

Implications of Low-Skill Employment Trends for Rural Workers

The discussion of trends in low-skill employment so far has emphasized shifts in the structure of jobs. But these changes also have significant implications for some demographic subgroups of workers because of their greater likelihood of low-skill employment. For example, Blacks, who are nearly twice as likely as Whites to have a low-skill job, saw a larger low-skill share decline. We find, however, that groups with higher average low-skill employment shares are not necessarily the groups that experienced the largest declines. Women, who are less likely to work in a low-skill job than men, saw a larger drop in share. Meanwhile, Hispanics, nearly half of whom work in low-skill jobs, actually increased their share during the 1990s. Central to the question of well-being is whether these trends contributed to higher earnings. Overall the answer appears to be “yes,” despite lower average earnings in the growing service sector.

Demographic Variation in Low-Skill Employment

Education, age, ethnicity, and gender are all predictive of low-skill work. A worker’s level of education—the single most important measure of human capital—is a powerful predictor of the likelihood of employment in a low-skill career track. Occupation choice (recall that occupation is the essential measure of skill in this report) is shaped and constrained in large degree by the level and type of formal education acquired, although occupation/skill level certainly varies substantially among workers with an identical number of years spent in school.

Age is also strongly and positively related to low-skill employment, in large part because age reinforces the human capital effects of formal education. An important implication of standard human capital theory is that workers become more skilled as they age, primarily because they continue to acquire new skills and improve existing ones over the course of their careers. Older workers, then, tend to be more skilled—and have a lower incidence of low-skill employment—and this trend should continue with increasing age, at least to a point. Investment in new skills eventually slows down for the average worker, and skill investment reaches a plateau in the last years of a person’s career.

In addition to human capital, factors not directly related to a worker’s productivity also affect the likelihood of low-skill employment. A legacy of hiring discrimination and occupational segregation in the United States continues to shape the present distribution of women and racial and ethnic minorities across occupations and, by extension, the skill requirements of their jobs. Individual preferences for occupations may differ across demographic groups as well. The effects of segregation by race and sex, however, are somewhat different. In the case of race and ethnicity, segregation usually meant that the most menial, physically laborious tasks fell to minority workers; these jobs typically score very low on skill metrics. Women’s jobs were clearly different from men’s in the nature of the tasks and often in work environment as well, but the implications for skill are less clear. Historically,

segregation largely excluded women from high-level managerial roles, and they were effectively barred from many professions. Yet women have a long history of employment in clerical jobs, teaching, and other occupations requiring significant intellectual ability and formal schooling.

The relationships between demographic attributes and the probability of low-skill employment are evident from a logistic regression analysis of employed persons age 16 and older, using data from the 2000 Current Population Survey's microdata earnings files (table 7). Logistic regression can be used to estimate the separate effects of independent factors on the probability of an event or condition—in this case, the probability of being employed in a low-skill job. The independent factors in our model included all the demographic attributes discussed in this section—education, age, sex, and race and ethnicity—plus controls for industry of employment. The worker's industry is included because it may be correlated with demo-

graphic attributes. For example, a typical manufacturing job is more likely to be low-skill than the typical service job. Blacks are more likely to be employed in manufacturing than the workforce as a whole. Thus, we would expect part of the association between being Black and having a low-skill job to be attributable to the greater probability of working in manufacturing.

The results of the logistic regression indicate that, even when industry effects are “netted out,” low-skill employment rates are higher for workers who are younger and have less education, for minorities, and for men. In the second column of table 7, the strength of each factor's independent effect is measured by reference to the multiplicative effect on the odds ratio, which is the ratio of the likelihood of low-skill employment if the worker possesses the characteristic to the likelihood if he or she does not. The multiplicative effect is easily interpreted. If the effect is exactly 1, the effect of a characteristic on the odds of low-skill employment would be no different from the effect of the comparison characteristic—such as women compared with men. The multiplicative effect is greater than 1 where the characteristic makes the person more likely to be employed in a low-skill

Table 7

Factors affecting the likelihood of low-skill employment, 2000

Factors	Parameter estimate	Odds ratio
Intercept	-4.0904	NA
Less than high school	3.6922	40.134
High school diploma	2.6678	14.408
Some college	1.1194	3.063
Age 16-24	0.5907	1.805
Age 25-34	0.0207 ¹	1.021
Age 35-44	-0.135	0.874
Age 45-54	-0.1503	0.86
Male	0.0573	1.059
Black	0.6633	1.941
Hispanic	0.527	1.694
American Indian	0.3185	1.375
Nonmetro residence	0.1939	1.214
Agriculture, forestry, and fishing	0.7844	2.191
Mining	1.2158	3.373
Construction	0.4952	1.641
Manufacturing	1.1986	3.373
Transportation, communications, and utilities	1.2503	3.491
Wholesale trade	0.5178	1.678
Retail trade	1.2713	3.565
Finance, insurance, and real estate	-0.8486	0.428
Services	0.6375	1.892

NA=Not applicable.

¹Not significantly different from zero at 0.01.

Note: The omitted categories are college graduates, age 55 and older, female, White, metro, and government.

Source: Economic Research Service/USDA, using data from the 2000 Current Population Survey.

job, and less than 1 where the characteristic makes the person less likely to be employed in a low-skill job.

Education has the largest effect on the likelihood of low-skill employment. The odds of holding a low-skill job are 40 times higher for workers without high school diplomas as for college graduates, consistent with the fact that nearly half of workers in low-skill jobs did not complete high school. Workers younger than 25 are nearly twice as likely to have low-skill employment than workers older than 55, while those in the midlife of their careers have slightly lower odds than older workers. Blacks have higher odds of low-skill employment than either Hispanics or American Indians, and about twice that of non-Hispanic Whites. Their higher odds compared with Hispanics seem surprising, given Blacks' longer history of integration into the American economic mainstream, but may be related to the residential concentration of Blacks in the rural South, where low-skill employment is more common than in other regions. Compared with race, gender contributes relatively weakly to the odds of low-skill employment—men are about 6 percent more likely to be employed in a low-skill job than women once education, age, race/ethnicity, and industry are controlled.

Minority workers' greater likelihood of low-skill employment cannot be explained by their being "crowded" into low-skill industries. The findings suggest that minority workers' occupational profiles within industries may go further to explain racial and ethnic differences in low-skill employment. If so, then the types of changes driving the decline in low-skill employment share in the 1990s may have been particularly significant for Black, Hispanic, and Native American workers.

We also included nonmetro residence as an independent factor in the model. After controlling for demographic attributes and industry, nonmetro workers are about 21 percent more likely to have low-skill employment than metro workers, only slightly lower than without such adjustments. The small difference in the rural odds with and without demographic controls is due in part to the countervailing forces of ethnicity and education. Rural areas overall have lower shares of minority workers, but higher shares of less educated workers.

Low-Skill Trends in the 1990s Vary by Subgroups

Did the decline in low-skill employment share affect all workers equally? We have already observed that industry and occupation of employment differed across worker subgroups, making equal participation in the share decline unlikely. This is demonstrated in table 8, which shows the change in nonmetro low-skill share from 1990 to 2000 by demographic characteristics. The decline in low-skill employment share was largest among nonmetro women (-4.3 percentage points) and Blacks (-5.2 percentage points). When demographic categories are broken down by race and gender simultaneously, the largest declines in low-skill employment share occurred among Black women (-7.3 percentage points) and, to a lesser extent, White women (-4.9 percentage points), while declines for most other groups were near the overall nonmetro share decline of 2.2 percentage points. The low-skill share

Table 8

Nonmetro low-skill employment shares by selected characteristics, 1990 and 2000

Characteristic	1990	2000	Change
	---Percent---		Percentage points
White	42.0	39.0	-3.0
Male	42.6	41.2	-1.4
Female	41.3	36.4	-4.9
Black	69.2	64.0	-5.2
Male	71.6	69.3	-2.3
Female	66.5	59.2	-7.3
Hispanic	64.6	67.1	2.5
Male	67.5	70.8	3.3
Female	59.5	61.6	2.1
Other	47.3	44.2	-3.1
Male	48.9	46.2	-2.7
Female	45.7	42.3	-3.4
All male	45.4	44.6	-0.8
All female	43.7	39.4	-4.3
Total	44.4	42.2	-2.2

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

rose for Hispanics, however, including an increase of 3.3 percentage points for Hispanic men.

A few key employment shifts accounted for much of this change. First, the share of nonmetro women in managerial and professional occupations, none of which are low-skill, grew by nearly half during the 1990s, from 21 percent to 30 percent (table 9). Employment share grew in these occupations for women of all racial/ethnic groups. The corresponding occupations with declining share, however, differed by race. For White and Hispanic women, the shift was most noticeable out of the sales, clerical, and administrative support occupation group. However, other blue-collar jobs, nearly all of which are low-skill, led the decline among nonmetro Black women, falling from 30 to 18 percent of Black women's employment. By comparison, other blue-collar occupational employment among Hispanic women remained

steady over the decade and was 17 percent of their overall employment in 2000. Unlike other women, Black women saw large employment gains in the service occupations. Because three-quarters of service jobs held by nonmetro Black women are low-skill, a somewhat lower share than for blue-collar jobs, the movement from blue-collar work to services helped to reduce their share of employment in low-skill occupations.

The increase in low-skill employment among nonmetro Hispanic men is similar in that its source is largely a shift between two occupation groups with high shares of low-skill employment. The largest employment shift in the 1990s for these workers was out of farming jobs and into blue-collar (mostly manufacturing) work.

Decline in Low-Skill Employment Share Improved Earnings

With skill level and wages closely associated, we might expect that earnings rose in the 1990s along with the rural low-skill share decline. One component of that decline, the shift from goods to service employment, countered the overall trend because wages in the goods sector are higher on average than wages in the service sector for jobs with similar skill requirements. Thus, the sectoral shift alone would have prompted low-wage job growth. But the higher average skill levels required in service-sector jobs, more rapid growth in higher skill occupations compared with low-skill occupa-

Table 9

Nonmetro employment by occupation, sex, and race/ethnicity, 1990-2000

Item	Managers and professionals		Sales, clerical, and administrative support		Service		Precision production, craft, and repair		Other blue-collar		Farming, fishing, and forestry	
	1990	2000	1990	2000	1990	2000	1990	2000	1990	2000	1990	2000
<i>Percent</i>												
Male	18.2	21.1	14.3	12.7	8.2	8.9	21.4	22.9	26.6	26.2	11.2	8.2
Black	7.3	8.8	6.2	8.4	12.8	14.0	16.9	19.3	47.2	43.8	9.7	5.8
Hispanic	8.2	7.1	8.7	7.6	8.5	10.9	21.8	24.0	29.4	37.7	23.4	12.8
White	19.3	22.8	15.2	13.4	7.8	8.4	21.8	23.1	25.1	24.2	10.9	8.1
Female	20.7	29.9	39.4	33.7	21.5	20.7	2.8	3.0	13.1	10.1	2.4	2.7
Black	13.0	18.8	22.1	22.9	29.7	34.6	4.5	4.9	29.8	18.3	1.0	0.5
Hispanic	10.3	16.7	34.9	27.3	30.0	29.1	5.1	7.2	14.9	16.7	5.1	3.1
White	21.7	31.6	41.2	35.0	20.4	18.9	2.5	2.6	11.6	9.0	2.6	2.9
Total	19.3	25.2	25.5	22.5	14.2	14.4	13.1	13.6	20.6	18.7	7.3	5.6

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

Table 10

Average weekly earnings of nonmetro full-time workers by sector and low-skill status, 1990 and 2000

Item	1990	2000	Change, 1990-2000
<i>----Dollars----</i>			
<i>Percent</i>			
Low-skill employment:			
Goods	443	496	12.0
Services	388	436	12.4
Total	418	466	11.5
Goods/services ratio	1.14	1.14	NA
Higher skill employment:			
Goods	663	712	7.4
Services	589	644	9.3
Total	610	662	8.5
Goods/services ratio	1.13	1.11	NA
All employment:			
Goods	526	586	11.4
Services	521	575	10.4
Total	523	579	8.5
Goods/services ratio	1.01	1.02	NA

Note: Values are in 2000 dollars.

NA=Not applicable.

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

tions, and real earnings growth across the occupational spectrum more than compensated for the shift to service employment in the 1990s.

On average, service jobs pay less than goods jobs with similar education and training requirements. Wage data for both low-skill and higher skill workers in the goods and service sectors confirm that, both within skill levels and overall, average weekly earnings for full-time workers were lower in the service sector (table 10). Thus, if the shift from goods to services had not

been accompanied by other skill or productivity changes, the resulting drop in low-skill employment share would have likely led to a drop in earnings. In fact, this happened in eight rural counties in which a real earnings decline occurred solely because of the shift from goods production to services.

Overall, however, job skills rose due to a changing mix of occupations from 1990 to 2000, leading to a better paid workforce that was more highly skilled within industries. Workers in many goods-sector industries, for instance, earned more in 2000 than in 1990, as did those in many service-sector industries. The upward pressure on earnings as a result of within-industry occupational change was reinforced by a general productivity-driven rise in earnings in the 1990s. Even workers in low-skill occupations were therefore likely to have experienced an increase in earnings. Over the decade, real earnings rose 12 percent among rural low-skill goods workers and 12.5 percent among rural low-skill service workers. Workers in higher skilled occupations experienced somewhat lower increases, 6.8 and 7.7 percent growth in real earnings in goods and services, respectively (table 11).

But there is a more serious challenge to the argument that sectoral shifts were benign. While the earnings growth suggests that full-time workers as a whole were better off at the end of the decade than at the beginning, it does not necessarily reflect the outcomes faced by workers most likely to be employed in low-skill jobs (table 12). Rural areas now have proportionately more financial planners and proportionately fewer textile machine operators. From the standpoint of a high school graduate with no college experience, however, this may still lead to worse economic prospects if fewer well-paying jobs are available for which he or she is qualified.

Table 11

Average weekly earnings of nonmetro full-time workers by sector and low-skill status, 1990 and 2000¹

Item	1990	2000	Change, 1990-2000
	----Dollars----		Percent
Low-skill employment:			
Goods	440	493	12.0
Services	384	432	12.5
Total	416	463	11.3
Goods-services ratio	1.15	1.14	NA
Higher skill employment:			
Goods	615	657	6.8
Services	506	545	7.7
Total	542	581	7.2
Goods-services ratio	1.22	1.21	NA
All employment:			
Goods	501	556	11.0
Services	455	497	9.2
Total	475	522	9.9
Goods-services ratio	1.10	1.12	NA

Note: Values are in 2000 dollars.

NA=Not applicable.

¹Nonmetro full-time workers age 18-64 with no college experience.

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

To examine the effects of industry and occupational shifts on less educated workers only, we narrow our focus to the set of workers age 25-64 who have never attended college and are therefore less likely to participate in the growing high-skill labor market in rural areas. The wage patterns for this group are quite similar to those of the total labor force. Low-skill jobs in the goods sector typically paid about 15 percent more than those in the service sector in 2000, and higher skill goods-sector jobs paid 21 percent more than comparable service-sector jobs (table 11). Moreover, less educated workers experienced a real earnings gain similar to other workers during the 1990s, in spite of the shift from goods to services, due to within-sector occupation shifts and productivity-driven earnings growth.

To measure more precisely the relative effects of sectoral change, within-sector skill change, and other real earnings growth on 1990-2000 earnings change, we calculated what the 2000 earnings would have been for rural workers in the absence of each type of change (table 12). Average weekly earnings rose 8.5 percent after adjusting for inflation, from \$523 to \$579, for nonmetro full-time workers. Without real earnings growth in each of the four skill-sector groups (low-skill/higher skill and goods/service sector), earnings would have risen just \$4 to \$527. If the mix of low-skill and higher skill occupations had remained the same over the decade, but group-specific earnings and sectoral mix had changed, average weekly earnings would have risen to a level just slightly below the actual, to \$574. Similarly, if the sectoral job mix had stayed constant, earnings would have been \$1 greater than the actual.

The pattern of change for less educated full-time workers mimics that of all full-time workers (table 12). The actual weekly earnings of \$522 would have been slightly lower (\$519) if the skill-mix within sectors had remained

Table 12

Nonmetro average weekly earnings compared across alternative change scenarios

Item	All full-time workers	Full-time with no college experience
---Dollars---		
Actual earnings, 1990	523	475
Actual earnings, 2000	579	522
Earnings assuming no change in:		
Real earnings within sector/skill group	527	476
Low-skill/higher skill occupation mix	574	519
Goods/services sector mix	580	524

Note: Values are in 2000 dollars.

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

unchanged, and slightly higher (\$524) without a shift toward service-sector employment. Therefore, the dampening effect of sectoral change on earnings was slight and easily compensated for by skill- and productivity-related change. Moreover, the drop in employment share in low-skill goods was largely absorbed by a gain in higher skill services, with the latter paying 11 percent more on average among less-educated workers than the former. Our findings, then, are consistent with a positive link between skill and wage, and thus support the view that skill trends in the 1990s benefited rural workers.