result, nonmetro manufacturing has been concentrated in mature low-wage, labor-intensive manufacturing industries with standardized production processes. The labor cost advantage of nonmetro areas is evident in a comparison of nonmetro and metro manufacturing salary and wages per worker from the 1992 Census of Manufactures, which shows that nonmetro wages averaged only 75 percent of metro wages. Three of 20 major industries had nonmetro-metro wage ratios of less than 70 percent, four had ratios of 70-79 percent, and six had ratios of 80-89 percent. Only the paper and allied products industry paid higher average wages in nonmetro plants than in metro plants, and the ratio of nonmetro to metro wages was 90 percent or more in lumber and wood products (97 percent), textile mill products (95 percent), rubber and miscellaneous plastic products (94 percent), stone, clay, and glass (91 percent), and primary metal industries (90 percent). Wages are lowest in apparel and leather products industries (under $15,000 per worker), and highest in petroleum and coal products ($37,300), paper ($35,500), and chemicals industries ($34,500).

Lower nonmetro average wages can be attributed to several factors, including a nonmetro industry mix more heavily concentrated in low-wage/low-productivity industries, concentration of nonproduction workers such as office workers, (who usually have higher wages) in metro areas, and generally lower labor costs in rural areas. Labor productivity, considered by economists to be a key determinant of wages, is lower in nonmetro manufacturing plants, but this seems to explain only part of the difference in wages. On average, manufacturing value-added per nonmetro worker is only 77 percent of value-added per metro worker, just 2 percentage points higher than the ratio of nonmetro to metro wages. However, when nonmetro and metro plants in the same industry are compared, a brighter picture of nonmetro productivity emerges. Nonmetro value-added per worker exceeds metro values in five major industries—textile mill products, lumber and wood products,

paper and allied products, rubber and miscellaneous plastics, and miscellaneous manufacturing industries. Seven other industries have nonmetro-metro productivity ratios of 90 to 99 percent. Six industries have nonmetro-metro productivity ratios of 80-89 percent, and only three industries have ratios less than 80 percent.

The ratio of overall nonmetro to metro productivity is lower than individual industry comparisons due to concentration of low-productivity industries in nonmetro counties. For example, the textile, apparel, lumber and wood products, and furniture industries, with relatively low productivity, make up nearly 30 percent of nonmetro manufacturing employment, but only 12 percent of metro manufacturing employment. When average nonmetro value-added per worker is computed using the metro distribution of employment by industry, the nonmetro-metro productivity ratio rises from 77 to 85 percent. Thus, lower overall average nonmetro productivity is due to a combination of the nonmetro industry mix and generally lower productivity of nonmetro plants compared with metro plants in the same industry.

Manufacturing employment in nonmetro and metro counties, 1993

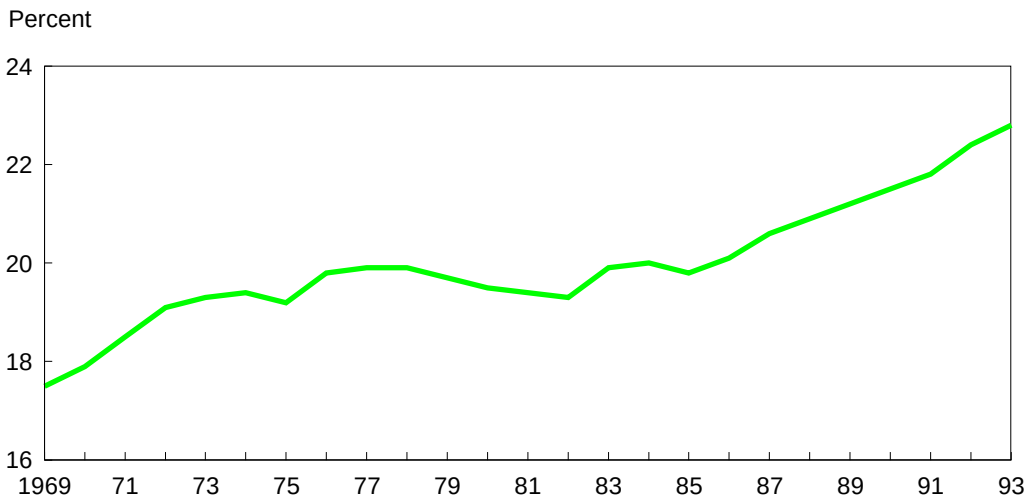
Most nonmetro manufacturing job growth was in the Great Lakes, Plains, and Southeast regions

	Manufacturing employment 1992-93		Growth	
Region	Nonmetro	Metro	Nonmetro	Metro
			Thousands	
All regions	4,274	14,463	90	-61
New England	162	948	-1	-24
Mideast	285	2,499	-3	-53
Great Lakes	861	3,325	26	22
Plains	544	898	21	2
Southeast	1,894	2,884	35	35
Southwest	223	1,219	7	24
Rocky Mountain	121	308	7	7
Far West	184	2,380	-2	-74

Source: Calculated by ERS using data from the Bureau of Economic Analysis.

Nonmetro share of manufacturing employment, 1969-93

Manufacturing jobs shifted to nonmetro areas from 1985 to 1993



Source: Calculated by ERS using data from the ureau of Economic Analysis.

Nonmetro Plants Keep Pace in Technology Use

Use of advanced technology boosts manufacturing productivity and competitiveness by reducing labor costs, increasing worker productivity and product quality, and increasing flexibility and responsiveness to market changes. By making workers more productive and increasing the complexity of manufacturing jobs, technology use can also lead to higher wages for manufacturing workers. Some observers are concerned that rural manufacturers may fall behind their urban counterparts in use of advanced technology. ERS analyzed technology use in six manufacturing industries surveyed by the Census Bureau (see box). In these technology-intensive industries representing a third of nonmetro manufacturing employment we find little difference in technology use between metro and nonmetro manufacturers. In fact, rural firms lead metro firms in adoption of four out of five fabrication/machining and assembly technologies, including flexible manufacturing cells or systems, numerically controlled machines, and robot use, and in the use of several communication and control technologies. Use of computer-aided design and engineering (CAD/CAE) by nonmetro manufacturers in the selected industries increased rapidly from 45 percent in 1988 to 68 percent in 1993, about the same percentage of use reported by metro manufacturers. CAD/CAE was the technology whose use was reported most often by both metro and nonmetro plants, followed by numerically controlled machines at nearly

Comparison of metro and nonmetro labor productivity and wages, 1992

Labor productivity and salaries and wages are lower in nonmetro manufacturing establishments than in their metro counterparts

Standard industrial code	Industry	Share of nonmetro manufacturing employment	Value-added per worker		Average annual salary and wages per worker	
			Nonmetro average	Ratio of nonmetro to metro	Nonmetro average	Ratio of nonmetro to metro
		Percent	$1,000	Percent	$1,000	Percent
20	Food and kindred products	11.8	74.5	64	20.1	76
21	Tobacco products	.1	337.3	44	27.3	65
22	Textile mill products	7.4	49.5	104	19.6	95
23	Apparel and other textile products	9.2	32.1	81	13.5	80
24	Lumber and wood products	9.5	52.6	109	20.9	97
25	Furniture and fixtures	3.7	45.3	91	19.5	87
26	Paper and allied products	4.7	110.1	122	35.5	113
27	Printing and publishing	5.1	55.1	70	19.8	69
28	Chemicals and allied products	3.2	175.8	90	34.5	89
29	Petroleum and coal products	.4	177.9	84	37.3	84
30	Rubber and miscellaneous plastic products	5.8	65.8	103	24.2	94
31	Leather and leather products	1.0	41.6	89	14.8	75
32	Stone, clay, and glass products	3.2	73.0	99	26.1	91
33	Primary metal industries	3.4	72.7	91	30.8	90
34	Fabricated metal products	6.5	60.9	99	25.2	86
35	Industrial machinery and equipment	8.9	66.3	85	27.2	79
36	Electronic and other elect. equipment	6.5	71.0	82	23.7	73
37	Transportation equipment	5.9	82.3	82	27.2	69
38	Instruments and related products	1.9	89.9	90	26.6	72
39	Miscellaneous manufacturing	1.7	61.2	102	20.3	86
NA	All manufacturing	100.0	68.1	77	23.3	75
NA	Average using metro employment shares as weights[1]	100.0	75.4	85	24.7	80

[1]This computation shows what average nonmetro value-added and wages would be if nonmetro areas had the same mix of employment by industry as that of metro areas.

Source: ERS analysis of special tabulations by the Census Bureau from the 1992 Annual Survey of Manufacturing.

60 percent. Nonmetro plants in the selected industries were slightly behind metro plants in use of automated storage and retrieval systems in both 1988 and 1993, but were even with metro firms in use of automated guided vehicle systems and automated sensor-based inspection and testing equipment.

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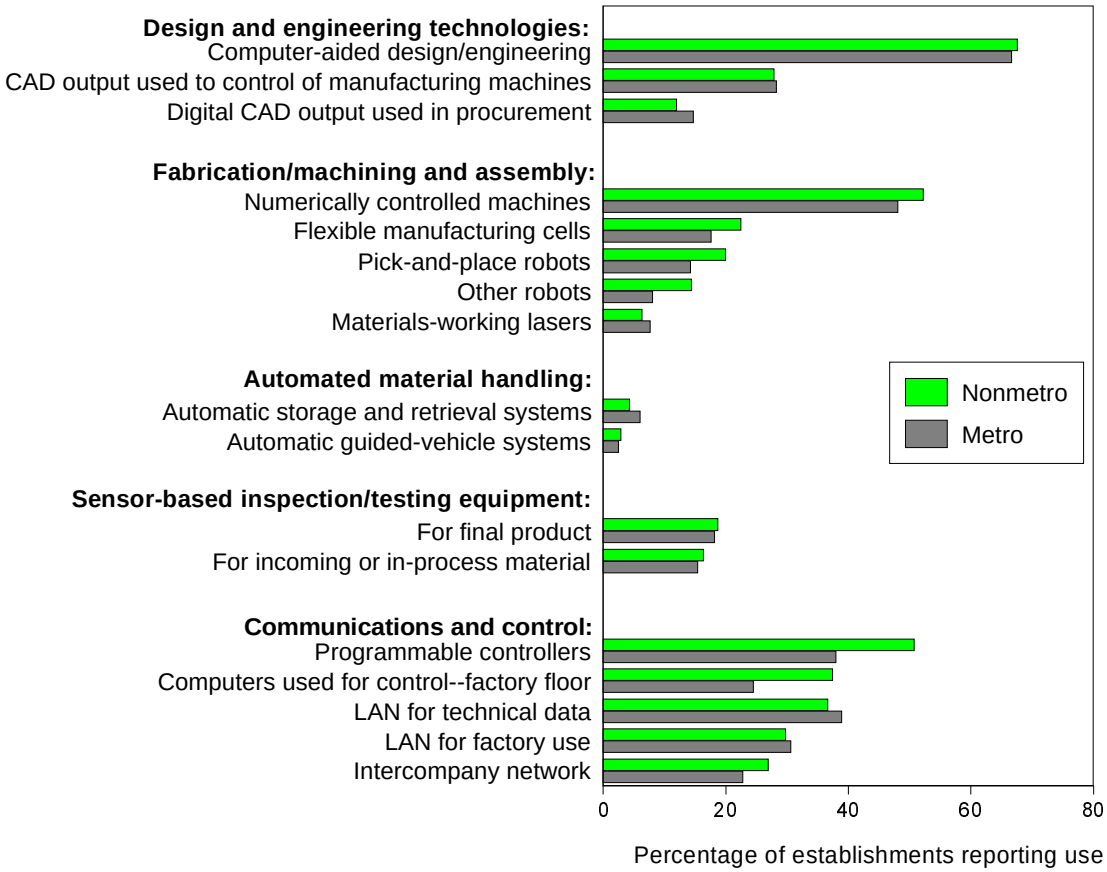
Technology use by metro and nonmetro manufacturing establishments, selected industries, 1993

Nonmetro manufacturers' use of technology equals or exceeds use by metro plants



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Source: ERS analysis of *Survey of Manufacturing Technology* data provided by U.S. Bureau of the Census.

Cost Is the Biggest Barrier to Adoption

There is some concern that rural manufacturers may be at a disadvantage in finding out about and implementing new technologies, due to their relative isolation and the lower education and/or skill levels of rural workers. However, the 1991 Census Bureau survey of the selected industries suggests that these factors play a minor role in slowing adoption by nonmetro plants, while costs seem to be the dominant barrier. Cost of equipment was identified most often as a barrier to adoption by both metro and nonmetro plants, followed by cost of software. Cost of equipment was identified by 38.6 percent of nonmetro plants surveryed as a barrier to adoption of fabrication and/or machining technologies. For design/engineering, materials handling, and inspection/quality control technologies, cost of equipment was reported as a barrier by about 30 percent of nonmetro plants. The share of nonmetro plants identifying software cost as a barrier ranged from 12.5 percent for materials-handling technologies to 19.0 percent for design and engineering. Cost of education and training was identified as a barrier to use of materials handling technologies by only 7.8 percent plants, and between 10 and 12 percent for other technology categories. The share of nonmetro plants reporting lack of skilled work force as a barrier ranged from 5.6 percent for materials-handling technologies to 12.5 percent for fabrication and/or machining. There was no significant difference between metro and nonmetro plants in the selected industries in the importance of cost of education and training, but lack of skilled work force was reported more frequently as a barrier by nonmetro manufacturers than metro manufacturers. Information-related barriers seem to be more common for nonmetro manufacturers, but were identified as a barrier by fewer than 5 percent of respondents. Lack of information on technology was reported by a significantly greater percentage of rural plants than urban in three of the four technology areas. Lack of technical support from vendors is another minor barrier that is more important for nonmetro firms.

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For three of the four groups of technology types, quality improvement was the most-often-identified benefit of new technologies by both metro and nonmetro plants in the selected industries, followed by labor cost reduction. These two benefits were reversed in importance for materials-handling technologies. The most noticeable metro-nonmetro differences were for fabrication/machining technologies. Nonmetro plants reported quality improvement, labor cost reduction, flexibility increase, setup time reduction, and inventory reduction as important benefits more often than metro plants.

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Rural manufacturing is composed largely of mature industries with standardized, labor-intensive production processes, while newer, innovative industries are concentrated in urban areas where access to information and markets is greater. The nonmetro industry mix could change, however, as new telecommunications and information technologies improve the flow of information to rural areas. This would reduce the isolation of nonmetro locations, allowing them to compete with metro areas for a greater range of manufacturing activities, including more of the newer innovative and complex processes that often provide jobs with higher skill demands and higher pay.

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Trade liberalization through NAFTA, GATT, or other means erodes the cost advantage enjoyed by nonmetro areas in labor-intensive industries like apparel and shoe manufacturing that have been an important component of rural manufacturing, by exposing them to additional competition from Pacific Rim and Latin American countries with even lower costs. On the other hand, nonmetro U.S. locations are becoming more attractive to manufacturers from high-wage countries. We have already seen Japanese and German firms building new plants in U.S. rural locales to take advantage of lower wage rates and other costs, and to gain access to the North American market. Additionally, markets for products that make intensive use of raw materials in which the United States may have a cost advantage, such as food and forest products, may be expanded by liberalized trade. *[Fred Gale, 202-219-0594, fgale@econ.ag.gov]*

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The 1991 SMT asked manufacturing establishments to identify their three most important barriers to adoption of four broad groups of advanced technologies: design/engineering, fabrication/machining, materials handling, and inspection/quality control.

Manufacturing Jobs Continued to Shift to Nonmetro Areas in 1993

Lower labor costs are probably one of the reasons for the stability of nonmetro manufacturing jobs while metro manufacturing jobs decrease. Manufacturing wages in nonmetro plants are 25 percent lower than metro wages, and nonmetro output per worker is 23 percent lower. However, a comparison of technology use in five technology-intensive industries shows little metro-nonmetro difference.

The nonmetro share of manufacturing employment rose steadily from 20 to 23 percent during 1985-93. Metro manufacturing jobs declined in all but 1 year over that period, while nonmetro manufacturing employment grew or remained stable in each year except the 1990-91 recession period. From 1992 to 1993 (the most recent years for which metro-nonmetro data are available), nonmetro areas added 90,000 manufacturing jobs, while metro areas lost 61,000. Nearly all of the nonmetro manufacturing job growth was in three regions: the Southeast, Great Lakes, and Plains. The nonmetro Southwest and Rocky Mountain regions added 7,000 manufacturing jobs each, while the New England, Mideast, and Far West experienced small job losses. Manufacturing is an important source of employment for nonmetro economies, accounting for 16.8 percent of jobs. The Southwest, Rocky Mountain, and Far West nonmetro regions are least dependent on manufacturing, while manufacturing dependence is highest in the Southeast and Great Lakes nonmetro regions.

National employment data for 1995 suggest that the rise in nonmetro share of manufacturing employment may have slowed during 1995, as most rural-oriented industries lost jobs or grew slowly. Employment in textiles and apparel fell 7 percent and 2.5 percent, respectively, and employment fell less than 1 percent in the furniture and paper products industries. Jobs in food processing and lumber and wood products grew by less than 1 percent in 1995. Most manufacturing job growth in 1995 was in fabricated metal products, industrial machinery and equipment, and electronic equipment. These industries are largely urbanized, but still account for about 20 percent of nonmetro manufacturing jobs.

Nonmetro Manufacturers Lag in Wages and Productivity

Manufacturing firms are often attracted to nonmetro locations by proximity to raw materials, a more hospitable regulatory environment, and cost advantages. As a result, nonmetro manufacturing has been concentrated in mature low-wage, labor-intensive manufacturing industries with standardized production processes. The labor cost advantage of nonmetro areas is evident in a comparison of nonmetro and metro manufacturing salary and wages per worker from the 1992 Census of Manufactures, which shows that nonmetro wages averaged only 75 percent of metro wages. Three of 20 major industries had nonmetro-metro wage ratios of less than 70 percent, four had ratios of 70-79 percent, and six had ratios of 80-89 percent. Only the paper and allied products industry paid higher average wages in nonmetro plants than in metro plants, and the ratio of nonmetro to metro wages was 90 percent or more in lumber and wood products (97 percent), textile mill products (95 percent), rubber and miscellaneous plastic products (94 percent), stone, clay, and glass (91 percent), and primary metal industries (90 percent). Wages are lowest in apparel and leather products industries (under $15,000 per worker), and highest in petroleum and coal products ($37,300), paper ($35,500), and chemicals industries ($34,500).

Lower nonmetro average wages can be attributed to several factors, including a nonmetro industry mix more heavily concentrated in low-wage/low-productivity industries, concentration of nonproduction workers such as office workers, (who usually have higher wages) in metro areas, and generally lower labor costs in rural areas. Labor productivity, considered by economists to be a key determinant of wages, is lower in nonmetro manufacturing plants, but this seems to explain only part of the difference in wages. On average, manufacturing value-added per nonmetro worker is only 77 percent of value-added per metro worker, just 2 percentage points higher than the ratio of nonmetro to metro wages. However, when nonmetro and metro plants in the same industry are compared, a brighter picture of nonmetro productivity emerges. Nonmetro value-added per worker exceeds metro values in five major industries—textile mill products, lumber and wood products,

paper and allied products, rubber and miscellaneous plastics, and miscellaneous manufacturing industries. Seven other industries have nonmetro-metro productivity ratios of 90 to 99 percent. Six industries have nonmetro-metro productivity ratios of 80-89 percent, and only three industries have ratios less than 80 percent.

The ratio of overall nonmetro to metro productivity is lower than individual industry comparisons due to concentration of low-productivity industries in nonmetro counties. For example, the textile, apparel, lumber and wood products, and furniture industries, with relatively low productivity, make up nearly 30 percent of nonmetro manufacturing employment, but only 12 percent of metro manufacturing employment. When average nonmetro value-added per worker is computed using the metro distribution of employment by industry, the nonmetro-metro productivity ratio rises from 77 to 85 percent. Thus, lower overall average nonmetro productivity is due to a combination of the nonmetro industry mix and generally lower productivity of nonmetro plants compared with metro plants in the same industry.

Manufacturing employment in nonmetro and metro counties, 1993

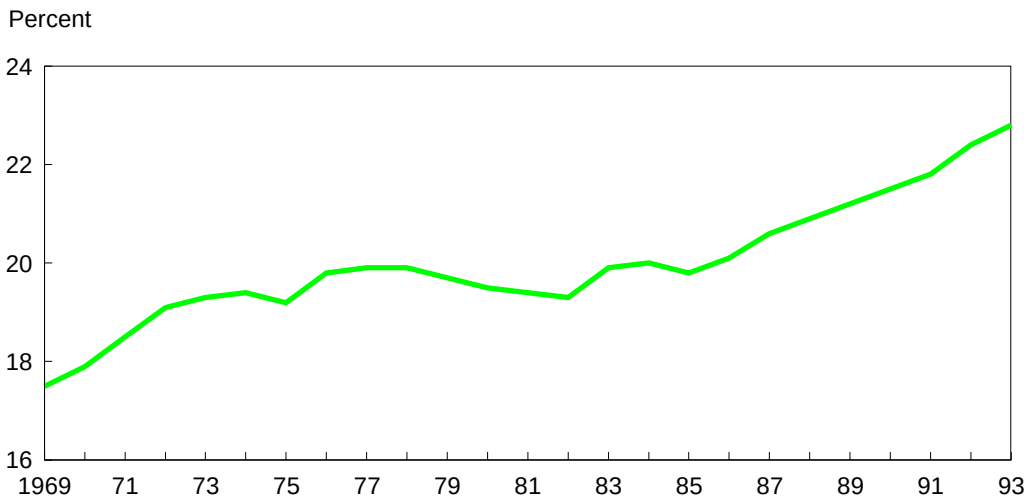
Most nonmetro manufacturing job growth was in the Great Lakes, Plains, and Southeast regions

	Manufacturing employment 1992-93		Growth	
Region	Nonmetro	Metro	Nonmetro	Metro
			Thousands	
All regions	4,274	14,463	90	-61
New England	162	948	-1	-24
Mideast	285	2,499	-3	-53
Great Lakes	861	3,325	26	22
Plains	544	898	21	2
Southeast	1,894	2,884	35	35
Southwest	223	1,219	7	24
Rocky Mountain	121	308	7	7
Far West	184	2,380	-2	-74

Source: Calculated by ERS using data from the Bureau of Economic Analysis.

Nonmetro share of manufacturing employment, 1969-93

Manufacturing jobs shifted to nonmetro areas from 1985 to 1993



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Nonmetro Plants Keep Pace in Technology Use

Use of advanced technology boosts manufacturing productivity and competitiveness by reducing labor costs, increasing worker productivity and product quality, and increasing flexibility and responsiveness to market changes. By making workers more productive and increasing the complexity of manufacturing jobs, technology use can also lead to higher wages for manufacturing workers. Some observers are concerned that rural manufacturers may fall behind their urban counterparts in use of advanced technology. ERS analyzed technology use in six manufacturing industries surveyed by the Census Bureau (see box). In these technology-intensive industries representing a third of nonmetro manufacturing employment we find little difference in technology use between metro and nonmetro manufacturers. In fact, rural firms lead metro firms in adoption of four out of five fabrication/machining and assembly technologies, including flexible manufacturing cells or systems, numerically controlled machines, and robot use, and in the use of several communication and control technologies. Use of computer-aided design and engineering (CAD/CAE) by nonmetro manufacturers in the selected industries increased rapidly from 45 percent in 1988 to 68 percent in 1993, about the same percentage of use reported by metro manufacturers. CAD/CAE was the technology whose use was reported most often by both metro and nonmetro plants, followed by numerically controlled machines at nearly

Comparison of metro and nonmetro labor productivity and wages, 1992

Labor productivity and salaries and wages are lower in nonmetro manufacturing establishments than in their metro counterparts

Standard industrial code	Industry	Share of nonmetro manufacturing employment	Value-added per worker		Average annual salary and wages per worker	
			Nonmetro average	Ratio of nonmetro to metro	Nonmetro average	Ratio of nonmetro to metro
		Percent	$1,000	Percent	$1,000	Percent
20	Food and kindred products	11.8	74.5	64	20.1	76
21	Tobacco products	.1	337.3	44	27.3	65
22	Textile mill products	7.4	49.5	104	19.6	95
23	Apparel and other textile products	9.2	32.1	81	13.5	80
24	Lumber and wood products	9.5	52.6	109	20.9	97
25	Furniture and fixtures	3.7	45.3	91	19.5	87
26	Paper and allied products	4.7	110.1	122	35.5	113
27	Printing and publishing	5.1	55.1	70	19.8	69
28	Chemicals and allied products	3.2	175.8	90	34.5	89
29	Petroleum and coal products	.4	177.9	84	37.3	84
30	Rubber and miscellaneous plastic products	5.8	65.8	103	24.2	94
31	Leather and leather products	1.0	41.6	89	14.8	75
32	Stone, clay, and glass products	3.2	73.0	99	26.1	91
33	Primary metal industries	3.4	72.7	91	30.8	90
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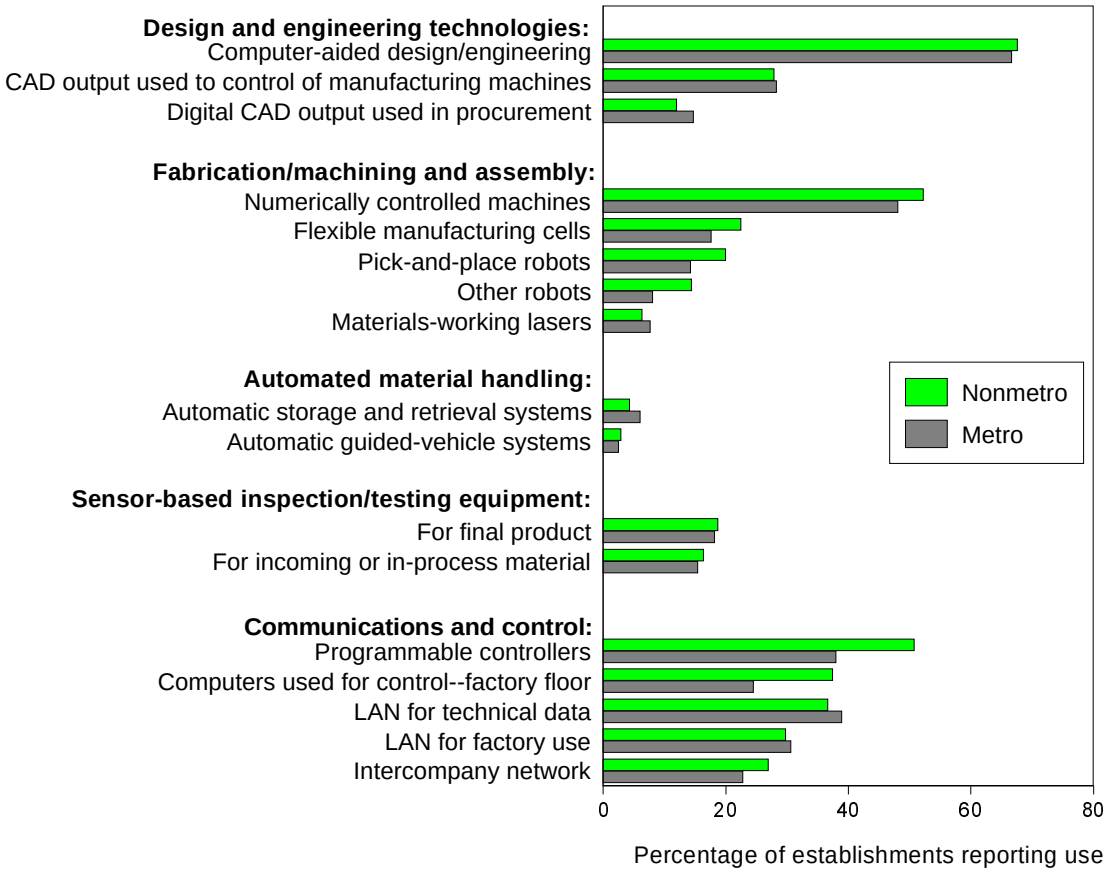

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Retail Industry Adds 98,000 Nonmetro Jobs Annually During 1988-93

The diverse, fast-growing retail industry is today characterized by centralization and concentration. The share of sales by chains of 10 or more stores has risen to 46 percent, and an average of about 25 percent of retail sales leak from rural counties to those with larger towns.

Nonmetro employment in retail trade grew steadily at 2-3 percent annually during 1988-93, adding an average of 98,000 jobs per year. For 1994 and 1995, a metro-nonmetro breakdown of employment is not yet available, but national retail employment grew 3 percent in 1994 and 2 percent in 1995, suggesting continued growth in both metro and nonmetro counties. Retail trade is the second-largest source of nonmetro employment, accounting for 4.3 million jobs and 17 percent of nonmetro employment in 1993, second only to the service industry's 21.5 percent share. Nonmetro retail employment grew at a slightly faster rate than metro retail employment every year from 1988 to 1993. Many nonmetro retailers have benefited from U.S. consumers' increasing demands for convenience, ease-of-access, and price competitiveness from retailers, which led to a shift of retail trade away from central city business districts and large suburban regional malls to more accessible exurban areas and strip malls, discount warehouse stores, and outlet centers.

The retail sector includes a diverse mix of retail business types. Eating and drinking places are the most numerous type of retail establishment and the largest employers, with an average of 38 establishments and 453 employees per nonmetro county. Most eating and drinking establishments are small businesses, averaging 12 employees and sales of $327,000 per nonmetro establishment in 1992, compared with the average of $944,000 per establishment for all nonmetro retail establishments. Nationally and undoubtedly in nonmetro areas many employees of eating and drinking establishments are part time. Nationally, they average 25 hours per week, and have low wages, averaging $5.54 per hour in 1995. Food stores, auto dealers, and general merchandise stores generate the most sales. These three sectors together accounted for 56 percent of total nonmetro retail sales in 1992. Food stores generated an average of $1,430 per county resident in 1992, followed by gasoline stations-convenience stores at $1,250 per person, and general merchandise stores at $870 per person. Nationally, automotive dealers and furniture and home furnishings stores had the fastest rates of employment growth from 1992 to 1995, in excess of 15 percent. Other retailers with fast employment growth include building materials and garden supply stores (12.2 percent) and eating and drinking establishments (9.0 percent). Low interest rates apparently spurred purchases of durable goods and materials for home improvement projects, leading to growth for auto dealers, home furnishings stores, and lumber yards, while growth of sales at retail outlets selling nondurables was weak or nonexistent, as apparel and accessory stores lost employment and drug and proprietary and general merchandise store jobs grew only slightly. The continuing trend toward eating out contributed to growth in employment at eating and drinking places. The national growth rate for retail employment of 6.8 percent from 1992 to 1995 was slower than overall growth for private sector employment (8.2 percent) over that period. If the trends of the early 1990's continued over this period, nonmetro retail employment may have been about 1 percentage point higher than the national rate.

Retail Sector Employs Low-Skill Workers, Provides Labor Market Flexibility

Retail jobs are often disparaged for being largely part time, low-wage, "hamburger flipper" jobs, often lacking benefits. Data on hourly wages and weekly hours seem to bear this out. U.S. averages for 1995 show that retail workers averaged about 29 hours per week on the job, considerably less than a 40-hour week. Average hourly retail pay was $7.63, which was $3.75 less than the average for all private workers ($11.38 per hour). Among individual retail industries, new and used car dealers had the highest hourly earnings ($13.03), while eating and drinking places had the lowest ($5.54 per hour). Low wages for retail jobs reflect low skill requirements and relatively low levels of service, or value-added, involved in selling merchandise, food, and drink to consumers. The part-time and low-wage nature of retail jobs reflects the need for flexibility in the retail workforce, which

includes many students, retirees, mothers with young children, and multiple job-holders. These workers change jobs frequently, are often marginally attached to the labor force, are frequently not the primary earner in their households, and need flexible hours. Retail jobs often provide an entreé to the labor market for workers with little experience, training, or education, whom other employers might be reluctant to hire. Thus, retail businesses are an important source of jobs in rural areas for unskilled or inexperienced workers, and retail employment has replaced farm work as the initial labor market experience for most rural youth.

Profile of the average nonmetro county's retail sector, 1992

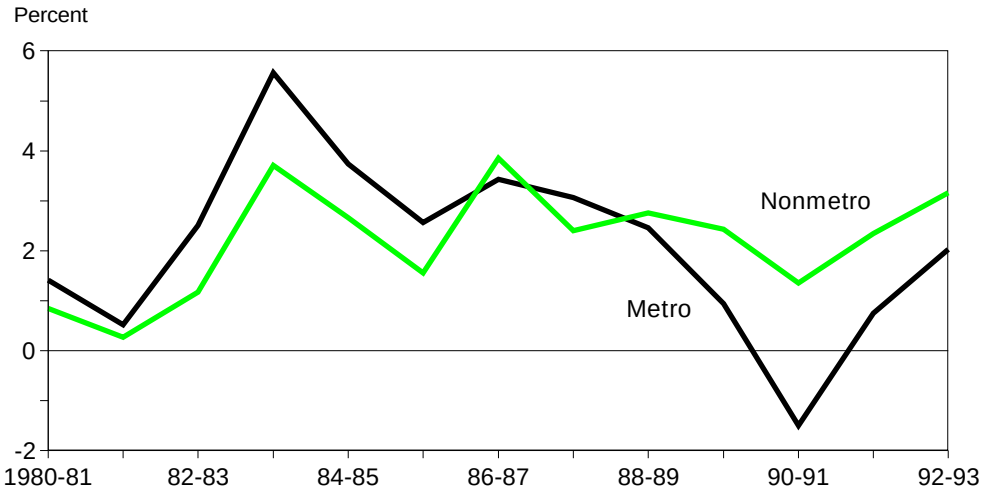
Eating and drinking places are the most numerous type of retail establishment, but food stores and auto dealers get the largest share of retail dollars

Retail industry	SIC code	Establishments	Employees	Sales per county resident[1]
		Number		Dollars
Building materials and garden supply	52	9	63	410
General merchandise	53	5	141	870
Food stores	54	20	271	1,430
Gasoline stations/convenience	554	13	107	1,250
Automotive dealers	55 (ex.554)	12	71	580
Apparel and accessory stores	56	11	63	230
Furniture and home furnishings	57	9	44	200
Eating and drinking places	58	38	453	560
Drug and proprietary stores	591	5	46	260
Miscellaneous retail stores	59 (ex. 591)	26	115	490
All retail	52-59	147	1,372	6,280

[1]Retail sales divided by county population. Column does not add to total due to rounding.
Source: Calculated by ERS using data from the 1992 Census of Retail Trade.

Annual growth in retail employment

Retail employment growth was faster in nonmetro counties during the early 1990's



Source: Calculated by ERS using data from the Bureau of Economic Analysis

Chains Increase Their Share of Retail Sales

Considerable controversy has been generated by the success of Wal-Mart, the first big chain to cultivate the rural retail market. Other chains have followed Wal-Mart into the long-ignored rural market, leading to concerns about the health of many smalltown business districts, which have traditionally relied on small, independently owned retail businesses. Data on sales by chain and nonchain stores are not available for nonmetro areas, but nationally the share of retail sales by chains with 10 or more establishments rose from 42 to 46 percent between 1987 and 1992, according to the Census of Retail Trade. Chains of 10 or more stores account for nearly all general merchandise store sales, 71 percent of apparel store sales, and 64 percent of sales by food stores and drug stores. However, chains are least dominant in auto dealerships (3 percent of sales), eating and drinking places (35 percent), furniture stores (36 percent), and building materials and supplies stores (39 percent). The growth of chains has contributed to the trend toward concentration of retail trade in larger, centrally located towns. Smaller, less accessible communities are generally not attractive locations for chain stores. These communities are often served by small, independent establishments, but this category of retail stores is shrinking. Single-unit retailers, including the "mom-and-pop" stores so long a part of the rural landscape, made up over 90 percent of retail establishments in 1992, but accounted for only 40 percent of retail sales in 1992, down from 43.5 percent in 1987.

Estimated Nonmetro Retail Sales Leakages Average 25 Percent

Concentration of retail trade in large centralized towns and cities makes it a challenge for many small communities and rural counties to maintain a viable retail sector. Community leaders want to ensure that the retail spending of their community's residents stays inside the community, stimulating additional economic activity and preserving a sense of vitality in the community. Analysis of Census of Retail Trade data for all U.S. counties in 1987 and 1992 indicates that, on average, residents of nonmetro counties without a major "trade center" town make about 25 percent of their retail purchases outside their county of residence. The rate of leakage varies considerably, however. About 18 percent of counties without a trade center town lost more than half of their retail sales to other counties, while another 20 percent of non-trade center counties had no sales leakage. Sales leakage is highest in the sparsely populated Plains region extending from North Dakota to Texas (averaging over 35 percent), and lowest in the Northeast (averaging 8 percent). Between 1987 and 1992, average sales leakage declined slightly in most parts of the United States, but increased in the Plains region, where retail trade is becoming more concentrated in larger towns.

Long-Distance Shopping Presents Opportunities and Risks for Rural Communities

Retailing may be in for big changes in coming years, as improved telecommunications change the way Americans shop. As customers increasingly shop at home using a telephone, on-line computer service, or interactive TV, retailers will begin to serve national, rather than local, markets. An early indicator of this trend is the rapid growth in mail order retailing. Between 1987 and 1992, catalog mail order was the fastest growing single retail industry, adding 550 establishments and 27,000 employees, and posting real sales growth of 46 percent (adjusted for inflation with the CPI). These developments present opportunities as well as risks for rural retail trade. Retailers in remote locations with few local customers may be able to expand their potential markets. A number of tele-marketing operations have also chosen to locate in rural areas to take advantage of low labor costs. The down side is that long-distance shopping may further erode the local retail sector in rural areas, since it will be even easier for rural residents to spend their retail dollars in other communities. In any case, rural community and business leaders need to ensure that they have the necessary infrastructure and business to compete in the changing retail marketplace. *[Fred Gale, 202-219-0594, fgale@econ.ag.gov]*

Interstate Banking and Rural America

Rural communities currently served by offices of large banks are more likely to participate in interstate banking. Through loopholes in current laws, nine States already have interstate branches. Antitrust regulations should limit reductions in the numbers of banks serving particular rural communities.

National trends toward increased bank consolidation and interstate banking will affect rural communities in the coming years, but probably less than urban communities. Relatively fewer independent rural banks will disappear since most large banks will concentrate their expansion efforts in urban financial markets. Today only about 150 rural bank branches belong to banks headquartered in other States, and most of these branches are in Maryland, South Carolina, and Virginia. Many more rural communities participate in interstate banking as a result of bank holding companies that own banks in two or more States. While bank mergers and failures have steadily reduced the number of legally separate banks over the past decade both nationally and in rural America, the average number of banking firms and offices per rural county grew slightly between 1980 and 1993. However, rural residents generally have few lenders to choose from. Over a quarter of rural counties have offices of just one or two banks, and another half have only three to five banking firms.

Interstate banking and other forms of bank consolidation may bring both gains and losses to rural communities. Fewer rural banks would mean less choice in obtaining financial services, and perhaps higher prices due to lessened local competition. While Federal antitrust guidelines for banking mitigate the likelihood in most rural markets that the number of independent banking organizations will drop, rural people often believe that outside ownership of a bank is as bad as losing the bank outright. Outsiders may not care about local businesses, or they may lack the necessary local knowledge to accurately evaluate loan requests and to identify profitable investments.

On the other hand, large outside banks may provide a wider range of financial services. They have geographically diversified loan portfolios that are less sensitive to local economic downturns. Outside banks may be more inclined to accept loan applications from types of businesses not previously found in that area. Loan size is less likely to be an issue because outside banks generally have large capital stocks to support larger loans. Large banks may be more familiar with government loan programs that can be used by people who do not qualify for conventional credit. And some outside owners maintain local managers because they value their knowledge of local markets.

Bank consolidation is a response to various forces that are buffeting financial markets. Large banks believe they must grow even larger to better compete in what has become a global financial market. Size brings the promise of cost efficiencies, the ability to serve larger customers and to provide a wider range of services, protection from local economic problems through geographic diversification, and less chance of being taken over by another bank. Rural banks will not be in the forefront of this process, but no longer can they or their customers afford to ignore the broader financial markets. Many rural financial markets will at least see indirect effects as the existing outside bank is taken over by an even larger outsider. Employment in banking will also decline as a result of consolidation.

Interstate Banking Will Spread Under 1994 Act

Interstate banking has received substantial media attention over the past year, stemming from the Interstate Banking and Branching Efficiency Act of 1994 and from announcements of mergers between large banks. The legislation extends interstate banking in two steps. As of September 1995, bank holding companies could acquire banks in any State. In June 1997, holding companies will be able to convert their out-of-State bank affiliates to branches of the lead bank provided the affected State does not pass legislation to prevent this.

A loophole in Federal legislation made interstate banking a reality even before the 1994 legislation was passed. A State may permit banks headquartered in that State to be acquired by bank holding companies based in other States as long as they do not

become branches of holding company affiliates in different States. That is, an acquired bank might have branches in its State, but those branches could not legally be transferred to affiliates controlled in other States. Most States permitted such acquisitions by the time the 1994 law was signed, some with restrictions which the new act repeals. State rules still hold with respect to limits such as the proportion of total State banking deposits that may be controlled by a single banking organization.

Intrastate holding company acquisitions and branching are equally important. Many rural communities will participate in interstate banking only because they already have local banking offices that are controlled by outside banking firms headquartered elsewhere in the State. Rural areas may not be targeted directly by large banking firms that are expanding in their own State or into other States. But rural offices will be part of the package when out-of-State banks acquire major banking firms within the States that already control rural bank affiliates or own rural branches. In some cases, the large bank may try to spin off rural offices that do not fit its strategic plan, by selling them to other banks or to local investors. Regulators often require this sale if the acquiring bank

Complex Organization Characterizes American Banking System

In addition to commercial banks, the U.S. has a variety of financial institutions, such as savings and loan associations, credit unions, and Federal and State savings banks. Many nondepository institutions also provide financial services, including finance companies, the Farm Credit System, brokerage firms, and insurance companies. This article is limited to commercial banks with Federal insurance.

The American dual banking system is a complex one. A bank may obtain a national or State charter. Both Federal and State regulators and laws play roles in determining permissible behavior by a particular bank. Most banks receive deposit insurance through the Federal Deposit Insurance Corporation (FDIC). National banks typically are authorized to do whatever a State allows its State-chartered banks to do in terms of branching and providing certain financial services. Dual banking is given credit for many financial innovations over the past 20 years, such as interest-paying checking accounts, as State or Federal regulators test new products or extend regulations in new areas.

A bank holding company (HC) owns one or more commercial bank affiliates. These affiliates are legally separate banks; each has its own charter and board of directors, and must file quarterly financial reports to its regulator. HC's are regulated by the Federal Reserve Board (Fed). A multibank holding company (MBHC) owns at least two bank affiliates. Initially, this was a method of surmounting branching restrictions within a State, and more recently permitted HC's to extend their operations to other States. A second advantage to forming a holding company explains why many HC's control a single bank. A variety of financial services may be provided through HC subsidiaries but not directly by a bank.

Chain banks, in which the same investors own two or more banks without forming an HC around them, represent an alternative method of getting around branching restrictions within or across State boundaries. Chains avoided Fed regulation over HC's. But the Fed is now involved anyway whenever ownership of a bank changes. With the trend toward liberalized State branching laws, many chains have reorganized as HC's.

At one time, many States prohibited bank branching entirely, or severely limited the number of branches and their locations. This reflects the traditional American fear of concentration of economic power. Some States placed similar restrictions on MBHC expansion, not allowing MBHC's to circumvent branching constraints. By today, however, most States have much more liberal branching regulations. When an MBHC purchases a bank in another State, prior to 1997 that bank cannot be converted to a branch of the lead bank. But the acquired bank may have branches in its State, and the HC may merge banks if it owns more than one in the same State (depending on State regulations). Hence thousands of branch offices are controlled by out-of-State holding companies, but they are not (yet) interstate branches in the formal sense of being directly owned by a bank in another State.

already has its own offices in the rural market. Otherwise, the parent banking organizations will likely reorganize in 1997 and convert their affiliated banks and branches to interstate branches. Some of these banks are already touting the ease with which customers will be able to deal with branches throughout the region or country.

Currently independent rural community banks will not necessarily remain immune to the new wave of consolidation. Some regional and super-community banks have expansion strategies based on acquiring well-run community banks in growing communities. And many community banks may choose to join larger firms, to provide a wider range of services to their customers or perhaps to reward their shareholders if a prospective partner offers a premium over the current market value of the bank's stock.

Some Cases Exist Now, but Interstate Branching Will Really Take Off in 1997

Interstate branching does not become legal under the 1994 legislation until June 1997, but banking regulations are occasionally stretched to create interstate bank branches. This has happened during the past year or so through a loophole in legislation that allows national banks to move their headquarters up to 30 miles at a time. The loophole involved the recognition that the legislation neglected to address the technical issue of crossing State boundaries. Moving its headquarters into a neighboring State transforms those branches left behind in the original home State into interstate branches. Exceptions made while cleaning up the remains of the S&L disaster represent a second possible source of interstate branches. On the grounds of disposing of failed financial institutions at the lowest cost, regulators were granted legislative authority to permit combinations of financial institutions that otherwise would not have been allowed. States may also pass legislation permitting interstate branching prior to 1997.

At one time, some aggressive banks evidently intended to leapfrog their way across the country in 30-mile jumps to create interstate branching empires. Several banks may continue to use this process in selected markets to get a head start, but the 1994 legislation makes this unnecessary provided that few States take the opportunity to opt out of the interstate branching portion of the 1994 legislation. Texas is the first State to block the interstate branch option. Numerous large Texas banking firms failed in the 1980's and were taken over by out-of-State banks. Whether valid or not, many Texans believe that the new owners have refused to make loans in Texas, and therefore do not want to encourage additional outside bank entry into their State.

The Federal Reserve Board database as of November 15, 1995, contained 2,129 interstate branches, including 150 in rural counties. These branches were controlled by only 35 banking organizations. Two banks owned two-thirds of all interstate branches. The rural interstate offices were primarily in Maryland, South Carolina, and Virginia. The number of interstate branches would be considerably larger if savings and loans and other depository financial institutions were counted.

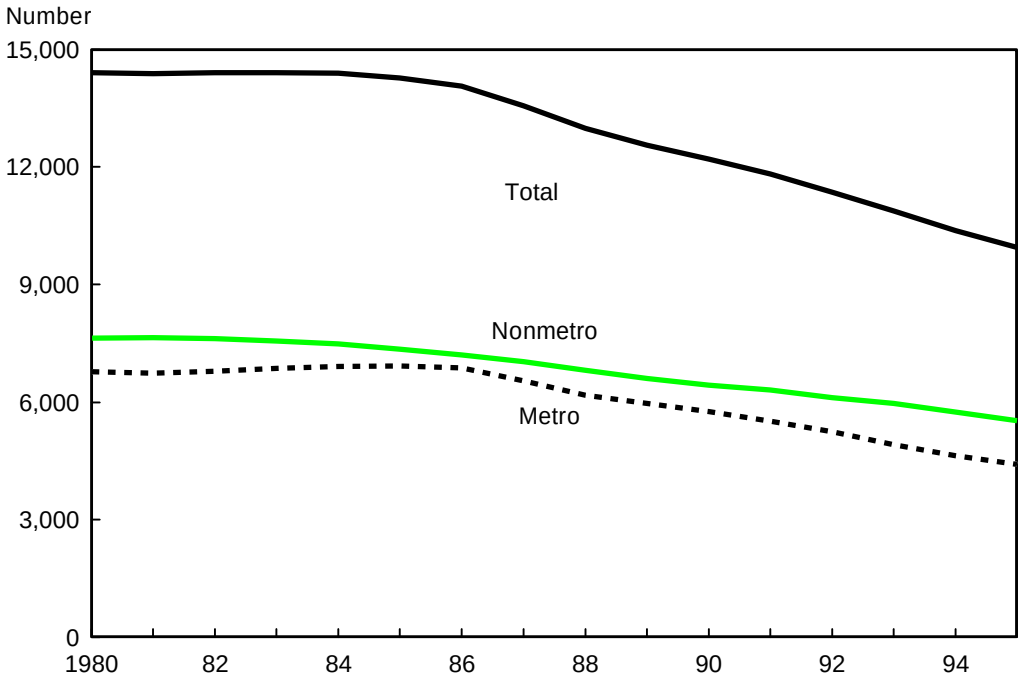
Rural Financial Markets: Past, Present, and Future

The number of U.S. banks has declined since 1980, especially over the past decade. This decline has been more gradual in rural counties and has been partly offset by a rise in bank offices per county. Local economic conditions and bank laws have also been important influences on the numbers of banks in individual States, as can be seen in Texas. Since banks could not branch in Texas until the late 1980's, a strong economy led to many new banks being chartered in the first part of the 1980's. Later, in response to severe problems in the energy and agricultural sectors, Texas banks declined more rapidly in number than in the country overall. This was facilitated when Texas began to permit holding companies to merge their bank affiliates at the local level.

The numbers of different banking firms and bank offices available to residents of the average rural county are well below those available to residents of the average urban county. Nevertheless, the average numbers of banking firms and offices serving rural counties

Number of insured commercial banks by location, 1980-95

The number of banks has been dropping since 1986

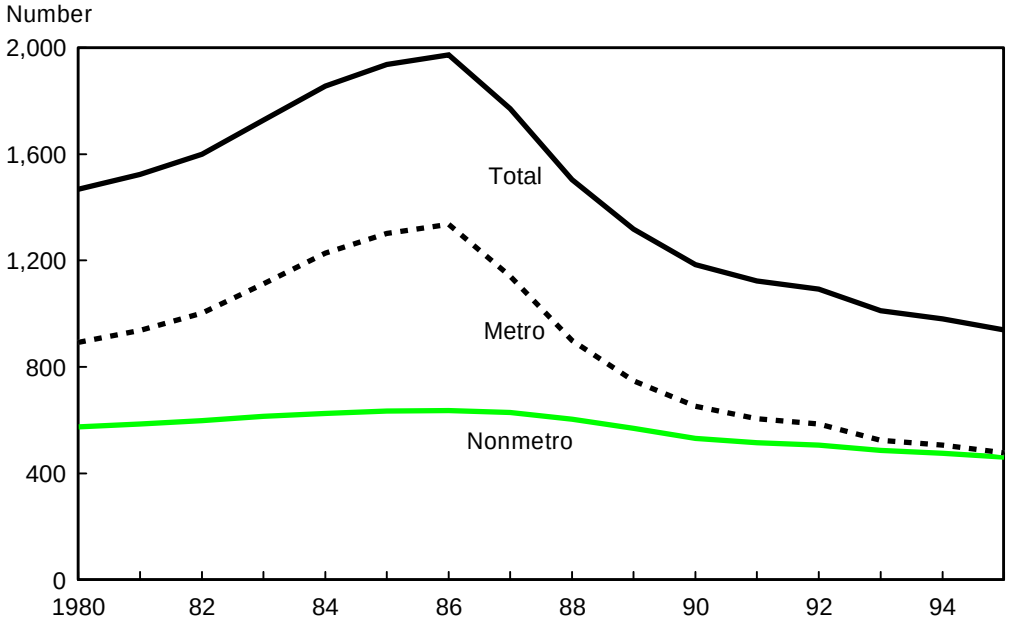


Note: End of year data, except for October 31, 1995.

Source: Calculated by ERS from the Federal Reserve Board's NIC database.

Number of insured Texas commercial banks by location, 1980-95

The number of banks grew until 1986 and then declined rapidly due to failures and changes in Texas bank branching laws



Note: End of year data, except for October 31, 1995.

Source: Calculated by ERS from the Federal Reserve Board's NIC database.

actually increased slightly between 1980 and 1993. While nationally the number of banks has declined, this has not reduced the number of different banks in rural counties.

The number of banks will continue to drop in the coming years. However, as in the past much of that will be due to holding companies converting bank affiliates to branches as laws permit and as they decide cost savings from branches outweigh the benefits of maintaining a local identity for their affiliated banks. Perhaps as many as a dozen banks will extend their operations to large parts of the country, but that does not mean they will have an extensive network of rural offices. Thousands of community banks will continue to compete in rural areas. *[Daniel Milkove, 202-219-0318; dmilkove@econ.ag.gov]*

Interstate branches of insured commercial banks in selected States by branch location, November 15, 1995

Interstate branching exists, but only in a few nonmetro areas so far

State	Nonmetro	Metro	Total
	Number		
Connecticut	0	76	76
District of Columbia	0	47	47
Illinois	0	20	20
Kansas	0	20	20
Kentucky	3	39	42
Maryland	30	361	391
New Jersey	0	542	542
New York	9	195	204
Pennsylvania	6	263	269
Rhode Island	0	13	13
South Carolina	55	172	227
Tennessee	1	1	2
Virginia	42	204	246
West Virginia	2	2	4
Wisconsin	2	1	3
Other States[1]	0	23	23
Total	150	1979	2129

Note: Both the branch and its head office are in the 50 States or D.C.; banks or branches in Puerto Rico, Guam, etc., are excluded. The table only includes those States with at least 1 nonmetro branch belonging to an out-of-State bank, or with at least 10 metro interstate branches.

[1]These States, with metro interstate branches in parentheses, are Arkansas (3), Colorado (1), Georgia (1), Iowa (6), Missouri (7), Oregon (1), Texas (1), and Washington (3).

Source: Calculated by ERS from the Federal Reserve Board's NIC database.

Metro and nonmetro county banking markets

Nonmetro counties average fewer banks than metro counties

Bank market characteristics	Metro		Nonmetro	
	1980	1993	1980	1993
	Number			
Counties with one or more bank offices	713	835	2,356	2,278
Banking firms per county	10.6	10.7	4.1	4.2
Bank offices per county	45.6	52.7	7.3	8.3
	Percent			
Counties served by:				
1-2 banking firms	5.6	4.2	31.1	27.4
3-5 banking firms	24.0	22.0	45.8	48.3
6-9 banking firms	31.4	33.9	18.9	20.9
10 or more banking firms	39.0	39.9	4.1	3.4

Source: Calculated by ERS from the Federal Deposit Insurance Corporation's Summary of Deposits database for June 30, 1980 and 1993.

Average earnings, weekly hours, and employment growth, U.S. retail industries

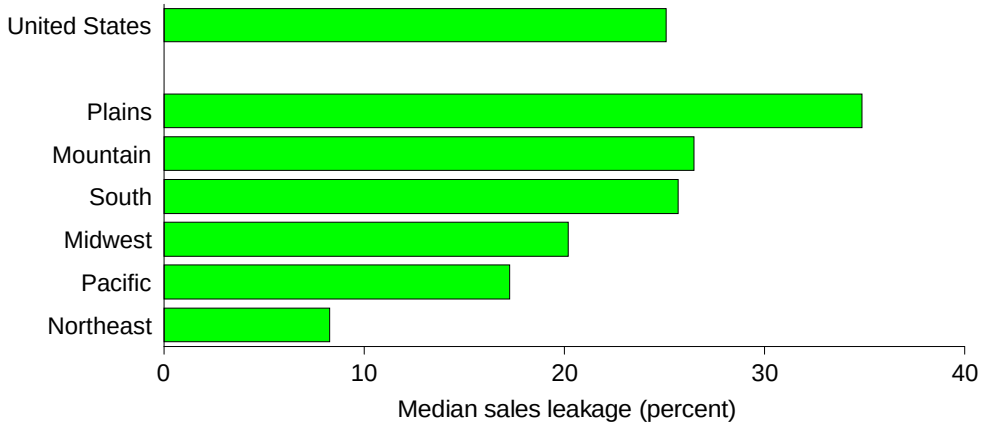
Retail jobs tend to have low pay and part-time hours

Retail Industry	SIC code	Hourly earnings[1]	Weekly hours[1]	Employment growth 1992-95[2]
		Dollars	Hours	Percent
Building materials and garden supply	52	8.97	35.7	12.2
General merchandise	53	7.51	29.2	1.1
Food stores	54	8.08	29.7	4.9
Gasoline stations/convenience	554	6.91	32.5	3.7
Automotive dealers	55 (ex.554)	10.30	35.5	13.9
Apparel and accessory stores	56	7.45	25.8	-3.9
Furniture and home furnishings	57	10.11	32.7	17.2
Eating and drinking places	58	5.54	25.0	9.0
Drug and proprietary stores	591	8.79	28.5	.7
Miscellaneous retail stores	59 (ex. 591)	8.42	29.7	4.5
All retail	52-59	7.41	28.7	6.8
Total private industry	NA	11.38	34.5	8.2

[1]Average for Jan.-Oct. 1995.
[2]Jan.-Oct. 1995 average compared with same period in 1992.
Source: Calculated by ERS using data from the Bureau of Labor Statistics.

Median retail sales leakage rate among nonmetro counties without a trade center town, 1992

Counties in the Great Plains region have the highest rate of sales leakage, while Northeastern counties have the lowest



Note: Regions include: Plains--ND, SD, NE, KS, OK, TX, Mountain--MT, ID, WY, UT, NV, CO, NM, AZ, South--VA, WV, KY, TN, NC, SC, GA, AL, LA, FL, MS, AR, Midwest--OH, IN, IL, IA, MO, MI, WI, MN, Pacific--WA, OR, CA, AK, HI, Northeast--ME, NH, VT, MA, RI, CT, NY, NJ, PA, DE, MD, DC.

Source: Estimated by ERS, based on data from the Bureau of the Census and U.S. Department of Commerce.

Government Plays Significant Role in Nonmetro Employment

Nearly 17 percent of nonmetro employment comes from Federal, State, and local government jobs. Government employment has grown steadily with population growth, especially in the South and West.

Over 4 million workers were employed by Federal, State, or local government in nonmetro counties in 1993, the latest year for which data are available. These jobs accounted for nearly 17 percent of all nonmetro employment and the total number has increased by more than 570,000 jobs since 1980. Government employment grew on average by less than 1 percent per year in nonmetro areas. Government includes executive, legislative, judicial, administrative, and regulatory activities of Federal, State, and local governments, including State and local schools, colleges, hospitals, and prisons, military bases, and headquarters of State and Federal parks and forests.

Government Plays a Large Role in Nonmetro Counties

Nearly 4.3 million, almost 20 percent of all government workers in 1993, were located in nonmetro areas. Most nonmetro government jobs, 3.4 million, are in State and local government. Over 446,000 are Federal military personnel (nearly 18 percent of all the military) and almost 400,000 are Federal civilian employees (less than 13 percent of Federal civilian jobs).

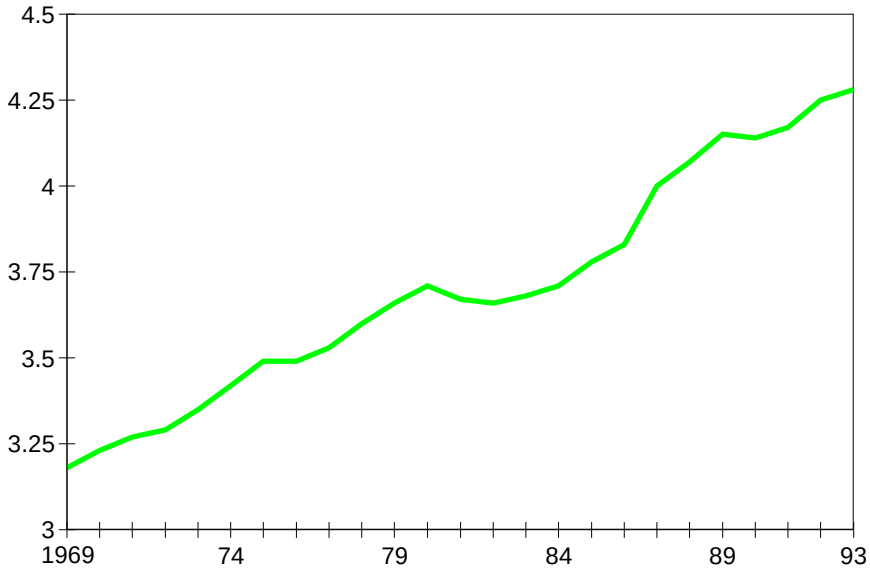
Government employment accounts for 17 percent of nonmetro employment. Earnings from government jobs amounted to $101 billion, more than 19 percent of nonmetro income in 1993. Earnings from State and local government employment contributed the largest share of government income, $80.2 billion. Federal civilian earnings added $13.8 billion, and military earnings accounted for $7 billion.

Average earnings per government job in nonmetro areas was $23,700 in 1993, which exceeds the average earnings for all industries in nonmetro areas by nearly $3,000. Federal civilian jobs were the highest paid government jobs. The $16,000 average earnings per military job was below the nonmetro average, perhaps due to the in-kind benefits and allowances military personnel receive as part of their compensation.

The Economic Research Service has classified 244 nonmetro counties as government-dependent counties. In these counties, Federal, State, and local government activities

Nonmetro government employment, 1969-93

Growth in State and local government jobs has pushed government employment higher



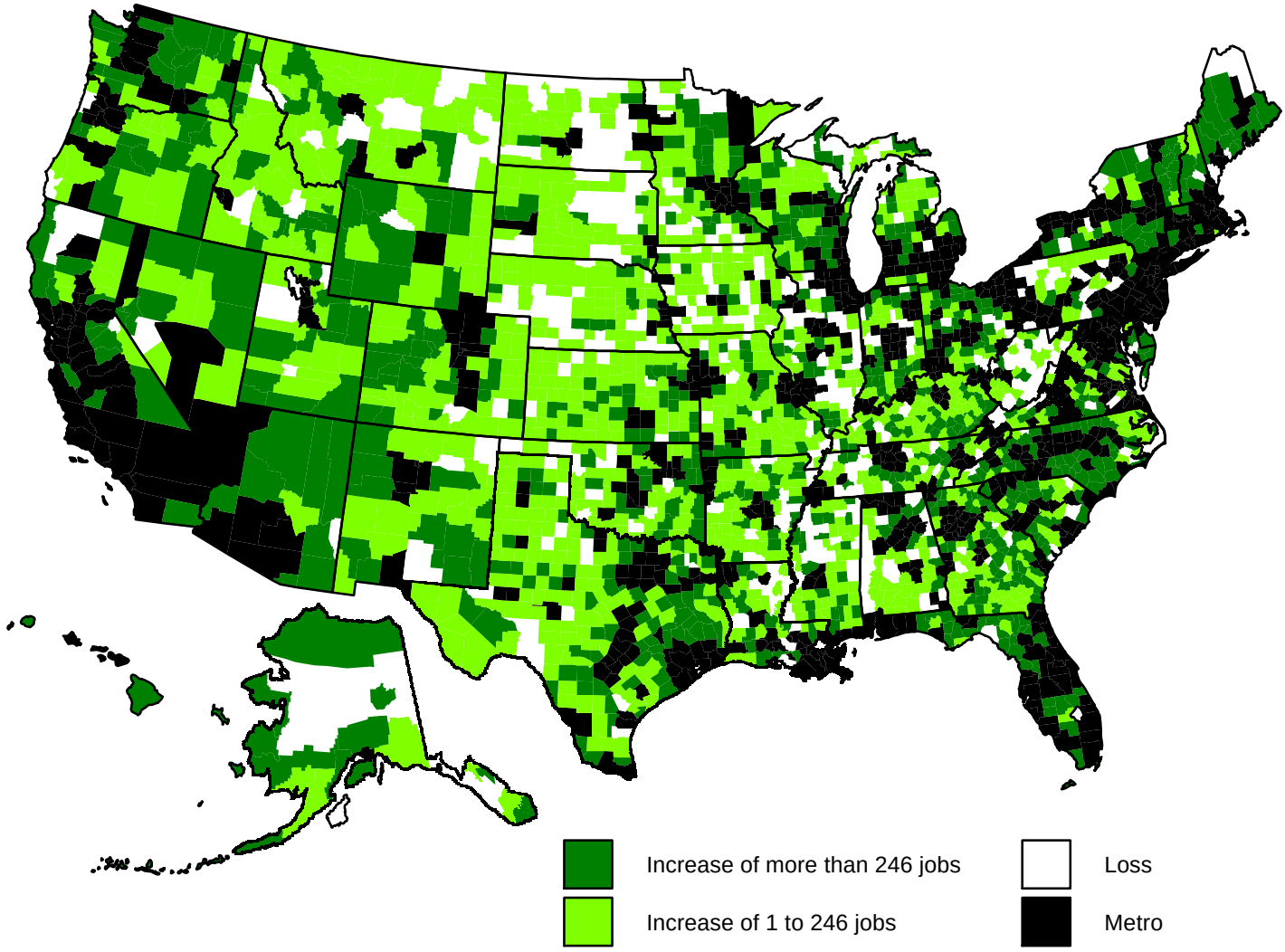
Source: U.S. Department of Commerce

are the primary economic specialization. Approximately 75 percent of government earnings in government-dependent counties were from State and local jobs. Although only a quarter of government earnings in these counties came from Federal jobs, it is a higher share of earnings than in all nonmetro counties, where almost 14 percent of government earnings come from Federal jobs.

Population increased by more than 6 percent in government-dependent counties during the 1980's, and 11 percent in western government counties. This population growth was large compared with 0.6-percent growth in all nonmetro counties. Government counties also enjoyed strong economic growth during the 1980's. While nonmetro counties overall averaged only a 3.4-percent increase in aggregate earnings, government counties aver-

Government employment change, 1980-93

The average nonmetro county gained 246 government jobs during 1980-93



Source: Calculated by ERS using data from the Bureau of Economic Analysis.

aged 11 percent. This earnings growth stemmed from government and trade/services gains of more than 610,000 jobs.

However, population and earnings growth in government-dependent counties did not translate into a higher level of economic well-being. Per capita income and per capita earnings averaged more than $1,000 lower than comparable estimates for all nonmetro counties. The disparity can be partly explained by the disproportionate number of low-income college students and military personnel in these counties.

Government Employment Is Source of Nonmetro Job Growth

Government employment increased by 2.7 million jobs from 1980 to 1993 for the Nation as a whole. Although only 21 percent of this employment increase was located in nonmetro areas, the increase in government jobs accounted for 16 percent of nonmetro employment growth during 1980-93 period. Government employment dropped slightly during the 1980-81 recession but has been steadily rising since then (see chart).

Government was the third largest contributor to nonmetro employment gains, adding 572,000 of the 3.6 million nonmetro jobs gained between 1980 and 1993. State and local government, adding more than 580,000 jobs, was the engine of nonmetro government growth. Military employment increased by over 9,000 jobs, but civilian Federal employment in nonmetro counties fell by nearly 20,000 jobs.

Some of the government employment growth can be attributed to the expanding role of rural and small-town areas in housing the prison population. More new prisons opened in nonmetro than metro areas during 1980-91, and nonmetro prisons housed nearly as many inmates as metro prisons by 1994. Nonmetro prisons employed 116,000 people in 1991, of whom 56,000 worked in facilities opened since 1980. [For more details, see C. L. Beale, “Prisons, Population, and Jobs in Nonmetro America,” *Rural Development Perspectives*, Volume 8, Issue 3, pp. 16-19.]

Military base closings have adversely affected government employment in some nonmetro areas. Since 1988, 73 major bases have been slated for closure, 17 of which are located in nonmetro areas. Fort Knox was responsible for most of the 8,480 Federal jobs lost in Hardin County, Kentucky. However, military personnel shifts caused Fort Drum of Jefferson County, New York, to gain more than 11,000 jobs. The overall increase of 9,000 military jobs during 1980-93 shows that nonmetro areas are holding their own, but individual counties where bases closed must find alternative employment opportunities. [For more details, see P. Stenberg, T. Rowley, and A. Isserman, “Economic Development After Military Bases Close,” *Rural Development Perspectives*, Volume 9, Issue 3, pp. 16- 23.]

Most New Nonmetro Government Jobs Are in the South

Nonmetro counties in the South gained the most government jobs, nearly 250,000 jobs since 1980. Nonmetro counties in the West gained 142,000 government jobs, an increase of 23.3 percent, making it the region with the largest government job growth rate. Nonmetro counties in the Midwest ranked third with a gain of nearly 132,000 jobs (11.3 percent growth), and the Northeast gained fewer than 50,000 government jobs (13.5 percent growth).

All regions had a net gain of State and local government employment, ranging from a low of 43,000 jobs in the Northeast to a high of 270,000 jobs in the South. Nonmetro Federal jobs gained only in the Northeast and West. Government employment growth coincides with population growth. The West and South had the largest population gains and the largest gains in government jobs.

Average county government employment growth was 246 jobs. Only 416 of the 2,288 nonmetro counties lost government jobs between 1980 and 1993, and 729 counties gained more government jobs than the nonmetro county average.

Data Sources

This issue of *Rural Conditions and Trends* uses data from a variety of sources depending on the particular industry. These are described below by article.

Employment and earnings data: Most data on nonmetro employment and earnings in this issue come from the Bureau of Economic Analysis (BEA) of the U.S. Department of Commerce. BEA employment data provide establishment data on the number of jobs. The BEA data are taken primarily from administrative reports filed by employers covered under unemployment insurance laws and from information from the Internal Revenue Service and the Social Security Administration. Thus, jobs and earnings for these jobs are counted at the place of work and are based on a virtual universal count rather than a sample. The BEA data provide detailed information on the number of jobs and amount of earnings by industry at the county level. A shortcoming of the BEA data is the 2-year lag between when they are collected and when they are available for analysis. The most recent data are for 1993. BEA data can be obtained through the World Wide Web at http://www.lib.virginia.edu/socsci/reis/reis1.html.

National economic conditions: The economic indicators used to monitor macroeconomic changes in the U.S. economy are derived from Federal sources. Measures of inflation, including the Consumer and Producers Price Indexes, and employment and unemployment data are developed by the U.S. Department of Labor's Bureau of Labor Statistics (BLS). BLS makes 10-year projections of employment by industry and occupation every 2 years. National income and product account information on capital investment, gross domestic product, and net exports is produced by the Bureau of Economic Analysis (BEA), U.S. Department of Commerce. Information relating to monetary policy, including changes in interest rates and foreign exchange rates, and data on industrial production are furnished by the Federal Reserve Board of Governors.

Farm-related jobs data: Estimates of farm-related jobs are based on the 1992 County Business Patterns file released by the Bureau of the Census, U.S. Department of Commerce, and subsequently enhanced to account for confidential data not published by the Bureau. The County Business Patterns data provide estimates of wage and salary jobs in most industries in the United States. Data on farm proprietors and wage and salary jobs in farm production, as well as nonfarm proprietors, government employment, and railroad workers, are not included in the County Business Patterns. Employment for these excluded groups was obtained from the Bureau of Economic Analysis, U.S. Department of Commerce. Employment data on nonfarm proprietors, available only for major industrial divisions (one-digit Standard Industrial Classification (SIC) level), were distributed among farm-related industries (two-, three-, and four-digit SIC levels) based on the proprietor's share of total employment in the division in which the farm-related industry is classified.

Farm and farm-related employment includes jobs not only in farm production but also in its closely related industries—agricultural services, forestry, and fishing; agricultural inputs; and processing and marketing of agricultural goods—as well as industries peripherally related to farming—wholesale and retail trade of agricultural products and indirect agribusiness. Farm and farm-related industries are identified as industries having generally 50 percent or more of their national workforce employed in providing goods and services necessary to satisfy the final demand for agricultural products. An exception to this criterion is indirect agribusinesses, in which percentages range between 32 and 50 percent.

Food and Fiber Sector Employment Data: The State nonmetro Food and Fiber System (FFS) employment estimates are a subset of the national FFS data published by ERS and the Bureau of the Census, U.S. Department of Commerce. This subset is derived by distributing national FFS data to nonmetro, State, and industrial sectors in the same proportion as the 1992 County Business Patterns (CBP) file released by the Bureau of Census. The data file was subsequently enhanced to account for confidential data not published by the Bureau. To CBP data were added Bureau of Labor Statistics (BLS), U.S. Department of Labor estimates of agricultural and government employment, areas not

covered by the CBP file. BLS estimates of State nonmetro employment were used when determining shares of nonmetro FFS employment. Total domestic employment in the Food and Fiber System table equals the civilian labor force, which includes the unemployed.

Agricultural exports data: Data on agricultural exports is published in *Foreign Agricultural Trade of the United States*. Employment due to agricultural exports is derived in the same manner as Food and Fiber Sector employment.

Mining data: The principal source of data for nonfuel minerals and coal was the *1992 Minerals Yearbook*, Volume II published by the Bureau of Mines, Department of the Interior. Data for the oil and gas industries came from the *Annual Energy Review, 1994* from the Energy Information Administration of the U.S. Department of Energy.

Manufacturing data: The Census of Manufactures is collected by the Census Bureau every 5 years by enumerating all U.S. manufacturing establishments. The most recent data are from 1992. ERS requested special tabulations of value added, employment, and wages for metro and nonmetro establishments, and these data were used to compute value added and wages per worker. The analysis of technology use is based on three Surveys of Manufacturing Technology. These are sample surveys of selected manufacturing industries conducted by the Bureau of the Census in 1988, 1991, and 1993.

Retail industry data: The Census of Retail Trade is collected by the Bureau of the Census every 5 years. This census provides geographic detail on number of establishments, sales, and employment for all retail businesses in the United States. The analysis of the retail census data was supplemented by county-level data from census years on population and income from the Bureau of Economic Analysis' Regional Economic Information System. A spreadsheet with retail sales, a sales leakage estimate, income, and population by county for 1982-92 is available from Fred Gale 202-219-0594 or fgale@econ.ag.gov. More up-to-date information on employment and earnings in retail industries through 1995 was obtained from the Bureau of Labor Statistics, which produces monthly estimates based on a survey of business establishments. These data can be obtained through the World Wide Web or gopher at gopher://hopi2.bls.gov:70/11/Time%20Series.

Commercial bank data: Data were compiled for all commercial banks located in the 50 States that are insured by the Federal Deposit Insurance Corporation (FDIC). Data on interstate bank branches and for the time series on the number of banks come from the National Information Center database maintained by the Board of Governors of the Federal Reserve System. Information concerning the number of banking firms operating in rural and urban banking markets is based on deposit data for individual bank branches as of June 30, 1980 and 1993, from the FDIC's Summary of Deposits database.

Government employment data: The government employment article uses BEA data.

Definitions

The data reported in this issue of *Rural Conditions and Trends* are for nonmetro and metro areas, but we use the terms “rural” and “urban” interchangeably with “nonmetro” and “metro.” However, in tables and charts we use “nonmetro” and “metro,” the original and more accurate terms used in the data sources.

Civilian labor force: Noninstitutional civilians age 16 or older who are either employed or unemployed. Individuals who are neither employed nor unemployed are out of the labor force.

Consumer Price Index (CPI): A measure of the average price level of a basket of consumer goods and services at the retail level for a specific period compared against a benchmark period.

Farm: Any place from which $1,000 worth or more of agricultural products are sold or normally would be sold in a year.

Final demands of the Food and Fiber System: The consumer ready form of the raw farm products purchased by U.S. and foreign consumers. Estimated as U.S. personal consumption spending for food, clothing, shoes, tobacco products, and flowers, seeds, and potted plants, agricultural and textile exports less agricultural and textile imports, changes in government and private holdings of farm commodities, and gross investment in farm capital.

Food and Fiber System (FFS): That set of producers of goods and services required to assemble, process, and distribute raw farm products to U.S. and foreign consumers.

Food and Fiber System income and employment: The income earned and employment provided by the producers in the Food and Fiber System.

Foreign exchange rate: The rate at which one currency is traded for another. The Federal Reserve publishes a measure of the overall foreign exchange rate of the U.S. dollar based on the rates of the 10 major U.S. trading partners.

Gross domestic product (GDP): The value of final output produced by people, government, and firms in the United States, whether they are U.S. or foreign citizens, or U.S.- or foreign-owned firms. Output of U.S. citizens or firms located outside the United States is not included. This statistic is reported quarterly but is revised in each of the 2 months following the initial release.

GDP price deflator: A measure of the average price of final output produced by people, government, and firms in the United States during a specific period compared against a benchmark period.

Inflation rate: The percentage change in a measure of the average price level. The index used to measure inflation depends on the part of the economy being analyzed. In this issue, for example, the GDP Price Deflator is used to measure inflation in the overall national economy and the implicit Personal Consumption Expenditures Price Deflator is used to measure inflation in earnings.

Input-output model: An economic model which presents the economy as a set of sales and purchases between sectors, final demands, and payments to labor, capital, profits, and indirect business taxes.

Metro areas: Metropolitan Statistical Areas (MSA's), as defined by the Office of Management and Budget, include core counties containing a city of 50,000 or more people and a total area population of at least 100,000. Additional contiguous counties are included in the MSA if they are economically and socially integrated with the core county. Metro areas are divided into central cities and areas outside central cities (suburbs). Throughout this publication, "urban" and "metro" have been used interchangeably to refer to people and places within MSA's.

Nonmetro areas: Counties outside metro area boundaries. Throughout this publication, "rural" and "nonmetro" are used interchangeably to refer to people and places outside of MSA's.

Conclusion

Government contributed greatly to the employment and income growth of nonmetro areas during the 1980's, with State and local government jobs accounting for most of the growth. Population increases and the ensuing increased demand for local public service explain the need for increasing employment at the local level.

Many nonmetro areas have been willing to accept new Federal and State prisons, an instrument of growth in government employment and income. Their successes may prompt other nonmetro areas to pursue prisons or other State facilities, such as hospitals, as a source of employment and income for their citizens.

Federal employment, including those jobs in rural field offices across the Nation, is becoming a target of Federal downsizing. The U.S. Department of Agriculture's 1994 reorganization is just one example of this policy. Over the next 5 years, USDA plans to close some 1,200 of its 3,700 field offices and reduce its workforce by 13,000. Unless public policy changes course, overall Federal employment is predicted to decline throughout this decade, possibly shifting some Federal jobs to State and local governments. *[Jacqueline Salsgiver, 202-501-7107, jsalsgiv@econ.ag.gov]*

Prospects for Future Growth

Farm production, once the primary source of employment in many rural areas, is unlikely to generate new nonmetro jobs in the future. Long-term trends in farm consolidation and increases in productivity will continue to reduce labor requirements needed to produce agricultural goods but at a very slow pace. Employment in closely related agricultural input industries will decline along with that in farm production. Processing of agricultural products to add value to the region's commodities may be a source of new jobs that build upon the agricultural base, but as evidenced during 1975-92, such processing industries lost 24,000 jobs. Nevertheless, some location-specific benefits can be obtained through the development of value-added agricultural operations. However, sustained employment growth in processing industries may depend on the ability to penetrate new markets through expanded distribution of existing goods or development of new products. Agricultural wholesale and retail trade industries, with strong relationships to income and population growth, should continue to gain jobs. *[T. Alexander Majchrowicz, 202-219-0508, alexm@econ.ag.gov]*

Two Methods of Measuring Farm-Linked Employment

The Economic Research Service uses two widely respected methods to measure employment related to agriculture. These two methods estimate employment differently—one counts the number of jobs in the economy while the other estimates the number of persons employed. Although these methods provide different employment totals, they both point to the continued importance of farm-related jobs in an era when farm employment itself has been in a long-term decline. In this article, farm-related jobs are measured using information contained in County Business Patterns (CBP) files and supplemented with data from the Bureau of Economic Analysis to account for the self-employed and industries not covered in the CBP. This approach counts the number of full- and part-time jobs in businesses which generally have at least 50 percent of their workforce employed in providing agricultural products to the economy. The food and fiber system approach, which is used in the next two articles, uses employment estimates based on the Bureau of Labor Statistics Current Population Survey of households and counts each worker once. It includes all sectors of the economy and uses an economic model to estimate each sector's employment contribution to the system. Employment figures using the food and fiber system approach are somewhat lower than those derived by the farm-related employment approach, in which one worker may hold multiple jobs.

Each method has advantages which are apparent in the articles in this section. The farm-related employment method, used in the first article, provides detailed industry data for individual counties. As part of this analysis, nonmetro counties were grouped according to their primary economic activity. The following two articles use the food and fiber system approach, which is especially helpful in understanding the national importance of farm-linked jobs and jobs related to agricultural exports.

Appendix table 1—U.S. nonmetro and metro job growth by industry and by region, 1991-93

Item	1993		1991		Change, 1991-93	
	Nonmetro	Metro	Nonmetro	Metro	Nonmetro	Metro
	Thousands				Percent	
By industry:						
ASFFO [1]	415	1,100	403	1,072	2.9	2.6
Mining	370	522	419	597	-11.8	-12.5
Construction	1,318	5,644	1,226	5,521	7.5	2.2
Manufacturing	4,270	14,469	4,143	14,881	3.1	-2.8
TCPU [2]	1,047	5,578	1,033	5,541	1.4	.7
Wholesale	833	5,819	807	5,824	3.2	-.1
Retail	4,318	19,232	4,087	18,705	5.6	2.8
FIRE [3]	1,109	9,248	1,127	9,420	-1.7	-1.8
Services [4]	5,568	35,177	5,249	33,383	6.1	5.4
Government	4,264	17,248	4,162	17,054	2.5	1.1
Total nonfarm	23,510	114,037	22,657	111,998	3.8	1.8
Farm jobs	1,875	1,189	1,896	1,187	-1.1	.2
Total jobs	25,384	115,228	24,552	113,185	3.4	1.8
By BEA region:						
New England	1,059	6,471	1,045	6,448	1.3	.4
Mideast	1,744	21,985	1,736	22,075	.5	-.4
Great Lakes	4,250	19,185	4,100	18,759	3.7	2.3
Plains	4,101	6,844	3,972	6,632	3.2	3.2
Southeast	8,366	24,796	8,047	23,755	4.0	4.4
Southwest	2,483	11,881	2,407	11,433	3.2	3.9
Rocky Mountain	1,554	3,079	1,458	2,898	6.6	6.3
Far West	1,827	20,987	1,788	21,185	2.2	-.9
Total jobs	25,384	115,228	24,552	113,185	3.4	1.8

Note: totals include all full-time and part-time jobs, both employees and self-employed proprietors.
[1] Includes agricultural services, forestry, fishing, and other miscellaneous services.
[2] Includes transportation, communications, and public utilities.
[3] Includes finance, insurance, and real estate.
[4] Includes health, legal, educational, recreational, business, repair, and personal services.
Source: Calculated by ERS using data from the Bureau of Economic Analysis.

Appendix table 2—U.S. nonmetro and metro growth in earnings per job, by industry and by region, 1991-93

Item	1993		1991		Change, 1991-93	
	Nonmetro	Metro	Nonmetro	Metro	Nonmetro	Metro
	Dollars				Percent	
By industry:						
ASFFO [1]	14,700	16,700	14,300	16,600	2.8	0.6
Mining	36,500	41,400	34,900	36,300	4.6	14.0
Construction	21,400	30,000	21,700	30,600	-1.4	-2.0
Manufacturing	28,400	40,600	27,500	39,300	3.3	3.3
TCPU [2]	32,000	40,100	30,800	38,600	3.9	3.9
Wholesale	24,900	37,700	24,400	37,100	2.0	1.6
Retail	13,200	16,100	13,100	16,000	.8	.6
FIRE [3]	15,500	30,100	13,500	25,400	14.8	18.5
Services [4]	17,500	27,200	16,600	26,300	5.4	3.4
Government	23,600	30,700	23,300	30,100	1.3	2.0
Nonfarm average	21,100	29,100	20,500	28,200	2.9	3.2
Farm average	14,800	16,800	14,900	16,200	-.7	3.7
Average—all jobs	20,600	29,000	20,100	28,000	2.5	3.6
By BEA region:						
New England	23,000	31,300	22,600	30,400	1.8	3.0
Mideast	22,200	33,100	21,800	31,700	1.8	4.4
Great Lakes	21,000	28,800	20,200	27,800	4.0	3.6
Plains	18,300	26,500	18,500	25,800	-1.1	2.7
Southeast	20,400	25,600	19,900	24,900	2.5	2.8
Southwest	19,800	26,900	19,000	25,800	4.2	4.3
Rocky Mountain	21,000	25,500	20,200	24,600	4.0	3.7
Far West	23,700	30,400	22,800	29,500	3.9	3.1
Total	20,600	29,000	20,100	28,000	2.5	3.6

Note: Table shows earnings per job, rounded to the nearest hundred. Earnings are converted to 1993 dollars using the implicit price deflator for personal consumption expenditures.

[1] Includes agricultural services, forestry, fishing, and other miscellaneous services.

[2] Includes transportation, communications, and public utilities.

[3] Includes finance, insurance, and real estate.

[4] Includes health, legal, educational, recreational, business, repair, and personal services.

Source: Calculated by ERS using data from the Bureau of Economic Analysis.

Appendix table 3—Real earnings per nonfarm job in nonmetro and metro areas

Item	1970	1971	1972	1973	1974	1975	1976	1977
				1993 dollars				
United States	26,069	26,362	27,121	27,214	26,487	26,423	27,142	27,253
Nonmetro	20,796	21,099	21,736	22,026	21,687	21,883	22,733	22,678
Metro	27,190	27,495	28,288	28,334	27,523	27,409	28,113	28,250
Metro-nonmetro earnings gap	6,395	6,396	6,552	6,308	5,837	5,525	5,381	5,582
				Percent				
Nonmetro/metro earnings ratio	76.5	75.7	76.8	77.7	78.8	79.8	80.9	80.2
Change from previous year:								
Nonmetro	1.7	1.1	3.0	1.3	-1.5	.9	3.9	-.2
Metro	1.5	1.5	2.9	.2	-2.9	-.4	2.6	.5
	1978	1979	1980	1981	1982	1983	1984	1985
				1993 dollars				
United States	27,467	27,276	26,784	26,535	26,443	26,586	26,904	26,991
Nonmetro	22,977	22,878	22,347	22,000	21,649	21,626	21,832	21,621
Metro	28,449	28,228	27,734	27,500	27,456	27,627	27,954	28,082
Metro-nonmetro earnings gap	5,472	5,350	5,386	5,500	5,807	6,001	6,122	6,461
				Percent				
Nonmetro/metro earnings ratio	80.8	81.0	80.6	80.0	78.8	78.3	78.1	77.0
Change from previous year:								
Nonmetro	1.3	-.4	-2.3	-1.6	-1.6	-.1	1.0	-1.0
Metro	.7	-.8	-1.8	-.8	-.2	.6	1.2	.5
	1986	1987	1988	1989	1990	1991	1992	1993
				1993 dollars				
United States	27,253	27,277	27,358	27,159	26,901	26,925	27,702	27,763
Nonmetro	21,607	21,288	21,239	21,095	20,740	20,594	20,999	21,134
Metro	28,384	28,469	28,566	28,357	28,124	28,205	29,075	29,129
Metro-nonmetro earnings gap	6,777	7,182	7,327	7,262	7,384	7,611	8,076	7,995
				Percent				
Metro-nonmetro earnings ratio	76.1	74.8	74.4	74.4	73.7	73.0	72.2	72.6
Change from previous year:								
Nonmetro	-.1	-1.5	-.2	-.7	-1.7	-.7	2.0	.6
Metro	1.1	.3	.3	-.7	-.8	.3	3.1	.2

Note: Data for 1984 through 1991 revised by BEA. All years' earnings converted to 1993 dollars using the implicit price deflator for personal consumption expenditures.

Source: Calculated by ERS using data from the Bureau of Economic Analysis Regional Economic Information System.

Appendix table 4—Share of total State employment by farm and farm-related industry, 1992

State	Total farm and farm-related industries	Total farm and farm-related industries	Farm production, agricultural services, forestry, and fishing	Agricultural inputs	Agricultural processing and marketing	Agricultural wholesale and retail trade	Indirect agribusiness
	Jobs	Percentage of total employment					
United States	21,595,119	15.8	2.5	0.3	2.4	10.2	0.4
Alabama	403,139	19.4	3.2	.4	5.9	9.5	.5
Alaska	49,650	14.6	2.8	.1	2.3	9.4	—
Arizona	267,768	14.1	1.6	.1	.7	11.6	.1
Arkansas	274,502	22.4	5.7	.7	5.8	9.3	.9
California	2,349,651	14.5	1.9	.2	2.0	10.1	.3
Colorado	307,843	14.6	2.1	.2	1.6	10.5	.2
Connecticut	212,018	11.1	.7	.1	.9	9.0	.3
Delaware	58,040	13.9	1.3	.2	2.3	9.9	.2
Florida	1,070,713	15.9	1.9	.2	1.3	12.2	.3
Georgia	669,771	18.2	2.1	.3	4.9	10.2	.7
Hawaii	121,984	16.4	2.1	.1	1.8	12.4	.1
Idaho	131,210	23.0	6.8	1.0	3.6	10.8	.7
Illinois	926,811	14.4	1.9	.6	1.8	9.6	.5
Indiana	485,621	15.8	2.9	.5	1.6	10.3	.6
Iowa	404,092	24.7	8.3	1.8	4.0	10.1	.5
Kansas	285,020	19.1	5.8	.8	2.7	9.5	.4
Kentucky	403,263	21.2	6.7	.3	3.4	10.2	.5
Louisiana	318,273	15.8	2.5	.4	1.8	10.6	.5
Maine	109,433	17.2	2.4	.1	3.5	10.7	.4
Maryland	335,836	12.8	1.2	.1	1.2	10.0	.3
Massachusetts	445,951	12.8	.6	.1	1.5	10.3	.4
Michigan	655,814	14.1	1.9	.1	1.0	10.7	.3
Minnesota	467,667	17.2	4.4	.6	2.0	9.8	.4
Mississippi	250,394	21.1	4.8	.5	5.7	9.5	.6
Missouri	526,922	17.9	4.5	.5	2.6	9.9	.4
Montana	94,027	21.3	7.5	.6	.9	12.0	.3
Nebraska	232,087	23.5	7.6	1.5	4.0	10.3	.2
Nevada	83,134	11.0	.9	.1	.3	9.6	.1
New Hampshire	84,841	14.0	1.1	.1	1.2	11.4	.3
New Jersey	525,424	12.5	.6	.1	1.8	9.6	.5
New Mexico	119,959	15.4	2.9	.2	.9	11.0	.4
New York	1,166,272	12.4	.9	.1	1.9	9.3	.3
North Carolina	828,411	21.3	2.7	.3	8.0	9.6	.7
North Dakota	92,633	24.5	11.0	1.3	2.1	10.0	—
Ohio	831,174	14.2	1.9	.2	1.2	10.3	.5
Oklahoma	291,626	17.4	5.4	.3	1.7	9.8	.1
Oregon	286,939	17.7	4.4	.3	1.7	10.9	.3
Pennsylvania	944,854	15.1	1.5	.2	2.9	10.2	.4
Rhode Island	66,414	12.9	.5	—	2.0	10.0	.5
South Carolina	374,403	19.9	2.1	.2	6.7	10.2	.8
South Dakota	101,936	24.5	10.4	1.0	2.8	10.1	.2
Tennessee	535,853	19.2	4.1	.3	4.2	10.0	.6
Texas	1,458,451	15.4	2.9	.3	1.8	10.2	.3
Utah	141,356	14.5	2.1	.2	1.7	10.2	.4
Vermont	56,380	17.3	3.6	.3	1.7	11.5	.2
Virginia	541,004	15.1	2.0	.2	3.1	9.4	.5
Washington	467,655	16.3	3.3	.3	1.6	10.8	.3
West Virginia	119,374	15.6	3.3	.3	1.4	10.5	.2
Wisconsin	531,086	18.8	4.2	.7	2.6	10.5	.8
Wyoming	47,634	17.9	5.1	.5	.6	10.6	1.2

— = Less than 0.1 percent.
Source: Calculated by ERS using U.S. Department of Commerce data.

Appendix table 5—Share of total nonmetro employment by farm and farm-related industry, 1992

State	Total farm and farm-related industries	Total farm and farm-related industries	Farm production, agricultural services, forestry, and fishing	Agricultural inputs	Agricultural processing and marketing	Agricultural wholesale and retail trade	Indirect agribusiness
	Jobs	Percentage of total employment					
United States	5,972,611	24.9	8.4	0.8	4.9	10.2	0.6
Alabama	180,562	31.4	6.8	.9	13.9	8.9	.9
Alaska	31,728	18.2	4.4	.2	4.2	9.3	—
Arizona	39,874	17.9	2.7	.2	.4	14.5	.1
Arkansas	163,141	27.3	8.9	1.0	7.6	9.1	.8
California	91,770	22.0	7.9	.6	1.4	12.0	.2
Colorado	85,704	23.5	7.5	.6	1.8	13.5	.1
Connecticut	19,047	15.9	1.8	.2	2.7	10.7	.4
Delaware	17,299	28.4	4.5	.6	9.3	14.0	—
Florida	87,930	24.5	8.1	.9	2.2	12.8	.6
Georgia	276,270	27.5	5.7	.7	10.8	9.4	.9
Hawaii	43,622	24.8	6.4	.2	3.2	15.0	—
Idaho	99,180	26.5	8.9	1.3	4.0	11.3	1.0
Illinois	203,434	23.3	8.8	1.3	2.8	9.7	.7
Indiana	160,769	21.0	6.9	.8	2.7	9.7	.9
Iowa	262,995	31.0	13.8	2.3	4.8	9.6	.5
Kansas	171,208	26.9	11.7	1.3	4.7	8.9	.3
Kentucky	227,079	27.0	11.4	.5	5.1	9.6	.4
Louisiana	84,247	21.9	7.6	1.0	3.6	9.0	.8
Maine	61,888	17.9	3.4	.2	3.2	10.7	.5
Maryland	38,465	21.7	4.9	.4	4.0	12.1	.3
Massachusetts	7,189	16.2	3.2	.2	1.5	11.2	.2
Michigan	133,580	19.9	5.9	.4	1.2	12.0	.5
Minnesota	207,588	28.6	12.3	1.4	4.2	10.3	.4
Mississippi	190,302	24.9	6.6	.7	7.7	9.3	.6
Missouri	221,005	28.0	12.5	1.0	4.8	9.4	.4
Montana	74,425	22.8	9.3	.6	.9	11.7	.4
Nebraska	150,478	34.1	15.4	2.7	5.8	10.1	.1
Nevada	14,717	13.6	4.1	.2	.2	9.0	.1
New Hampshire	33,298	14.1	1.5	.1	1.4	10.8	.3
New Mexico	55,502	19.3	5.8	.2	1.0	11.3	1.0
New York	116,443	17.7	4.5	.4	1.8	10.6	.4
North Carolina	323,945	29.5	5.5	.6	13.1	9.7	.7
North Dakota	63,391	31.5	18.2	1.7	2.5	9.2	—
Ohio	189,882	20.4	6.3	.7	2.6	10.0	.9
Oklahoma	145,987	25.4	12.2	.6	3.1	9.2	.2
Oregon	101,636	23.4	8.5	.6	2.2	11.8	.4
Pennsylvania	161,396	20.5	4.1	.4	4.7	11.0	.4
Rhode Island	5,474	12.4	1.2	.1	.3	10.8	—
South Carolina	125,269	27.1	4.5	.3	11.7	9.7	.9
South Dakota	75,214	29.1	15.3	1.3	2.6	9.8	—
Tennessee	216,370	28.0	9.5	.5	8.5	8.7	.8
Texas	346,448	28.2	14.0	.9	3.5	9.6	.3
Utah	40,515	21.6	7.1	.5	2.6	10.9	.5
Vermont	38,101	17.8	4.1	.3	1.7	11.6	.1
Virginia	169,212	25.6	6.4	.5	8.5	9.3	.9
Washington	105,007	25.8	9.8	.9	2.3	12.4	.5
West Virginia	65,253	16.4	4.8	.2	1.6	9.8	.1
Wisconsin	211,868	26.5	10.0	1.4	3.5	10.9	.8
Wyoming	36,904	20.1	6.6	.5	.8	10.4	1.7

Note: New Jersey is not shown because it has no nonmetro areas.
— = Less than 0.1 percent.
Source: Calculated by ERS using Department of Commerce data.

Appendix table 6—Total Food and Fiber System employment by State and sector category, 1994

State	Total	Farm	Food processing	Other manufacturing	Transportation and trade	Eating and drinking places	All other services
				Thousands of jobs			
United States	22,320.1	1,728.2	1,439.6	2,589.8	6,787.0	6,743.7	3,031.9
Alabama	385.6	24.6	28.9	101.0	101.7	90.4	39.0
Alaska	48.0	0.5	4.9	.9	14.0	13.9	13.9
Arizona	295.1	18.6	8.8	11.9	95.3	115.4	45.0
Arkansas	228.6	29.4	35.2	32.9	60.0	51.6	19.6
California	2,689.0	315.9	161.3	240.5	759.2	811.8	400.2
Colorado	334.3	31.6	27.4	13.0	95.5	117.4	49.4
Connecticut	242.9	6.9	7.4	23.9	91.1	73.6	40.0
Delaware	68.5	5.8	6.8	4.5	21.5	20.4	9.3
District of Columbia	62.5	0.0	0.4	2.1	10.6	26.4	22.9
Florida	1,193.3	113.9	44.1	75.2	375.9	405.6	178.6
Georgia	684.9	38.5	47.2	139.6	194.0	191.0	74.7
Hawaii	121.9	7.8	10.4	2.8	33.7	49.2	18.0
Idaho	113.7	27.2	16.2	4.4	27.6	27.7	10.6
Illinois	1,054.5	60.4	81.5	88.4	359.3	315.1	149.9
Indiana	497.7	35.8	33.7	47.7	156.8	171.7	52.2
Iowa	344.0	79.4	47.3	24.1	85.3	80.6	27.3
Kansas	259.1	49.1	27.6	14.5	70.3	71.1	26.6
Kentucky	328.2	27.7	19.3	58.2	92.8	95.7	34.5
Louisiana	314.8	10.9	18.9	30.1	105.8	101.1	48.0
Maine	104.5	6.1	5.6	20.6	32.6	27.4	12.3
Maryland	377.4	15.4	19.4	23.1	131.3	125.8	62.3
Massachusetts	499.7	8.7	20.9	57.0	165.2	164.1	83.8
Michigan	717.4	39.1	39.3	51.5	240.0	260.1	87.4
Minnesota	440.6	52.2	37.8	28.0	136.4	134.8	51.3
Mississippi	210.4	16.0	20.0	50.9	56.7	46.1	20.6
Missouri	478.6	31.2	37.9	48.5	150.3	155.6	55.2
Montana	72.2	10.9	2.3	1.8	22.3	26.5	8.5
Nebraska	218.2	62.5	27.3	9.5	50.6	49.7	18.6
Nevada	103.1	2.3	1.8	2.1	34.0	37.3	25.6
New Hampshire	88.1	2.1	2.5	9.7	34.0	28.8	10.9
New Jersey	606.9	12.1	32.1	75.1	238.8	153.5	95.4
New Mexico	122.1	14.4	3.7	4.8	35.6	45.4	18.2
New York	1,301.0	34.0	57.6	177.7	435.1	361.3	235.2
North Carolina	823.2	61.8	46.4	278.1	186.0	184.5	66.3
North Dakota	68.9	18.8	4.5	1.7	19.4	18.4	6.0
Ohio	911.9	42.8	55.8	79.2	298.6	322.6	113.0
Oklahoma	249.7	31.9	13.3	17.8	73.3	81.4	32.0
Oregon	278.6	32.5	20.1	16.5	87.9	88.5	33.1
Pennsylvania	1,002.5	43.3	82.7	148.0	319.0	287.4	122.2
Rhode Island	71.4	1.4	2.4	10.8	23.0	23.8	9.9
South Carolina	370.5	12.7	12.2	126.5	86.4	97.5	35.2
South Dakota	79.1	21.7	6.2	2.8	21.7	20.4	6.4
Tennessee	482.0	18.8	38.1	107.5	138.5	131.0	48.1
Texas	1,440.8	96.4	90.1	113.5	457.0	460.6	223.3
Utah	143.5	7.2	10.2	9.0	48.1	48.4	20.6
Vermont	49.3	4.4	3.6	3.6	15.9	16.2	5.7
Virginia	563.7	20.7	32.2	100.3	164.6	164.6	81.3
Washington	521.9	60.8	30.9	27.1	139.2	149.6	114.3
West Virginia	112.6	3.3	3.5	12.9	40.2	36.8	15.9
Wisconsin	503.6	52.5	51.8	57.7	142.9	151.6	47.0
Wyoming	40.4	6.1	0.7	1.0	12.1	14.3	6.3

Source: Calculated by ERS from supporting ERS economic models using data from the Bureau of Economic Analysis, Bureau of Labor Statistics, Bureau of the Census, and USDA/ERS.

Appendix table 7—Nonmetro Food and Fiber System employment by State and sector category, 1994

State	Total	Farm	Food processing	Other manufacturing	Transportation and trade	Eating and drinking places	All other services
			Thousands of jobs				
United States	4,676.7	929.0	389.1	809.9	1,086.2	1,092.3	370.2
Alabama	146.0	14.9	10.6	68.2	25.1	20.5	6.7
Alaska	26.4	.5	4.5	.6	6.8	5.9	8.1
Arizona	35.5	4.3	.4	.7	11.4	15.4	3.3
Arkansas	121.2	22.6	19.1	22.6	26.8	22.3	7.8
California	90.8	34.8	3.3	2.7	19.8	22.2	8.0
Colorado	76.3	21.0	3.4	1.1	15.8	26.4	8.6
Connecticut	16.4	1.2	1.2	2.8	5.4	4.7	1.1
Delaware	16.1	3.1	4.3	1.2	3.3	3.7	.5
District of Columbia	0	0	0	0	0	0	0
Florida	83.8	26.9	3.8	5.0	18.6	21.0	8.5
Georgia	233.1	29.8	18.5	84.0	46.2	40.8	13.8
Hawaii	37.8	6.0	5.1	.2	8.9	13.3	4.3
Idaho	80.8	23.4	11.3	3.3	18.6	17.5	6.7
Illinois	161.8	41.0	12.6	13.3	40.8	41.5	12.6
Indiana	126.7	21.9	11.0	14.8	33.8	36.2	9.0
Iowa	195.2	69.2	25.5	12.8	39.5	37.4	10.8
Kansas	131.7	43.2	18.8	6.5	26.8	27.5	8.9
Kentucky	153.9	21.2	8.0	38.1	38.1	35.2	13.3
Louisiana	59.3	7.3	4.6	11.2	17.4	12.3	6.5
Maine	54.2	4.6	2.2	11.5	15.7	13.9	6.3
Maryland	33.2	5.1	4.5	1.3	9.1	10.2	3.0
Massachusetts	6.5	.8	.5	.5	1.9	2.4	.4
Michigan	111.1	18.0	5.2	6.7	32.5	38.2	10.5
Minnesota	144.6	39.7	18.4	10.1	33.7	33.5	9.2
Mississippi	148.3	14.6	14.6	44.8	36.5	26.8	11.0
Missouri	136.6	24.0	11.1	22.9	34.0	34.9	9.7
Montana	51.9	10.1	1.1	1.4	14.6	18.6	6.1
Nebraska	126.4	58.0	16.1	4.1	22.5	20.7	5.0
Nevada	13.3	1.8	.1	.1	4.0	4.7	2.6
New Hampshire	32.0	1.2	.5	4.6	11.6	10.6	3.5
New Jersey	0	0	0	0	0	0	0
New Mexico	50.1	11.0	1.3	1.6	13.6	15.7	6.9
New York	97.4	14.3	4.5	10.2	28.7	30.7	9.0
North Carolina	291.4	36.2	17.9	126.8	50.2	46.5	13.8
North Dakota	39.4	16.6	2.1	.7	9.0	8.5	2.5
Ohio	158.1	23.9	15.7	20.0	39.4	46.2	12.9
Oklahoma	94.7	25.5	6.0	9.4	22.4	22.7	8.7
Oregon	80.6	17.2	6.8	4.0	20.1	24.1	8.4
Pennsylvania	145.0	16.2	12.5	29.7	38.7	36.4	11.5
Rhode Island	5.0	.3	0	0	1.5	2.8	.4
South Carolina	110.4	7.0	4.3	52.9	19.4	20.1	6.7
South Dakota	50.7	19.9	2.2	1.6	12.3	11.4	3.3
Tennessee	148.4	12.5	10.8	61.8	29.2	26.1	8.0
Texas	216.3	64.6	21.8	13.9	50.5	44.9	20.6
Utah	31.0	5.1	3.2	1.1	8.4	9.8	3.4
Vermont	31.5	3.3	1.7	2.4	10.0	10.4	3.7
Virginia	140.5	12.9	10.9	49.0	29.9	26.9	10.9
Washington	91.3	28.6	5.8	5.1	18.7	22.5	10.6
West Virginia	54.4	2.5	1.4	6.0	19.3	16.4	8.8
Wisconsin	160.9	35.7	19.3	15.9	38.0	42.3	9.7
Wyoming	28.7	5.5	.6	.7	7.7	9.6	4.6

Source: Calculated by ERS from supporting ERS economic models using data from the Bureau of Economic Analysis, Bureau of Labor Statistics, Bureau of the Census, and USDA.

Appendix table 8—Government employment in nonmetro areas by State, 1980-93

State	1980	1993	Increase, 1980-93
	Thousand		Percent
United States	3,703.0	4,276.0	15.4
Alabama	100.9	102.9	1.9
Alaska	45.6	58.2	27.6
Arizona	44.7	57.8	29.2
Arkansas	79.8	87.8	10.0
California	72.2	87.4	21.2
Colorado	44.4	60.4	36.3
Connecticut	11.4	14.2	24.0
Delaware	5.8	6.9	17.5
Florida	54.8	74.0	35.0
Georgia	157.7	205.7	30.4
Hawaii	15.7	24.3	55.0
Idaho	60.2	72.0	19.7
Illinois	125.8	134.6	7.0
Indiana	96.9	109.9	13.4
Iowa	122.0	128.5	5.4
Kansas	117.0	136.4	16.6
Kentucky	132.8	149.8	12.8
Louisiana	91.6	100.8	10.1
Maine	59.0	64.5	9.3
Maryland	23.1	28.7	24.1
Massachusetts	4.9	5.7	16.3
Michigan	110.4	121.7	10.3
Minnesota	99.2	111.9	12.8
Mississippi	140.2	148.8	6.2
Missouri	131.7	145.6	10.5
Montana	56.7	63.7	12.5
Nebraska	66.8	72.7	8.9
Nevada	16.1	21.9	36.5
New Hampshire	29.2	35.8	22.8
New Mexico	59.0	70.0	18.8
New York	110.7	137.0	23.7
North Carolina	152.8	184.8	21.0
North Dakota	36.6	37.9	3.6
Oklahoma	103.0	114.8	11.5
Oregon	68.2	76.9	12.8
Pennsylvania	109.5	110.7	1.1
Rhode Island	12.0	12.2	2.0
South Carolina	80.7	88.2	9.2
South Dakota	45.3	50.0	10.3
Tennessee	102.2	105.6	3.3
Texas	178.9	231.9	29.6
Utah	32.4	40.6	25.0
Vermont	26.0	31.7	22.0
Virginia	89.6	108.1	20.7
Washington	65.6	81.0	23.3
West Virginia	75.5	80.0	5.6
Wisconsin	95.9	113.4	18.2
Wyoming	31.6	40.3	27.7

Source: Calculated by ERS using data from the Bureau of Economic Analysis.