

Most Value-Added Manufacturing Increased Its Attachment to Rural Areas During 1989-94

Value-added manufacturing grew faster in nonmetro areas than in the Nation as a whole during 1989-94. Meat processing led employment growth in the farm-related sectors. In each of the forest-related sectors, the number of establishments increased while employment fell. Despite lower employment in some sectors, both farm- and forest-related value-added manufacturing had spread to more nonmetro counties by 1994.

Value-added manufacturing grew much faster in nonmetro areas than it did nationally during 1989-94. Nonmetro value-added manufacturing establishments increased by 11.3 percent and the number of their employees increased 5.9 percent. Nationally, the number of value-added establishments grew 8.1 percent, and the number of employees declined by 1.9 percent (table 1). With the number of value-added establishments growing faster than the number of employees in nonmetro areas (and more establishments nationally despite employment declines), the average employment size of establishments declined. The forest-related value-added establishments accounted for most of this decline in employment size. Farm-related value-added establishments increased their average employment size in nonmetro areas while decreasing their employment size nationally.

Value-added industries contributed to rural employment growth more than other manufacturers during 1989-94. While other nonmetro manufacturing increased the number of establishments faster than nonmetro value-added manufacturing did, the number of employees grew much faster in nonmetro value-added manufacturing than in other nonmetro manufacturing. Farm-related industries accounted for much of the gain. The following discussion delves into more detailed industrial trends to help explain the overall growth and identify stronger and weaker value-added sectors in terms of national employment trends and their attachment to nonmetro areas.

Table 1

Total, manufacturing, and value-added establishments and employees

Farm- and forest-related manufacturing are growing faster in nonmetro areas than elsewhere and are more concentrated in rural areas than is other manufacturing

Industry	Establishments		Employees	
	1994	Change, 1989-94	1994	Change, 1989-94
	Number	Percent	Number	Percent
All industries	6,507,713	6.6	96,629,396	5.6
Manufacturing	375,249	6.2	16,813,485	-8.1
Farm and forest value-added	110,726	8.1	4,030,354	-1.9
Farm value-added	22,357	3.6	1,728,212	-1.1
Forest value-added	88,369	10.7	2,302,142	-2.5
All nonmetro industries	1,252,490	7.9	14,719,655	11.1
Manufacturing	80,784	13.3	3,982,491	1.2
Farm and forest value-added	34,114	11.3	1,346,355	5.9
Farm value-added	6,167	4.4	572,978	8.5
Forest value-added	27,947	15.5	773,377	3.5
	Percent	Percentage points	Percent	Percentage points
Share of all industries in nonmetro areas	19.2	.2	15.2	.8
Manufacturing	21.5	1.4	23.7	2.2
Farm and forest value-added	30.8	1.1	33.4	2.4
Farm value-added	27.6	.2	33.2	2.9
Forest value-added	31.6	1.3	33.6	2.0

Source: Calculated by ERS using data from County Business Patterns files enhanced by Claritas, Inc.

Meat Products Manufacturing Led Employment Growth Among Farm Value-Added Industries

Within farm-related value-added manufacturing, the meat-products sector (meat packing, sausages and other prepared meats, and poultry slaughtering and processing) employed the largest number of workers and had much faster growth in employment than the other sectors (table 2). All three industries in the meat-products sector added employees, but poultry slaughtering and processing employment grew four to six times as fast as in the other industries (app. table 3). Continuing consumer demand for lower cholesterol meats and the poultry industry's introduction of an increasing array of red-meat substitutes (for example, turkey bacon and burgers and chicken bologna) have fueled these employment trends.

The only other farm-related sector that increased employment by even 5 percent over the 5-year period was grain mills. This sector is a varied group of industries from flour, rice, or corn milling to breakfast cereals and flour mixes and doughs to pet food and other animal feeds. The prepared flour mixes and doughs industry increased employment 43 percent, accounting for most of this sector's growth (app. table 3). Consumer demand for more processed, quickly preparable foods undoubtedly has fueled that increase.

Table 2

Farm-related value-added manufacturing establishments and employees

Meat products is the fastest growing employer and the most rural of the farm-related manufacturers

Industrial sectors	Establishments		Employees	
	1994	Change, 1989-94	1994	Change, 1989-94
	Number	Percent	Number	Percent
Meat products	3,136	2.9	420,218	17.0
Dairy products	1,941	-12.1	134,702	-4.6
Canned, frozen, and preserved fruits, vegetables, and food specialties	2,003	6.3	187,624	.7
Grain mill products	2,650	5.3	107,936	5.2
Bakery products	3,346	13.0	219,559	1.2
Sugar and confectionery products	1,141	3.5	88,904	-2.7
Fats and oils	511	-9.1	25,940	-11.1
Beverages	2,084	.1	139,273	-9.1
Selected miscellaneous food preparations	2,306	16.4	103,031	1.4
Tobacco products	117	-16.4	34,695	-23.9
Selected cotton or wool fabric or yarn manufacturing	1,310	13.2	174,720	-14.1
Leather products and leather and sheep-lined clothing	1,812	-6.8	91,610	-21.7
Shares of industry sector in nonmetro counties	Percent	Percentage points	Percent	Percentage points
Meat products	39.7	.9	52.3	3.4
Dairy products	33.5	-.3	27.8	1.1
Canned, frozen, and preserved fruits, vegetables, and food specialties	25.8	1.5	32.8	3.5
Grain mill products	46.6	-.9	34.5	2.6
Bakery products	10.2	.2	12.8	1.1
Sugar and confectionery products	20.9	1.1	21.1	1.9
Fats and oils	36.4	2.9	33.5	3.5
Beverages	20.5	-.4	11.8	-.4
Selected miscellaneous food preparations	16.5	1.3	13.1	1.3
Tobacco products	18.8	.2	12.8	2.6
Selected cotton or wool fabric or yarn manufacturing	33.3	.4	51.9	5.1
Leather products and leather and sheep-lined clothing	26.9	2.2	39.7	1.2

Source: Calculated by ERS using data from County Business Patterns files enhanced by Claritas, Inc.

On the negative side, manufacturers of fats and oils, tobacco products, selected cotton and wool fabrics and yarns, and leather products each shed at least 10 percent of their workers during 1989-94. The industries within fabric and yarn manufacturing that account for the sector's decline are broadwoven cotton fabric mills and yarn spinning mills (app. table 3). While they still are the two dominant employers among the five fabric and yarn industries we analyzed, they each shed a quarter of their workers during the 5 years. Despite employment downsizing, the broadwoven cotton fabric mills added establishments during the period. Increases in mechanization, computerization, and product specialization may have played a role in decreasing the need for workers while providing opportunities for new establishments.

Nonmetro Areas Increased Their Shares of Farm-Related Value-Added Employment

Nonmetro areas maintained or increased their share of jobs in almost all farm-related value-added manufacturing sectors, even among sectors with large increases or declines in employment. Nonmetro areas gained 3.4 percentage points in the growing meat products sector, pushing their share of the industry to 52.3 percent (table 2). Their share of selected cotton and wool fabric and yarn manufacturing also increased to over half, while employment in that sector declined. Nonmetro areas also gained in their shares of fats and oils and tobacco manufacturing employment as those sectors shrank. The only sector in which the nonmetro share of employment declined was in beverage manufacturing and that was by less than 1 percentage point. (Nonmetro shares of establishments and employees at the detailed industry level are shown in app. table 4.)

Variation in the nonmetro shares of sectors broadly reflect the closeness of each industry's ties to retail market or inputs. For example, nonmetro areas contain low shares of bakery, beverages, and miscellaneous food preparations industries because they are tightly tied to consumer demand, and most consumers are in urban areas. Bakery-products manufacturers are located near population centers to minimize transportation time for their perishable products. Beverage manufacturing adds much of its weight, from water and containers, at the manufacturing site, making it more economical to locate close to large retail markets. About a third of the employment in the selected miscellaneous food preparations we analyzed is in potato and corn chip and similar snack manufacturing, another set of products that are relatively perishable and fragile, also making retail markets an important establishment-siting factor.

Industries with processing that reduces the weight of inputs tend to locate closer to inputs than to the retail market. The meat-packing industry is a prime example. With the production process shifted to boxed beef (cuts of beef and frozen hamburger patties and rolls) rather than whole carcasses, location closer to cattle and hog producers has become more attractive. Major shifts in the ownership of meat packing to a few major firms and from unionized to nonunionized labor have also affected the industry's location, making nonmetro areas more attractive. (See the June 1994 issue of *Rural Development Perspectives* for articles on the red-meat and poultry industries and their changing labor forces.)

Selected fabric and yarn manufacturers are also concentrated in nonmetro areas. Their nonmetro locations are at least partly due to lower land prices for large factories, their production of intermediate products that do not go directly into the retail market, and the legacy of the movement of much of the Northeast textile and apparel industries into lower wage, nonunionized, smaller southern communities after the turn of the century.

All Forest-Related Manufacturing Sectors Added Establishments, but Shed Employees

Trends for forest-related value-added manufacturers were different than those of the farm-related manufacturers during 1989-94. All five of the forest-related sectors we analyzed (lumber and wood products, paper and allied products, selected wood furniture, selected printing and publishing, and selected chemicals and allied products) added establishments, but shed employees during the 5-year period (table 3). With falling employment

and increasing numbers of establishments, the average number of employees per establishment declined in all the sectors.

The selected chemicals and allied products industries we analyzed are cellulosic man-made fibers and gum and wood chemicals. The large decline in employment in this sector was in the cellulosic man-made fibers industry (app. table 5). The gum and wood chemicals industry added a few employees during the period. Employment declines in the other four, much larger, sectors were more modest, in the 2- to 5-percent range.

Among the industries in the lumber and wood products sector, only structural wood members and mobile home manufacturers had sizable growth in employment, 19 and 13 percent (app. table 5). Hardwood dimension and flooring mills and wood kitchen cabinet manufacturers modestly increased employment, 3 and 0.5 percent. All of the other industries in this sector shed employees, with most dropping at least 10 percent of their employees during the period. While the mobile home industry gained employees, it lost establishments, increasing its average employment per establishment. Several other lumber and wood-products industries lost establishments, but they were also shedding employees, so their average establishment size did not change much.

The paper and allied products sector also includes a wide array of industries (app. table 5). Eight of its industries accounted for the sector's overall loss of employees. Although paper mills did not have the highest percentage loss of employees, they are by far the largest industry in the paper and allied products sector and accounted for a large share of the sector's employment loss. Setup paperboard boxes (such as the boxes, some with metal corners, used to store photographs or documents) and stationery, tablets, and related products lost over 20 percent of their workers, but those two industries are relatively small. The paper industry with the fastest employment growth was coated and laminated packaging paper and plastic films. Employment in this industry increased 8 percent, and the number of establishments increased 51 percent. It is a small industry, however, and whether the packaging paper or the plastic film is generating the growth is not clear.

Table 3

Forest-related value-added manufacturing establishments and employees by sector

All sectors added establishments while shedding workers; nonmetro areas increased their shares of both establishments and workers

Industrial sectors	Establishments		Employees	
	1994	Change, 1989-94	1994	Change, 1989-94
	Number	Percent	Number	Percent
Lumber and wood products, except furniture	37,389	13.3	694,473	-2.7
Paper and allied products	6,467	2.8	622,410	-1.5
Selected wood furniture	6,502	8.3	277,008	-5.1
Selected printing and publishing industries	37,919	10.0	698,895	-1.6
Selected chemicals and allied products	92	9.5	9,356	-29.1
Shares of industry sector in nonmetro counties				
	Percent	Percentage points	Percent	Percentage points
Lumber and wood products, except furniture	55.5	.8	55.7	3.3
Paper and allied products	16.3	.8	27.8	1.0
Selected wood furniture	22.3	2.4	38.0	3.1
Selected printing, publishing, and allied industries	12.3	.8	14.8	1.1
Selected chemicals and allied products	53.3	6.8	45.1	17.2

Source: Calculated by ERS using data from County Business Patterns files enhanced by Claritas, Inc.

Four of the five wood furniture manufacturing industries we analyzed shed workers during 1989-94. Only the upholstered wood furniture industry gained employees, but by a meager 2 percent. Wood office furniture manufacturing shed 25 percent of its workers and was the only industry to lose establishments. Wood television, radio, phonograph, and sewing machine cabinets manufacturing lowered employment by 13 percent but increased the number of establishments by 42 percent, suggesting that smaller, more specialized establishments are needed to respond to the unique demands of buyers in this niche market.

Of the four printing and publishing industries we selected for analysis, only book printing increased employment. The commercial printing industry dominates this group and had flat employment, dropping only 0.4 percent. The two industries that accounted for the group's overall employment decline are manifold business forms and blankbooks, loose-leaf binders, and devices. Those two industries added establishments as they lost employees. They may be specializing in response to computer-generated forms and computerized information storage cutting into the demand for their products.

Nonmetro Areas Increased Their Shares of Forest-Related Value-Added Employment

Nonmetro areas increased their shares of both establishments and employees in all five forest-related manufacturing sectors. Nonmetro areas increased their share of lumber and wood products to over 50 percent of employees and 42 percent of establishments (table 3). In the selected chemical industries, the nonmetro share of employees jumped to 45 percent as most of the employment losses were in metro areas. The nonmetro share of this sector's establishments increased to 53 percent.

Some forest-related value-added manufacturing industries are closely tied to commercial users who are concentrated in larger markets. For example, nonmetro areas have low shares of the selected printing and publishing sector because commercial printing does most of its work on a contract basis for businesses. Other industries, such as lumber and furniture, are much more likely to be located in nonmetro areas, closer to raw materials, because they reduce the weight of inputs and sell the same products to a wide range of businesses. For example, the lumber industry sells dimension lumber to construction firms as well as to exporters and retail lumberyards, and the furniture industry sells the same sofa or chair to numerous furniture retailers. (See app. table 6 for nonmetro shares of establishments and employees at the detailed industry level.)

Most Farm- and Forest-Related Industries Spread to More Counties

Along with knowledge of the growth or decline in the numbers of farm- and forest-related manufacturing establishments and employees, communities considering these industries as possible development options need to know whether value-added industries tend to stay in one place or spread to other places. Table 4 shows the net change in the number of counties with at least one establishment in the industrial sector. Among the farm-related sectors, dairy products, fats and oils, beverages, and tobacco products became more geographically concentrated during 1989-94. Tobacco-products manufacturing was already quite concentrated in 1989 and shrank to locations in only 74 counties by 1994. The other eight sectors spread out to more counties. Even the selected fabric and yarn manufacturers and the leather-goods manufacturers were in more counties in 1994 than they had been in 1989, despite their sizable employment declines.

Nonmetro counties experienced geographic contraction in the same four farm-related sectors as all counties did. In most of the geographically expanding industries, nonmetro counties disproportionately gained, capturing a larger share of the counties with at least one establishment in 1994 than they had held in 1989.

Within forest-related manufacturing, all five sectors were in more counties in 1994 than in 1989. Nearly 80 percent of all 3,141 counties and 76 percent of the 2,305 nonmetro counties have at least one firm involved in lumber and wood-products manufacturing. The

selected wood furniture manufacturers expanded to more counties by the largest percentage, nationally and among nonmetro counties. All sectors geographically expanded more rapidly in nonmetro counties, increasing the nonmetro shares of all counties with at least one forest-related manufacturer.

Implications for Rural Development

The trends in farm- and forest-related value-added manufacturing during 1989-94 generally favored rural areas. In nearly all the industries we analyzed, nonmetro areas increased their shares of establishments and employees, even in most of the industries with declining employment. Most of the farm-related and all of the forest-related sectors also spread to more counties by 1994, tending to favor rural locations.

Some rural communities lost establishments and jobs in these industries as firms closed, relocated, or downsized. The net gains in establishments and counties containing these industries, however, suggest that more rural communities have had the ability to start new or attract relocating farm- and forest-related manufacturing firms. Whether a specific rural community will find one or more of the value-added industries beneficial to its economic development depends on many factors. Among them are whether the community's location within the inputs-versus-market spectrum matches the industry's locational

Table 4

Counties with at least one establishment in the farm- or forest-related value-added manufacturing sectors

Nearly all farm- and forest-related value-added manufacturing sectors expanded to more nonmetro counties between 1989 and 1994

	Total		Nonmetro		Nonmetro share of counties with at least one establishment	
	1994	Change, 1989-94	1994	Change, 1989-94	1994	Change, 1989-94
Industrial sectors						
	Number	Percent	Number	Percent	Percent	Percentage points
Farm-related sectors:						
Meat products	1,324	5.9	801	6.5	60.5	0.3
Dairy products	762	-8.1	350	-9.3	45.9	-.6
Canned, frozen, and preserved fruits, vegetables, and food specialties	703	8.3	317	13.6	45.1	2.1
Grain mill products	1,215	4.8	729	3.7	60.0	-.7
Bakery products	755	8.5	271	17.8	35.9	2.8
Sugar and confectionery products	497	5.3	186	11.4	37.4	2.0
Fats and oils	349	-5.2	162	-2.4	46.4	1.3
Beverages	704	-4.9	293	-9.0	41.6	-1.9
Selected miscellaneous food preparations	716	13.8	287	21.6	40.1	2.6
Tobacco products	74	-12.9	19	-9.5	25.7	1.0
Selected cotton or wool fabric or yarn manufacturing	502	18.4	221	20.8	44.0	.9
Leather products and leather and sheep-lined clothing	633	5.1	315	5.0	49.8	-.1
Forest-related sectors:						
Lumber and wood products, except furniture	2,577	3.6	1,765	4.3	68.5	.4
Paper and allied products	1,146	3.2	543	4.2	47.4	.4
Selected wood furniture	1,262	8.2	636	11.8	50.4	1.6
Selected printing and publishing	2,205	4.9	1,410	6.4	63.9	.9
Selected chemicals and allied products	72	1.4	37	12.1	51.4	4.9

Source: Calculated by ERS using data from County Business Patterns files enhanced by Claritas, Inc.

needs, whether the community must offer tax breaks or industrial park investments to attract the industry, whether the industry pays wages as high as or higher than other industries the community could attract, and whether the industry can find sufficient local workers or must recruit from outside the community. *[Linda M. Ghelfi wrote this article, but has since moved to research on food assistance. Please contact Fred Gale, 202-694-5349, fgale@econ.ag.gov, if you have questions regarding value-added industries.]*