

## Structural Factors Driving Rural Low-Skill Employment Trends in the 1990s

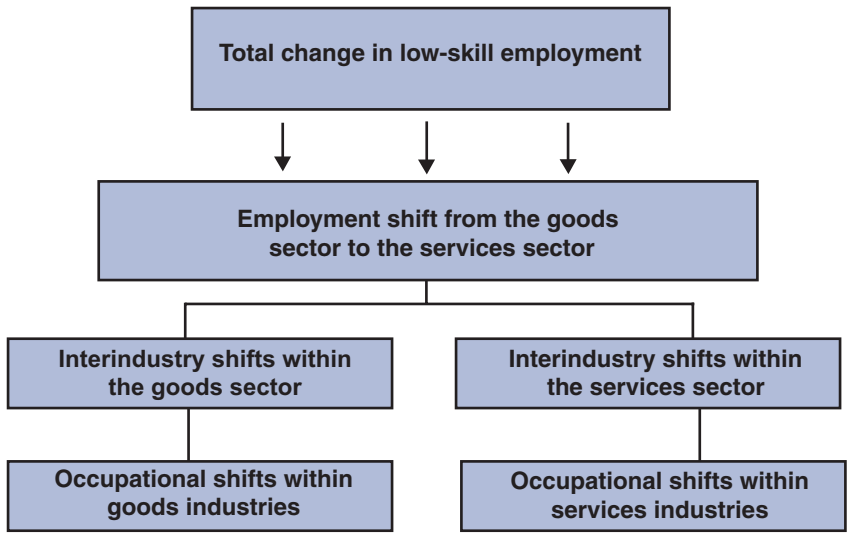
The decline in low-skill employment share reflects large-scale economic forces that are changing the nature of work in rural America, with implications for the well-being of workers, their families, and their communities (Albrecht et al., 2000; Crump and Merrett, 1998; Glasmeier, 1991; Galston and Baehler, 1995; Barkley, 1995). Increasing competition from overseas manufacturing has pressured many rural low-wage manufacturers either to become more capital intensive or to shift production to other locations. At the same time, new production technologies tend to be biased toward raising skill requirements, further shifting employment away from the low-skill workforce (Bartel and Sicherman, 1998).

Changes in production locations and technologies affect the skill composition of the rural workforce by altering both industry mix—which goods and services are produced, and in what quantity—and the occupational mix within that industry mix—how goods and services are produced. For example, the domestic textile and apparel industries shed thousands of jobs as firms moved production overseas, but blue-collar production jobs were more likely to disappear than managerial and administrative jobs, skewing the occupational mix toward higher skills. Many financial and other business services are geographically tied to domestic markets, and these industries experienced growth in all types of jobs. Rapid diffusion of computer technology, however, led to a relative decline in demand for low-skill clerical and administrative staff. In both cases, the industries became less low-skill due to occupational shifts, but the textile industry also contributed to the declining low-skill share by losing jobs overall. It is also likely that changes in skill content within occupations occurred in these industries—for example, by requiring increasing mastery of computer software by workers in clerical occupations or decreasing the computational skills needed in sales or office occupations.

To get a better picture of the nature of low-skill employment change in the rural economy, we measured the separate components of changes in industry and occupation mix from 1990 to 2000 (fig. 2). We further decomposed the industry mix effect into the effect of employment shifts between goods production and service provision and the effect of industry shifts within the goods and services sectors. Thus we were able to assign the proportion of low-skill employment share change due to shifts between goods and services, the proportion of change due to industry shifts within these sectors, and the proportion of change due to shifts in the occupation mix within these industries.

Most of the decline in rural low-skill employment share during the 1990s resulted from changes in occupational mix within industries (fig. 3 and table 2). The movement of employment from goods to services (the “sectoral” shift) also contributed to declining low-skill employment shares, accounting for 24.1 percent of the total decline in low-skill share in metro areas, and 19 percent of the total decline in nonmetro areas (table 3).

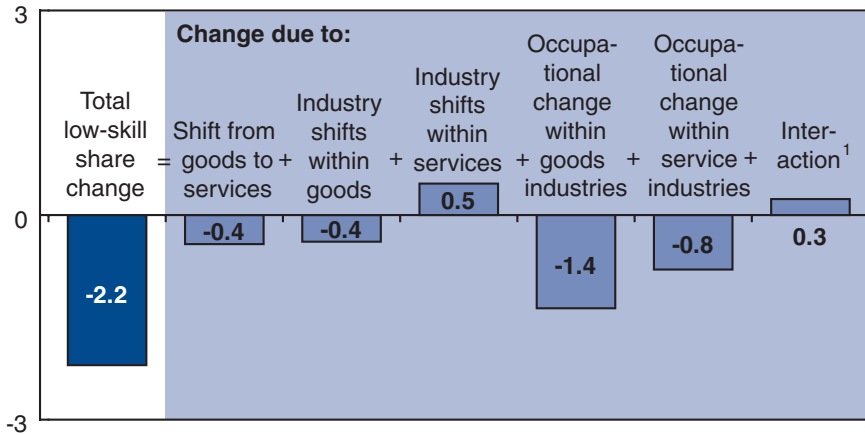
Figure 2  
**Components of change in low-skill employment share**



Source: Economic Research Service/USDA.

Figure 3  
**How industry and occupational change affected nonmetro low-skill employment share, 1990-2000**

Percent of total employment in 1990



<sup>1</sup> An interaction term captures change not attributable to a single source.

Source: Economic Research Service/USDA, using data from Current Population Survey and U.S. Census of Population.

In contrast, shifts between industries within major sectors actually increased low-skill employment share during the 1990s. Nationally, such shifts accounted for a 0.2-percentage-point increase in the low-skill employment share and a 0.1-percentage-point increase in the nonmetro share (table 2).

Table 2

**How industry and occupational change contributed to the change in low-skill employment share, 1990-2000**

Item	Metro	Nonmetro	U.S.
<i>Percentage-point change</i>			
Occupation mix	-0.9	-2.2	-1.2
Within goods	-0.5	-1.4	-0.7
Within services	-0.4	-0.8	-0.5
Interindustry	0.2	0.1	0.2
Within goods	0.0	-0.4	-0.1
Within services	0.2	0.5	0.3
Sectoral	-0.3	-0.4	-0.3
Residual	-0.1	0.3	0.0
Overall	-1.1	-2.2	-1.4

Source: Economic Research Service/USDA, using data from the Current Population Survey.

Table 3

**Employment change due to change in low-skill share by components, 1990-2000**

Item	Metro		Nonmetro		Total U.S.	
	Jobs <sup>1</sup>	Share <sup>2</sup>	Jobs <sup>1</sup>	Share <sup>2</sup>	Jobs <sup>1</sup>	Share <sup>2</sup>
	<i>Thousands</i>	<i>Percent</i>	<i>Thousands</i>	<i>Percent</i>	<i>Thousands</i>	<i>Percent</i>
Occupation mix	-890	82.7	-473	98.2	-1,364	87.5
Within goods	-504	46.8	-298	61.8	-802	51.5
Within services	-386	35.9	-176	36.4	-562	36.0
Interindustry	182	-16.9	15	-3.0	197	-12.6
Within goods	-46	4.2	-87	18.1	-133	8.5
Within services	228	-21.1	102	-21.1	330	-21.1
Sectoral	-260	24.1	-92	19.0	-351	22.5
Residual	-109	10.1	68	-14.2	-40	2.6
Overall	-1,076	100.0	-482	100.0	-1,558	100.0

<sup>1</sup>These values represent the changes in low-skill employment that would have occurred if total employment had not changed between 1990 and 2000, given the actual changes in employment mix between 1990 and 2000.

<sup>2</sup>Share of overall employment change.

Source: Economic Research Service/USDA, using data from the Current Population Survey.

## Decline in Low-Skill Share During the 1990s Reflects Changes in Occupational Mix Within Industries

In nonmetro areas, close to 100 percent of the drop was due to shifts from low-skill to higher skill occupations within industries. Around 83 percent of the metro drop in low-skill share was due to these changes in occupation mix (table 3). Shifts from low-skill to higher skill occupations within industries were more pronounced in the goods-producing sector, lowering the overall low-skill employment share by 0.7 percentage points nationally and by 1.4 percentage points in nonmetro areas (table 2). Within the goods sector, the drop in low-skill share was largely attributable to manufacturing industries (table 4). Manufacturing is by far the largest group within the goods sector, and employment trends in individual manufacturing industries (e.g., electrical equipment, furniture) were driven by rapid technological change, especially the diffusion of computer-related production technolo-

Table 4

### Low-skill employment change due to change in occupation mix by major industry, 1990-2000

Industry	Metro		Nonmetro		Total U.S.	
	Jobs <sup>1</sup>	Share <sup>2</sup>	Jobs <sup>1</sup>	Share <sup>2</sup>	Jobs <sup>1</sup>	Share <sup>2</sup>
	<i>Thousands</i>	<i>Percent</i>	<i>Thousands</i>	<i>Percent</i>	<i>Thousands</i>	<i>Percent</i>
Goods	-504	-2.1	-298	-3.8	-802	-2.5
Agriculture	5	0.6	-37	-3.1	-32	-1.5
Other extractive	-56	-4.8	-9	-1.5	-64	-3.7
Construction	-46	-0.8	-73	-5.1	-119	-1.7
Manufacturing	-407	-2.6	-179	-3.9	-586	-2.9
Services	-386	-0.6	-176	-1.3	-562	-0.7
Transportation	25	0.6	1	0.1	26	0.5
Communications and utilities	-77	-3.0	-11	-2.2	-89	-2.9
Wholesale trade	118	2.7	-2	-0.3	116	2.3
Retail trade	118	0.7	-46	-1.3	72	0.4
Finance, insurance, and real estate	-101	-1.4	-15	-1.7	-115	-1.4
Business services	-150	-3.0	-34	-4.8	-184	-3.2
Personal services	-31	-0.8	-6	-0.7	-37	-0.8
Entertainment and recreation	5	0.3	10	5.3	14	1.0
Professional services	-342	-1.6	-53	-1.2	-395	-1.5
Public administration	49	1.1	-19	-2.0	30	0.5
<b>Total</b>	<b>-890</b>	<b>-0.9</b>	<b>-473</b>	<b>-2.2</b>	<b>-1,364</b>	<b>-1.2</b>

<sup>1</sup> Employment numbers represent the reduction or increase in low-skill jobs in each industry due solely to the change in low-skill employment share. The total change in low-skill jobs will be different due to changes in an industry's overall employment during the decade.

<sup>2</sup> Share of 1990 employment in each industry.

Source: Economic Research Service/USDA, using data from the Current Population Survey.

gies. Nonetheless, low-skill shares declined in all major goods groups, including construction, agriculture, and other extractive industries. Among the goods-producing industries that saw substantial shifts toward higher skill occupations in nonmetro areas were construction, crop agriculture, sawmills and planing mills, apparel, and motor vehicles (table 5).

In the service sector, within-industry declines in low-skill employment shares were concentrated in professional services, business services, communications and utilities, and finance, insurance, and real estate (table 4). Individual service industries that saw substantial skills upgrading in nonmetro areas included hospitals and grocery stores (table 5). Unlike a number of industries in the goods sector, such as apparel, where skill upgrades are likely to reflect the movement of low-skill jobs abroad, many of these service industries have little or no exposure to import competition, and the trends in these industries likely reflect new production technologies.

Table 5

**Skill upgrading and downgrading in selected nonmetro industries, 1990-2000**

Industries	Change in low-skill share due to		
	1990 employment	change in occupation mix	Jobs upskilled
	<i>Thousands</i>	<i>Percent</i>	<i>Thousands</i>
All industries	21,453	-2.2	473
All upskilling industries (142)	14,629	-5.1	744
All downskilling industries (77)	6,824	4.0	-270
Leading upskilling industries:			
Construction*	1,447	-5.1	73
Crop agriculture*	706	-6.2	44
Business services, n.e.c. <sup>1</sup>	144	-22.9	33
Hospitals	784	-3.2	25
Grocery stores	640	-4.0	25
Sawmills, planing mills, and millwork*	205	-10.9	22
Apparel and accessories*	325	-6.5	21
Retail trade not specified	106	-19.0	20
Motor vehicles*	235	-7.8	18
Manufacturing not specified	117	-14.1	17
Leading downskilling industries:			
Wholesale trade, groceries	137	14.8	-20
Health services, n.e.c. <sup>1</sup>	179	9.7	-17
Oil and gas extraction*	137	12.4	-17
Motor vehicle dealers	225	6.8	-15

\*=Goods-producing industry.

<sup>1</sup>Not elsewhere classified.

Source: Economic Research Service/USDA, using data from the Current Population Survey.

While skill upgrading was widespread across industries, many industries experienced increases in low-skill employment share—downskilling—during the 1990s. In nonmetro areas, the low-skill employment share increased in 77 of 219 industries, which together accounted for 32 percent of nonmetro employment in 2000. Industries that saw substantial increases in low-skill employment share included wholesale trade in groceries, oil and gas extraction, motor vehicle dealers, and health services not elsewhere classified (table 5).

## **Employment Shifts Between Sectors Lowered Low-Skill Employment Share**

As noted earlier, shifts among major industry sectors also lowered the low-skill share of employment in both metro and nonmetro areas in the 1990s. The share of workers employed in the goods sector fell, although the total number of jobs in goods rose slightly (table 1). Because goods production is relatively low-skill on average, this reduced the low-skill share. Overall, the net effect of this intersectoral shift alone would have lowered the metro low-skill employment share by 0.3 percentage points nationally between 1990 and 2000 (table 2). In nonmetro areas, this effect was stronger, working to lower the low-skill employment share by 0.4 percentage points (table 2). The goods sector is larger relative to the service sector in nonmetro areas than in metro areas; further, the low-skill share of goods-producing employment is much higher in nonmetro than in metro areas. For both reasons, the decline of the goods sector relative to the service sector had a greater impact on low-skill employment share in nonmetro areas than it did in metro areas.

## **Employment Shifts Between Industries Within Sectors Offset Effects on Low-Skill Share**

In rural areas, shifts between industries within the goods sector brought down the low-skill employment share. Most prominent among the declining low-skill industries in nonmetro areas were the apparel industry and the yarn, thread, and fabric mill industry. Leading the list of relatively high-skill and rapidly growing goods-producing industries in rural areas were construction and livestock agriculture.

Among the main (noninteraction) components of low-skill employment change arrayed in figure 3, only shifts between industries in the service sector tended to increase low-skill employment share. Growth in low-skill service industries generally outpaced growth in higher skill service industries. Major low-skill service industries with relatively rapid employment growth during the 1990s included trucking, department stores, lodging places, and direct selling establishments. High-skill service industries that experienced slow or negative employment growth included elementary and secondary schools, colleges and universities, banking, and insurance.

The growth of low-skill industries in the service sector was observed in both rural and urban labor markets. In the latter, where services comprised three-quarters of employment in 2000, interindustry shifts substantially dampened the upskilling trends of sectoral and occupational change by adding back the equivalent of 182,000 low-skill jobs into the urban economy (table 3).