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**Displaced Workers: Differences in Nonmetro and Metro Experience in the Mid-1990s.** Karen S. Hamrick. Food and Rural Economics Division, Economic Research Service, U.S. Department of Agriculture. Rural Development Research Report Number 92.

## **Abstract**

During 1995-97, 3.4 million workers were displaced from their jobs, of whom 500,000 (15 percent) were nonmetro workers. This report examines the displaced workers' experience in metro and nonmetro areas using survey and administrative data. Although nonmetro workers were less likely to be displaced than metro workers, they had a lower probability of finding employment after losing their jobs. Nonmetro workers were less likely to be covered by legislation providing advance notice of job loss and providing retirement and health insurance benefits after being laid off. A variety of programs are available to assist displaced workers in nonmetro areas.

**Keywords:** Rural unemployment, displacement, dislocation, unemployment, dislocated worker programs, Trade Adjustment Assistance.

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## Summary

During 1995-97, 3.4 million workers lost their jobs because their plant or company closed or moved, their employer had insufficient work, or their position or shift was abolished. Of these displaced workers, 500,000 (15 percent) were nonmetro residents. The nonmetro displaced worker experience was generally the same as that of metro displaced workers; however, a large share of nonmetro displaced workers dropped out of the labor force and also a large share of nonmetro displaced workers were in low-income households. In addition, Federal programs and legislation to assist and protect displaced workers unevenly serve nonmetro workers.

Economic restructuring can cause economic dislocation as workers lose their jobs. Technological advances, firm downsizing, and shifts in consumer product demand cause restructuring as these factors change the pattern of job-skill demand. Displacement occurs even though the economy is expanding. Displaced workers may experience hardship in the form of joblessness and lower earnings once a new job is found. Analysis on displacement in nonmetro areas is a component of ERS research in understanding how changing market conditions affect rural economies, and how Federal programs affect rural areas. Past research found that metro-nonmetro residence is an important factor in analyzing displacement, as disproportionately more displaced workers were from nonmetro areas than from metro areas in the early to mid-1980s. During that time, nonmetro displaced workers experienced greater hardship from losing their jobs than did metro displaced workers.

This report examines the displaced workers' experience during 1995-97 in metro and nonmetro areas. First, data from the Bureau of Labor Statistics survey on displaced workers was used to answer the two questions:

- ◆ Are nonmetro workers displaced more or less often than metro workers?
- ◆ Is the hardship for nonmetro displaced workers greater or less than for metro displaced workers?

Analysis includes descriptive statistics on the demographic and job characteristics of displaced workers. Detail is presented on three groups: those age 55-64, those without a high school diploma, and those in low-income households. Models and their resulting estimates are presented for the probability of displacement, the probability of employment after displacement, and the earnings loss experienced.

This analysis finds that nonmetro workers were at a slightly lower risk of displacement than metro workers during 1995-97. However, once displaced, nonmetro workers were less likely to find a new job than metro displaced and more likely to drop out of the labor force. Women, workers with long tenures on their lost job, and low-skill workers had lower probabilities of finding a new job compared with other displaced workers. About half of the employed displaced workers, both metro and nonmetro, found a new job but with lower real weekly earnings. The main reason for earnings loss was the reduction in hours worked—displaced workers who had been working full time but could only find a part-time job. Displaced workers who had longer tenures on their lost job had more earnings loss than other displaced workers who had found a new job.

The second part of this analysis used administrative data on Federal programs to assess how well nonmetro workers are served by Federal programs and legislation designed to assist and protect displaced workers. Several Federal programs assist workers who lost their jobs as a result of structural change in the economy. The Unemployment Insurance Program (UI) is the main income assistance program for displaced workers, and nonmetro workers were found to have the same rate of UI use as metro workers. Also, the training and employment programs of the Workforce Investment Act appear to be equally accessible to nonmetro and metro displaced workers. However, nonmetro workers are less likely to be covered by the advance notice and benefit portability legislation designed to protect displaced workers. Trade adjustment assistance programs were greatly utilized by nonmetro communities during 1994-98; 40 percent of all certifications of benefit eligibility were in nonmetro areas.

Despite the strong economic expansion of the 1990s with tight labor markets, layoffs continue at a relatively high rate, and some groups face disproportionate hardship. The implication of these findings is that continued assistance is needed for workers who lose their jobs from structural or technological change.

# Displaced Workers

## Differences in Nonmetro and Metro Experiences in the Mid-1990s

Karen S. Hamrick

### Introduction

Economic restructuring can cause economic dislocation as workers lose their jobs. Technological advances, firm downsizing, and shifts in consumer product demand cause restructuring as these factors change the pattern of job-skill demand. Displacement occurs even though the economy is expanding. Indeed, large layoffs by major companies continued during the record expansion and tight labor market of the 1990s. Workers may experience hardship in the form of joblessness and lower earnings once a new job is found. During 1995-97, 3.4 million workers lost their jobs due to economic restructuring.

This report first examines the displaced worker experience during 1995-97 in metro and nonmetro areas using data from the Bureau of Labor Statistics survey on displaced workers.<sup>1</sup> Are nonmetro workers displaced more or less often than metro workers? Is the hardship for nonmetro displaced workers greater or less than for metro displaced workers? This report also analyzes programs and legislation designed to assist and protect displaced workers. Are nonmetro workers well served by these programs and protections?

### What Is Displacement?

Displaced workers are “individuals with established work histories who have lost their jobs through no fault of their own and who are likely to encounter considerable difficulty finding comparable employment” (Browne, 1985). Displacement is considered structural unemployment, not unemployment due to economic cycles or due to the normal matching process between workers and employers, but instead unemployment due to skills or geographical demand-supply mismatches. Fallick (1996) defines displacement as having three characteristics: (1) there is a structural cause for the job loss; (2) those displaced

have limited ability to attain a comparable job soon after job loss; and (3) displaced workers have a strong attachment to the sector of their lost job.

Past research suggests that metro-nonmetro residence is an important factor for understanding the displaced worker experience. In the early to mid-1980s, disproportionately more displaced workers were from nonmetro areas than from metro areas (Swaim, 1990). Nonmetro displaced workers also experienced greater hardship from losing their jobs than did metro displaced workers. Because nonmetro areas lagged metro areas according to several economic indicators during the 1980s—lower employment growth, higher unemployment rates, and slower growing incomes and earnings—nonmetro displaced workers were more likely to experience difficulty finding a new job and maintaining their previous earnings level.

However, the general economic situation in rural areas during the early 1990s was much improved over that of the 1980s. After the recession of 1990-91, nonmetro areas showed strong economic performance and outperformed metro areas by several measures during the recovery years of 1991-94. In particular, nonmetro employment growth was strong and unemployment was low. In 1995, however, nonmetro employment growth slowed, while metro employment growth increased. Nonmetro employment growth dipped in 1997-98 as the global financial crisis caused a decline in the growth of U.S. goods exported. As goods exports rebounded in late 1998 and the crisis ended, the shock to the nonmetro labor market subsided. This favorable economic environment in the 1990s raises questions about the level of hardship experienced by nonmetro displaced workers in the 1980s.

### Displaced Workers: What Do We Know?

Hipple (1999) found that, nationally, job displacement in the 1980s occurred primarily in the goods-

<sup>1</sup> See Endnotes beginning on p. 33.

producing industries. By the mid-1990s, a broader range of industries was affected. However, workers in goods-producing industries, and nondurable goods manufacturing in particular, continued to have a higher rate of displacement than workers in the service sector. A broader range of occupations was represented as well, with an increased risk of displacement for white-collar workers. He also found that, over the past decade, job loss due to plant closings or moves was fairly constant, accounting for roughly half of displaced workers, while the proportion reporting that their position or shift had been abolished doubled to 39 percent in 1995-96. Comparing the 1995-96 experience with 1993-94, he found that “[n]ot only were long-tenured workers less likely to lose their jobs in the 1995-96 period, but those who did were more likely to find new jobs, and they spent fewer weeks without work. Moreover, among those reemployed in full-time jobs, earnings losses were much less severe than those found in the previous period.”<sup>2</sup>

Farber’s (1997) article is a comprehensive presentation of the concept of displacement, the data issues associated with displaced worker research, and his own research employing both univariate and multivariate analysis. His particular focus is on analyzing displacement by the reason for job loss: plant closings, slack work, position/shift abolished, or other. He found, using probit estimates of displacement rates, that older workers and more educated workers were less likely to be displaced. He also found that older workers were less likely to be displaced due to slack work or “other” reasons; workers with a college education were less likely to be displaced by plant closings or slack work; and college-educated workers were more likely to be displaced because their position was abolished. Those who were displaced had a large probability of not being employed when surveyed, and when they found a new job, it was, on average, at lower real earnings than that of their lost job.

Two recently published literature reviews comprehensively summarize research questions on displacement, recent research results, and policy issues: Kletzer (1998) and Fallick (1996). Kletzer concluded from her review of the literature that job loss rates of the mid-1990s were the highest of the 14-year period of the Displaced Worker Supplement data; that less educated workers are more likely to be displaced than more educated workers; that historically displacement mainly affected the production occupations, but more recently job loss has spread more evenly across occu-

pations; that goods-producing industries had a higher risk of displacement than service industries; that black men were more likely to be displaced than white men; that displaced workers have different demographic characteristics than other unemployed workers; that more educated workers are more likely to be employed after displacement; that displaced women were less likely to be employed after displacement than displaced men; that real earnings were on average 13 percent less on the post-displacement job; that longer job tenures were associated with more earnings loss; that many displaced had difficulty finding full-time work and were working part time; and that import competition is associated with displacement.

Fallick’s review of the literature found that “worker displacement is a widespread, counter-cyclical event. While there has been no secular rise in the frequency of displacement over the 1980s, displaced workers have come to look more like the general work force. Tenure at a job still reduces a worker’s chances of becoming displaced, and displaced workers continue to come disproportionately from industries and States doing relatively poorly and from occupations that require less education. However, the protective influence of tenure has decreased, and displacement rates have converged across industries and occupations” (p. 8). He also found that “displaced workers experience more joblessness than other workers, but the adverse effects of displacement appear to fade away after about 4 years. The same is not true of the substantial reductions in earnings, again relative to nondisplaced workers, which appear to persist for a very long time. Sector-specific human capital appears to play a major role in explaining both the earnings losses and patterns of re-employment of displaced workers, as evidenced by the influences of tenure and mobility. But individual- or firm-specific factors, such as unionization and prior earnings, cannot be discounted” (p. 12).

An older literature review by Hamermesh (1987) continues to be useful in defining the research questions. He discussed both research on the demand-for-labor side, such as the probability of a plant closing, as well as the supply side, the worker losses resulting from displacement. He outlined the issues as (1) counting displaced workers and measuring displacement; (2) understanding why plants close and why workers do not accede to wage cuts to allow the plant to stay open; and (3) estimating the losses from displacement.

## The Rural Perspective

Swaim (1990) examined metro-nonmetro differences of workers displaced during 1981-86. He found that there were disproportionately more nonmetro workers among the displaced. The length of joblessness following displacement was longer for nonmetro workers than for metro workers and nonmetro workers' earnings were less when they found a new job. Nonmetro displaced workers were also more likely to lose their health insurance benefits. The nonmetro displaced had a higher unemployment rate when surveyed than the metro displaced, and they were, on average, less educated than metro displaced. Swaim concluded that displacement was a greater source of hardship for nonmetro workers than for metro workers during 1981-86.

My previous research on displaced workers (Hamrick, 1999) examined differences in metro-nonmetro displacement during 1993-95. I found that nonmetro workers were displaced at the same rate as metro workers and experienced slightly less hardship than metro workers after displacement.

Two case studies focused on large layoffs in rural areas. Beneria (1998) did a case study of the impact of the Smith-Corona plant relocating from Cortland, New York, to Tijuana, Mexico. In 1992, Smith-Corona announced that it would move its plant that employed 1,200 workers in Cortland, a town of 20,000 residents. Smith-Corona laid off 850 workers over the next 3 years. Beneria surveyed these workers during 1993-96. Cortland received assistance from a variety of State and Federal programs, including the Trade Adjustment Assistance program (described below). Many of the laid-off workers found new jobs, some at higher skill levels. However, a majority experienced large earnings losses and lower income levels. Women had the greatest earnings losses, despite their higher degree of participation in the training programs than men. Beneria also found that "the demand-side problem is reinforced by its location in a rural area with a stagnating or deteriorating economy. Earnings losses can be substantially larger when a 'congestion effect' operates due to a large number of workers searching for a job in a small labor market.... This points to the importance of local initiatives, perhaps with help from the state and Federal level, to reinvigorate investment and local development."<sup>3</sup>

Leistriz and Root (1999) studied five rural communities in Minnesota and North Dakota that faced the closure or downsizing of a major employer between 1994 and 1998: Altura, MN, Courtland, MN, Worthington, MN, Bowman, ND, and Grafton, ND. The authors state that the fact that low unemployment rates have been maintained by Minnesota and North Dakota, "... does not mean that all communities are doing well, or that there aren't difficult periods ahead for individuals who are displaced from their jobs or their resident communities. Our dynamic economy reflects the decline of some industries and subsequent job loss in some communities, while simultaneously, other industries experience relatively stable periods of prosperity."<sup>4</sup> Grafton was considered the most successful of the five communities in dealing with the loss of jobs. A State Developmental Center cut 500 jobs over several years. The community leaders found new uses for the vacant Developmental Center buildings and created a new industrial park, attracting new employers.

## Need for Research on Nonmetro Displaced Workers

Because of the relatively high rates of layoffs in the midst of a tight labor market, there is a continuing need to comprehensively analyze the nonmetro displaced workers' experience. The research presented here fills this need by providing not only descriptive analysis, but also estimates of probability of job loss, probability of employment after job loss, and earnings loss for nonmetro residents. This analysis on nonmetro areas has not been undertaken for several years and so provides an update of Swaim's research (1990) on the nonmetro experience in the 1980s.

Because nonmetro workers have different demographic characteristics than metro workers, and because nonmetro jobs have a different industry distribution than metro jobs, nonmetro displaced workers' assistance needs are probably different than metro displaced workers' needs. One question addressed here is whether or not nonmetro workers are well served by Federal programs and legislation designed to assist and protect displaced workers. No other research has addressed this question.

## Displaced Worker Supplement Data

Data used here are from the 1998 Displaced Worker Survey (DWS) supplement of the Current Population Survey (CPS). The CPS is a monthly survey of about



47,000 households, which is conducted by the Bureau of the Census for the U.S. Department of Labor, Bureau of Labor Statistics (BLS). The DWS was started in 1984, and is conducted every other year. BLS releases the data. The 1998 DWS was conducted in February 1998, and all respondents were asked, “During the last 3 calendar years, that is, January 1995 through December 1997, did (you/name) lose or leave a job because a plant or company closed or moved, (your/his/her) position or shift was abolished, insufficient work, or another similar reason?” If yes, the respondent was asked a series of questions concerning the job lost and subsequent labor market experience.<sup>5</sup> These questions on displacement were in addition to the demographic and labor force data collected in the basic monthly CPS.

BLS defines displaced workers as those 20 years old or older, who lost or left jobs because their plant or company closed or moved, there was insufficient work, or their position or shift was abolished. Workers on temporary layoff, those who quit, or those who were fired for cause are not considered displaced. Workers displaced from both full-time and part-time jobs are included. Because BLS includes insufficient work as a reason, displacement as measured has a cyclical component.

This analysis includes only long-tenured workers, those displaced workers with 3 or more years of tenure with their employer. The purpose of this restriction is to exclude short-tenured workers whose job loss may be due only to a poor match between employer and worker. The 3-or-more-years restriction also ensures that those included have an established work history and an attachment to their industry sector and their occupation and thus presumably have developed industry- and employer-specific skills that make it costly for them to take another job.

This analysis is restricted to workers under age 65, because workers age 65 or older would be eligible for full Social Security benefits, softening the hardship from displacement. Consequently, displaced workers under age 65 are more of a concern from a policy standpoint. In addition, less than 5 percent of all displaced workers are age 65 or older.

Workers displaced in nonmetro areas cannot be precisely identified in the DWS. (See box for definition of metro/nonmetro.) Metro/nonmetro status of the respondent’s residence at the time of the interview was recorded but not previous residence for those who had moved in the previous 3 years. However, most displaced workers—84 percent of nonmetro and 88 percent of metro—had not moved. Analysis of nonmovers (not presented here) revealed essentially the same results as those presented in table 1 for all displaced workers. The lack of data on previous residence of movers does not substantively affect the findings presented here.

### Definition of Metro and Nonmetro

Metro areas or Metropolitan Statistical Areas (MSA’s) are defined by the Office of Management and Budget (OMB) as core counties containing a city of 50,000 or more people or an urbanized population or at least 50,000 with a total area population of at least 100,000. Additional contiguous counties are included in the Metropolitan Statistical Area if they are economically and socially integrated with the core county. Nonmetro areas are counties outside metro area boundaries. After each decennial census, OMB reevaluates the metro/nonmetro status of each county. In 1993, OMB issued a new metro/nonmetro classification based on the 1990 census. In this last reclassification, 13 counties that had been metro were reclassified as nonmetro, and 111 counties that had been nonmetro were reclassified as metro, resulting in a net 98 new metro counties. Also after each decennial census, BLS and the Census Bureau redesign the CPS sample to better reflect the population. The new CPS sample and the new OMB metro/nonmetro classification were phased into the CPS during April 1994-June 1995. Because of this phasing-in process, producing consistent CPS metro/nonmetro figures for 1995 is not possible from the publicly available CPS data. In February 1998, when the DWS was administered, the CPS reflected the 1993 OMB metro/nonmetro classification.

**Table 1—Displaced workers, 1995-97**

	Nonmetro	Metro	U.S. total
		<i>Thousands</i>	
Displaced workers <sup>1</sup>	500	2,915	3,415
		<i>Percent</i>	
Male	57.5	52.5	53.2
Nonwhite	9.5	15.5	14.6
Hispanic <sup>2</sup>	5.6	10.8	10.1
		<i>Years</i>	
Age	42.3	42.2	42.2
		<i>Percent</i>	
Age distribution:			
20-24 years	2.7	3.2	3.2
25-34 years	25.1	22.3	22.7
35-44 years	28.0	34.2	33.3
45-54 years	29.1	26.6	27.0
55-64 years	15.0	13.6	13.8
Education level:			
Less than high school diploma	15.8	10.3	11.1
High school diploma	44.2	30.9	32.9
Some college	29.8	31.3	31.1
College degree	7.6	19.5	17.7
Advanced degree	2.7	8.0	7.3
Why displaced?			
Plant or company closed or moved	50.6	46.2	46.8
Insufficient work	25.5	20.2	21.0
Position or shift abolished	24.0	33.6	32.2
Year displaced:			
1995	26.7	28.5	28.2
1996	33.4	34.7	34.5
1997	39.9	36.9	37.3
Usually worked full time on lost job	90.0	88.8	88.9
Low-skill occupation on lost job	55.0	49.1	49.9
Received written advance notice of job loss	37.9	46.3	45.1
Received unemployment insurance benefits	50.1	48.1	48.4
Exhausted eligibility for unemployment insurance benefits	43.5	47.2	46.7
Moved to a different city or county since lost job	16.3	12.2	12.8
Of those who moved, move was to look for work or take a different job	58.1	59.8	59.5
		<i>Years</i>	
Tenure on lost job	9.2	9.3	9.3
		<i>Percent</i>	
Tenure distribution:			
3-5 years	35.2	31.9	32.4
5-10 years	35.1	32.4	32.8
10-20 years	17.2	24.5	23.4
20+ years	12.5	11.2	11.4
Currently unemployed	10.1	10.0	10.0
Currently employed	73.4	78.7	77.9
Currently not in labor force	16.5	11.5	12.1
Household income less than \$15,000 at survey	22.0	12.1	13.6

<sup>1</sup> Displaced workers aged 20-64, with 3 or more years of tenure on their lost job.

<sup>2</sup> Hispanics may be of any race.

Source: Calculated by ERS using data from the Displaced Worker Survey supplement, February 1998 Current Population Survey, Bureau of Labor Statistics.

## Displaced Workers: Who Are They?

Of the 3.4 million workers displaced during 1995-97, 500,000 were nonmetro workers (14.6 percent) (table 1). This number is less than proportional to the nonmetro share of the labor force, which is about 20 percent. For the most part, the nonmetro displaced experience during 1995-97 is about the same as the metro experience.<sup>6</sup> However, there are some notable differences.

Nonmetro displaced workers have lower educational levels than the metro displaced (fig. 1). Sixty percent of the nonmetro displaced had at most a high school diploma, which corresponds to the share of the nonmetro labor force that has at most a high school diploma. Only 41 percent of the metro displaced had at most a high school diploma.

Although the shares of displaced workers who lost their jobs due to a plant or company closing or moving, or due to insufficient work were roughly the same for nonmetro as for metro, nonmetro workers had a smaller share of displacement due to their position or shift being abolished than metro displaced. This is perhaps due to continued mass layoffs of white-collar workers, since white-collar workers were

more likely to report that their position or shift was abolished than blue-collar workers, and white-collar jobs are disproportionately located in metro areas.

Most displaced, 89 percent, had worked full-time on their lost job, and around half had worked in a low-skill occupation.<sup>7</sup> About 38 percent of nonmetro displaced and 46 percent of metro displaced received advance notice before losing their jobs. A small share moved after displacement—16 percent of nonmetro displaced and 12 percent of metro displaced—and most who moved did so for a new job.

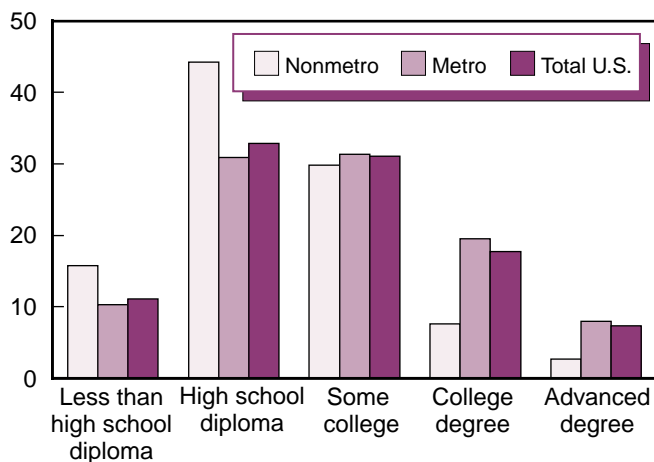
Although many displaced workers found new jobs, some were still looking for work when they were surveyed. The nonmetro displaced had the same share unemployed as the metro displaced at the time of the survey, both at about 10 percent (fig. 2). In comparison, the overall unemployment rate for 1998 was 4.8 percent for nonmetro areas and 4.4 percent for metro areas. Although the shares unemployed were the same, nonmetro displaced were less likely to be employed and more likely to have dropped out of the labor force than metro displaced. Over 16 percent of nonmetro displaced left the labor force after their displacement—they were neither employed nor looking for a job when surveyed.

About 14 percent of total U.S. displaced workers were in households with incomes of less than \$15,000—under the 1997 poverty threshold of \$16,400 for a family of

Figure 1  
**Nonmetro displaced workers had lower education levels than metro displaced**

*60 percent of nonmetro displaced workers had at most a high school diploma*

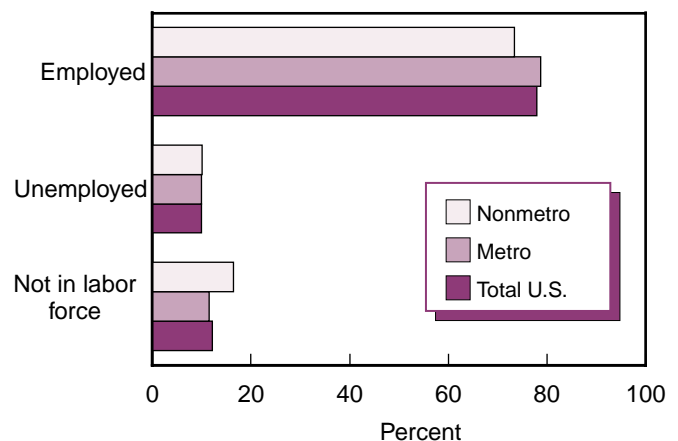
Percent



Source: Calculated by ERS using data from the Displaced Worker Survey supplement, February 1998 Current Population Survey, Bureau of Labor Statistics.

Figure 2  
**Employment status at time of survey**

*10 percent of displaced workers were unemployed when surveyed*



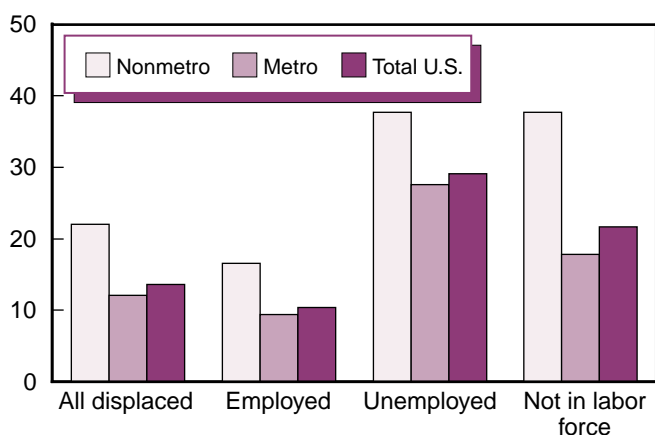
Source: Calculated by ERS using data from the Displaced Worker Survey supplement, February 1998 Current Population Survey, Bureau of Labor Statistics.

Figure 3

### Share of households with income less than \$15,000

*Nonmetro displaced workers were more likely than metro workers to be in low-income households*

Percent



Source: Calculated by ERS using data from the Displaced Worker Survey supplement, February 1998 Current Population Survey, Bureau of Labor Statistics.

four (fig. 3). This proportion is about the same as that of all households, 15.5 percent. The nonmetro share of 22 percent of displaced workers in low-income households is also about the same as the share for all nonmetro workers. The metro share of low-income displaced workers, 12 percent, is also about the same as for all metro households.

### Displacement Rates

Nonmetro workers were displaced at a lower rate, 3.5 percent, than metro workers, 4.8 percent, during 1995-97 (table 2). The displacement rate is the proportion of displaced workers in a group of employed workers in the same group, aged 20-64, with 3 or more years of tenure with their employer.<sup>8</sup> Rates of displacement were lower for nonmetro than for metro for all demographic and education level groups of workers.

Construction was the only industry where the nonmetro rate, 4.4 percent, was greater than the metro rate, 3.7 percent, although these rates are still fairly close. The nonmetro and metro rates were about the same for the transportation, communications, and utilities industry, with 4.8 percent for nonmetro and 4.5 percent for metro. Otherwise, the nonmetro rates were lower.

By occupation, the highest rate of displacement for nonmetro displaced was for operators, fabricators, and laborers, 5.0 percent, although the metro rate was higher

at 6.2 percent. This occupational group is associated with the goods-producing industries and manufacturing in particular. For metro, the highest displacement rate was for marketing and sales, 7.0 percent. Looking at low-skill occupations as a group, the displacement rate was only 3.6 percent for nonmetro, but a relatively high 5.3 percent for metro.

### Post-Displacement: Employment, Unemployment, or Not in the Labor Force

#### Employment

Nonmetro displaced workers who were employed at the time of the survey had experienced on average 12 weeks of nonemployment compared with an average 14 weeks for metro displaced (table 3). About 70 percent of all employed displaced workers, nonmetro and metro, had found their jobs within 3 months (fig. 4). About half had changed industries for a new job, and also about half had changed occupations.

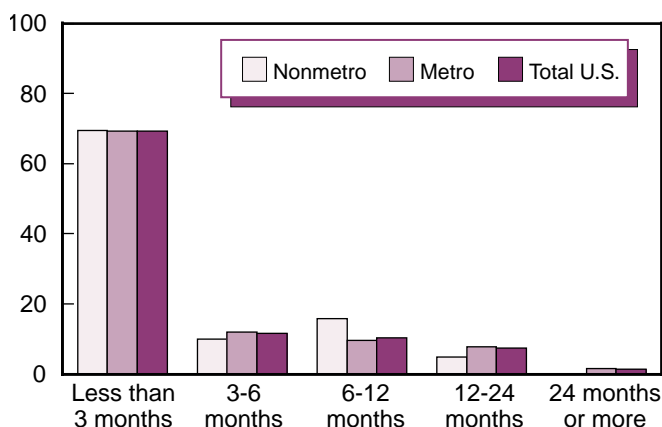
On average, earnings were less on the new job, and about half of the employed displaced workers, nonmetro and metro, had found a new job but with lower real weekly earnings. A relatively large number of nonmetro displaced workers, 16.6 percent, were employed at the survey date, but were in households with income of less than \$15,000.

Figure 4

### Length of unemployment for displaced workers

*Most displaced workers found new jobs within 3 months*

Percent



Source: Calculated by ERS using data from the Displaced Worker Survey supplement, February 1998 Current Population Survey, Bureau of Labor Statistics.

**Table 2—Displacement rates, 1995-97**

	Nonmetro rate	Metro rate	Nonmetro rate/ Metro rate	U.S. rate
	----- <i>Percent</i> -----		<i>Ratio</i>	<i>Percent</i>
Total <sup>1</sup>	3.5	4.8	0.72	4.6
20-24 years old	2.5	4.2	.58	3.9
25-34 years old	4.5	5.0	.90	4.9
35-44 years old	3.0	5.0	.61	4.6
45-54 years old	3.6	4.6	.77	4.4
55-64 years old	3.3	4.8	.68	4.5
Men	3.6	4.6	.78	4.4
Women	3.3	5.1	.65	4.7
White	3.5	4.8	.72	4.6
Nonwhite	3.7	4.7	.79	4.5
Hispanic <sup>2</sup>	4.0	5.0	.80	4.9
Nonhispanic	3.5	4.8	.72	4.5
Education level:				
Less than high school	4.7	5.8	.82	5.5
High school diploma	3.7	4.9	.76	4.6
Some college	3.8	5.3	.72	5.0
College degree	2.0	4.5	.45	4.1
Master's degree or higher	.4	3.2	.42	3.2
Industry of lost job:				
Agriculture	1.8	2.5	.72	2.2
Mining	2.8	6.6	.42	5.0
Construction	4.4	3.7	1.20	3.8
Manufacturing	5.3	7.3	.72	6.8
Transportation, communications, and utilities	4.8	4.5	1.06	4.6
Wholesale trade	3.0	5.5	.55	5.1
Retail trade	5.6	6.6	.85	6.4
Finance, insurance, and real estate	2.0	6.5	.31	6.0
Services	1.8	3.1	.59	2.9
Public administration	1.1	3.0	.37	2.6
Occupation of lost job:				
Executive, administrative, and managerial	4.0	4.4	.92	4.3
Professional specialty	1.8	3.1	.60	2.9
Technicians and related support	3.2	5.4	.59	5.0
Marketing and sales	4.7	7.0	.67	6.6
Administrative support, including clerical	3.0	5.9	.50	5.4
Service	2.3	3.6	.65	3.3
Precision production, craft, and repair	3.3	4.3	.77	4.0
Operators, fabricators, and laborers	5.0	6.2	.81	5.9
Agriculture, forestry, fishing, and related	2.6	3.6	.73	3.2
Low-skill occupations	3.6	5.3	.67	4.9

<sup>1</sup> Displaced workers aged 20-64, with 3 or more years of tenure on their lost job.

<sup>2</sup> Hispanics may be of any race.

Source: Calculated by ERS using data from the Displaced Worker Survey supplement, February 1998 Current Population Survey, Bureau of Labor Statistics.

**Table 3—Displaced workers, 1995-97, employed at time of survey**

	Nonmetro	Metro	U.S. total
		<i>Thousands</i>	
Displaced workers employed at time of survey <sup>1</sup>	367	2,292	2,658
		<i>Percent</i>	
Year displaced:			
1995	29.0	30.8	30.5
1996	33.8	37.7	37.2
1997	37.2	31.5	32.3
		<i>Percent</i>	
Male	57.6	54.5	55.0
Nonwhite	9.5	15.2	14.4
Hispanic <sup>2</sup>	6.5	10.0	9.5
		<i>Years</i>	
Age	40.9	41.5	41.4
		<i>Percent</i>	
Education level:			
Less than high school diploma	15.1	8.7	9.6
High school diploma	42.0	30.1	31.7
Some college	32.0	31.5	31.6
College degree	8.5	21.3	19.6
Advanced degree	2.4	8.3	7.6
		<i>Weeks</i>	
After job loss, average time before working again	12.1	14.1	13.8
		<i>Percent</i>	
Jobless duration:			
0-3 months	69.4	69.2	69.2
3-6 months	9.9	11.9	11.6
6-12 months	15.8	9.6	10.4
12-24 months	4.8	7.8	7.4
24+ months	.1	1.5	1.3
Percentage whose current job is in a different industry than lost job	53.8	51.8	52.1
Percentage whose current job is in a different occupation than lost job	53.7	45.4	46.6
Percentage who were full time on lost job but are now part time	13.6	10.9	11.3
Low-skill occupation on lost job	51.9	46.4	47.1
		<i>1998 dollars</i>	
Median weekly earnings on lost job	419.29	582.76	544.28
Median weekly earnings on current job	394.00	481.00	478.00
		<i>Percent</i>	
Share of workers who found a new job but at lower real weekly earnings	52.5	49.3	49.8
Household income less than \$15,000 at survey	16.6	9.4	10.4

<sup>1</sup> Displaced workers aged 20-64, with 3 or more years of tenure on their lost job.

<sup>2</sup> Hispanics may be of any race.

Note: The Personal Consumption Expenditure Price Index, Bureau of Economic Analysis, was used to adjust weekly earnings.

Source: Calculated by ERS using data from the Displaced Worker Survey supplement, February 1998 Current Population Survey, Bureau of Labor Statistics.

## Unemployment

Ten percent of total U.S. displaced workers, 341,000, were unemployed—jobless, looking for work, and available to work—when surveyed (table 4). However, about two-thirds of these unemployed workers had been displaced in 1997, the year before the survey was taken. On average, the nonmetro unemployed displaced looked for work for 17 weeks, and the metro, for 25 weeks. The recentness of this group's displacement makes their unemployment less of a policy issue than had they been displaced 2 or 3 years prior, as many would have been likely to have found jobs soon after being surveyed. The unemployed displaced, as a group, have a lower education level than all displaced. Almost 80 percent of the nonmetro workers and 55 percent of the metro workers have at most a high school diploma. A large share of unemployed displaced were in households with incomes of less than \$15,000—38 percent of nonmetro and 28 percent of metro.

## Not in the Labor Force

About 12 percent, 415,000, of total displaced had dropped out of the labor force when surveyed (table 5). That is, they were not employed and were not looking for work. Almost 50 percent of the nonmetro displaced workers who were not in the labor force were men, versus 31 percent of the metro displaced workers who had dropped out of the labor force. For both the nonmetro and metro groups, the average age was late 40's, and slightly less than two-thirds were in a low-skill occupation on their lost job. A greater share of the nonmetro displaced workers who were not in the labor force stated that they were disabled, 22 percent, than the metro group, 10 percent. The nonmetro displaced workers were again more likely to be in a household with income of less than \$15,000 than were the metro group.

**Table 4—Displaced workers, 1995-97 who were unemployed at time of survey**

	Nonmetro <sup>1</sup>	Metro	U.S. total
		<i>Thousands</i>	
Displaced workers unemployed at survey <sup>2</sup>	50	291	341
		<i>Percent</i>	
Year displaced:			
1995	17.7	12.8	13.5
1996	17.5	18.6	18.5
1997	64.8	68.6	68.1
Male	72.3	60.8	62.5
Nonwhite	14.5	21.2	20.2
Hispanic <sup>3</sup>	1.3	17.5	15.1
		<i>Years</i>	
Average age	42.5	43.3	43.2
		<i>Percent</i>	
Low-skill occupation on lost job	65.0	53.9	55.6
		<i>Weeks</i>	
Average duration of unemployment	17.2	24.7	23.6
		<i>Percent</i>	
Unemployment duration:			
Less than 3 months	49.7	42.3	43.4
3-6 months	36.7	24.0	25.9
6-12 months	2.3	19.0	16.5
12-24 months	11.3	10.3	10.4
More than 24 months	0	4.4	3.7
Household income less than \$15,000 at survey	37.7	27.6	29.1

<sup>1</sup> Due to the small number of observations for nonmetro displaced workers unemployed at the survey date—28 observations—caution should be used when interpreting results.

<sup>2</sup> Displaced workers aged 20-64, with 3 or more years of tenure on their lost job.

<sup>3</sup> Hispanics may be of any race.

Source: Calculated by ERS using data from the Displaced Worker Survey supplement, February 1998 Current Population Survey, Bureau of Labor Statistics.

**Table 5—Displaced workers, 1995-97, not in labor force at time of survey**

	Nonmetro	Metro	U.S. total
	<i>Thousands</i>		
Displaced workers not in labor force at survey <sup>1</sup>	83	332	415
	<i>Percent</i>		
Year displaced:			
1995	21.6	26.3	25.3
1996	41.1	27.6	30.3
1997	37.3	46.1	44.4
Male	48.2	30.8	34.3
Nonwhite	6.4	12.7	11.5
Hispanic <sup>2</sup>	4.1	10.7	9.4
	<i>Years</i>		
Average age	48.2	45.8	46.3
	<i>Percent</i>		
Low-skill occupation on lost job	62.3	63.3	63.1
Not in labor force reason:			
Retired	27.5	30.3	29.8
Disabled	21.8	10.1	12.4
Other	50.7	59.6	57.8
Household income less than \$15,000 at survey	37.7	17.8	21.7

<sup>1</sup> Displaced workers aged 20-64, with 3 or more years of tenure on their lost job.

<sup>2</sup> Hispanics may be of any race.

Source: Calculated by ERS using data from the Displaced Worker Survey supplement, February 1998 Current Population Survey, Bureau of Labor Statistics.

## Hardship Groups

Overall, fewer workers were displaced during 1995-97 than during 1993-95, rates of displacement for the labor force were low, and most displaced workers found new jobs quickly. The tight labor market of this phase of the expansion meant that many displaced workers faced relatively little hardship. However, some displaced worker groups faced disproportionate hardship such as high unemployment and low income levels. Three hardship groups are examined here: those age 55-64, those without a high school diploma, and those with household incomes of less than \$15,000.<sup>9</sup>

### Age 55-64

Among all displaced, 472,000 were age 55-64 at the survey date (table 6). The experience of the nonmetro displaced age 55-64 was generally the same as for metro. However, a larger share of the nonmetro group was male, 74 percent, versus 57 percent for metro. Additionally, the nonmetro displaced age 55-64 had, on average, a much longer tenure on their lost job, 18 years, whereas metro displaced age 55-64 had, on average, 13 years' tenure. Nonmetro displaced in this group were more likely to have been in a low-skill occupation on their lost job than metro displaced.

Most striking about this group is the high share of unemployment, 30 percent of total, and consequently, the low employment share, 60 percent. Interestingly, most displaced age 55-64 stayed in the labor force, either employed or looking for a job. Surprisingly, a smaller share of this group were in households with incomes of less than \$15,000 than of all displaced workers, indicating less hardship than one would have expected. Perhaps some of these displaced workers age 55-64 were receiving early retirement pensions or lived with other household members who were employed.

### Less than High School Diploma

Those without a high school diploma were markedly different from all displaced workers. About two-thirds of those with less than a high school diploma were male, and about one-third were Hispanic (table 7). A large share—three-quarters—of the less-than-diploma displaced were in low-skill occupations. Although a larger share were unemployed or not in the labor force than all displaced, two-thirds were employed when surveyed.

Looking at the nonmetro displaced who had less than a diploma, patterns were generally similar to those of metro. However, the nonmetro displaced were more



**Table 6—Displaced workers, 1995-97, who were age 55-64 at time of survey**

	Nonmetro	Metro	U.S. total
	<i>Thousands</i>		
Displaced workers <sup>1</sup>	75	396	472
	<i>Percent</i>		
Male	73.8	56.7	59.4
Nonwhite	2.9	11.2	9.9
Hispanic <sup>2</sup>	3.1	4.8	4.5
Received written advance notice of job loss	42.4	41.4	41.6
	<i>Years</i>		
Tenure on lost job	17.8	13.1	13.8
	<i>Percent</i>		
Low-skill occupation on lost job	62.3	47.9	50.1
Currently unemployed	33.3	29.9	30.4
Currently employed	45.3	62.3	59.6
Currently not in labor force	21.4	7.8	9.9
Household income less than \$15,000 at survey	19.3	17.7	17.9

<sup>1</sup> Displaced workers aged 20-64, with 3 or more years of tenure on their lost job.

<sup>2</sup> Hispanics may be of any race.

Source: Calculated by ERS using data from the Displaced Worker Survey supplement, February 1998 Current Population Survey, Bureau of Labor Statistics.

**Table 7—Displaced workers, 1995-97, who had less than a high school diploma**

	Nonmetro	Metro	U.S. total
	<i>Thousands</i>		
Displaced workers <sup>1</sup>	79	300	379
	<i>Percent</i>		
Male	77.2	60.6	64.1
Nonwhite	9.7	18.7	16.8
Hispanic <sup>2</sup>	28.1	35.8	34.2
	<i>Years</i>		
Average age	43.6	42.4	42.6
	<i>Percent</i>		
Received written advance notice of job loss	26.8	42.1	39.0
	<i>Years</i>		
Tenure on lost job	6.5	8.0	7.7
	<i>Percent</i>		
Low-skill occupation on lost job	59.0	79.6	75.4
Currently unemployed	9.0	18.7	16.7
Currently employed	70.2	66.2	67.0
Currently not in labor force	20.8	15.0	16.3
Household income less than \$15,000 at survey	44.8	38.4	39.8

<sup>1</sup> Displaced workers aged 20-64, with 3 or more years of tenure on their lost job.

<sup>2</sup> Hispanics may be of any race.

Source: Calculated by ERS using data from the Displaced Worker Survey supplement, February 1998 Current Population Survey, Bureau of Labor Statistics.

likely to be male, and, surprisingly, less likely to have been in a low-skill occupation—59 percent of nonmetro versus 80 percent of metro. Also surprising is the relatively low unemployment share for the nonmetro displaced who had less than a diploma, 9 percent, compared with about 17 percent for all displaced. Although a large share of those who had less than a diploma were employed at the survey date, many were living in households with low incomes. Forty-five percent of the nonmetro displaced and 38 percent of the metro displaced in this group were in households with incomes of less than \$15,000.

### **Low Income <sup>10</sup>**

Among those displaced, 435,000 (13.6 percent) were in households with incomes of less than \$15,000 at the survey date (table 8). Sixty percent of these workers were employed at a new job. Although about half were

male averaging age 42 years old, (the same as for all displaced), larger than proportional shares of low-income displaced were nonwhite (23 percent) and Hispanic (19 percent). The low-income displaced were more likely to have at most a high school diploma. Indeed, there is a large overlap between this hardship group and the displaced group with less than a diploma. An especially high share of metro workers in this group had, at most, a high school diploma—75 percent. The low-income workers were slightly more likely to have been in a low-skill occupation on their lost job than all displaced.

A large share of this group were not employed: 22 percent of all the low-income displaced were unemployed, and 19 percent had dropped out of the labor force. Those rates were roughly double the rates for all displaced. Nonmetro workers in this group had a slightly lower unemployment rate, 17 percent, but a higher rate of leaving the labor force, 26 percent.

**Table 8—Displaced workers, 1995-97, living in households with income less than \$15,000 at time of survey**

	Nonmetro	Metro	U.S. total
		<i>Thousands</i>	
Displaced workers <sup>1</sup>	104	331	435
		<i>Percent</i>	
Male	65.8	47.3	51.7
Nonwhite	13.0	26.6	23.4
Hispanic <sup>2</sup>	10.2	21.5	18.8
		<i>Years</i>	
Age	42.5	41.8	42.0
		<i>Percent</i>	
Education level:			
Less than high school diploma	33.9	32.1	32.5
High school diploma	35.3	43.1	41.2
Some college	28.3	14.8	18.1
College degree	2.1	9.8	7.9
Advanced degree	.4	.3	.3
Why displaced?			
Plant or company closed or moved	50.5	63.3	60.2
Insufficient work	26.8	23.3	24.2
Position or shift abolished	22.7	13.4	15.6
Received written advance notice of job loss	24.6	39.1	35.8
		<i>Years</i>	
Tenure on lost job	6.7	8.5	8.1
		<i>Percent</i>	
Low-skill occupation on lost job	59.0	66.8	64.9
Currently unemployed	17.4	22.8	21.6
Currently employed	56.2	60.9	59.7
Currently not in labor force	26.4	16.4	18.8

<sup>1</sup> Displaced workers aged 20-64, with 3 or more years of tenure on their lost job.

<sup>2</sup> Hispanics may be of any race.

Source: Calculated by ERS using data from the Displaced Worker Survey supplement, February 1998 Current Population Survey, Bureau of Labor Statistics.

## Models and Estimates

The analysis above provides a useful description of displaced workers. However, to better study the factors associated with worker displacement in nonmetro and metro areas, one must control for the influence of other variables. For example, more men than women are displaced workers in nonmetro areas. Because goods-producing industries are disproportionately male, and because goods-producing industries are more likely to have layoffs, and also because employment in nonmetro areas is disproportionately in goods-producing industries, nonmetro men were more likely to be displaced than nonmetro women during 1995-97. Sorting out the contribution of various factors, such as sex, industry, and area of residence, is done by use of regression models. In looking at displacement, a worker was displaced or was not displaced over the time period studied. For this type of binary outcome, a probit type of regression model is used, where the coefficient estimates on worker characteristics represent the contribution to the probability that the worker will be displaced.

Here, three questions will be addressed. First, what is the probability of displacement for different groups of workers in nonmetro and metro areas? Second, of those nonmetro and metro displaced, what is the probability of employment after displacement? Third, for those who find a new job after displacement, what are the factors that contribute to earnings loss in nonmetro areas?

### Probability of Displacement

The analysis above on calculated displacement rates is a start at looking at probability of displacement. I also conducted a probit analysis to estimate the probability of job loss. I estimated the following models:

$$\text{probability}(y_i = \text{displacement}) = f(\text{age, education level, sex, race, industry, metro/nonmetro residence})$$

$$\text{probability}(y_i = \text{displacement, nonmetro only}) = f(\text{age, education level, sex, race, industry})$$

$$\text{probability}(y_i = \text{displacement, metro only}) = f(\text{age, education level, sex, race, industry})$$

These models test the hypotheses that factors—age, education level, sex, race, industry, and residence—contribute to the probability of displacement. These models describe the data and estimate

probabilities of displacement controlling for various factors; they are not designed as models of labor-leisure choice theory.<sup>11</sup>

Usually these models would contain a measure of regional labor markets such as a regional unemployment rate. Metro and nonmetro unemployment rates were similar during 1995-97, and having only one unemployment rate for the aggregate of nonmetro and the aggregate of metro in the model creates a variable equivalent to the metro/nonmetro dummy. Therefore, these variables were not successful in the models and so were excluded from analysis.<sup>12</sup> Also excluded as an explanatory variable is tenure. Job tenure is problematic because displaced workers by definition were displaced in the 3 years' prior to being surveyed, so their current job tenure would be short. Tenure then would serve as a proxy for displacement. If job tenure at displacement is used, then the difficulty is in how to treat tenure of workers who were not displaced. Expectations, drawn from the calculated displacement rates and the literature, were that higher probabilities of displacement would be experienced by younger and older workers, those with less education, men, nonwhites, workers in the goods-producing industries, and metro workers.

Table 9 contains both the probit estimates and the normalized estimates of the probit models.<sup>13, 14, 15</sup> Normalized estimates represent the probability of displacement given a one-unit increase in an independent variable. The normalized estimates are calculated at the mean of the independent variables. Note that when the independent variables are binary, the normalized estimates can be interpreted as rates. The probit analysis estimates of displacement rates in table 9 have the advantage that each rate is estimated controlling for the other factors, unlike the calculated rates presented above. The mean values of each variable are also presented in table 9. In this case, all the independent variables are 0-1 binary, so the mean represents the share of workers in each category. For example, a mean of 0.251 for the variable age 25-34 indicates that 25.1 percent of the workers analyzed are in that age group.

The data in this model include all workers who had reported being displaced during 1995-97 plus all workers who were employed when surveyed. Unlike other analysis in this report, displaced workers of all job tenures are included. Because the model estimates the probability of being displaced, it is more intuitive to think of the entire population of displaced and those

**Table 9—Probability of displacement, 1995-97**

	U.S. total		Nonmetro		Metro	
	Mean	Estimate	Mean	Estimate	Mean	Estimate
<i>All tenures-probit estimates:</i>						
Intercept		-1.447** (.021)		-1.452** (.050)		-1.470** (.023)
Age 25-34	0.251	-.025 (.021)	.224	-.006 (.050)	.257	-.031 (.023)
Age 35-44	.282	-.079** (.020)	.275	-.189** (.050)	.283	-.059** (.022)
Age 45-54	.217	-.124** (.022)	.233	-.189** (.052)	.214	-.112** (.024)
Age 55-64	.140	-.208** (.026)	.165	-.375** (.064)	.134	-.174** (.029)
Education—less than high school diploma	.133	.116** (.020)	.166	.069 (.044)	.125	.130** (.022)
Education—some college	.288	.008 (.015)	.269	-.042 (.035)	.292	.022 (.016)
Education—college degree	.174	-.090** (.017)	.108	-.194** (.052)	.189	-.073** (.019)
Education—advanced degree	.078	-.206** (.025)	.046	-.384** (.087)	.086	-.189** (.026)
Female	.510	-.060** (.012)	.511	-.141** (.031)	.509	-.046** (.013)
Nonwhite	.169	.009 (.016)	.112	.083* (.046)	.183	-.0002 (.017)
Goods-producing sector	.263	.063** (.014)	.361	.065* (.032)	.240	.056** (.015)
Nonmetro	.190	-.126** (.016)				
<i>Rescaled generalized R<sup>2</sup></i>		.013		.026		.010
<i>Log likelihood</i>		-26,500.7		-4,248.1		-22,183.0
				<i>Percent</i>		
<i>Association of predicted and observed:</i>						
Concordant		54.2		59.1		52.9
Discordant		40.7		36.1		41.9
Tied		5.1		4.8		5.2
		U.S. total		Nonmetro		Metro
<i>Normalized probit estimates:</i>						
Intercept		-0.165		-0.139		-0.174
Age 25-34		-.003		-.001		-.004
Age 35-44		-.009		-.018		-.007
Age 45-54		-.014		-.018		-.013
Age 55-64		-.024		-.036		-.021
Education-less than high school diploma		.013		.007		.015
Education-some college		.001		-.004		.003
Education-college degree		-.010		-.018		-.009
Education-advanced degree		-.024		-.037		-.022
Female		-.007		-.014		-.006
Nonwhite		.001		.008		0
Goods-producing sector		.007		.006		.007
Nonmetro		-.014				

\* Indicates significance at the 10-percent level using chi-squared statistic. Standard errors are in parentheses. \*\* Indicates significance at the 1-percent level using chi-squared statistic.

Note: The base (omitted) group for U.S. total: age 20-24, high school diploma, male, white, service sector, and metro. The base (omitted) group for nonmetro and metro: age 20-24, high school diploma, male, and white. The number of observations for U.S. total, 50,357; for nonmetro, 11,491; for metro, 38,746. Displaced are 5.7 percent, 4.9 percent, and 5.9 percent of the observations, respectively.

not displaced but working, than to consider only those with 3 or more years of tenure.<sup>16</sup>

The estimates show that older workers were less likely to be displaced. For the U.S. total, those age 55-64 have a displacement rate 2.4 percentage points lower (-0.024 in table 9) than the base (omitted) category of age 20-24, high school diploma, male, white, service sector, and metro. (Because of the nature of modeling with dummy variables, the estimates are relative to the omitted groups.) For nonmetro, those age 55-64 had an even lower displacement rate, 3.6 percentage points less than the base category. Those with college or advanced degrees had a lower displacement rate than the base categories. Those with less than a high school diploma had a higher rate of displacement with a probability 1.3 percentage points greater than the base group for the U.S. total. Women also had lower displacement rates than the base. Nonwhite workers had a probability of displacement the same as the base case for the U.S. total and metro, and a slightly higher probability, 0.8 percentage point for nonmetro. Those in the goods-producing sector—agriculture, mining, manufacturing, and construction—had a greater probability of displacement as expected. Being in a nonmetro area lowered the probability of displacement by 1.4 percentage points.

The normalized coefficient estimates of the nonmetro probit and the metro probit are generally about the same, consistent with the calculated displacement rates in table 2. The U.S. total model achieves a concordant level of 54 percent, meaning that it is slightly better than a coin toss, which is as expected given that only about 6 percent of the population analyzed were displaced.<sup>17</sup> The tepidness of the results imply that displacement is less about workers' characteristics, which are included in the model, but about other factors. This is not surprising in that displacement is a result of economic restructuring from import competition, technological advances, or firm downsizing. However, because some industries and companies are facing more economic restructuring than other industries and because there are demographic differences in the distribution of workers across industries and companies, worker characteristics indicate which groups may be more likely to be displaced.

## Probability of Employment After Displacement

To answer the second question (for those displaced, what is the probability of employment after displacement?) I used the following models:

*probability( $y_i$ =employment after displacement) =  $f(\text{age, sex, tenure on lost job, weekly earnings on lost job, skill level on lost job, metro/nonmetro residence})$*

*probability( $y_i$ =employment after displacement, nonmetro only) =  $f(\text{age, sex, tenure on lost job, weekly earnings on lost job, skill level on lost job})$*

*probability( $y_i$ =employment after displacement, metro only) =  $f(\text{age, sex, tenure on lost job, weekly earnings on lost job, skill level on lost job})$*

Expectations were that younger workers, men, those with less tenure on the lost job, and those with higher skill levels would have a higher probability of attaining a new job after displacement and that those in nonmetro areas would have a lower probability.

Table 10 presents both probit estimates and normalized probit estimates.<sup>18</sup> The data include all workers in the 1998 DWS who reported being displaced during 1995-97 and who had 3 or more years of tenure on their lost job. Looking at the U.S. normalized probit estimates, those in all age categories—25-34, 35-44, 45-54, and 55-64—have higher probabilities of attaining a new job after displacement than the base category—age 20-24, male, not low-skill, and metro. However, the age group 25-34 years old had the highest probability of all groups, 21.8 percentage points higher than the base category for total United States, consistent with the expectation that younger workers are more likely to find a new job. The coefficients for the category age 55-64 were not significant for any of the three probit estimates, meaning that the probability of employment for this group is essentially the same as the base case. Women who were displaced had a lower probability of employment, as expected. Those with long tenures on their lost job had a lower probability of employment, as the probability declined 0.4 percentage point for each year of tenure. Those with higher weekly earnings had higher probabilities of employment. Those in low-skill occupations on their lost job were less likely to find employment, as expected. Workers in nonmetro areas had a lower probability of employment by 5.0 percentage points than those in metro areas.

I used other explanatory variables in determining the probability of employment after displacement. Education levels were used, and results were similar to using skill level on lost job. Advance notice of job loss was also used, but without success. Metro-nonmetro unemployment rates are typically used in explaining the probability of employment after displacement, but

**Table 10—Probability of employment after displacement, 1995-97**

	U.S. total		Nonmetro		Metro	
	Mean	Estimate	Mean	Estimate	Mean	Estimate
<i>Probit estimates:</i>						
Intercept		-0.246 (.298)		0.061 (.767)		-0.405 (.330)
Age 25-34	.224	.770* (.158)	.259	1.124* (.427)	.219	.680* (.172)
Age 35-44	.347	.696* (.155)	.278	.741* (.418)	.358	.660* (.169)
Age 45-54	.270	.536* (.158)	.297	.758* (.420)	.265	.464* (.173)
Age 55-64	.132	.047 (.165)	.142	-.083 (.451)	.130	.033 (.179)
Female	.473	-.229* (.057)	.410	-.234 (.152)	.484	-.232* (.062)
Nonwhite	.134	-.084 (.078)	.090	-.114 (.247)	.141	-.082 (.082)
Tenure on lost job	9.433	-.013* (.004)	9.283	-.0003 (.010)	9.458	-.014* (.004)
Log(weekly earnings) on lost job	6.248	.136* (.004)	6.028	.014 (.103)	6.285	.171* (.049)
Low-skill occupations on lost job	.489	-.151* (.058)	.554	-.156 (.148)	.478	-.113* (.063)
Nonmetro	.143	-.117* (.075)				
Rescaled generalized R <sup>2</sup>		.146		.167		.142
Log likelihood		-1,411.4		-221.3		-1,185.9
				Percent		
<i>Association of predicted and observed:</i>						
Concordant		65.9		60.5		66.3
Discordant		33.6		38.0		33.1
Tied		.6		1.5		.6
		U.S. total		Nonmetro		Metro
<i>Normalized probit estimates:</i>						
Intercept		-0.070		0.020		-0.112
Age 25-34		.218		.361		.187
Age 35-44		.197		.238		.182
Age 45-54		.151		.243		.128
Age 55-64		.013		-.027		.009
Female		-.065		-.075		-.064
Nonwhite		-.024		-.036		-.023
Tenure on lost job		-.004		-.0001		-.004
Log (weekly earnings) on lost job		.038		.004		.047
Low-skill occupation on lost job		-.043		-.050		-.037
Nonmetro		-.050				

\* Indicates significance at the 10-percent level using chi-squared statistic. Standard errors are in parentheses.

Note: The base (omitted) group for U.S. total: age 20-24, male, white, not low-skill occupation, and metro. The base (omitted) group for nonmetro and metro: age 20-24, male, white, and not low-skill occupation. The number of observations for U.S. total, 1,217; for nonmetro, 221; for metro, 996. Employed after displacement are 78.0 percent, 73.8 percent, and 78.9 percent of the observations, respectively.

they were not used as discussed above, because the metro/nonmetro unemployment rates were so close during 1995-97.

## Earnings Loss

Half the displaced workers who found a new job earned less in real terms when surveyed than they did on their lost job. Earnings loss is likely due to several factors. Workers may have firm-specific skills that would not be useful at another firm. The lost job earnings may include a wage premium due to unionization or due to efficiency wages—higher than market wages paid by the employer as an incentive for higher productivity and longer retention. Many employers reward longevity with a steep wage profile, meaning that long-tenured workers are paid more than their marginal product, and newer employees are paid less than their marginal product. Also, as a consequence of structural change, the workers' skills may no longer be valued if the skills are obsolete or the industry is in decline.

Here earnings loss is measured as the difference between current earnings (at the survey date) and real lost job earnings. Half of displaced workers who found new jobs experienced earnings loss, with about 30 percent suffering a real earnings loss of more than 20 percent. Not all displaced workers are as unfortunate, as one-third had real earnings on their current job 20 percent or higher than on their lost job (fig. 5).

This analysis is a direct measure of earnings loss and understates the total loss to displaced workers due to several factors. First, it does not account for the earnings growth that would have occurred were the worker still employed and had not been displaced. Second, this analysis only looks at displaced workers who found a new job; it does not incorporate nonemployment effects, that is, the earnings losses of those not employed at the time of the survey and the earnings losses of those who are now employed but experienced a period of joblessness. However, because the direct measure indicates substantial and widespread earnings loss, it is useful in analyzing the costs of displacement.

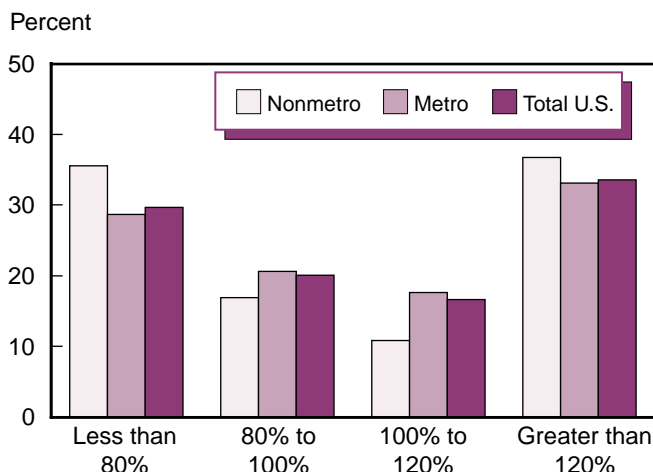
The model used here is based on the standard statistical earnings function derived from human capital theory.<sup>19</sup> For worker  $i$ :

$$\log(\text{earnings}_i) = f(\text{education}_i, \text{experience}_i, \text{demographic factors}_i, \text{job characteristics}_i) + u_i$$

Figure 5

## Earnings on current job relative to real earnings on lost job

About 30 percent of all displaced workers who found a new job had substantial earnings losses



Source: Calculated by ERS using data from the Displaced Worker Survey supplement, February 1998 Current Population Survey, Bureau of Labor Statistics.

where  $u_i$  = random disturbance, normally distributed with mean zero, and constant variance

The model form is quadratic in experience; that is, both experience and experience squared appear. The model used here estimates the impact of the independent variables on the difference between the natural log of the earnings on the current job and the natural log of the real earnings on the lost job, or equivalently, the natural log of the ratio of current earnings to real lost job earnings. I estimated the following models:

$\log(\text{current weekly earnings}/\text{real lost job weekly earnings}) =$

$f(\text{tenure on lost job,}$   
 $\text{tenure}^2,$   
 $\text{age as proxy for experience,}$   
 $\text{education level,}$   
 $\text{low-skill occupation on lost job,}$   
 $\text{sex,}$   
 $\text{race,}$   
 $\text{industry of lost job,}$   
 $\text{union status on lost job,}$   
 $\text{advance notice received on lost job,}$   
 $\text{change in industry,}$   
 $\text{change in occupation,}$   
 $\text{full-time status to part-time status,}$

*weeks looking for work after displacement,  
metro/nonmetro residence)*

*log(current weekly earnings/real lost job weekly  
earnings, nonmetro only) = f(tenure, ..., weeks  
looking for work after displacement)*

*log(current weekly earnings/real lost job weekly  
earnings, metro only) = f(tenure, ..., weeks looking  
for work after displacement)*

Expectations were that the displaced workers who experienced greater earnings loss would be those who were longer tenured, older, less educated, in low-skilled occupations, male, nonwhite, in the goods sector industries, in a union, not given advance notice, and had changed industry or occupation for a new job, were now working part time but were full time on their lost job, and had experienced a long period of joblessness before finding a new job. Again, residential unemployment rates were not included because the metro and nonmetro rates were so similar over this period.

Ordinary least squares (OLS) estimates are presented in table 11 for total United States, nonmetro, and metro.<sup>20</sup> Equations (1), (3), and (5) in the table are estimated for the full model as presented above, and equations (2), (4), and (6) are estimates for a parsimonious model, that is, a model with a minimal number of regressors. The R<sup>2</sup>'s are low, as expected for an earnings model and for a difference model.

The reduction in hours worked—full-time to part-time status—is the largest contributor to earnings loss, and the estimated coefficient is significant at the 10-percent level. The coefficient estimate of -1.207, combined with the intercept, indicates that the reduction of hours by itself, all other things equal, would yield current earnings that would be 48 percent of lost-job earnings. [Log(current earnings/lost job earnings) = 0.463 - 1.207. Ratio =  $e^{-0.744} = 0.475$ .] The change in status from full time to part time was large and significant in all six models. Indeed, the mean weekly earnings loss for displaced workers who were employed full time on their lost job and then were working part time when surveyed was \$380, compared with a mean earnings loss of \$36 for the rest of the displaced workers who had found a new job. About 11 percent of all the displaced workers who found a new job were working reduced hours (table 3).

The estimated coefficient on tenure is negative and significant in all but one of the models. Longer job

tenures lead to a smaller ratio of current weekly earnings to real lost job earnings, that is, greater earnings loss. Tenure squared is also significant in the full model for equations (1) and (5); however, whether one would expect the ratio of the two earnings to be quadratic in form even if each of the two earnings functions were quadratic in form is unclear. The tenure squared coefficient is small enough that its effect combined with the tenure coefficient is a steady decline in the ratio of earnings over a 45-year tenure.

All age groups experienced greater earnings loss than the base group of age 20-24. Interestingly, the coefficients do not show a steady decline over age. The age 45-54 group had the smallest decline of the four groups.

Education was not generally successful as a variable; however, low-skill occupation on lost job was. The expectation was that the coefficient on low-skill would be negative; that is, displaced workers in low-skill occupations would have greater earnings loss, but the coefficient is positive in all models, indicating less earnings loss. This is partly due to the two minimum wage increases, one October 1, 1996 (\$4.25 to \$4.75 an hour) and one September 1, 1997 (\$4.75 to \$5.15 an hour), which would affect earnings of low-skill workers at or just above the minimum wage. Perhaps also this is because low-skill jobs are likely to be paid low wages; thus, a worker displaced from a low-skill job is likely to find a similar job at similar pay. Also, the number of low-skill jobs has been growing steadily during this economic expansion of the 1990s, and with the tight labor markets starting in 1996, wages for low-skill jobs have seen wage increases above the increases in the minimum wage.

Of the displaced workers who found a new job, women tended to fare better in terms of replacing their lost job earnings—the coefficients on female were significant in all models. Race and a new job in a different industry (as measured by 1-digit SIC code) did not affect earnings loss. In contrast, changing occupation (as measured by major occupational group) did lead to greater earnings loss. Perhaps one can maintain earnings by getting a job in the same occupation as the lost job, but in a different industry.

The number of weeks jobless after displacement was not significant. Economic theory would say that those with more weeks jobless had a higher reservation wage, the lowest wage that that person would accept, and were engaged in search unemployment.<sup>21</sup> The



**Table 11—Regression analysis of earnings loss**

Dependent variable: Log of the ratio of current weekly earnings to real lost-job earnings

	Total U.S.			Nonmetro			Metro		
	Mean	(1)	(2)	Mean	(3)	(4)	Mean	(5)	(6)
Intercept		0.463*	0.437*		-0.358	-0.363		0.590*	0.524*
		(.183)	(.171)		(.600)	(.554)		(.192)	(.178)
Tenure	9.149	-.031*	-.012*	8.690	.006	-.026*	9.221	-.044*	-.010*
		(.012)	(.004)		(.037)	(.010)		(.013)	(.004)
Tenure	132.7	.001*		142.2	-.001		131.2	.001*	
		(.0004)			(.001)			(.0004)	
Age 25-34	.244	-.420*	-.387*	.300	.235	.499	.235	-.544*	-.511*
		(.174)	(.170)		(.593)	(.553)		(.181)	(.178)
Age 35-44	.366	-.448*	-.433*	.288	-.007	.260	.378	-.522*	-.526*
		(.173)	(.169)		(.600)	(.558)		(.180)	(.176)
Age 45-54	.269	-.416*	-.383*	.307	-.007	.314	.263	-.495*	-.475*
		(.176)	(.172)		(.606)	(.558)		(.183)	(.180)
Age 55-64	.102	-.489*	.428*	.090	-.037	.251	.103	-.546*	-.505*
		(.186)	(.183)		(.691)	(.621)		(.193)	(.190)
Education:									
Less than high school diploma	.100	.097		.164	.120		.090	.164	
		(.085)			(.217)			(.094)	
Some college	.311	.071		.304	.128		.312	.064	
		(.061)			(.182)			(.065)	
College degree	.208	.146*		.094	.175		.226	.148*	
		(.071)			(.280)			(.073)	
Advanced degree	.071	.199*		.014	.789		.080	.175*	
		(.103)			(.685)			(.103)	
Low-skill occupation on lost job	.469	.152*	.127*	.535	.123	.076	.459	.164*	.138*
		(.051)	(.047)		(.168)	(.149)		(.054)	(.050)
Female	.450	.150*	.135*	.400	.278*	.282*	.458	.140*	.116*
		(.050)	(.048)		(.171)	(.159)		(.052)	(.051)
Nonwhite	.130	.034	.032	.093	.083	.054	.136	.022	.031
		(.070)	(.069)		(.258)	(.244)		(.072)	(.072)
Goods-producing sector	.334	-.065	-.101*	.446	.036	.011	.316	-.085	-.117*
		(.053)	(.052)		(.169)	(.157)		(.056)	(.055)
Union	.136	-.050		.126	-.199		.137	-.015	
		(.072)			(.256)			(.075)	
Advance notice	.444	-.015		.358	-.021		.457	.008	
		(.048)			(.165)			(.051)	
Change in industry, lost job to current job	.518	.047		.537	-.036		.515	.080	
		(.049)			(.155)			(.052)	
Change in occupation, lost job to current job	.461	-.110*	-.106*	.533	.011	-.050	.450	-.134*	-.120*
		(.049)	(.047)		(.165)	(.143)		(.052)	(.050)
Change in status, full time to part time	.109	-1.207*	-1.233*	.113	-1.011*	-.982*	.108	-1.204*	-1.25*
		(.079)	(.076)		(.248)	(.227)		(.083)	(.081)
Weeks jobless after lost job	13.6	-.001		12.4	-.225		13.8	-.132*	
		(.001)			(.212)			(.072)	
Moved to a different city or county since lost job	.147	-.137*		.177	.004		.142	-.002	
		(.067)			(.005)			(.001)	
Nonmetro	.134	-.036	-.031						
		(.071)	(.069)						
Number of observations		925	937		159	161		765	775
R <sup>2</sup> (adjusted)		.257	.262		.138	.175		.280	.281

\* Indicates significance at the 10-percent level. Standard errors are in parentheses.

Note: The dependent variable is the difference between log weekly earnings current job and log real weekly earnings lost job. This is equivalent to the log of the ratio of current earnings to lost job earnings. The base group for U.S.: age 20-24, high school diploma, not low-skill on lost job, male, white, service sector, not in union in lost job, no advance notice, did not change industry, did not change occupation, was full time to full time or part time to full time, did not move, and metro. The base groups for nonmetro and metro are the same but without metro/nonmetro residence.

reservation wage concept implies that a higher reservation wage would result in a longer spell of joblessness, but ultimately a higher wage on a new job than had the first available job been accepted. However, longer periods of joblessness are in fact associated with greater earnings loss among displaced workers.<sup>22</sup> In addition, more weeks jobless would indicate softer local labor market conditions, so then, weeks jobless might serve as a proxy for local labor market conditions. Those who moved after displacement, however, experienced an earnings loss. The coefficient for moved to a different city or county is significant and negative in model (1). Perhaps this measure may be serving as a proxy for local labor market conditions; for example, those who see no opportunities for employment where they are, so they move and find a new job, albeit at lower earnings.

Nonmetro residence was not significant in either the full model (1) or the parsimonious model (2), and the two nonmetro models (3) and (4) were not particularly

successful. Perhaps this is so because there is not much difference in the distribution of the ratio of current earnings to lost job earnings, in metro versus nonmetro areas (fig. 5). Modeling the level of earnings on the current job or the lost job results in the nonmetro residence coefficient being significant and negative (not shown here), because nonmetro earnings are on average lower than metro earnings.

Because this model is a direct measure of earnings loss which does not include the earnings losses of those not employed at the time of the survey, estimated earnings loss is underestimated with an upward bias. If displaced workers not employed were included, the nonmetro coefficients in models (1) and (2) would be smaller since nonmetro areas had a larger share of displaced workers who were not employed at the survey. Because these coefficients are small and are not significant at the 10-percent level, the bias does not appear to affect the conclusions.<sup>23</sup>

## Policies To Assist Displaced Workers

How do we deal with unemployment that results from structural change? If the economy is undergoing structural change, some would argue that the change should not be impeded, that those who are dislocated should receive assistance, and that the costs of the economic change should be shared by all. Kletzer (1998) stated, “[a]ttempting to help dislocated workers seems to many a matter of fairness or social insurance. Since dislocation is specifically not due to the actions of the workers, there is no economic incentive to be served by the reduction in their income, and a society made up of risk-averse people will be interested in insuring against the risk that it happens to them.”<sup>24</sup>

Several Federal programs are designed to assist displaced workers—dislocated workers in the language of the programs—and their employers. These programs are described below.<sup>25</sup> Legislation to protect displaced workers is also discussed below. The question here is, do these Federal programs and legislation serve workers in nonmetro areas well or poorly? Although data are not available to definitively answer that question, indicators of the programs’ operation in rural areas can provide insights into program effectiveness.

### Unemployment Insurance

The Unemployment Insurance (UI) Program is the main income assistance program for displaced workers. The Federal-State UI system was established in 1935 as part of the Social Security Act. The intent of unemployment compensation is “to provide an unemployed worker time to find a new job equivalent to the one lost without major financial distress.” In fiscal year 1997, 8 million workers received \$20.6 billion in benefits.

Although UI programs vary State by State, an unemployed worker is generally eligible for benefits if the worker (1) meets the State requirements for wages earned or time worked in the previous year; (2) is unemployed due to no fault of his/her own; (3) is able to work and is available for work; and (4) is actively seeking work. The weekly unemployment benefits are generally about 50 percent of earnings when employed. Benefits can be paid up to 26 weeks in most States. In periods of high unemployment, benefits may be extended for an additional 13 weeks.

About 1.7 million displaced workers (half of all workers displaced in 1995 to 1997) received unemployment insurance (table 1). Most of these displaced workers would likely be eligible for UI benefits due to their 3-year tenure on their lost job. Those who did not receive benefits may have found a new job right away and experienced no joblessness, may have dropped out of the labor force and were not looking for a new job, or may have declined applying for UI benefits for other reasons. About half of those who received benefits, 800,000, exhausted their UI benefits before finding another job. UI usage between nonmetro and metro displaced workers was at essentially the same rate, 50 percent of nonmetro displaced versus 48 percent metro. In addition, about the same share of displaced workers exhausted their benefits: 43.5 percent of nonmetro versus 47 percent of metro. The Unemployment Insurance Program appears to be serving nonmetro displaced workers as well as metro displaced workers.

### Trade Adjustment Assistance Programs

The Trade Expansion Act of 1962 created the Trade Adjustment Assistance (TAA) program, and the Trade Act of 1974 expanded the program benefits and liberalized eligibility criteria establishing the program as it now exists. The purpose of TAA is to assist workers who become unemployed as a result of competition from foreign imports. The North American Free Trade Agreement-Transitional Adjustment Assistance (NAFTA-TAA) program was established under the North American Free Trade Agreement Implementation Act of 1993, and assists workers who become unemployed as a result of imports from Mexico or Canada. Assistance includes training, reemployment services, job search allowance, relocation allowance, and income support if the individual has exhausted unemployment insurance benefits. The goal is to assist individuals to return to suitable employment, “work of a substantially equal or higher skill level than the person’s past adversely affected employment, and which pays not less than 80 percent of his/her previous employment.” The FY2001 appropriation for the TAA program was \$342.4 million and for the NAFTA-TAA program \$64 million.

A worker group at a plant or a portion of a plant must be certified by the U.S. Department of Labor to be individually eligible to receive benefits. A petition seeking certification may be filed by three or more workers, their union, or by a company official on the workers’ behalf. TAA and NAFTA-TAA benefits are

then provided by the States. TAA also provides technical assistance to companies. The assistance is in diagnosing a company's problems, assessing its opportunities, and developing a recovery strategy. The U.S. Department of Commerce administers the technical assistance part of the TAA program.

Several studies have examined the relationship between imports and displacement. "There is strong evidence that as imports become more competitive, domestic industry displacement rises," according to Kletzer (1998).<sup>26</sup> Additionally, Addison, Fox, and Ruhm (1995) found that industry trade sensitivity and displacement are associated. Shelburne and Bednarzik (1993) responded that "[m]anufacturing industries that are intensively involved in international trade, either as importers or as exporters, are significantly more geographically concentrated than manufacturing industries with less involvement in trade." They also found that trade-related job loss was geographically concentrated during 1987-92. This geographical concentration means that a plant closing may weaken the local economy and adversely affect displaced workers' prospects for finding a new job. All of these results support the need for assistance programs for workers who lose their jobs due to trade impacts.

The TAA and NAFTA-TAA programs appear to be serving nonmetro areas well. Of the 5,701 companies with worker groups that received certification under TAA between 1994 and early 1999 that could be identified as either metro or nonmetro, 2,254 certifications, or 39.5 percent, were in nonmetro counties (table 12).<sup>27</sup> This percentage is double the nonmetro proportion of the U.S. labor force and double the nonmetro share of all U.S. establishments.<sup>28</sup> Of the total estimated number of workers affected, 40.9 percent were employed in nonmetro areas.<sup>29</sup> Certifications are disproportionately nonmetro, largely because nonmetro employment is more trade sensitive than metro employment.<sup>30</sup>

The largest group of certifications was for worker groups in the apparel and other textile products industries. In nonmetro areas, 42.8 percent of nonmetro certifications were for apparel companies. Apparel was also the industry with the most certifications in metro areas as well. Mining was the industry with the next largest number of certifications in both nonmetro and metro. In addition to mining's 376 certifications in

nonmetro areas, 446 certifications for mining companies had the location as "All Locations," so they could not be identified as metro or nonmetro. A large number of workers in these companies are probably located in nonmetro areas as mining employment is disproportionately located in nonmetro areas.

Putting the number of certifications in the context of total number of establishments, certification rates are also presented in table 12. The certification rate is 0.17 percent for nonmetro areas; that is, 0.17 percent of all nonmetro establishments received TAA certification. This nonmetro rate is small, but larger than the metro rate of 0.06 percent. The apparel industry in nonmetro areas had by far the largest certification rate, 27.2 percent, versus a rate of 4.9 percent in metro areas. Related industries in nonmetro areas also had high rates: textile mill products, 6.4 percent, and leather and leather products, 19.9 percent. Interestingly, although the number of certifications of worker groups in nonmetro areas of electronic and other electrical equipment establishments and in measuring, analyzing, and controlling instruments were relatively small, they made up a noticeable share of all nonmetro establishments in those industries, 7.0 percent and 3.3 percent, respectively. At the total U.S. level, certifications in mining were almost 6 percent of all mining establishments.

In the NAFTA-TAA program, 692 of the certifications during January 1994-January 1999 were in nonmetro areas, 39.5 percent of the certifications that could be classified as metro or nonmetro (table 13).<sup>31</sup> Again, this is twice the proportion of the nonmetro labor force. Of the estimated total number of workers affected, 42 percent were of worker groups in nonmetro companies.<sup>32</sup> The main reason for certification for both the nonmetro companies and the metro companies was that production shifted to Mexico—36 percent of nonmetro certifications and 48 percent of metro certifications.

Again, the industry with the largest number of NAFTA-TAA certifications was apparel and other textile products. For nonmetro, 39 percent of certifications were for worker groups at apparel companies, for metro, 24.5 percent. The lumber and wood products industry also had a large number of certifications in nonmetro areas, 100, or 14 percent, although there were only 30 certifications, 3 percent, for worker groups at metro companies.

**Table 12—Trade Adjustment Assistance program certifications, January 1994 - September 1999**

Industry	Nonmetro	Nonmetro rate <sup>1</sup>	Metro	Metro rate <sup>1</sup>	U.S. total <sup>2</sup>	U.S. rate <sup>1</sup>
	<i>Number</i>	<i>Percent</i>	<i>Number</i>	<i>Percent</i>	<i>Number</i>	<i>Percent</i>
Agriculture, forestry, and fishing	7	0.03	5	0.01	12	0.01
Mining	376	3.30	613	4.56	1,435	5.78
Construction	1	0	0	0	1	0
Manufacturing—total	1,855	2.23	3,091	1.04	4,758	1.25
Food and kindred products	13	.22	57	.37	70	.33
Tobacco products	0	0	1	.92	1	.74
Textile mill products	126	6.44	175	3.94	301	4.70
Apparel and other textile products	965	27.20	1,007	4.86	1,986	8.18
Lumber and wood products, except furniture	141	.68	46	.27	191	.51
Furniture and fixtures	24	1.00	32	.34	56	.47
Paper and allied products	24	2.24	49	.89	73	1.11
Printing, publishing, and allied industries	8	.08	19	.04	27	.04
Chemicals and allied products	15	.80	82	.78	97	.78
Petroleum refining and related products	10	2.24	15	.9	25	1.18
Rubber and miscellaneous plastics products	25	.81	69	.51	93	.56
Leather and leather products	98	19.92	127	8.78	227	11.71
Stone, clay, glass, and concrete products	16	.32	77	.66	118	.71
Primary metal industries	34	2.58	91	1.68	125	1.86
Fabricated metal products	38	.67	106	.34	144	.39
Industrial and commercial machinery, computer equipment	42	.39	213	.46	290	.51
Electronic and other electrical equipment	151	7.02	302	2.01	479	2.79
Transportation equipment	51	1.81	104	1.14	158	1.33
Measuring, analyzing, controlling instruments	35	3.34	107	1.03	143	1.25
Miscellaneous manufacturing industries	39	1.43	115	.73	154	.84
Transportation, communications, utilities	10	.01	14	.01	25	.01
Wholesale trade	0	0	4	0	4	0
Retail trade	0	0	3	0	28	0
Finance, insurance, and real estate	0	0	0	0	0	0
Services	5	0	14	0	19	0
Public administration	0	0	0	0	0	0
Total	2,254	.17	3,447	.06	6,282	.09

<sup>1</sup> TAA certifications as a percentage of all establishments.

<sup>2</sup> U.S. total includes certifications in nonmetro and metro, and also certifications for companies with the location, "All Locations," companies certified in Puerto Rico, and companies in cities that could not be identified as metro or nonmetro. Consequently, U.S. totals may be larger than the sum of nonmetro and metro.

Source: Calculated by ERS using data from Employment and Training Administration, U.S. Department of Labor, and from Enhanced County Business Patterns data, 1996.

**Table 13—NAFTA-Transitional Adjustment Assistance program certifications, January 1994 - January 1999**

Industry	Nonmetro	Nonmetro rate <sup>1</sup>	Metro	Metro rate <sup>1</sup>	U.S. total <sup>2</sup>	U.S. rate <sup>1</sup>
	<i>Number</i>	<i>Percent</i>	<i>Number</i>	<i>Percent</i>	<i>Number</i>	<i>Percent</i>
Agriculture, forestry, and fishing	9	0.04	10	0.01	19	0.02
Mining	16	.14	17	.13	58	.23
Construction	0	0	4	0	4	0
Manufacturing-total	658	.79	995	.33	1663	.44
Food and kindred products	4	.07	25	.16	29	.14
Tobacco products	0	0	0	0	0	0
Textile mill products	26	1.33	44	.99	69	1.08
Apparel and other textile products	270	7.61	259	1.25	531	2.19
Lumber and wood products, except furniture	100	.48	30	.18	134	.36
Furniture and fixtures	6	.25	16	.17	22	.18
Paper and allied products	17	1.59	24	.44	41	.62
Printing, publishing, and allied industries	4	.04	12	.02	16	.03
Chemicals and allied products	7	.37	28	.27	35	.28
Petroleum refining and related products	1	.22	1	.06	2	.09
Rubber and miscellaneous plastics products	15	.48	38	.28	53	.32
Leather and leather products	26	5.28	28	1.94	55	2.84
Stone, clay, glass, and concrete products	8	.16	27	.23	35	.21
Primary metal industries	8	.61	28	.52	36	.54
Fabricated metal products	22	.39	68	.22	91	.25
Industrial and commercial machinery, computer equipment	19	.18	60	.13	79	.14
Electronic and other electrical equipment	78	3.63	164	1.09	244	1.42
Transportation equipment	27	.96	52	.57	79	.66
Measuring, analyzing, controlling instruments	14	1.33	57	.55	72	.63
Miscellaneous manufacturing industries	6	.22	34	.22	40	.22
Transportation, communications, utilities	7	.01	10	0	24	.01
Wholesale trade	0	0	4	0	4	0
Retail trade	0	0	0	0	0	0
Finance, insurance, and real estate	0	0	0	0	0	0
Services	2	0	18	0	20	0
Public administration	0	0	0	0	0	0
Total	692	.05	1,058	.02	1,792	.03

<sup>1</sup> NAFTA-TAA certifications as a percentage of all establishments.

<sup>2</sup> U.S. total includes certifications in nonmetro and metro, and also certifications for companies with the location, "all locations," "various locations," or "throughout the State," and companies in cities that could not be identified as metro or nonmetro. Consequently, U.S. totals may be larger than the sum of non-metro and metro.

Note: Many worker groups petition for and are certified under both the TAA and NAFTA-TAA programs. Thus, the number of worker groups certified under these programs cannot be added together.

Source: Calculated by ERS using data from Employment and Training Administration, U.S. Department of Labor, and from Enhanced County Business Patterns data, 1996.

NAFTA-TAA certification rates show patterns similar to the TAA certification rates. The apparel industry in nonmetro areas has the largest certification rate, 7.61 percent. Other industries with high rates are textile mill products, leather and leather products, electronic and other electrical equipment, and measuring, analyzing, and controlling instruments, as with the TAA certification rates.

These results suggest two concerns. First, even a small plant closing can have a large effect on a rural community, and many of the nonmetro companies certified had more than 100 employees. Second, the apparel industry is clearly undergoing a deep restructuring. Thus, many if not most of displaced apparel workers who find a new job will do so in another industry or occupation. The burden of this adjustment due to trade is falling disproportionately on nonmetro workers.

## **The Worker Adjustment and Retraining Notification Act**

The Worker Adjustment and Retraining Notification Act (WARN) of 1988 requires 60-days advance notice of covered plant closings and covered mass layoffs. WARN is not a program, but legislation mandating advance notice. The intent of WARN is to provide workers and their communities time to prepare for the economic dislocation of job loss. With advance notice, workers would have more time to look for a new job, reducing unemployment. Nord and Ting (1991) found that a 60-day advance notice appeared to result in lower earnings losses and less unemployment. To the extent that advance notice reduced joblessness, WARN benefits not only workers, but also employers, since “[e]mployer contributions to unemployment insurance will be reduced as dislocated workers quickly obtain new jobs and their dependence on unemployment benefits is lessened.”<sup>33</sup>

An employer with 100 or more full-time employees is usually covered by WARN. For a plant closing, a covered employer must give notice if an employment site of 50 or more employees will be shut down. For a mass layoff, a covered employer must give advance notice for a layoff of 500 or more employees or for 50-499 employees if they make up at least a third of the employer’s workforce. There are exemptions to providing advance notice and exemptions to providing the full 60-days notice such as if the layoff is the direct result of a natural disaster, and employers have the option of “buying out” the employees’ advance notice.

Because nonmetro establishments are, on average, smaller than metro establishments, nonmetro workers are less likely to be covered by WARN than metro workers. However, the difference is small, as most establishments in the United States are small. In 1996, the average size of nonmetro establishments was 12 employees, compared with 16 employees for metro establishments.<sup>34</sup> Only 1.7 percent of nonmetro establishments and 2.4 percent of metro establishments had 100 or more employees, with 100 employees being the threshold for a company being covered by WARN. Fifty employees is the threshold for a site being covered by WARN, if the company has 100 or more employees, and 3.8 percent of nonmetro establishments and 5.4 percent of metro establishments had 50 or more employees. So, nonmetro workers are less likely than metro workers to be covered by WARN. However, employees at most U.S. establishments are not going to be covered by WARN, because only a small percentage of establishments had 100 or more employees.<sup>35</sup>

For the covered firms, Addison and Blackburn (1994) found that the incidence of advance notice does not appear to have increased since WARN was implemented in 1989. Before WARN, only three States had advance notice requirements, although firms could, of course, voluntarily give advance notice.

Enforcement authority for WARN is with the U.S. District Courts. Thus, the workers, their representatives, or a local government unit must file an individual or class action lawsuit to bring compliance if advance notice is not given. The penalties that the employer is liable for are the amount of back pay and benefits for the period of violation (up to 60 days) for each employee and a civil penalty up to \$500 for each day of violation.

## ***Rapid Response***

When notice is given to employees, the employer is also required to contact the State Dislocated Worker Unit. The State then sends out a rapid response team to assist workers about to be laid off. The purpose of rapid response is “to mobilize resources and coordinate a unified and responsible State effort to assure affected unemployed individuals and dislocated workers receive appropriate governmental assistance and benefits and an opportunity to adjust their lives in an orderly manner.”<sup>36</sup> The team determines what type of assistance workers are eligible for and facilitates applications for assistance. The team also assists the

local community in obtaining State economic development assistance. Rapid response is authorized by title III of the Job Training Partnership Act (JTPA).

Although nonmetro areas would be less likely to have a layoff covered by WARN, governors are able to invoke the rapid response visit for smaller layoffs that are not covered. This authority would be especially useful for nonmetro areas because a small layoff, say 30 workers, could seriously affect the local community.

### **Economic Dislocation and Worker Adjustment Assistance Act and Workforce Investment Act**

The Economic Dislocation and Worker Adjustment Assistance Act (EDWAA) provides retraining and readjustment services to displaced workers and need-related payments to those who have exhausted their unemployment insurance benefits. EDWAA amended title III of the Job Training Partnership Act (JTPA) in 1988. In addition to assisting workers who lost their job from plant closures or mass layoffs, EDWAA benefits are also available to long-term unemployed persons; farmers, ranchers, and other self-employed persons; and under some certain circumstances, displaced homemakers. Special programs also exist for workers affected by military base closures and realignments. EDWAA is a federally funded program administered by the States. Each State has a Dislocated Worker Unit that is responsible for the program. In fiscal year 1999, \$1.4 billion was allocated for dislocated worker employment and training activities.

EDWAA benefits include Rapid Response assistance, described above; retraining services may include classroom, occupations skills, on-the-job training, remedial education, and English-as-a-second-language instruction; readjustment services, including testing and counseling, job search and placement, and supportive services such as child care and transportation allowances; and needs-related payments to workers who have exhausted their unemployment insurance benefits. Applications for benefits are submitted to the Substate Area (SSA) Coordinators, local agencies that provide services to laid-off workers.

As an indicator of the accessibility of SSA's to nonmetro workers, I classified the 551 SSA's according to metro/nonmetro location.<sup>37</sup> About one-quarter were located in nonmetro areas, greater than the nonmetro share of 20 percent of the labor force.

Some States—Delaware, North Dakota, Utah, and Wyoming—have only a single SSA located in a metro area. Other States—Alabama, Colorado, Connecticut, Massachusetts, Nebraska, New Jersey, New Mexico, Nevada, Rhode Island, and West Virginia—have more than one SSA, but all the State SSA's are located in metro areas. Overall, it appears that nonmetro areas are well served by the SSA's, at least in terms of proximity. However, in several States, nonmetro displaced workers would have to travel a long distance to reach the SSA.

In 1998, the Workforce Investment Act (WIA) became law. WIA consolidates several training and employment programs under the Job Training Partnership Act, including EDWAA, into a single, unified program. Legislated benefits are essentially the same, but program effectiveness is expected to improve under WIA as the focus is on how benefits are delivered. Goals of the new WIA program are to (1) streamline services; (2) empower individuals by making use of Individual Training Accounts and by greater levels of information and guidance; (3) provide greater access to services; (4) increase program accountability; (5) involve local businesses; (6) increase State and local flexibility; and (7) improve youth programs. Implementation of WIA began in 1999 and will continue over the next several years as each State develops a strategy to implement the program. Congress repealed the Job Training Partnership Act as of July 1, 2000. For fiscal year 2001, the estimated expenditure for all dislocated worker employment and training activities programs (excepting TAA and NAFTA-TAA) is \$1.74 billion.

Two important concepts in the WIA program are the Individual Training Accounts and the One-Stop Career Center system. The Individual Training Accounts allow the individual to choose from a list of eligible training providers. Individuals can choose both the type of training and the provider of the training. The One-Stop Career Center consolidates service delivery for employment and training programs. Many States separate the Substate Area agencies, providing services for displaced workers, from the Service Delivery Area agencies, which provide services to welfare recipients. Information about Unemployment Insurance may be in yet another location. The One-Stops are designed to assist both job-seekers and employers. The One-Stop concept predates WIA, and in 1994 the U.S. Department of Labor (DOL) began giving grants to States to implement One-Stop systems. Currently there



are 1,100 One-Stops, with many SSA and Service Delivery Areas being converted to One-Stops. DOL also has a “virtual” Rapid Response and One-Stop system using a toll-free number and information on the Employment and Training Administration website. Public service announcements sent to television stations advertise the toll-free number. Full implementation of these services is expected to be achieved in 2001.

For displaced workers, benefits will be essentially the same under WIA as under EDWAA. The WIA Individual Training Accounts will allow greater flexibility to displaced workers and perhaps a greater likelihood that training will provide marketable skills. The large number of One-Stops and the virtual One-Stop means that these programs will be more accessible to nonmetro displaced workers.

Some rural communities, however, may find the local governance requirements of WIA another burden of devolution. Local elected officials are required to appoint members of local workforce investment boards. These appointments must be done within State criteria and are subject to State certification. Local officials, in conjunction with the local board, develop the local workforce investment plan and oversee the local One-Stop system. The local board, in turn, has its own responsibilities. In rural communities where official positions are part time, local leaders may be overwhelmed with Federal requirements that they must now meet and with the Federal programs they must now implement.

## Benefit Protections

Retirement benefits of displaced workers who are in a defined benefit plan are protected by the Employee Retirement Income Security Act of 1974 (ERISA). Two amendments to ERISA provide health insurance benefits to displaced workers: the Consolidated Omnibus Budget and Reconciliation Act of 1985 (COBRA) and the Health Insurance Portability and Accountability Act of 1996 (HIPAA). Under COBRA, some displaced workers have the right to continue health insurance coverage after they lose their jobs. Employers with 20 or more employees are usually covered under COBRA. Workers must have been enrolled in the employer’s health plan, must elect to receive COBRA coverage when laid off, and must pay the entire premium amount plus a 2-percent administrative fee. COBRA coverage extends for a maximum

of 18 months after job loss. HIPAA protects displaced workers who find a new job by limiting health insurance exclusions for preexisting conditions, prohibiting discrimination against employees based on their health status, and allowing workers to apply for individual health insurance policies. However, workers must have been in an employer-sponsored health plan on the lost job for the HIPAA protections to apply.

Fewer nonmetro workers participate in a pension plan or other retirement plan on their job than metro workers, 38 percent of nonmetro workers versus 41 percent of metro workers in 1993.<sup>38</sup> Consequently, nonmetro displaced workers are less likely to be covered by the retirement protections provided by ERISA. Nonmetro workers displaced during 1995-97 were slightly less likely to have been covered by health insurance on their lost job—64 percent of nonmetro displaced had health insurance versus 71 percent of metro displaced.<sup>39</sup> Because nonmetro displaced workers are less likely to have had health insurance on their lost job and because nonmetro establishment size is on average smaller than metro establishment size, nonmetro workers are less likely to benefit from the protections of COBRA and HIPAA.

## Evaluation of Programs

Leigh (1990, 1991, 1995) has written extensively on evaluation of displaced worker programs. He concluded that job search assistance is effective in speeding up reemployment of displaced workers and is also a fairly low-cost program. He also concluded that results are mixed for classroom training in vocational skills. However, one TAA classroom training program that was evaluated was considered a success in that displaced workers who found a new job but had to change occupation or industry were able to mitigate their earnings losses. On-the-job training program evaluations have also been favorable, but Leigh wondered if enough employers would be convinced to participate.

The ERS study, *International Agriculture and Trade Reports: NAFTA* (1999), looked at NAFTA-TAA certifications by metro/nonmetro status. Counties that had received agriculture-related certifications had higher rates of unemployment and lower employment growth during NAFTA’s early years, for both metro and nonmetro counties, suggesting that program funds targeted counties that truly needed assistance.

## **Conclusions: Displacement Rates Low, but Rural Displacement Still a Concern**

The analysis presented here suggests that nonmetro workers are not at greater risk of displacement than metro workers. Indeed, they faced a slightly lower risk of displacement during 1995-97. This is a reversal of the experience of the 1980s, when nonmetro workers had greater displacement rates than metro workers. For measures of hardship after displacement such as unemployment rates, weeks jobless, or lost earnings, nonmetro displaced workers fared about the same as metro displaced. Consequently, assessing whether nonmetro displaced faced more or less hardship than metro displaced is not straightforward.

Despite this favorable news, analysis reveals several concerns about displaced workers in nonmetro areas:

- (1) Once displaced, nonmetro workers were less likely to find a new job than metro displaced. A larger share of nonmetro displaced workers dropped out of the labor force than metro displaced workers.
- (2) Although nonmetro displaced workers who found a new job did about as well as metro displaced workers in replacing their lost-job earnings, nonmetro median weekly earnings were considerably less than the metro median weekly earnings. And related to this, nonmetro displaced workers were more likely to be in low-income households than metro displaced workers.
- (3) Nonmetro workers were less likely to be covered by the legislation designed to protect displaced workers, WARN, ERISA, COBRA, and HIPAA. Because the intent is to protect displaced workers and their benefits, perhaps the differences in employment characteristics between metro and nonmetro jobs should be taken into account.
- (4) The large number and share of trade adjustment assistance certifications in nonmetro areas suggest that layoffs are continuing at a relatively high rate given the low unemployment rate. Even though layoffs from these plant closings and downsizings constituted a small share of the total nonmetro labor force, they likely had a large impact on rural communities. The effect of restructuring of the apparel industry in particular is falling dispro-

portionately on nonmetro areas. Assistance is clearly warranted not only to help the displaced workers, but also to help the affected communities adjust and develop new sources of employment. Restructuring and relocations continue as the United States becomes increasingly involved in the global economy. For example, recent announcements directly affecting nonmetro areas include sheet and towel maker WestPoint Stevens Inc.'s plans to close its plant in Halifax County, NC, due to streamlining and technological advances; Baldwin Piano's closing of its plant in Leflore County, MS, to outsource the manufacturing of components; International Paper Co.'s closing of its plywood mill in Ware County, GA, due to competition from imports; Ohio Art Co.'s plan to close its Etch A Sketch plant in Williams County, OH, and move production to China; Converse's reorganization and bankruptcy protection filing that will close the Robeson County, NC, sneaker plant and then license production to Asian manufacturers; and the closing of the Sunshine Mine, the nation's largest silver mine in Shoshone County, ID, due to low silver prices.

- (5) Were the United States to again face the financial market conditions of the 1980s debt crisis—the high value of the dollar and high interest rates—nonmetro areas would probably experience extensive displacement. In the recent global financial crisis, the U.S. trade deficit increased sharply in 1998 and 1999, hurting the goods-producing sector, in particular, agriculture and manufacturing, resulting in a decline in nonmetro employment growth. Fortunately, nonmetro areas did not experience lasting damage from the global financial crisis, unlike the experience of the 1980s debt crisis.

The labor market story of the mid-1990s is very much a favorable one. The tight labor markets of this phase of the expansion have reduced displacement levels and rates and allowed most displaced workers to find new jobs. However, layoffs continue at a relatively high rate given low unemployment, and some groups face disproportionate hardship. Worker displacement in nonmetro areas is of particular concern as goods-producing industries continue to lay off workers. Economic change is inevitable; the challenge is to adequately provide for workers and communities dealing with change.

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## Endnotes

1. In the text, “nonmetropolitan” and “metropolitan” are used interchangeably with “nonmetro” and “metro.” “Rural” and “urban” for “nonmetro” and “metro” are also used.
2. Hipple (1999), p. 27-28.
3. Beneria (1998), no page number.
4. Leistriz and Root (1999), p. 40.
5. From Hipple (1999), p. 29: “The count of displaced workers includes, in addition to those who lost jobs, workers who left jobs in *anticipation* of losing them. Debriefing data collected as part of quality assessment research conducted on the February 1998 Displaced Worker Survey indicate that 79 percent of the displaced were job losers and 19 percent were job leavers. (One percent said they had retired.) Thus, the group referred to as job losers includes some workers who left or retired from their jobs prior to losing them.”
6. Standard errors and confidence intervals were calculated for many of the statistics in table 1. The confidence intervals for the number of displaced workers (in thousands) are nonmetro,  $500 \pm 76$ ; metro,  $2,915 \pm 152$ ; and U.S. total,  $3,415 \pm 164$ . The confidence intervals for the percentage statistics were in the range of  $\pm 4.0$  to  $\pm 7.6$  for nonmetro;  $\pm 0.9$  to  $\pm 2.6$  for metro; and  $\pm 0.8$  to  $\pm 2.4$  for U.S. total.
7. I applied the 11 education and training categories from the Office of Employment Projections, BLS, to the CPS data. The categories are first professional degree, doctoral degree, master’s degree, work experience plus bachelor’s or higher degree, bachelor’s degree, associate’s degree, postsecondary vocational training, work experience in a related occupation, long-term on-the-job training, moderate-term on-the-job training, and short-term on-the-job training. The last three categories: long-term, moderate-term, and short-term on-the-job-training were combined to define low-skill occupations. For more information on the education and training categories, see U.S. Department of Labor, Bureau of Labor Statistics, *Monthly Labor Review*, Vol. 120, No. 11, Nov. 1997; and U.S. Department of Labor, Bureau of Labor Statistics, “Occupational Projections and Training Data,” Bulletin 2501, Jan. 1998.
8. Displacement rates are usually calculated by dividing the number of displaced workers in a specified worker group by a tenure-adjusted (that is, 3 or more years of tenure with their employer) average over the displacement period (1995-97) of the number of employed workers in the specified worker group. Because of the reclassification of metro/nonmetro in 1993 and the phase-in of the new classification during 1994-95 into the CPS, a meaningful denominator cannot be estimated for 1995. Consequently, I used a tenure-adjusted estimate of each worker group from the February 1998 basic CPS. The February 1998 CPS includes supplemental information on job tenure. Because 1995-98 was a period of employment growth, using 1998 data may make the denominators larger and the displacement rates smaller than if a 1995-97 average could be calculated. Because only 1 month, February, is used, the denominators may be smaller than if the annual averages were used due to seasonal factors, making the displacement rates larger than if a 1995-97 average could be calculated.
9. There is some overlap of the three hardship groups:
  - 30 percent of the age 55-64 group had less than a high school diploma;
  - 12 percent of the age 55-64 group had household incomes less than \$15,000;
  - 16 percent of those with less than a high school diploma were age 55-64;
  - 37 percent of those with less than a high school diploma had household incomes less than \$15,000;
  - 18 percent of those with household incomes less than \$15,000 were age 55-64;
  - 32 percent of those with household incomes less than \$15,000 had less than a high school diploma;
  - roughly 5 percent of each group were in all three groups.
10. Each respondent was asked which income range their household income fell in and was not asked individual income level. Consequently, a median income cannot be calculated, and whether or not a household is below the poverty line cannot be determined. In addition, household income range is missing for some observations.
11. Labor-leisure choice theory describes the individual’s decision to work and how much time to spend working. It is the decision between labor (work) and leisure (nonmarket activities). The pro-

bit models presented describe the factors that contribute to loss of a job, not the decision not to work. For an overview of labor-leisure choice theory, see Ehrenberg and Smith (1994), chapter 6.

12. Unemployment rates as percentages for 1995-97 were for nonmetro: 5.7, 5.5, 5.2 (average 5.5) and for metro: 5.6, 5.4, 4.9 (average 5.3). Source: ERS calculations using Current Population Survey data. The aggregate nonmetro and metro unemployment rates were unsuccessful in the probit models as they create a singular matrix, and consequently, an unsolvable equation. Future research may include more disaggregated unemployment rates or employment growth rates.
13. Estimates for probability of displacement and probability of employment after displacement were done in SAS, Vers. 6, using PROC MEANS and PROC PROBIT. With much help from Charlie Hallahan, I programmed the normalization transformation of the estimated probit coefficients. Diagnostic statistics were done in SAS, Vers. 6, using PROC LOGISTIC.
14. There are slight differences in the mean values reported in tables 9 and 10, and in table 1. Because the probit procedure does not use observations when any of the variable values are missing, the mean is calculated from a smaller sample than the means in table 1, resulting in slightly different means.
15. The values represent the effect of a change in an independent variable on  $F^{-1}$  (probability of displacement) where  $F^{-1}(\cdot)$  is the inverse function of the normal cumulative density function. Consequently, the interpretation of probit estimates is not intuitive. To get the increase in the probability of displacement given a one-unit increase in an independent variable, one must instead look at the normalized estimates, which are given by the partial derivative of  $\text{prob}(y_i = \text{displacement})$  with respect to  $\beta$  and then calculated at the mean values of the independent variables. That is,  $\hat{\beta}\phi(\bar{X}\hat{\beta})$  where  $\hat{\beta}$  is the vector of estimated coefficients of the probit model,  $\phi$  is the standard normal probability density function, and  $\bar{X}$  is the vector of the means of the independent variables. The normalized estimates are then the marginal effects of the independent variables at the mean on the probability of displacement.
16. I also did analysis on the population of those displaced with 3 or more years of tenure on their lost job and those not displaced but working with 3 or more years of tenure on their current job, which yielded similar results (not shown).
17. The observations are paired up without pairing the observation with itself. Pairs that are both 1's or 0's for the dependent variable are ignored. For the remaining pairs, the predicted value of the observation with a 1 is compared with the predicted value of the observation with a 0. If the predicted value of the 1 observation is greater than the predicted value of the 0 observation, then the pair is *concordant*. If not, the pair is *discordant*, and if the predicted values in the pair are the same, then the pair is a tie. For more information, see Paul D. Allison, *Logistic Regression Using the SAS System: Theory and Application*, Cary, NC: SAS Institute Inc., 1999.
18. Some of the unemployed workers would have "incomplete spells" of unemployment at the time of the survey; that is, they were unemployed when surveyed but found a job after the survey. These incomplete unemployment spells create a downward bias in the results in that probabilities of employment would be larger if all unemployment spells were completed at the survey. Future research will try to adjust for this bias. However, because jobless duration for those who were employed at the survey was about the same for nonmetro and metro (table 2), there is no reason to think that the bias is different for nonmetro displaced workers than for metro displaced workers.
19. Human capital theory describes the labor market investment decisions individuals make in education and training, migration, and job search. The theory includes explanation of how different characteristics, such as education level, contribute to earnings. For an overview of human capital theory, see Ehrenberg and Smith (1994), chapter 9.
20. Estimates were done using PROC REG in SAS, Vers. 6.
21. For a discussion of the reservation wage and search unemployment, see Ehrenberg and Smith (1994), pp. 590-591.
22. See Podgursky and Swaim (Fall 1987).
23. Future research may use a tobit truncated regression model of earnings loss to include those who were not employed at the survey.
24. Kletzer (1998), p. 133.

25. Information on the Federal programs assisting displaced (dislocated) workers and their employers is available on the Internet. For more information see U.S. Department of Labor, Employment and Training Administration, <http://www.doleta.gov>. For more information on the Trade Adjustment Assistance Program technical assistance to employers, see U.S. Department of Commerce, <http://www.doc.gov>, and look under Economic Development Administration. For more information on ERISA, COBRA, and HIPAA, see U.S. Department of Labor, Pension and Welfare Benefits Administration, <http://www.dol.gov/dol/pwba>.
26. Kletzer (1998, p. 131) provides a short survey of the literature on trade and displacement in this article.
27. Data on the Trade Adjustment Assistance Program certifications are from Employment and Training Administration (ETA), U.S. Department of Labor. Data are for certifications dated January 1994-September 1999, and the data were prepared by ETA on September 21, 1999. Because the certification process takes time, and also because there are amendments and reconsiderations to applications, the number of certifications is dynamic. For example, ETA reported that as of April 14, 2000, the Department of Labor issued certification for 6,593 worker groups under TAA and 1,433 worker groups under NAFTA-TAA.
28. 19.2 percent of the 6.7 million establishments in the United States are in nonmetro areas. Source: ERS calculations from the Enhanced County Business Patterns Data, 1996. Excluded from the data are self-employed persons, domestic service workers, railroad employees, agricultural production workers, most government employees, and employees on ocean-borne vessels or in foreign countries. An establishment is defined as a single physical location at which business is conducted or services or industrial operations are performed. For more information on the County Business Patterns data, see the U.S. Census Bureau website, <http://www.census.gov/>.
29. The estimated number of workers affected is based on total employment at the plants where the petitioning workers worked and is not necessarily the number of workers laid off. In addition, the data were sometimes missing, and about 50 of the certifications did not have an estimated number of workers. For these reasons, the focus is on the number of certifications and not the estimated number of workers affected.
30. See Karen S. Hamrick, "Rural Labor Markets Often Lead Urban Markets in Recessions and Expansions," *Rural Development Perspectives*, Vol. 12, No. 3, June 1997, pp. 11-17; Karen S. Hamrick, "Rural Unemployment Sensitive to Exchange Rates," *Rural Conditions and Trends*, Vol. 3, No. 2, Summer 1992, pp. 10-11.
31. Data on the NAFTA-Transitional Adjustment Assistance Program certifications are from Employment and Training Administration, U.S. Department of Labor. Data are for certifications dated January 1994-January 1999; the data were prepared by ETA on January 29, 1999.
32. The estimated number of workers affected is based on total employment at the plants where the petitioning workers worked. It is not necessarily the number of workers laid off. In addition, a large number of the data are missing, as ETA did not record the estimated number of workers for multiple certifications of one company. For these reasons, the focus is on the number of certifications and not the estimated number of workers affected.
33. State of Hawaii Department of Labor and Industrial Relations website, <http://dlir.state.hi.us/index.html>, on the Business Closing Down or Laying Off page, <http://dlir.state.hi.us/closing.html>.
34. Statistics on establishment size are ERS calculations from the Enhanced County Business Patterns Data, 1996. Excluded from the data are self-employed persons, domestic service workers, railroad employees, agricultural production workers, most government employees, and employees on ocean-borne vessels or in foreign countries. An establishment is defined as a single physical location at which business is conducted or services or industrial operations are performed. For more information on the County Business Patterns data, see the U.S. Census Bureau website, <http://www.census.gov/>.
35. The majority of workers are at firms with fewer than 100 employees. (Note that a firm may contain more than one establishment.) Nationwide in 1996, 57 percent of all employed were at firms with fewer than 100 employees. Source: U.S. Small Business Administration, Office of Advocacy, based on U.S. Department of Commerce, Census Bureau data. See <http://www.sba.gov/advo/>.



36. State of Hawaii Department of Labor and Industrial Relations website,  
<http://dlir.state.hi.us/index.html>, on the Rapid Response page,  
[http://dlir.state.hi.us/wdd/kaneohe/rapid\\_resp.html](http://dlir.state.hi.us/wdd/kaneohe/rapid_resp.html).
37. The list of Substate Area Coordinators is from *The National Association of Counties 1999-2000 Job Training Partnership Act and Workforce Investment Act Directory*. SSA's in the Federated States of Micronesia, Puerto Rico, and the Virgin Islands were not included in this analysis.
38. Frenzen (1995), p. 24.
39. 1998 CPS Displaced Worker Survey data.