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Job Training Lags for Rural Workers

Post-school training is an important component of the rural workforce skill development system, but, in 1991, just 40 percent of the nonmetro workforce had received training on their current jobs. Less educated, minority, and southern rural workers were particularly unlikely to be enhancing their skills. Between 1983 and 1991, the training rate for nonmetro workers rose modestly, but fell behind the more rapidly rising metro training rate, suggesting that fewer rural firms had adopted the high-skill production strategies widely believed to be of increasing importance for competitive success. Lower rural training reflects both the specialization of rural firms in more routine products and technologies and the cost disadvantages of rural firms and communities as suppliers of job training.

INTENSE global economic competition, rapid changes in technology, and the dissemination of “high-performance” work practices all suggest that workers with advanced skills have the best chances of enjoying high wages and job security. The rural workforce has historically been less educated than its urban counterpart, and rural workers were especially hard hit by economic restructuring during the 1980’s. These trends suggest that many rural workers may not have enough of the right skills to compete for good jobs. Inadequate workforce skills may cloud the economic development prospects of many rural areas, while rural areas with the most highly skilled workforce enjoy their competitive advantage.

A comprehensive assessment of rural workforce skills cannot be limited to traditional schooling because job skills are not limited to the academic skills emphasized in school. A bachelor’s or professional degree is the key qualification for entry-level jobs in professional, technical, and managerial occupations. Even in these education-intensive occupations, workers typically require considerable in-service training and on-the-job experience to hone their job skills and become fully productive. For the rest of the workforce, apprenticeships and other forms of company-based training may play an even greater role in the

development of job skills. Although on-the-job learning has always been an important part of the workforce training system, the importance of post-school vocational training may be increasing. Accounts of the emerging sources of competitive advantage in manufacturing and other sectors have emphasized the need to reorganize businesses as sites of continuous learning. Career-long employee training is seen as a key component of these high-performance competitive strategies (Dertouzos, Lester, and Solow; Office of Technology Assessment; Commission on the Skills of the American Workforce).

I use data from the job training supplements to the January 1983 and 1991 Current Population Surveys (CPS) to analyze the vocational skills of rural workers and their participation in post-school job training (see Data and Methods, p. 60, for more details). I assess rural training patterns from the perspective of both rural workers and rural firms. From the perspective of rural workers, I examine how the access to vocational training differs, both among rural workers and between rural and urban workers. From the perspective of rural firms, I examine the extent to which these firms are pursuing competitive strategies that emphasize recruiting or training a highly-skilled workforce. Barriers confronting rural firms and communities, as suppliers of job training, are also discussed.

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Job Training, Productivity, and Competitiveness

The recruitment, promotion, and pay policies of firms attest to the importance of job skills learned after the completion of formal schooling. Workers' earnings typically rise quite dramatically during their careers, suggesting that they are acquiring and refining skills employers value. For example, firms tend to recruit or promote experienced workers with good references to fill the most demanding and best paying jobs. Economists call investments in learning new skills—through both traditional schooling and post-school job training—human capital investments. Although exact magnitudes are difficult to pin down, a large body of research suggests that human capital investments are an important source of productivity gains and longrun economic growth. These studies also indicate that the productivity gains from human capital acquired through post-school job training are about as large as those from formal schooling. Career-long learning makes an important contribution to rising living standards, both for individual workers and for the Nation as a whole.

Some analysts believe that the economy is restructuring in ways that increase the importance of job training. Several recent studies conclude that extensive training of the workforce is essential for firms to compete successfully in international markets on a basis other than low wages (Dertouzos, Lester, and Solow; Office of Technology Assessment; Commission on the Skills of the American Workforce). The high-skill, high-wage competitive strategies heralded by these analysts were distilled from case studies of firms that have achieved impressive capacities for continuous innovation, quality control, and responsiveness to individual customers' needs. Computer, communication, and other advanced technologies are often necessary to achieve flexible, high quality production. Major changes in organizational structure and business practices are also typically required, because the firm must create an environment that nurtures continuous learning and decentralized problem solving. The exact recipe for "high performance" work organizations varies, but extensive in-house training is almost invariably part of the mix (Ichniowski and Shaw).

A prosperous, high-skill future is not guaranteed for all workers, particularly not for all rural workers. Some analysts caution that only a small proportion of—mostly urban—firms have embraced the high performance model and emphasize that wages have deteriorated for many—especially less educated—workers (Commission on the Skills of the American Workforce, Teixeira and Mishel). A second concern is that the economy may offer diminished job security. Both the upsurge of bankruptcies and plant closings during the recessions of the 1980's and more recent waves of corporate "downsizing" have displaced many midcareer workers. These workers often

have poor prospects of finding comparably paying jobs without additional education or training.

Both the perennial relationship between human capital investments and higher productivity and wages and the more recent economic restructuring emphasize the importance of job skills learned after leaving school, suggesting that a chief determinant of the economic prospects of rural areas will be their capacities to upgrade local workforce skills. Schools play a critical role as the providers of foundational skills—including developing the ability to learn—required by a productive workforce. Two- and 4-year colleges and vocational schools also play important roles in training adult workers, as do government training programs. Nonetheless, employers typically are the lead actors in an area's training system, both as suppliers of training to their workers and in their choices about how skills are used and rewarded within their businesses. The training practices of rural firms, accordingly, provide a valuable gauge of their competitive strategies and prospects. The economic outlook for rural workers and communities is closely tied to those strategies and prospects.

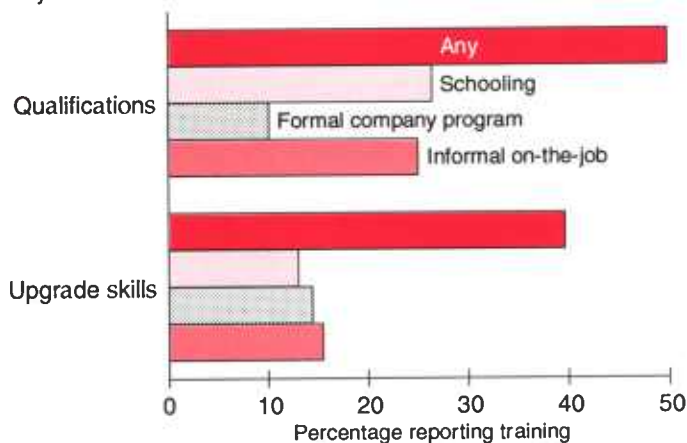
How Rural Workers Get Their Training

Both traditional schooling and enterprise-based training are important sources of the skills used by nonmetro workers on their jobs (fig. 1). Schools were the most frequently cited source of the qualifying skills workers needed to obtain their jobs (27 percent of hires), but enterprise-based training was also important. Twenty-five percent of nonmetro workers reported that informal on-the-job training (OJT) was a source of hiring qualifications while 10 percent acquired qualifications through formal company training programs. Not surprisingly, enterprise-based

Figure 1

Share of nonmetro workers reporting training used to qualify for or upgrade skills on current job, 1991

Both schooling and post-school training are important sources of job skills



Source: Calculated by author using data from the January 1991 Current Population Survey.

training was even more important as a source of skill-upgrade training after being hired, although employers made considerable use of schools to train incumbent workers.

The training glass is also half empty. Fifty percent of nonmetro workers reported their jobs did not require any qualifying training and 60 percent that they had received no training since being hired, suggesting that many low-

Table 1
Workforce training and wage premiums by residence, 1983 and 1991
Post-school training is an important component of the workforce skill development system

Type of training	Nonmetro		Metro	
	1983	1991	1983	1991
Percent				
Share of workforce with: ¹				
Hiring qualifications for current job--				
Any	51.7	49.9	58.3	58.5
Schooling	25.5	26.5	31.7	34.1
Formal company training	8.4	10.2	10.6	13.3
Informal on job training	26.2	25.1	29.1	28.1
Training on current job--				
Any	36.8	39.7	36.8	43.0
Schooling	11.5	13.1	12.6	13.5
Formal company training	11.7	14.5	12.3	18.0
Informal on job training	15.7	15.5	15.2	16.9
Estimated wage premium for training: ²				
Hiring qualification--				
Any	16.8	13.8	20.7	21.2
Schooling	13.7	14.3	17.4	22.8
Formal company training	14.3	18.4	12.5	13.0
Informal on job training	10.3	4.7	11.2	6.8
Training on current job--				
Any	6.3	10.2	7.5	8.9
Schooling	3.1	1.8	6.2	6.2
Formal company training	12.5	17.7	12.3	14.9
Informal on job training	2.8	6.0	1.8	0.8

¹Workers could report more than one type of training or qualifications, so percentages by type add to more than the total percentages receiving any training or having any qualifications.

²Calculated from coefficients on regressions that control for the effects of the variables listed in the Data and Methods, p. 60.

Source: Calculated by the author using data from the January 1983 and 1991 Current Population Surveys.

skill jobs remain. This interpretation is consistent with Teixeira and Mishel's study which concluded that many workers—especially rural workers—continue to be employed in low-skill occupations, some of which are among the occupations forecast to add the most jobs in coming years.

Qualifications and Training Pay Off

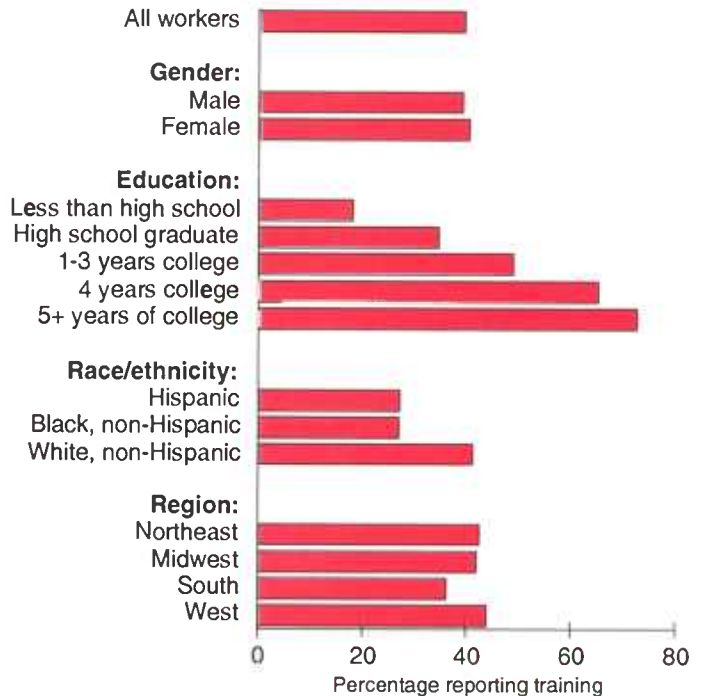
Nonmetro workers who cited hiring qualifications or obtained upgrade training are paid more than other workers, suggesting that the training activities developed skills that employers value (table 1). I estimated the labor market premium for the skills learned from training by controlling for education and other factors that affect an individual's wages. (See Data and Methods, p.60, for a listing of the factors included and an explanation of the regression method used.) The wage premiums after controlling for the other factors are substantial—14 percent for qualifications and 10 percent for training in 1991.

When I estimated separate premiums for training provided by schools, formal company programs, and OJT, formal company training programs result in the largest wage gains (18 percent). Employers apparently believe that trained workers have acquired valuable skills, especially

Figure 2

Share of nonmetro workers reporting training by gender, education, race/ethnicity, and region, 1991

Smaller shares of less educated, minority, and southern workers received training to upgrade skills on their current jobs



Source: Calculated by author using data from the January 1991 Current Population Survey.

aged by the firm. Viewed from a different perspective, a good way to identify firms whose competitive strategies emphasize workforce skills is to identify firms who have developed formal training programs for their workers or who aggressively recruit and reward highly skilled workers.

Which Rural Workers Get Training and of What Sort?

The CPS data indicate that uneven access to skill-upgrade training should be of concern. Less educated workers receive much less post-school training than better educated workers and may become trapped in low-skill jobs. Just 18 percent of rural high school dropouts reported receiving training on their current job, compared with 73 percent of workers with post-graduate education (fig. 2). Training rates are also low for racial and ethnic minorities. Only about 25 percent of rural Blacks and Hispanics report any training on their job compared with 41 percent of other (predominantly White) rural workers. Finally, training rates are lower in the rural South where educational attainment is lowest and most nonmetro Blacks and Hispanics live. These patterns suggest that enterprise-based training is least available to the least skilled rural workers who may be in greatest need of improved vocational skills. They also suggest that the lower educational attainment of the rural workforce constitutes a barrier to post-school job training.

The training received by rural workers is quite diverse (table 2). Among workers receiving training, 24 percent received training in managerial and supervisory skills, 29 percent in computer skills, and just 15 percent in reading, writing, or math skills. Two-thirds of the workers characterized their training as covering "other technical skills" specific to their occupation. The mix of skills targeted by training provides a useful reminder of the diversity and specificity of much job training, and of the limited overlap between post-school job training and academic schooling.

Firms also provide training in a variety of formats, with informal OJT (39 percent), formal company training (37 percent), and schools (33 percent) all playing important roles (table 2). Traditional apprenticeships account for surprisingly little (4 percent) of the formal training offered by firms. Public job training programs, such as those funded under the Job Training Partnership Act (JTPA), also account for only a small share of the training received by incumbent workers. The larger public role takes the form of 2- and 4-year colleges providing employees with opportunities to upgrade their skills. Public higher education appears to be an especially effective source of training for the incumbent workforce when schools tailor their offerings to the needs of specific firms or industries and offer the training as part of a more comprehensive package of industrial extension services (Rosenfeld). In other

words, public policies to enhance job training work best when they form effective partnerships with private employers, who typically are the lead actors in a highly decentralized training system.

Rural Training Up Slightly Between 1983 and 1991

The share of nonmetro workers receiving training on their jobs rose 3 percentage points between 1983 and 1991, from 37 to 40 percent (table 1). The share participating in formal company training programs also rose 3 percentage points, from 12 to 15 percent. Another indication that rural firms were demanding more skilled workers is that the estimated wage premium for training increased from 6 to 10 percent, despite the increase in the supply of trained workers. Nonetheless, the modest increases in training rates suggest that most rural firms and workers were not participating in the "high-performance" transformation by 1991. This conclusion is reinforced by the observation that hiring requirements did not increase—58 percent of workers reported qualifications in both years.

Table 2

Types and sources of skill-improvement training, 1991¹

Nonmetro workers receive less managerial and computer training and are less likely to receive training in formal company programs or 4-year colleges

Training type/provider	Nonmetro	Metro
Percent of all workers reporting training		
Type of training:		
Managerial	23.7	27.9
Computer	29.3	34.7
Academic ²	14.6	14.5
Other technical skills	66.4	66.9
Training provider:		
School	33.3	32.0
Formal company program	37.1	42.5
Informal, on the job	39.4	39.7
Other	14.8	15.0
If school:		
High school vocational program	4.0	4.4
Private vocational school	13.3	9.7
2-year college	41.5	41.0
4-year college	46.8	50.5
JTPA ³	3.7	4.9
If formal company program:		
Apprenticeship	4.2	4.1
JTPA ³	5.1	4.5

¹Workers could report more than one type of training or more than one training provider, so percentages may add to more than 100 percent of workers reporting training.

²Academic programs are in reading, writing, or mathematics.

³JTPA are programs supported by the Federal Job Training Partnership Act.

Source: Calculated by the author using data from the January 1991 Current Population Survey training supplement.

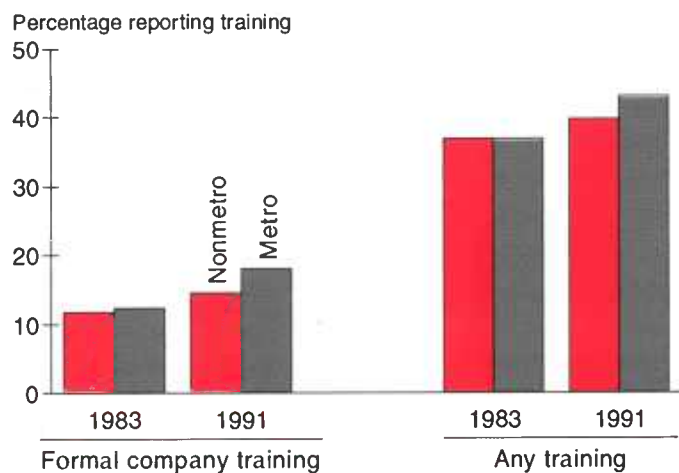
The share of workers receiving training through formal company training programs or schools increased between 1983 and 1991, while the share reporting informal OJT fell slightly. This shift in the mix of training types is consistent with the predicted change in the composition of job skills required by the new competitive strategies and production technologies, but again the shifts are modest. Higher order cognitive skills, such as the abilities to synthesize information from a number of different sources and to engage in nonroutine problemsolving, are at a premium in high performance work organizations and are probably best taught in classrooms or other formal programs, away from the job. By contrast, informal OJT is particularly effective for learning the more routine or manual skills emphasized by traditional, "mass production" firms.

Rural Training Lags Urban

Rural workers do not receive as much skill-upgrade training from their employers as urban workers. The rural training deficit was fairly small—40 percent of nonmetro compared with 43 percent of metro workers received training on their current job in 1991 (fig. 3). It is worrisome, however, that this gap emerged between 1983 and 1991, a period in which metro training rates rose much faster than nonmetro. The rural-urban gap was even larger for formal company training programs, probably a better indication of restructuring than all training is. An increasing share of U.S. employers appear to believe that their long-run competitive standing requires increased investment in workforce training, but these employers are disproportionately located in urban areas.

Figure 3
Share of workers reporting training by type of program and residence

Metro training rates increased more rapidly than nonmetro rates during the 1980's



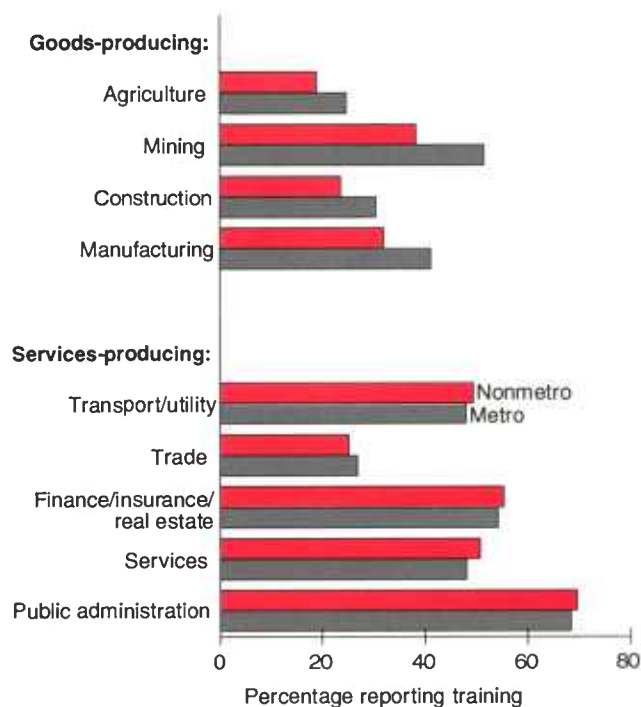
Source: Calculated by author using data from the January 1983 and 1991 Current Population Surveys.

Metro employment is more concentrated in the training-intensive services-producing industries, such as finance and public administration, than nonmetro employment (fig. 4). Lower nonmetro training rates are thus partly attributable to differences in broad sectoral mix. A non-metro-metro training gap is also evident, however, within the goods-producing industrial sectors of agriculture, mining, construction, and manufacturing. Recent discussions of international competition and high-performance work practices suggest that manufacturing is a particularly interesting sector to analyze more closely. Manufacturing also employs a substantial share of the rural workforce.

Higher metro training rates in manufacturing reflect both a concentration of the most technologically complex manufacturing industries at urban sites and a division of labor within individual industries, with the most skill and training intensive jobs located in urban areas. Complex manufacturing accounted for 51 percent of metro manufacturing employment compared with just 27 percent of non-metro manufacturing employment in 1991 (table 3). As would be expected, training rates were substantially higher for complex manufacturing. Yet, only about one-third (2.9 percentage points) of the 9.2 percentage-point non-metro-metro manufacturing training gap was due to the

Figure 4
Share of workers reporting training by industry and residence, 1991

Fewer nonmetro than metro workers in goods-producing industries receive training to upgrade their skills



Source: Calculated by author using data from the January 1991 Current Population Survey.

lower share of nonmetro employment in complex manufacturing. The remaining two-thirds of the gap reflected lower nonmetro training rates within complex and routine manufacturing. Three-quarters of the nonmetro-metro gap for formal company training programs was due to lower nonmetro training rates within the two manufacturing subsectors.

Rural-urban differences in occupational mix also indicate a spatial division of labor within complex and routine manufacturing that concentrates the most skilled jobs in urban areas. Managerial, professional, and technical workers, who are more educated and have higher training rates than other broad occupational groups, accounted for 37 percent of metro employment in complex manufacturing in 1991, compared to just 18 percent of nonmetro employment. These training intensive occupations account for 17 percent of metro and 8 percent of rural employment in routine manufacturing.

The types of training provided to rural workers also differ in several respects from those provided to urban workers (table 2). One difference is that nonmetro workers receive less training in managerial and computer skills than metro workers, reflecting the concentration of managerial and the most technically advanced production activities at urban production sites. Nonmetro workers are also less likely to participate in formal company training programs. This is probably due, at least in part, to the smaller size of rural firms (fig. 5). Most small firms cannot afford to establish formal training programs and must instead rely on either informal instruction from co-workers or external training providers. Among external providers, nonmetro firms differ from metro employers by relying more on

vocational schools and less on four-year colleges. Rural firms are less likely to be located near 4-year colleges and universities that can provide advanced training for their workforce, but appear to have more access to vocational schools (see Gibbs' article on page 37).

Factors Depressing Rural Training

These CPS data suggest that rural firms train less than urban firms because their jobs are less technical and require less training to perform. The example of manufacturing demonstrates that the spatial division of labor results in relatively low demand for skilled workers and, hence, for training at rural plants. Rural firms may also train less because the per unit cost for training a rural worker may be high. Rural workers are generally less educated than urban workers (and less literate, see Greenberg, Swaim, and Teixeira's article on pages 45-52) and, hence, would require more training to progress to more technical jobs. Smaller rural firms and less access to external training providers, especially colleges, that could train workers from multiple employers, may also increase unit costs that also depress rural training rates.

The multiplicity of factors depressing rural training suggests that no single policy intervention is likely to equalize training access for rural workers. Measures, such as industrial extension programs, that encourage rural firms to adopt new processes or procedures that require more highly skilled workers would also increase their demands for a trained workforce and encourage increased investment in training. Policies that directly supply training services to rural firms or lower the costs to these firms of developing their own training programs also have a role to play.

Table 3
Training in manufacturing by residence, 1991
The concentration of complex manufacturing in urban areas contributes to higher training rates for metro workers

Item	Workers receiving training on their current job:							
	Any training			Formal company training program			Distribution of manufacturing jobs	
	Nonmetro	Metro	Gap	Nonmetro	Metro	Gap	Nonmetro	Metro
	— Percent —		Percentage points	— Percent —		Percentage points	— Percent —	
Type of manufacturing:								
Routine	28.9	33.2	4.3	11.1	13.4	2.3	73.3	49.4
Complex	41.1	49.1	8.0	18.0	25.8	7.8	26.7	50.6
Total manufacturing:								
Actual training rate	32.2	41.4	9.2	12.9	19.8	6.9	100	100
Rate using metro job distribution	35.1	41.4	6.3	14.6	19.8	5.2	NA	NA
Reduction in metro-nonmetro gap	NA	NA	2.9	NA	NA	1.7	NA	NA

NA=not applicable.

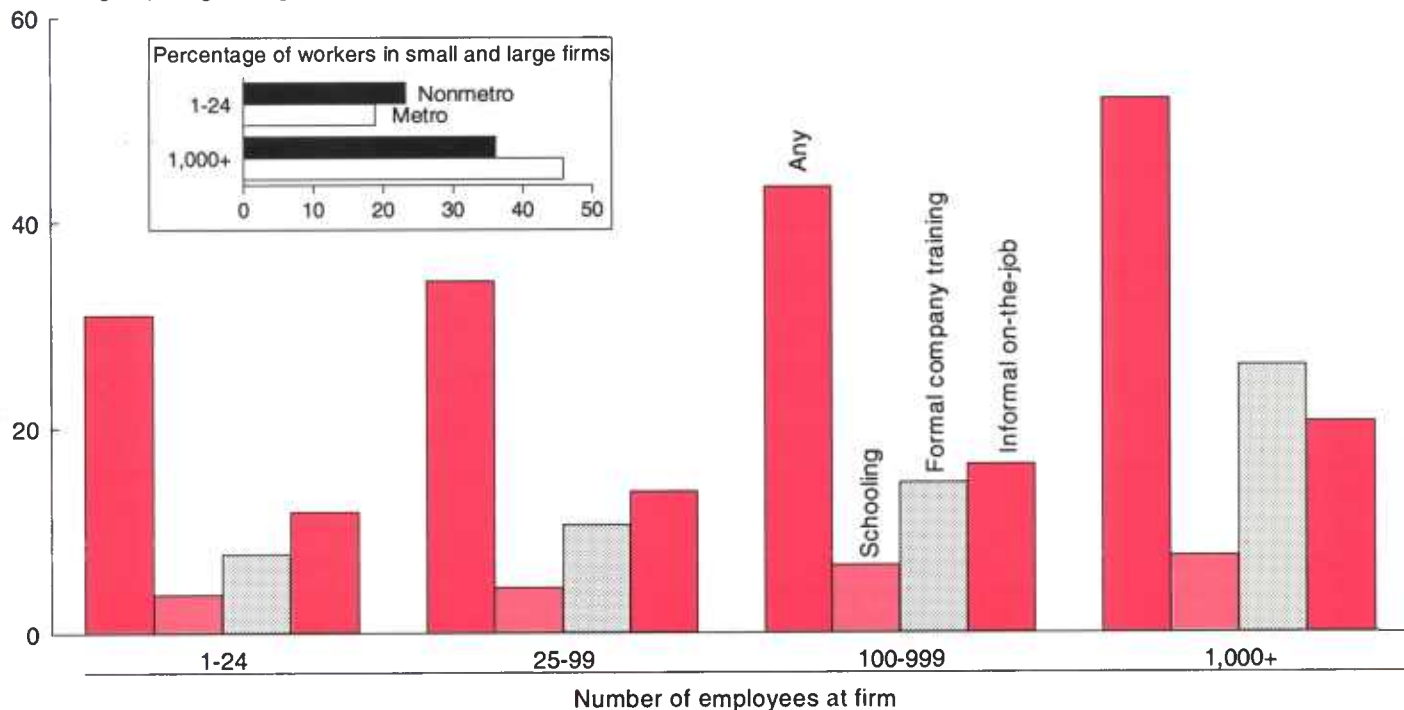
Source: Calculated by the author using data from the January 1991 Current Population Survey.

Figure 5

Share of workers reporting training by size of firm

The smaller the firm, the less likely workers are to receive training, particularly formal training provided by the company; nonmetro workers are more likely than metro workers to be employed by small firms, one of the reasons fewer nonmetro workers get training

Percentage reporting training



Source: Calculated by author using data from the January 1991 Current Population Survey.

Conclusions

Job skills learned after entering the workforce provide crucial qualifications for many good jobs, yet 60 percent of the rural workforce reported receiving no training since beginning their current jobs. Less educated, minority, and southern workers are particularly unlikely to receive additional training. Between 1983 and 1991, the training rate for nonmetro workers rose modestly, but fell behind the more rapidly rising metro training rate. The rural training gap appears to have resulted, in part, from an increased concentration of the most skilled jobs at urban production sites, which resulted in relatively low rural demand for trained workers. The typically smaller size of rural firms, their more limited access to colleges and other external training sources, and the lower educational and literacy levels of the rural workforce probably result in higher unit training costs.

Although employer-provided training dwarfs government training programs, public assistance with meeting employers' training needs can play an important role in rural development programs targeting high-wage job growth, particularly through involving colleges and universities in these efforts. The small size and remoteness of many rural employers is a barrier to workforce training and suggests a need for adult education and industrial extension programs to devote significant resources to outreach efforts designed to reach these firms and their employees. Another concern is that current training patterns strongly favor workers who already have the best education and job skills, leaving most of the less educated and minority workers untrained and unlikely to advance to more technical jobs. It is important, however, to balance concerns for equalizing training access with the need to target training assistance where it can contribute most to modernizing rural industry.

For Further Reading . . .

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Data and Methods

The Bureau of the Census interviews a nationally representative sample of approximately 60,000 households each month for the Current Population Survey (CPS), which is the primary source of labor force information for the United States. In 1983 and 1991, the standard January CPS questionnaire was augmented by a series of questions concerning job skill qualifications and skill-improvement training on currently held jobs. Workers were first asked whether they required qualifications to obtain their current jobs and whether they had received training since being hired. For workers answering "yes" to either question, additional information was collected about this training. (See Bowers and Swaim in For Further Reading for a more detailed description of the CPS job training supplements.)

A Caution about the Data

CPS respondents' answers to the qualifications and training questions were inevitably somewhat subjective and should not be treated as precise measures of training investments and job skills. For example, jobs may require literacy, communications, or quantitative skills that most workers view as too generic to report as required job qualifications. Similarly, many survey respondents are apt to overlook training that is largely an automatic result of doing a job and getting "up to speed." The author's personal experience with training programs suggests that the CPS data can also exaggerate training activities. Some of the training reported by workers may not have significantly enhanced their productivity.

Despite this imprecision, the CPS training data provide a valuable window into firms' training strategies and workers' skills. The evidence on wage premiums strongly suggests that workers reporting qualifications or training generally are more productive than other workers, even if it is difficult to gauge precisely how much more productive. Furthermore, comparisons of training rates across groups of workers or different time periods should provide reliable indicators of differences in training, because any tendency of the CPS data to over- or understate training will tend to cancel out these differences. The data on skill upgrade training received by incumbent workers is emphasized in this article, rather than the data on hiring qualifications, because "training" seems somewhat more concrete than "qualifications" and more closely linked to high-performance production strategies.

Regression Analysis of Wage Premium

Following a methodology widely used by labor economists, I estimate the labor market premium for the skills learned from training by the coefficient of a dummy variable for qualifications or training from a wage regression. More precisely, the natural logarithm of individual earnings is regressed on this dummy variable and an extensive list of control variables, measuring other factors that affect an individual's earnings. These control variables include potential labor market experience and its square, tenure with current employer and its square, and dummy variables for gender, married, a gender-married interaction, race (Black, other nonwhite), Hispanic, veteran, region (Northeast, Midwest, West), part-time job, and union membership. The squared terms for years of experience and job tenure accommodate the tendency for wages to rise most rapidly in the early years of a worker's career or employment with a particular firm. The choice of log earnings as the dependent variable also improves the model's fit and means that the training coefficient estimates the percentage increase in earnings associated with having received that type of training.