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Employment Experiences of Welfare Recipients Who Find Jobs: Is Targeting Possible?

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I. Purpose of Report and Key Findings

One of the most important themes of today's welfare debate is the goal of moving mothers from welfare to work. The Personal Responsibility and Work Opportunity Reconciliation Act of 1996 (PRWORA) includes strong incentives for state agencies to move recipients into the labor force. State and local policymakers now express significant interest in the issue of job retention and in designing programs to facilitate job retention or rapid reemployment. Anticipating this need, the Administration for Children and Families (ACF) of the U.S. Department of Health and Human Services contracted with Mathematica Policy Research, Inc. to provide program operators and policymakers with useful information on issues related to labor force attachment for welfare recipients. In particular, ACF had two broad goals for this study: (1) to provide some benchmarks regarding the employment patterns of welfare recipients who find jobs and the factors associated with job loss or job retention; and (2) to shed light on the feasibility of targeting resources to those who are most likely to have long periods of nonemployment.

This report uses national data to examine the employment experiences of welfare recipients who find jobs. We address seven broad questions:

1. ***What are the characteristics of welfare recipients who find jobs?***

2. ***What types of jobs do welfare recipients find?***

3. ***How do these recipients compare with other similar groups of individuals?*** In particular, how do they compare with recipients who do not find jobs as well as with other low income single mothers who do not receive welfare?

4. ***What are the employment patterns of welfare recipients who find jobs?*** How long do welfare recipients who find jobs stay employed? Why do some lose their jobs? How quickly do those who have lost jobs find other jobs?

5. ***What do welfare recipients' employment and welfare experiences look like over the long period?*** Do employment patterns differ for different groups of individuals?

6. ***What wage and earnings growth do welfare recipients experience during the five-year period following initial employment?***

7. ***What factors are related to sustained employment?***

To improve the efficiency of resource use, programs might want to use selected characteristics to target services toward clients most in need. In this study, we examine the feasibility of targeting clients for job retention services. In particular, we give some guidance on targeting by identifying characteristics of individuals at high risk of having negative labor market outcomes and provide simple rules that policymakers can use to target services to these people.

Our study complements the growing research that focuses on various aspects of the welfare-to-work transition, as well as on the economic well-being of welfare recipients after having left welfare (Pavetti 1997a, 1997b, and 1997c; Meyer and Cancian 1997; Rangarajan 1996; Spatler-Roth et al. 1995; and Brandon 1995).[1] Our study provides a complete picture of the employment behavior of welfare recipients who have found jobs, starting from their initial employment spell and following them over time.[2] In addition, the study examines the effects of a broad set of factors on employment experiences, including individual characteristics, job characteristics, child care arrangements and other forms of social support, and local area characteristics. Finally, we also conduct a risk analysis that attempts to identify cases at high risk of adverse labor market outcomes and provide decision rules for programs to select these individuals for services.

To study these issues, we used data from the 1979 to 1994 National Longitudinal Survey of Youth (NLSY).[3] The NLSY selected a nationally representative sample of youths who were between the ages of 14 and 22 in 1979 and followed the sample members for the next 15 years, until they reached ages 29 to 37.[4] The data include detailed information on sample members' program participation, labor force participation, and other sociodemographic and economic variables. The key findings from our study are summarized on the next page.

Because our analysis uses data obtained before the passage of PRWORA, our findings should be interpreted with caution. The reader must remain aware of the likely of effects the work requirements and time limits imposed by PRWORA on welfare recipients' employment behavior. On the one hand, time limits may dissuade some welfare recipients from quitting their jobs. Thus, our description of employment patterns may underestimate the actual employment spells of these individuals. On the other hand, the new law also requires many who have little or no labor market experience to enter the labor market. Because they are likely to have fewer skills and be less job-ready, these people are more likely than our sample of welfare recipients who found jobs to experience shorter employment spells. It is difficult to predict either the result of these two opposing effects or how our description of employment experiences subsequently will be affected.

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[1]Spatler-Roth et al. examines the kinds of jobs that welfare recipients obtain and the extent to which recipients combine work and welfare. Meyer and Cancian examine the poverty status of welfare recipients during the five-year period after exit from welfare. Rangarajan examines the first-year employment experiences of 1,200 welfare recipients who found jobs in 1995. Pavetti performs simulations to assess how much more welfare recipients could work if their observed personal characteristics and labor market experiences mirrored those of women who are not on welfare.

[2]The initial employment spell begins at the start of the first job we observe during the sample period. This is likely to be the first job for most of the sample members because of their young ages when we first started observing them.

[3]The random and supplemental samples were used for the analysis, to increase sample sizes.

[4]Our sample excludes the small fraction of older women who receive welfare. For instance, in 1995, about 14 percent of welfare caseheads were individuals over 40 years of age.

KEY FINDINGS FROM OUR STUDY

- **Although disadvantaged as a group, welfare recipients who find jobs are fairly diverse and have different needs.** Given their varied circumstances, some recipients are better prepared to enter and remain in the labor force, and are likely to need little additional support. Others (including welfare recipients who have no labor market experience and will have to find jobs under the TANF work requirements) are not as well prepared, and may need greater support. Therefore, programs that are providing job retention services may not have to serve all welfare recipients who find jobs; rather, they could attempt to identify those clients with severe or multiple barriers and target them for appropriate services.

- **Despite some diversity in the types of jobs they find, welfare recipients in general find fairly unstable, entry-level jobs that provide low pay, offer few fringe benefits, and are associated with high turnover.** A large fraction of welfare recipients work in jobs with varying schedules or in evening or night shift jobs--hours during which formal child care and public transportation generally are less readily available. Varying shifts and fluctuating hours per week can affect an individual's ability to sustain employment. The large numbers of welfare recipients who find jobs with nonstandard shifts suggests that policymakers must closely examine the supply of child care and transportation during off-peak hours.

- **Job retention is a problem for most welfare recipients who find jobs, and many become nonemployed within a year. The first four to six months after job start is a critical period during which many stop working.** Reasons for job loss are primarily job related or workplace related, but some welfare recipients leave for other reasons. Many who lose jobs eventually find other jobs, but it takes some time for many people to find jobs. Job retention programs may have to focus on helping welfare recipients deal with workplace issues as well as with job search assistance and reemployment assistance, in addition to providing personal and logistical support. A small fraction, however, remain employed for long periods (about 15 percent remain employed continuously for at least two years). These recipients may need less employment support than other welfare recipients who find jobs.

- **On average, welfare recipients who work steadily experience considerable increases in earnings over time caused primarily by increases in hours and weeks worked; wages however, improve only modestly.** The majority of those who remain employed for long periods of time move to better jobs, either experiencing some wage growth or receiving fringe benefits on the job. However, despite the overall increases, about one-third experience wage and earnings losses five years after initial employment. Thus, wage progression strategies might be needed to help increase wages for many welfare recipients. These strategies could be to help employed welfare recipients move to better and higher-paying jobs or provide them with additional skills training.

- **Some individual characteristics are associated with positive employment outcomes. Supplemental support characteristics, such as child care arrangements, and job characteristics, however, are strongly associated employment.** Individuals with nonrelative child care or other types of formal or center based care typically have longer periods of employment than those who rely on relative care. Those who start in lower-paying jobs or in jobs without fringe benefits lose their jobs quickly. While it is not practical to assume that all welfare recipients will be able to find high-paying jobs or that states, facing TANF work requirement goals, will attempt to place welfare recipients only in high-paying jobs, our findings do suggest that program operators may want to monitor the progress of those who find low paying jobs, and to offer them at least some general job search assistance or reemployment services. Additionally, job retention programs may want to focus on child care or other supportive services, and to help individuals who have tenuous child care arrangements find more stable formal child care.

- **Programs can successfully target clients for job retention services.** Because of the diversity in the employment outcomes of welfare recipients who find jobs, programs may want to target specialized services to those who can most benefit from them. Our analysis suggests that programs can successfully identify high-risk cases using data on individual and job characteristics that are likely to be available. Programs can use single characteristics (such as age, education levels, or health problems) to identify high-risk cases. Alternatively, they can more accurately identify high-risk cases by targeting on a combination of client characteristics. We construct decision rules based on NLSY data that programs can use to target clients, and discuss procedures that programs can use to develop their own decision rules.

Nonetheless, regardless of the behavioral changes occurring as a result of the new law, our analysis serves three useful purposes. First, our estimates of employment patterns provide a benchmark of welfare recipients' employment experiences against which more recent employment behavior eventually can be compared. Second, our analysis gives program operators some sense of the needs of employed welfare recipients. For example, reasons for job loss provide an indication of the areas in which programs might want to focus services. Our analysis also provides useful information on the period of greatest risk of job loss, and thus on how long programs may want to monitor employed welfare recipients, and on whether programs should focus on retention or reemployment services. Third, our risk analysis provides information for program operators and policymakers who may want to use resources more efficiently by focusing selected services on those most need them. Even if employment patterns change in response to the new law, the relationship between characteristics of individuals and sustained employment is not likely to be affected. Thus, the risk analysis, which provides simple decision rules on whom to target for selected services, is immediately relevant for agencies considering providing job retention services.

II. Methodological Approach[5]

The analysis is performed using the 1979 to 1994 NLSY survey data. Our primary sample includes 800 young women who, at some point during the panel period, started a job either while receiving Aid to Families with Dependent Children (AFDC) or within three months after ending an AFDC spell. We describe these individuals' circumstances and provide information about their initial jobs. For purposes of comparison, we also describe individual and job characteristics of 266 low-income, nonwelfare single mothers who found jobs, and the characteristics of about 130 welfare recipients who never found jobs during the sample period.[6] We use sample weights throughout our descriptive analysis, so that the results are representative of the underlying population.

The analysis of employment and nonemployment durations is based on individuals' "spells," defined as the number of continuous weeks that a person is employed in *any* job. Thus, if an individual leaves one job and immediately starts another, the employment spell continues uninterrupted. Similarly, a nonemployment spell is defined as the number of continuous weeks after job exit that a person is not employed (that is, unemployed or out of the labor force). The analysis of employment spells includes *all* employment spells experienced by each person in our sample that started either while the person was receiving AFDC or within three months of AFDC exit. Similarly, the analysis of nonemployment spells includes all exits from these employment spells. The analysis covers 1,892 employment spells and 1,697 nonemployment spells.

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[5]More detail on the sample and methodological approach is available in Volume 2 of this report.

[6]The characteristics of the sample of employed mothers who never received welfare during the sample period are defined at the start of the first job observed during the panel period. The characteristics of the sample of welfare recipients who never found jobs during the panel period are defined at the point at which the recipients reached 24 years of age, the average age of our primary sample.

Our analysis of wage growth and the patterns of employment and welfare receipt over time follows individuals' experiences during the two- and five-year periods after sample entry.[7] The sample for the patterns of employment experiences over the two-year period contains 730 individuals for whom we have at least two years of follow-up data, and the sample for the five-year analyses includes 601 individuals for whom we have five years of follow-up data. The wage growth analysis is based on data on the 256 individuals in the sample who worked during the fifth year after sample entry and for whom wage and earnings information was not missing in both the first or fifth years.

The multivariate analysis examines factors related to the duration of employment spells and to individuals' overall employment or AFDC experiences. In addition to the effects of demographic and education variables, we examine the effects of a fairly broad range of factors on employment patterns. In particular, we examine such characteristics as child care arrangements, health conditions, drug abuse, and presence of supportive adults; job characteristics, such as starting wages and fringe benefits; employment spell characteristics; and other local area characteristics extant at the time the employment spell started.

The risk analysis attempts to identify characteristics that can be used to predict which people are at high risk of having negative labor market outcomes and formulates simple rules that policymakers can use to identify these cases. To conduct the risk analysis, we used the sample of the 601 welfare recipients for whom we have five years of follow-up data after initial job start. In this analysis, we selected data items that are relatively common and easily available to program operators to examine how well they predict high-risk cases. We defined a case as "high risk" if the individual worked less than 70 percent of the weeks during the five-year period after initial employment. We used the 70 percent cutoff as it effectively split the sample into two "clusters" on the basis of their employment experiences: (1) low earners with intermittent jobs, and (2) higher earners with more stable employment.[8] To develop decision rules on whom to serve, we examined the predictive power of these variables separately (univariate methods) and in combination, using logit analysis (multivariate methods). We based our criteria for assessing the effectiveness of the decision rules on how large a proportion of those selected to receive services are high-risk cases who are likely to need services, so as to minimize directing resources to individuals who do not need them.

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[7]We selected these follow-up periods because the PRWORA requires states to develop plans to engage welfare recipients in "work" (as defined by the state) within two years, and mandates a maximum lifetime limit of five years of welfare receipt.

[8]We used "cluster analysis" techniques, to group observations into two groups on the basis of sample members' earnings, number of jobs held, and stability of employment. Cluster analysis groups observations that are similar in terms of certain outcomes into a prespecified number of clusters.

III. Employment Experiences of Welfare Recipients Who Find Jobs

A. What Are the Characteristics of Welfare Recipients Who Find Jobs?

Understanding the characteristics of welfare recipients who find jobs helps to explain the recipients' preparedness as they enter the labor force, and the extent to which they face barriers or may need assistance to facilitate the transition from welfare to work. The analysis indicates the extent of any diversity among welfare recipients who find jobs as well as a profile of their needs.

- **As a group, welfare recipients who find jobs are fairly disadvantaged. Various types of assistance may help some of these newly employed welfare recipients through the initial period of the transition from welfare to work.**

Many welfare recipients in our sample who found jobs faced a barrier to their transition from welfare to work. For instance, many had educational deficits, had young children, or did not have another supportive adult on whom they could count. On average, they were 24 years old at the time their jobs started, although nearly 15 percent were teenage mothers (Table 1). About one-third of sample members had neither a high school diploma nor a General Educational Development (GED) certificate. Sample members performed poorly on the Armed Forces Qualifying Test (AFQT), an aptitude test administered early during the survey period. Nearly 25 percent scored in the bottom 10 percent of test takers nationally, and nearly 85 percent were in the bottom half of test takers nationally.

The vast majority of the mothers in the sample had preschool children, and many had potentially unstable child care arrangements. Because more than 85 percent had a preschool child (with nearly 60 percent having an infant or toddler less than two years of age), the mothers had to make child care arrangements in order to go to work. Nearly half the sample members had a relative take care of their youngest child; only 15 percent had placed their youngest child in center-based care. Studies have shown that care by relatives tends to be less stable than center-based care or other informal child care (Kisker and Ross 1997).

People who face multiple barriers are likely to have a more difficult time during the transition. We examined the distribution across sample members of a set of seven characteristics at the time of job start that are commonly viewed as potential barriers: (1) age less than 20 years, (2) lack of high school diploma or GED, (3) low level of basic skills, (4) presence of a preschool child, (5) absence of supportive adult in household, (6) lack of driver's license, and (7) presence of a health limitation.[9] Nearly 80 percent of the sample members had at least two of these seven barriers (one usually involved the presence of a young child), and over 50 percent had at least three (Figure 1).

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[9]We include age less than 20 years as a potential barrier because women who give birth and begin receiving welfare as teenagers have been identified as a group particularly likely to experience long welfare spells and other adverse outcomes. Although age, education, and the presence of a preschool child are likely to be correlated, our multivariate analysis will examine the effects of each of these characteristics on employment-related outcomes, while holding the others constant.

TABLE 1

CHARACTERISTICS OF THE SAMPLE
(Percentages)

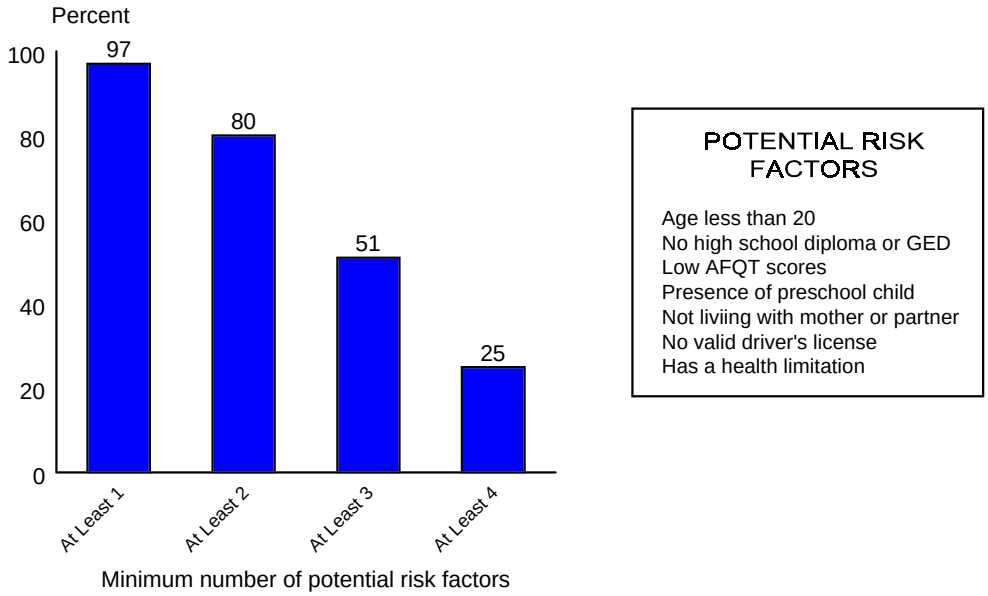
	All Welfare Recipients Who Find Jobs
Age in Years (at Start of Job)	
Less than 20	13.7
20 to 24	45.4
25 to 29	26.7
30 or more	14.2
(Average age)	(24.0)
Age of Youngest Child (in Years)	
0 to 2	58.4
3 to 5	28.5
6 or older	13.1
(Average age)	(2.6)
Child Care Arrangement	
Relative care	47.6
Non-relative care	21.6
Center based care	15.0
Other arrangements	15.8
Lives with Mother/Partner	54.0
Degree Attained	
High school diploma	53.1
GED	14.2
AFQT Scores (Percentile)	
Less than 10	23.3
11 to 25	28.8
26 to 50	31.4
More than 50	16.5
(Average)	(28.6)
Has a Valid Driver's License	70.4
Health Limitations	5.8
Sample Size	**800**

SOURCE: Data from the 1979 to 1994 NLSY Surveys.

NOTE: All estimates are weighted using the 1979 sample weights. Data pertain to the start of the first observed employment spell while case was on welfare or within three months after case left welfare.

FIGURE 1

PRESENCE OF POTENTIAL RISK FACTORS AMONG WELFARE RECIPIENTS WHO FIND JOBS



Source: Data from the 1979 NLSY Surveys.
Note: All estimates are weighted using the 1979 sample weights. Data pertain to the start of the first observed employment spell while case was on welfare or within three months after case left welfare.

- **Welfare recipients who find jobs are fairly diverse and have different needs. Programs that plan to serve working welfare recipients should be prepared either to directly provide a wide range of services or to provide referrals to other agencies that offer these services.**

Welfare recipients who find jobs vary on several dimensions, including education, types of care arrangements they make for their children, and amount of social support available to them, as can be seen from Table 1. Given these varied circumstances, some recipients are better prepared to enter and remain in the labor force, and are likely to need little additional support. Others are not as well prepared, and may need greater support. Therefore, programs that are providing job retention services may not have to serve all welfare recipients who find jobs; rather, they could attempt to identify those clients with severe or multiple barriers and target them for appropriate (and, if necessary, specialized) services.

Furthermore, given the diversity in welfare recipients' situations, programs providing job retention services could try to tailor services to meet clients' needs, rather than provide the same package of services to everyone. For instance, sample members who do not have a high school diploma (or equivalent) are more likely to need training or to have basic skills training integrated with their jobs. Older women who are not accustomed to work when they enter the labor force may benefit from counseling on appropriate work behavior; getting along with or dealing with supervisors, coworkers, and customers; and because they suddenly see their children less, balancing work and family life. Those who rely on relatives to care for their young children could be coached to develop back-up arrangements, as care by relatives tends to be relatively unstable and prone to breakdowns. For those whose

arrangements with relatives already are tenuous, programs can help find acceptable regulated day care or formal center-based arrangements.

B. What Types of Jobs Do Welfare Recipients Find?

The types of jobs that welfare recipients find, including wages and earnings, fringe benefits, and work schedules, can provide some indication of whether recipients find jobs that can lead to sustained employment in the long run. They provide program operators with information on the percentage of welfare recipients who find low-paying jobs and, therefore, on the number of clients who may need additional job retention support services. The number of clients working nonregular schedules or shifts during which formal day care or transportation options are less readily available indicates the extent to which additional support in those areas may be needed.[10]

- **Despite some diversity in the types of jobs they find, welfare recipients in general find fairly unstable, entry-level jobs that provide low pay, offer few fringe benefits, and are associated with high turnover.**

Sample members earned an average of $6.50 per hour (in 1997 dollars), but nearly 40 percent held jobs that paid less than $5.50 per hour (Table 2). Only about 20 percent found jobs that paid $8 or more per hour.

A significant fraction of welfare recipients find part-time jobs -- only slightly more than 50 percent of the sample members held full-time jobs (defined as those with 35 or more hours of work per week). Combined with the fact that many of the low-paying jobs also were part-time, these jobs offered few fringe benefits. Just under half of those who were asked about fringe benefits reported working in jobs that offered any paid vacation, and about 40 percent had jobs that offered some health insurance.[11]

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[10]The estimates presented here may underestimate the numbers who are likely to find low-paying jobs. Under Temporary Assistance for Needy Families (TANF), large numbers of individuals with little or no work experience will enter the labor market. These people are more likely than those in our sample who found jobs more or less voluntarily to find lower-paying jobs, part-time jobs, or jobs with few fringe benefits.

[11]Nearly 55 percent were not asked about fringe benefits they received, largely because they had part-time jobs, which typically do not offer these benefits, or had worked a short time and were not employed at the time of the interview. Therefore, the numbers reported here are likely to overestimate the number of sample members in jobs that offered fringe benefits.

TABLE 2

CHARACTERISTICS OF INITIAL JOBS OBTAINED BY SAMPLE MEMBERS
(Percentages)

	All Welfare Recipients Who Find Jobs
Hourly Wages (in 1997 dollars)	
Less than $4.50	21.0
$4.50 to $5.49	16.0
$5.50 to $6.49	24.4
$6.50 to $7.99	19.0
$8 or more	19.6
(Average)	($6.49)
Hours Worked Per Week	
1 to 19	18.0
20 to 29	16.3
30 to 34	12.1
35 to 39	10.4
40 or more	43.2
(Average)	(31.7)
Weekly Earnings (in 1997 dollars)	
Less than $100	20.1
$100 to $174	23.7
$175 to $249	25.7
$250 to $324	16.0
$325 or more	14.5
(Average)	($213.59)
Fringe Benefits Available	
Health insurance	38.6
Life insurance	27.5
Paid vacation	45.5
Occupation	
Manager/professional/technical	7.8
Sales	3.5
Clerical	26.4
Operators	12.3
Service	36.2
Private household	9.1
Other	4.7
Sample Size	**800**

SOURCE: Data from the 1979 to 1994 NLSY Surveys.

NOTE: All estimates are weighted using the 1979 sample weights. Data pertain to the start of the first observed employment spell while case was on welfare or within three months after case left welfare.

Most of the sample members found entry-level jobs in high-turnover occupations, such as in clerical, services, operator, or private household occupations. Overall, fewer than 10 percent worked in managerial, professional, or technical occupations.

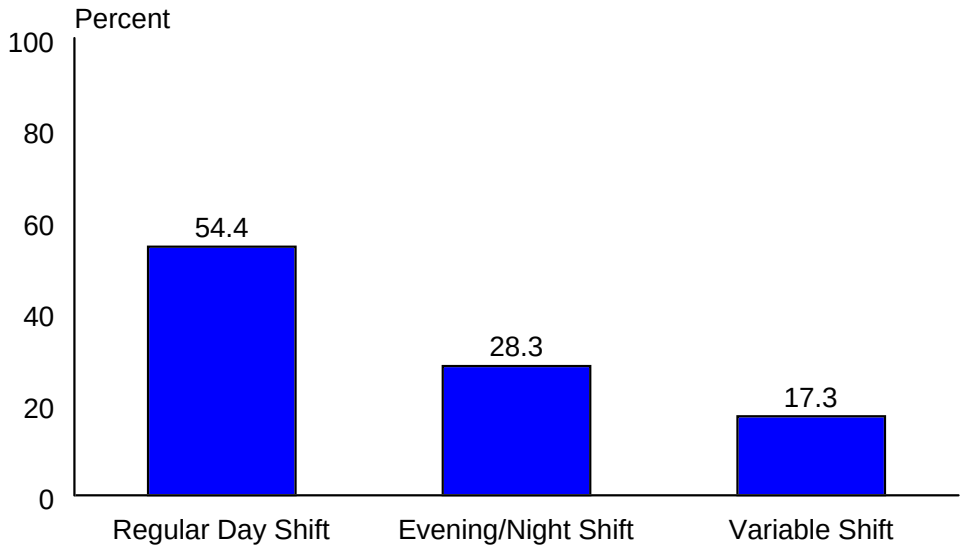
- **A large fraction of welfare recipients work in jobs with varying schedules or in evening or night shift jobs--hours during which formal child care and public transportation generally are less readily available.**

Many welfare recipients work in entry-level service sector jobs, where hours worked frequently vary to accommodate fluctuating demand. Nearly 30 percent of the sample members were involved in evening or night shift jobs, and another 17 percent were in variable-shift jobs (Figure 2). Although some recipients may have chosen these hours because child care choices were better, others may have taken these jobs as their only available options. These people may be affected by the limited availability of formal child care and public transportation during off-peak hours.

Varying shifts and fluctuating hours per week can affect an individual's ability to sustain employment. For many, variable-shift jobs entail making more plans and more back-up plans. The large numbers of welfare recipients who find jobs with nonstandard shifts suggests that policymakers must closely examine the supply of child care and transportation during off-peak hours. Finally, for those in jobs in which the number of hours worked vary

FIGURE 2

SHIFT WORKED BY WELFARE RECIPIENTS WHO FIND JOBS



SOURCE: Data from the 1979 NLSY Surveys.
NOTE: All estimates are weighted using the 1979 sample weights. Data pertain to the start of the first observed employment spell while case was on welfare or within three months after case left welfare.

weekly, budgeting income and expenses can increase in complexity, suggesting the importance of promoting the concept of budgeting income and expenses for these individuals.

C. How Do Welfare Recipients Who Find Jobs Compare with Other Similar Groups of Individuals?

People often compare welfare recipients with other nonwelfare, low-income single mothers who find jobs, concluding that if mothers in the latter group can succeed on their own, welfare recipients can do so as well. This perception may be legitimate if welfare recipients who find jobs are fairly similar to employed low-income single mothers who never received welfare. Although we cannot measure such factors as ability or motivation, we can compare these groups with respect to their observed characteristics and the types of jobs they find. Another group of policy interest is welfare recipients who have never worked. The characteristics of these individuals provides program operators and policymakers some sense of the people who are likely to have to find jobs as the TANF rules and time limits are implemented.[12]

- **Welfare recipients who find jobs are more disadvantaged than other low-income single mothers who find jobs but never received welfare. They also find jobs that are not quite as good as those obtained by nonwelfare, low-income single mothers.**

Employed low-income single mothers who never received welfare face fewer barriers to employment and generally find better jobs than do employed welfare recipients. For instance, in the NLSY, low-income single mothers who found jobs but never received welfare had higher education levels and higher basic skills than did welfare recipients who found jobs (Table 3).[13] About 80 percent of nonwelfare, low-income single mothers who found jobs had high school diplomas or GEDs, compared with 67 percent of welfare recipients who found jobs. The nonwelfare mothers who found jobs also tended to have higher AFQT scores than did welfare recipients who found jobs.

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[12]The "never worked" or "never received welfare" statuses of the comparison samples discussed in this section pertain to their employment status or welfare receipt during the 16 years of data available on these individuals in the NLSY.

[13]We define low-income individuals as those whose household income in the year prior to job start was less than 185 percent of the poverty threshold (as determined using information on their household size and composition).

TABLE 3

COMPARING SELECTED CHARACTERISTICS OF EMPLOYED, LOW-INCOME SINGLE MOTHERS WHO DID NOT RECEIVE WELFARE WITH THOSE OF EMPLOYED WELFARE RECIPIENTS

	Employed, Low-Income Single Mothers, Never on Welfare[a]	Welfare Recipients Who Found Employment	P-Values to Test for Differences
High School Diploma or GED	80.3	66.5	0.00***
Average AFQT Score (Percentile)	36.7	28.6	0.00***
Has Valid Driver's License	83.1	70.4	0.00***
Teenage Mother	47.9	59.3	0.01**
Grew Up in Two-Parent Household	76.2	68.0	0.05*
Sample Size	**266**	**800**	

SOURCE: Data from the 1979 to 1994 NLSY Surveys.
NOTE: All estimates are weighted using the 1979 sample weights.

[a]Low income is defined as those whose income was less than 185 percent of the poverty limit.

*Significantly different from zero at the .10 level, two-tailed test.
**Significantly different from zero at the .05 level, two-tailed test.
***Significantly different from zero at the .01 level, two-tailed test.

The jobs that employed welfare recipients obtained were not quite as good as those obtained by nonwelfare, low-income single mothers. There were some differences in wages, and considerably larger differences in fringe benefits and other job characteristics (Table 4). The average hourly wage received by the welfare recipient who found employment was about 30 cents less than that received by nonwelfare mothers. In addition, welfare recipients who found employment worked fewer hours, leading to a relative difference of about $30 in the weekly earnings of the two groups. Finally, welfare recipients who found jobs were more likely than nonwelfare, low-income single mothers who found jobs to hold evening or variable-shift jobs (46 percent versus 25 percent).

Employed welfare recipients were also less likely than nonwelfare, low-income single mothers to have jobs that offered fringe benefits. For instance, 46 percent of welfare recipients who found jobs reported receiving paid vacations, compared with 67 percent in the nonwelfare sample. Employed welfare recipients also were somewhat less likely than nonwelfare, low-income single mothers to hold manufacturing, professional, or clerical jobs and were more likely to hold service sector jobs or to work in private households (not shown).

TABLE 4

COMPARING SELECTED JOB CHARACTERISTICS OF EMPLOYED, LOW-INCOME SINGLE MOTHERS WHO DID NOT RECEIVE WELFARE WITH THOSE OF EMPLOYED WELFARE RECIPIENTS

	Employed, Low-Income Single Mothers, Never on Welfare[a]	Welfare Recipients Who Found Employment	P-Values to Test for Differences[b]
Average Wages (Dollars)	6.79	6.49	0.39
Average Hours Worked	35.34	31.7	0.00***
Average Weekly Earnings	$243	$214	0.06*
Shift Worked			
Regular day	74.7	54.4	0.00***
Evening/night	12.0	28.3	0.00***
Variable	13.3	17.3	0.00***
Fringe Benefits Available			
Health insurance	47.8	38.6	0.15
Paid vacation	67.3	45.5	0.00***
Sample Size	**266**	**800**	

SOURCE: Data from the 1979 to 1994 NLSY Surveys.
NOTE: All estimates are weighted using the 1979 sample weights. Wages and earnings are in 1997 dollars.

[a]Low income is defined as those whose income was less than 185 percent of the poverty limit.
[b]T-tests were conducted for continuous and binary variables and chi-squared tests were conducted for categorical variables.

*Significantly different from zero at the .10 level, two-tailed test.
**Significantly different from zero at the .05 level, two-tailed test.
***Significantly different from zero at the .01 level, two-tailed test.

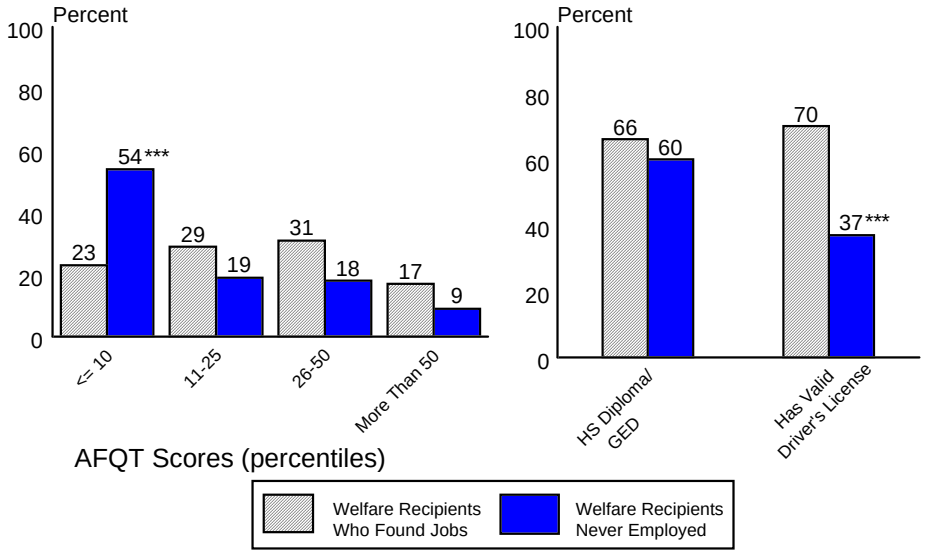
- **Welfare recipients who have never worked are more disadvantaged than welfare recipients who find employment. With TANF work requirements, many of these individuals will now have to find employment. Agencies will, therefore, have to work with even more disadvantaged people than they worked with before TANF.**

Nonworking welfare recipients were worse off than were working welfare recipients. In particular, nonworking welfare recipients tended to have somewhat lower education levels and significantly lower basic skills than did other welfare recipients who have found jobs (Figure 3). About 60 percent of nonworking welfare recipients had high school diplomas or GEDs, compared with 66 percent of working welfare recipients. The differences in the AFQT score of the two groups were more striking. For instance, more than 50 percent of nonworking welfare recipients ranked in the lowest 10 percentile of the AFQT distribution, compared with less than 25 percent of working welfare recipients (a significant difference). Nonworking welfare recipients also were about half as likely as working welfare recipients to hold valid driver's licenses (37 versus 70 percent).

As the new law is implemented, most able-bodied welfare recipients will have to find employment, including many welfare recipients who have had little or no employment experience. Many individuals who will now have to work will be drawn from a population

FIGURE 3

COMPARING EDUCATIONAL ATTAINMENT AND RELATED CHARACTERISTICS OF WELFARE RECIPIENTS WHO HAVE NEVER WORKED IN THE LABOR MARKET WITH THOSE OF EMPLOYED WELFARE RECIPIENTS



Source: Data from the 1979 to 1994 NLSY Surveys.

Note: All estimates are weighted using the 1979 sample weights. T-tests were conducted for HS Diploma/GED and driver's license variables, and chi-squared tests were conducted for the AFQT score distribution.

*Significantly different from zero at the .10 level, two-tailed test.

**Significantly different from zero at the .05 level, two-tailed test.

***Significantly different from zero at the .01 level, two-tailed test.

that resembles those who in the past never worked. These individuals, as a group, are more disadvantaged than welfare recipients who found jobs in the past. Particularly given the low levels of basic skills among nonworking welfare recipients, programs may want to target this group for basic skills training or other types of vocational or occupational training to help them find jobs, and may want to provide additional support to ensure that members of this group can keep their jobs.

D. What Are the Employment Patterns of Welfare Recipients Who Find Jobs?

Key questions that welfare agencies are interested in knowing the answers to include: How many employed welfare recipients lose their jobs and how quickly? What are reasons for job loss? And, how long before they find other jobs? Answers to these questions provide some sense of welfare recipients' attachment to the labor force and the stability of this attachment. For programs considering providing job retention services, implications for how long these services should be provided differ if many welfare recipients who become employed lose their jobs very quickly than if welfare recipients stay employed for long periods or if no pattern to job loss is observed. Reasons for job loss can offer job retention programs guidance on the types of services to consider. Analysis of reemployment patterns among those who lose jobs provides some indication of whether programs should focus on job retention services, reemployment services, or both types of services.

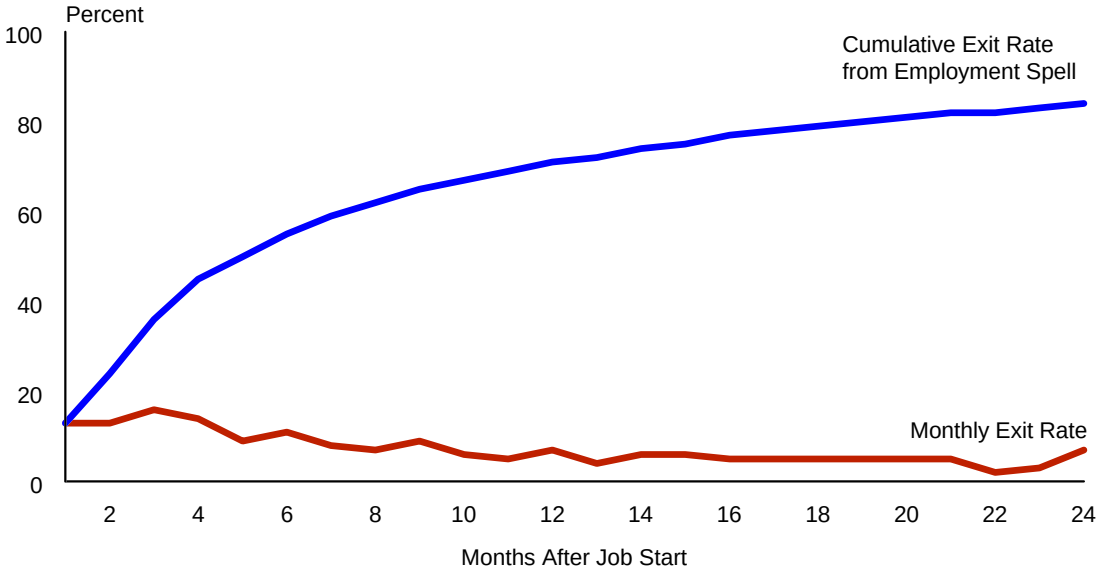
- **Job retention is a problem for most welfare recipients who find jobs, and a substantial majority become nonemployed within a year. The first four to six months after job start is a critical period during which many are likely to lose their jobs. Job retention programs may want to consider providing general employment support services during this period to welfare recipients who have found jobs.**

The substantial majority of welfare recipients who find jobs lose their jobs fairly quickly. For instance, in our sample, nearly 45 percent of employment spells ended within four months and more than 75 percent ended within one year (Figure 4).[14] The median employment spell lasted five months.

The first four to six months after job start is a critical period during which many people stop working. For instance, during each of the first four months after job start, between 13 and 15 percent of those still employed at the beginning of the month become nonemployed by the end of the month. This monthly job loss rate dropped to 10 percent for the next two months, and then gradually fell to around 5 to 6 percent for most of the remaining period. The high rate of job loss during the early months of employment suggests the importance of monitoring individuals' employment statuses and offering general employment support services for at least the first few months after job start.

FIGURE 4

EXIT RATES FROM EMPLOYMENT, BY MONTH AFTER START OF EMPLOYMENT SPELL



Source: Data from the 1979 to 1994 NLSY Surveys.

[14]We define an employment spell as having ended if an individual loses a job and does not find another job within one month of job loss. In other words, periods of nonemployment for less than one month do not count toward an employment spell having ended.

It is important to recognize that there is a small fraction who remain employed in the same spell for long periods. For instance, about 16 percent of the sample members had employment spells that lasted for at least two years. These recipients may need less employment support than other welfare recipients who find jobs.

- **Reasons for job loss are primarily job related or workplace related, but some welfare recipients leave for other reasons. Job retention programs may have to focus on helping welfare recipients deal with workplace issues, in addition to providing personal and logistical support.**

Welfare recipients leave jobs for a variety of reasons, but most report a work-related reason.[15] Between 35 and 45 percent reported leaving their initial jobs because they were laid off or fired, or because their job ended. Another 10 to 15 percent left because of pregnancy or family reasons. The remaining group reported leaving for "other" reasons, which include job-related factors (such as disliking the working conditions, receiving pay that was too low, wanting a better job, or taking another job) and other personal reasons. Unfortunately, the NLSY does not specify these other reasons. Data from a recent study indicate that personal factors such as child care and transportation, lack of family support, and health limitations were some of the more important reasons for job loss (Rangarajan 1996). Marriage was not cited as a common reason for leaving the job.

To the extent that many welfare recipients leave their jobs because of work-related reasons, job retention strategies may want to focus on coaching clients on appropriate work expectations and behavior; getting along with coworkers, supervisors, and customers; and taking personal responsibility to maintain employment. To some extent, by finding jobs, welfare recipients have overcome some of the personal and logistical barriers that may have been related to finding work, such as child care and transportation. However, program staff may want to help clients make sure that these arrangements are stable, and that breakdown in arrangements does not lead to job loss. Moreover, as many of the jobs are low paying and offer few benefits, programs could attempt to provide or encourage the use of earnings supplements, such as wage subsidies or tax credits.

- **The vast majority of those who become nonemployed find other jobs. However, it takes some time for many people to find other jobs, suggesting that job search and reemployment services may have to be major components of employment retention strategies.**

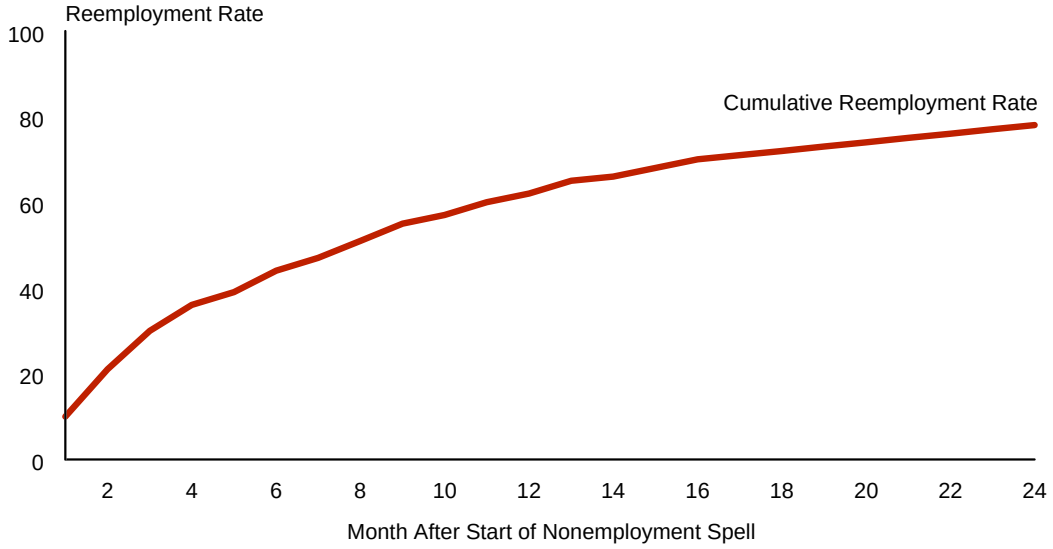
Most employed welfare recipients in our sample who became nonemployed eventually found other jobs (93 percent found jobs within five years, not shown). However, there was considerable variation in how quickly they found jobs. For instance, nearly 30 percent of those whose nonemployment spell ended found other employment within three months

[15]We report the reasons individuals ended their *initial* jobs, which are not necessarily the reasons individuals ended their employment spells. This is because some individuals moved from their initial job immediately to another and, hence, continued their employment spells.

(Figure 5). However, nearly 40 percent did not find new jobs within one year. The finding that many people have trouble obtaining jobs suggests that intensive job search and reemployment assistance has to be an important component of employment retention programs.

FIGURE 5

CUMULATIVE REEMPLOYMENT RATES, BY MONTH AFTER START OF NONEMPLOYMENT SPELL



Source: Data from the 1979 to 1994 NLSY Surveys.

E. What Are Welfare Recipients' Employment and Welfare Experiences Over the Long Run?

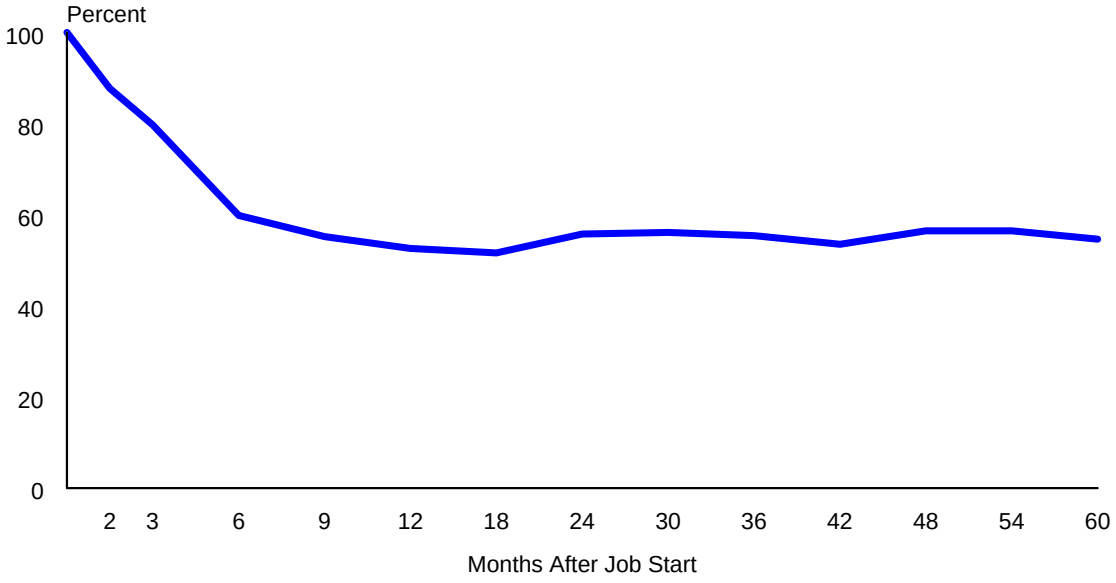
Policy makers are often the most concerned about individuals who receive welfare, but have very little labor force attachment. Our analysis of duration of employment spells showed that many welfare recipients who obtain jobs lose them quickly, and that many who lose their jobs eventually find others. If individuals constantly cycle in and out of employment, then their overall employment behavior might look quite different than if it were described by the spell analyses alone. Thus, an examination of the overall patterns of employment and welfare receipt can provide a better picture of how these people are doing over time. We examine both the two-year period and the five-year period after initial job start.

- **Overall employment rates decrease rapidly during the first few months after job start and then stabilize over time. Only a small fraction of welfare recipients who find jobs experience steady employment during the two- or five-year periods after initial employment. Consequently, many people may still be reliant on public assistance when they reach the time limits imposed by TANF.**

By definition, all sample members were employed during the first month after job start. However, employment rates dropped rapidly to about 60 percent over the next six months (Figure 6), which is consistent with our findings from the spell analysis that employment

FIGURE 6

PATTERNS OF OVERALL EMPLOYMENT DURING THE FIVE-YEAR PERIOD AFTER INITIAL EMPLOYMENT



Source: Data from the 1979 to 1994 NLSY Surveys.

spells are short. Employment rates remained fairly stable thereafter, with 50 to 60 percent holding jobs in any given month.

On average, sample members worked only one-half of the months during the follow-up periods, suggesting that many had considerable periods of nonemployment. Further evidence of this finding is that only about 25 percent were employed for less than a quarter of the time, and only 30 percent were employed more than three-quarters of the weeks (Table 5).

The distribution of time worked looks very similar regardless of whether we examine the two-year period or the five-year period after initial employment. For instance, in both periods, sample members were employed an average of about half the weeks. Furthermore, those who experience little employment during the two-year period continue to have low employment during the five-year period, and those who are employed for most of the two-year period continue to be employed for most of the five-year period (not shown). We also found that, as expected, those who are employed for more time over the longer period are less likely to be reliant on welfare or other sources, compared with those whose employment levels are less stable (not shown).

Some welfare recipients experience substantial job turnover during the two- and five-year periods after job start. Sample members averaged nearly two employment spells during the two-year period, and three during the five-year period (Table 5).[16] However, one-third had

[16]Each employment spell could include one or more jobs. If people switched directly from one job to another (or did so with one month or less of nonemployment), then the different jobs were treated as one continuous employment spell.

TABLE 5

EMPLOYMENT EXPERIENCES DURING THE TWO- AND FIVE-YEAR PERIODS AFTER THE START OF THE FIRST EMPLOYMENT SPELL
(Percentages)

	Two-Year Period	Five-Year Period
Percentage of Total Weeks Employed		
Less than 25	26.0	25.8
25 to 50	20.8	22.1
50 to 75	22.2	22.8
More than 75	31.0	29.3
(Average percent of weeks employed)	(53.8)	(52.5)
Number of Employment Spells		
1	44.9	16.1
2	36.8	29.9
3	14.2	20.9
4 or more	4.2	33.2
(Average number of spells)	(1.8)	(3.0)
Sample Size	**730**	**601**

SOURCE: Data from the 1979 to 1994 NLSY Surveys.
NOTE: Figures pertain to the percentage of sample members in the specified categories. For example, 26 percent of sample members worked fewer than 25 percent of weeks during the two-year period after job start.

four or more employment spells during the five-year period after job start. Research indicates that employment turnover does not lead to better jobs for about one-third of welfare recipients (Rangarajan 1996). Thus, the substantial turnover among the employed welfare population does not necessarily translate into improved economic circumstances for all individuals.

- **Welfare recipiency rates among employed welfare recipients decrease steadily over time. However, a substantial number of them still receive public assistance five years after initial job start. Unless the work requirements and other aspects of the new law motivate and enable some of them to get off welfare sooner, these individuals are likely to experience difficulties when they reach the TANF time limits and must exit welfare.**

Because the TANF program completely changes the rules under which people can receive welfare, large alterations in patterns of welfare receipt are inevitable. Of all the results presented in this report, those concerning welfare receipt must, therefore, be viewed very cautiously.

Overall, welfare receipt decreases rapidly during the first few months after initial employment, partly reflecting the end of short-term disregards of earnings. For instance, more than 80 percent of sample members were receiving welfare during the job start month compared with about 53 percent six months later (Figure 7). Thereafter, welfare receipt decreased slowly but steadily over time, although substantial numbers of individuals were

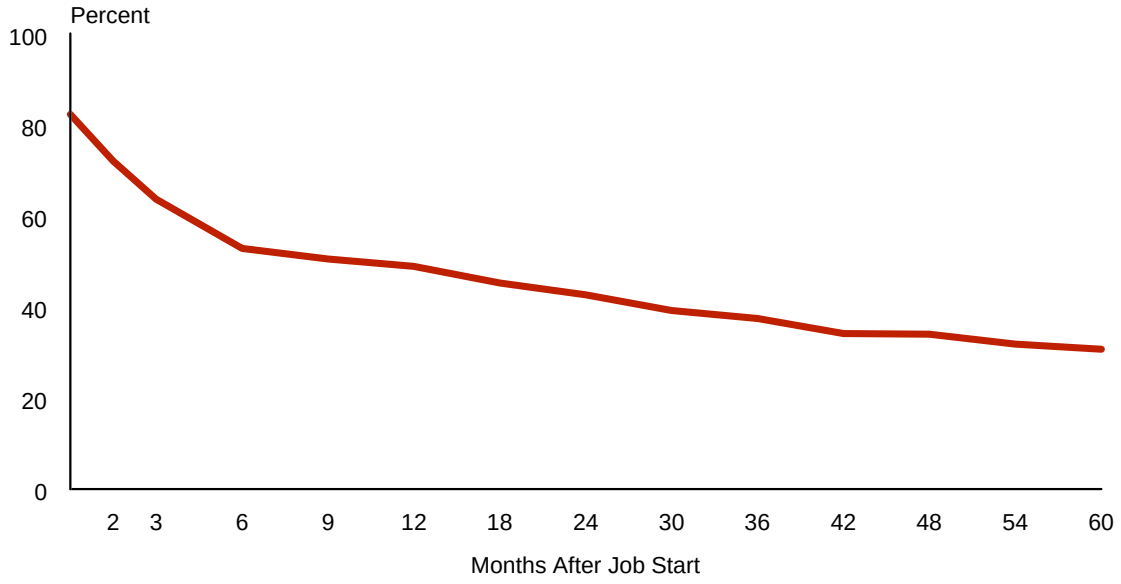
still on welfare five years after initial employment. Overall, nearly one-third of welfare recipients who found jobs were receiving welfare five years later.

Only a small proportion of sample members combine the welfare and work. Some welfare recipients who found jobs continued to stay employed throughout most of the longer period and exited welfare, while many lost their jobs and got back on welfare. A small but increasing fraction (15 to 20 percent by the end of five years) were neither employed nor reliant on welfare (not shown). This group presumably relied on other sources of support, such as a parent or partner.

Overall, our findings indicate that many welfare recipients who find employment have unstable or tenuous labor force attachment and are likely to be reliant on public assistance when they start reaching the TANF-imposed time limits. No doubt, time limits themselves may persuade some who might have left their jobs to attempt to retain them, but some people, especially those who face severe or multiple barriers, will find it difficult to do so. The problem of job retention is likely to become even more severe as more people who look like the welfare recipients who never worked in the past start entering the labor force. These individuals are more likely to have difficulty keeping their jobs. These findings, in general, suggest that states and local agencies should consider providing job retention assistance for welfare recipients, in addition to job placement assistance.

FIGURE 7

PATTERNS OF OVERALL WELFARE RECEIPT DURING THE FIVE-YEAR PERIOD AFTER INITIAL EMPLOYMENT



Source: Data from the 1979 to 1994 NLSY Surveys.

F. What Wage and Benefit Growth Do Employed Welfare Recipients Experience Over Time?

The extent of wage growth experienced by employed welfare recipients can help shape the focus of employment-oriented strategies currently being considered by welfare agencies. If welfare recipients who find jobs experience wage growth over time, either because of progression in the same job or a move to a better one, then employment itself will lead to job advancement. Conversely, if welfare recipients simply continue to cycle in and out of employment in the same types of low-paying jobs, then programs may want to focus on job advancement strategies to help these individuals move ahead. We examine wage growth among the 256 sample members who were employed at some time during the fifth year after their initial employment.[17] The results of this analysis must be interpreted with caution, because the analysis sample is not representative of all sample members who found jobs. For example, people in this sample were likely to have been employed nearly three times longer than those who were not working in the fifth year and, on average, had higher education and aptitude levels.[18]

- **On average, welfare recipients experience considerable increases in earnings over time caused primarily by increases in hours and weeks worked; wages however, improve only modestly. Despite the overall increases, about one-third experienced wage and earnings losses.**

Employed sample members generally experienced significant increases in earnings during the five-year period. For instance, nearly 70 percent experienced an increase in earnings, and overall earnings grew by one-third during the five-year period (Table 6). These increases were driven largely by the combined increase in hours worked per week and increase in weeks worked per year, leading to substantial increases in annual hours worked. However, hourly wages, grew by less than 10 percent, on average, over the five-year period.

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[17]Although we have five years of follow-up data on 600 people, many in this group were not employed by the fifth year after initial employment. Moreover, for some, wage or earnings data for either the first or the fifth year were missing; these sample members were excluded from the analysis.

[18]For instance, 62 percent in the wage growth analysis sample had high school diplomas compared with 56 percent of those not working in year 5. Similarly, fewer than 20 percent in the wage growth analysis sample scored less than the 10th percentile on the AFQT compared with 36 percent of those not working in year 5. Both differences are statistically significant. Volume 2 provides a more detailed analysis of the differences between those included and those excluded from the wage growth analysis.

TABLE 6

MEAN CHARACTERISTICS OF JOBS HELD IN THE FIRST AND FIFTH YEARS
(After the Start of the First Employment Spell)

	First Year	Fifth Year	Growth (Percent)
Hourly Wage (in 1997 dollars)[a]	$7.15	$7.78	8.8
Hours Worked per Week[a]	33.6	37.3	11.0
Weeks Worked	34.1	39.1	14.7
Annual Earnings (in 1997 dollars)	$9,253[b]	$12,263[b]	32.5
Fringe Benefits Available on the Job[a] (Percentage)			
Health insurance	47.5	62.3	31.2
Paid vacation	54.0	72.9	35.0
Sample Size	**256**	**256**	**256**

SOURCE: Data from the 1979 to 1994 NLSY Surveys.
NOTE: Data pertain to those who worked in the first and fifth years and had non-missing employment-related data. The jobs worked in the first and fifth years may differ.

[a] Data for the fifth year pertain to the most recent job in the fifth year.

[b] Average annual earnings is greater than the product of average of the hourly wage, average hours worked per week, and average weeks worked per year. This is because those with higher wages also tend to work more hours per year than those with low wages. Therefore, high wage earners' hourly wages tend to get weighted more heavily in the annual earnings calculations.

We observe mixed evidence about the extent to which individuals are moving to "better" jobs. For instance, although the majority of employed welfare recipients experienced increases in hourly wages, more than 40 percent of the sample members reported lower hourly wages five years after initial employment (Table 7). However, the majority are also shifting toward full-time employment, in terms of hours worked per week and, to a lesser extent, the number of weeks worked per year.

Many sample members also moved to jobs that provide fringe benefits such as health insurance or paid vacation. For instance, the proportion of sample members receiving paid vacation increased by one-third, from 54 percent to 73 percent (Table 6).[19] Overall, about 70 percent moved to "better" jobs, in terms of either experiencing a wage growth or receiving fringe benefits on the job, and a sizeable number experienced both (not shown).

[19] Individuals who started off in higher-paying jobs were more likely to receive fringe benefits initially and were less likely to have lost their fringe benefits over time than were those who started in lower-paying jobs (not shown).

TABLE 7

GROWTH IN HOURLY WAGES, HOURS WORKED, WEEKS WORKED, AND ANNUAL EARNINGS, IN JOBS HELD IN THE FIRST AND FIFTH YEARS
(Percentages)

	Experienced a Decrease	Experienced No Change	Experienced an Increase
Hourly Wages	42.3	0.0	57.7
Hours Worked per Week	33.4	11.3	55.3
Weeks Worked	29.1	25.4	45.5
Annual Earnings	30.5	0.0	69.5
Sample Size	**256**	**256**	**256**

SOURCE: Data from the 1979 to 1994 NLSY Surveys.
NOTE: Data pertain to those who worked in the first and fifth years and had non-missing employment-related data. The jobs worked in the first and fifth years may differ.

Although most individuals tend to have stable employment or obtain jobs with better fringe benefits over time, a substantial minority (between 30 and 40 percent) end up in lower-paying jobs or have lower annual earnings five years after initial employment. Thus, the assumption that any employment will lead to better future income has only weak support in our data. These findings suggest that wage progression strategies might be needed to help increase wages for many welfare recipients. These strategies could be to help employed welfare recipients move to better and higher-paying jobs or provide them with additional skills training. For those for whom these services alone may not be effective, programs might consider providing (or encouraging the use of) earnings supplements in the form of tax credits or other support services (such as child care subsidies) to offset some of the expenses of employment.

G. What Characteristics Are Related to Sustained Employment?

Understanding the relationship of a broad range of individual, job and local area characteristics to employment outcomes can help better understand issues related to job retention and can provide some guidance to program operators who may be considering providing job retention services. For instance, if certain types of child care arrangements are related to high rates of job loss, then programs can consider providing child care support. If low wages or lack of fringe benefits are associated with job loss, then programs may want to consider job advancement strategies and, possibly, to provide earnings supplements for those who have trouble advancing in their jobs. We examine the relationship between employment outcomes and such factors as individual demographic characteristics, education and basic skills, supplemental support characteristics (including child care arrangements and the presence of supportive adults), job characteristics (including initial wages and fringe

benefits), local area characteristics (including the unemployment rate and welfare benefit levels), and several employment and welfare spell characteristics (including whether the job started after the case left welfare and the length of time the case was on AFDC prior to job start).[20]

We conducted both univariate and multivariate analyses to examine the relationship of a wide range of factors to the duration of employment spells and to the fraction of time employed during the two- and five-year follow-up periods. The univariate analysis examines how each characteristic by itself is related to an outcome; the multivariate analysis examines the effect of each characteristic on the outcome after controlling for the effects of all other characteristics. For example, suppose that people with high school diplomas or GEDs are more likely than high school dropouts to have high AFQT scores. To examine the effect of educations levels on employment experiences, the univariate analysis simply examines how these experiences compare for those with and without a high school credential, regardless of the individuals' AFQT scores. In contrast, the multivariate analysis examines the effects of having a high school credential for people with a given AFQT score (that is, it takes into account the fact that individuals with more education tend to have relatively higher test scores, and that AFQT scores also are related to the outcome). The univariate analysis provides useful information for programs that may consider targeting services to individuals with certain characteristics. The multivariate analysis allows for a greater understanding of the relationships among various characteristics and outcomes.

- **Individuals who simultaneously work and receive welfare have considerably shorter employment spells compared with people who obtain a job as they exit welfare or just before they exit welfare. However, how long a person received welfare benefits prior to job start does not itself affect the duration of employment spells.**

Whether a person continues to receive welfare after obtaining a job is highly associated with the duration of employment spells. For instance, the median employment spell length was only four months for those who received AFDC for at least three months after their employment spell started, compared with about eight or nine months for those who left AFDC soon after job start or started employment after exiting AFDC (not shown).[21] These results partly reflect the fact that those who find employment but continue to receive AFDC have certain observed or unobserved characteristics that make it difficult for them to retain their jobs. It is also possible that continued welfare receipt can make it convenient for some employed individuals to leave employment and rely more fully on welfare. Our data do not allow us to determine why those who simultaneously work and receive welfare have shorter employment spells.

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[20]These measures were defined at the start of the initial employment spell.

[21]This variable continues to have a strong effect even after education, basic aptitude, and other job characteristics (such as wages and hours worked) are taken into account in the multivariate analysis.

The median spell employment length did not differ for people who were in their initial employment spell or in later ones. Similarly, spell length did not differ for those whose AFDC spells had lasted for more or less than one year after job start. In other words, once people obtained a job, whether they had longer periods of prior AFDC receipt or shorter periods of prior AFDC receipt did not affect how long they retained their jobs.

- **Most individual and local area characteristics have only small effects on employment spell lengths. Supplemental support characteristics, such as child care arrangements, seem to have somewhat larger effect on spell lengths.**

We observe some small differences in employment spell lengths across subgroups defined by individuals' characteristics (Table 8).[22] For instance, the median employment spell duration for older women was longer than for teenage mothers (six months versus three or four months). Interestingly, although education and basic skill levels are important predictors of whether a person obtains a job, they only have a small effect on how long welfare recipients who find jobs stay employed. Those with high school diplomas had longer employment spells than did those who lacked diplomas, and spell length was positively associated with AFQT scores. However, the actual differences in the median spell lengths across these subgroups was only about one month.[23]

Individuals nonrelative child care or other types of formal or center-based care typically had considerably longer employment spells than did those who relied on relative care. For instance, the median spell length for those with relative care was 8 or 9 months, compared with 13 to 16 months for those with other forms of care.[24] Other local area variables, such as the local unemployment rate or AFDC benefit levels, were not related to employment spell lengths.

In summary, both the univariate and multivariate analyses show that many individual characteristics affecting whether a person obtains a job do not have large effects on the length of employment spells. For example, having a high school diploma has a large effect on finding a job but only a small effect on employment spell length. The relatively large

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[22]Table 8 presents median spell lengths from both the univariate and multivariate analyses. The results of these analyses are largely similar. Volume II of this report presents the full findings for the univariate analyses, as well as the coefficient estimates and median spell lengths from the multivariate analysis.

[23]In the multivariate analysis, we found that having a high school diploma was significantly related to longer spells, whereas those with GEDs only did not differ from high school dropouts. However, the difference in the median employment spell length for those with high school diplomas and those with GEDs was only one month.

[24]Sample members with longer employment spells were more likely than those with shorter spells to have been asked about child care arrangements, leading to higher median spell lengths for this group than for the full sample. These results hold up in the multivariate analyses which takes into account the age of the mother and the age of the youngest child.

TABLE 8

MEDIAN EMPLOYMENT SPELL LENGTHS FOR KEY SUBGROUPS
DEFINED BY INDIVIDUAL AND JOB CHARACTERISTICS
(In Months)

	Median Spell Length	
	Univariate Analysis	Multivariate Analysis
Overall	5	5
Age (Years)		
Younger than 20	3	4
20 to 24	5	5
25 to 29	6	5
30 or older	6	6
Race/Ethnicity		
White, non-Hispanic	6	5
Black, non-Hispanic	5	5
Hispanic	5	6
High School Graduation Status		
Has a high school diploma	6	6
Has a GED	6	5
Has neither a high school diploma nor a GED	5	5
AFQT Percentile Score		
10 or less	4	5
11 to 25	5	5
26 to 50	7	6
More than 50	6	5
Child Care Arrangements[a]		
Relative care	8	9
Nonrelative care	13	13
Center care	13	10
Other care	16	16
Drinking Practices: Six or More Alcoholic Drinks Four or More Times in Past Month		
Yes	4	4
No	6	6
Hourly Wages (in 1997 Dollars)[a]		
Less than $4.50	4	5
$4.50 to $4.49	4	5
$5.50 to $6.49	7	7
$6.50 to $7.99	6	9
$8.00 or more	13	12
Paid Vacation[a]		
No	7	7
Yes	13	12
Total Number of Spells	**1,870**	**1,697**

SOURCE: Data from the 1979 to 1994 NLSY Surveys.

[a] Sample members with long job spells were more likely than those with shorter spells to have been asked about child care arrangements and fringe benefits on the job. The median spell lengths for these variables are calculated from models that exclude those with missing values of these variables.

differences in spell length between those who have more formal child care arrangements compared with those who have relative care are consistent with other research findings that relative care arrangements tend to be less stable (Kisker and Ross 1997). These findings suggest that job retention programs may want to focus on child care or other supportive services, and to help individuals who have tenuous child care arrangements find more stable formal child care.

- **Job characteristics at the start of the employment spell are strongly associated with the duration of employment spells.**

In contrast to such characteristics such as education and basic skills, job characteristics (for example, wages and benefits) are closely related to employment spell lengths. Spell durations typically were much longer for women with high starting earnings than for those with lower earnings. For instance, those who earned less than $8.00 per hour had considerably shorter median spell lengths than did those with hourly wages of more than $8.00 (Table 8). Moreover, people whose jobs provided fringe benefits had longer employment spells than did those whose jobs did not.[25] (These findings remain valid regardless of the education or skill level of individuals). People in variable-shift jobs were somewhat less likely than those in regular-shift jobs to stay employed (not shown). Finally, spell durations do not vary by occupation and industry (not shown).

It is possible that welfare recipients who find higher-paying jobs with fringe benefits may have unobserved characteristics, such as ability or motivation, that would lead them to have long spells in any circumstances. In this case, it is not clear that providing all welfare recipients with good jobs will produce the same results for all recipients. Furthermore, it is not practical to assume that all welfare recipients will be able to find high-paying jobs or that states, whose goals and requirements are to place most or all welfare recipients in jobs, will attempt to place welfare recipients only in high-paying jobs. However, these findings do suggest that people who initially are employed in lower-paying jobs or in jobs without fringe benefits are likely to have short employment spells. Therefore, program operators may want to monitor the progress of this group, and to offer them at least some general job search assistance or reemployment services.

- **Individual and job characteristics that are related to longer employment spells also are related to sustained employment during the two and five-year period after initial employment.**

We observe some similarity in the findings on how characteristics are related to different employment outcomes. Similar to the findings related to employment spells, people who were older, had more education, scored higher on AFQT tests, or started at higher-paying jobs worked more of the time during both the two- and five-year periods than did their

[25]Individuals in high-paying jobs are much more likely than those in low paying jobs to receive fringe benefits. However, the effects of having fringe benefits remains after taking into account the effects of hourly wages on spell lengths.

counterparts who lacked these characteristics. For instance, sample members who were teenage mothers at the start of their initial employment spells were employed for about 38 percent of the five-year period, compared with 67 percent of the time for women who were 30 years of age or older (Table 9). Similarly, those who started in higher-paying jobs were employed for 64 percent of the five-year period, compared with 45 to 55 percent of the time for those who started in lower-paying jobs. In addition, those who reported health limitations at the start of their jobs were likely to have worked less during the follow-up period than were those without health limitations (37 percent of weeks compared with 53 percent of weeks in the five-year period).[26]

TABLE 9

OVERALL EMPLOYMENT AND AFDC EXPERIENCE DURING THE TWO AND FIVE YEARS AFTER THE START OF THE FIRST EMPLOYMENT SPELL, BY SUBGROUP

	Average Percentage of Weeks Employed		Average Percentage of Months on AFDC	
	Two-Year Period	Five-Year Period	Two-Year Period	Five-Year Period
Age (in years)				
Younger than 20	41.9	38.0	53.4	45.8
20 to 24	56.2	54.1	52.4	41.7
25 to 29	55.4	57.8	45.8	39.2
30 or older	55.3	67.3	42.0	34.2
High School Graduation Status				
Has a high school diploma	58.5	57.9	48.2	39.5
Has a GED	50.9	48.8	45.2	37.3
Has neither a high school diploma or GED	47.1	44.4	53.8	46.9
AFQT Percentile Score				
10 or less	45.3	39.8	56.0	50.7
11 to 25	52.9	51.8	53.9	42.6
26 to 50	58.2	59.1	45.0	37.4
More than 50	59.0	60.8	40.8	33.0
Health Limitation				
Yes	41.9	37.3	54.7	46.8
No	54.5	53.2	49.5	39.2
Starting Hourly Wages (in 1997 dollars)				
Less $4.50	46.3	45.3	51.5	46.7
$4.50 to $5.50	52.0	46.0	56.5	50.6
$5.50 to $6.50	55.4	55.0	53.1	41.8
$6.50 to $7.50	57.7	55.1	49.8	41.5
$8.00 or more	65.9	64.2	36.7	31.7
Health Insurance Available[a]				
Yes	76.9	69.3	26.8	21.1
No	55.8	55.7	56.8	49.4

SOURCE: Data from the 1979 to 1994 NLSY Surveys.

[a] Only sample members with long job spells were asked about child care arrangements.

[26]We also estimated multivariate models to examine the relationship between individual characteristics and the amount of time employed or receiving AFDC over the longer period; the results were consistent with these findings. The results are presented in Volume 2.

The same characteristics that are related to working for a larger percentage of the time are also generally related to lower welfare dependence over the two- and five-year periods (Table 9). For instance, those who were younger at the start of initial employment or who had low AFQT scores spent a larger fraction of time receiving welfare than did their counterparts without these characteristics.

The general similarity in findings on factors related to employment spell lengths and longer-term employment and welfare suggests that a common set of factors is associated with negative employment outcomes. Consequently, an important policy objective may be to target people who are at high risk for employment loss, and to provide services that promote sustained employment.

IV. Who Should Be Targeted for Services?

Our analysis shows that there is diversity in the employment experiences of welfare recipients who find jobs. Some recipients are able to sustain steady employment on their own with little support, whereas others are more likely to be at risk of job loss and may benefit from services. These findings suggest that programs considering job retention services may wish to "target" certain individuals at high risk of having labor market problems for more intensive and costlier case management services. By targeting services, programs may be able to more efficiently use available resources.

Targeting strategies can be successful if welfare recipients at high risk for having labor market problems can be identified on the basis of their characteristics at the time they enter the labor force. In previous sections, we identified common factors that are related to negative employment outcomes for our sample. Therefore, we believe that targeting post-employment services to welfare recipients who find jobs may be feasible.[27] It is important to note that some government agencies already are profiling clients so that they can be targeted for services. For example, states are currently identifying cases who file for benefits under the Unemployment Insurance (UI) program who are likely to exhaust UI benefits. These claimants are targeted for special reemployment services.

The challenge for program operators is to select cases such that resources can be best utilized. Differences in program goals and resources, local circumstances, and area and client characteristics all determine whom programs might want to target. Because of these differences, each state or local area ideally should conduct its own assessments of the feasibility of targeting and should identify the key characteristics that are most appropriate for targeting in its local area. Conducting these assessments and formulating targeting decisions at the state or local level requires a certain amount of data, both on the characteristics of welfare recipients and on outcomes, so that a determination can be made of how characteristics relate to outcomes.

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[27]Eberts (1997) discusses the use of profiling to target services in state welfare-to-work programs. Gleason and Dynarski (1998) discuss the feasibility of targeting individuals for school dropout prevention programs.

In the first section of this chapter, we provide a framework for agencies that want to formulate targeting mechanisms and discusses the main steps they must take as they begin targeting. The data required to formulate targeting decisions may not be available in some states or local areas. Therefore, in the second section, we present a preliminary targeting strategy based on national data. With some appropriate cautions, the targeting strategy based on the NSLY data can serve as a useful guide for programs that may want to attempt to target clients before conducting their own targeting analyses.

A. Key Steps for Identifying Targeting Variables and Making Targeting Decisions

Agencies making targeting decisions must take several steps, which we discuss here.

Step 1: **Identify Individual Characteristics that Potentially Can Be Used for Targeting.** Targeting involves identifying key individual characteristics that programs can use to determine who receives certain services. In selecting characteristics, agencies must choose those perceived to be good predictors of labor market outcomes. The choices can be made on the basis of past research or on program staffs' experience in working with clients and perceptions of who succeeds and who does not. It is important to select characteristics that can be easily identified at low cost, are readily available to program staff, and are perceived as fair. Programs might consider such characteristics as educational attainment, presence of young children, presence of supportive adults, available transportation and time to commute to job, as well as job characteristics. In contrast, programs might want to avoid using such characteristics as test scores even if they predict outcomes well, because obtaining them on a systematic basis for all might be difficult. It is also important to minimize the number of data items that program staff will have to consider.

Step 2: **Define Outcomes and Goals that Describe Risk Status.** Agencies must make decisions on what they consider as adverse outcomes, to define the group they intend to target for specialized services. For instance, our study shows considerable diversity among welfare recipients who find jobs. Some recipients are able to maintain their jobs more or less continuously or with only short breaks in employment. Others cycle in and out of low-paying jobs, whereas others lose their jobs and had difficulty obtaining other ones. The risk criteria used by state and local agency staff may be related to the proportion of time welfare recipients are employed during a given period, the number of jobs they hold during a given period, the proportion of time they receive welfare after job start, or other factors considered important for targeting of services.

Step 3: **Select Among Potential Characteristics.** Agencies will have to choose from the list of potential characteristics for targeting, as not all identified characteristics will be good predictors of outcomes. Only characteristics that can distinguish effectively between high-risk cases (that is, individuals likely to need specialized services) and low-risk cases (individuals less likely to need specialized services) should be selected.

"Efficiency" is a key criterion for assessing whether a characteristic is a good predictor of outcomes. An efficient targeting characteristic is one that describes many high-risk cases and only a few low-risk ones. Therefore, programs that target on this variable will ensure that few resources are spent on those who are unlikely to need services. As an example, consider people who have health problems. If most people who have health problems are likely to have poor labor market outcomes, then this would be a efficient characteristic to target on. However, if many with health problems do well in the labor market, targeting on this variable may not be an efficient use of resources.

An efficient characteristic is also one that enables a program to serve a higher proportion of needy clients than would be the case if services were allocated randomly. For example, suppose that two-thirds of all welfare recipients who obtain employment were high-risk cases who likely would lose their jobs quickly. If programs randomly selected 100 clients for services, then 67 (two-thirds of the 100) would be high-risk cases who may benefit from additional services. Thus, in this case, a characteristic should be selected only if more than two-thirds of those targeted for services on the basis of the characteristic were high-risk cases. Otherwise, programs could do just as well by randomly serving clients.

It is important to keep in mind that the targeting strategies we discuss here do not address the issue of effectiveness of services in promoting job retention. In selecting characteristics, programs may want to consider whether targeting on the specific characteristic has promise, and whether the kinds of intervention that can be implemented for the targeted group has the potential to improve outcomes.

Step 4: Decide Whether to Use a Single Characteristic or Multiple Characteristics. Programs can target people for services on the basis of a single characteristic or a combination of characteristics. Under the single characteristic approach, an agency would examine each characteristic in isolation and then would use the methods described in Step 3 to select efficient characteristics. The multiple-characteristic approach considers combinations of characteristics that individuals possess and determines how these combinations relate to the risk of adverse outcomes.[28] Programs using the single-characteristic approach would target for program services anyone who has the characteristic. With the multiple-characteristic approach, programs would consider a variety of characteristics and would select those individuals who have one or more of the characteristics, recognizing that those who face multiple barriers are likely to be at higher risk for facing adverse outcomes.

Single characteristic approach. The main advantage of this approach is that the rules are simple to define and easy to implement. After an agency has identified a characteristic to target, any individual with that characteristic will be selected to receive special services. A second advantage is that, depending on the characteristic selected, the approach may simplify the decision of what services to provide. For example, if

[28]Appendix A briefly discusses the methods by which agencies can implement the single characteristic or multiple characteristic approach.

people with health limitations are targeted, then programs may want to ensure that this group has health insurance or access to medical services.

One of the drawbacks of the single characteristic approach is that it is less effective than the multiple-characteristic approach in identifying all high-risk cases or in ranking cases according to their need for services. Second, it is somewhat less flexible with respect to enabling programs to select different numbers of clients for possible service receipt. For instance, certain characteristics, such as health limitations, may describe only a small proportion of the overall group of individuals at high risk. Finally, program staff may consider this method unfair because it selects only individuals with certain characteristics for program services.

Multiple-characteristic approach. The main advantage of the multiple-characteristic approach is that it is better able to identify and distinguish those at high-risk for adverse outcomes. If programs make decisions on whom to target for services on a periodic basis after collecting information on a group of clients, this approach also can rank people in order of their risk of having poor outcomes and, consequently, in order of their need for services (see Step 6). This ranking feature allows programs to better select the number and types of individuals who are to receive program services. Finally, program staff may perceive it as a more equitable approach to sharing resources.

The main drawback of this approach is that it is slightly more complex than the single-characteristic approach to implement. For each individual, program staff will have to determine the combination of characteristics he or she possesses, and then whether that individual needs special services.

Step 5: **Select the Numbers and Types of Clients to Serve.** Programs may want to have the flexibility to choose the numbers and types of clients to serve, as program resources or client needs may dictate these choices. For example, agencies confronting tight resource constraints might have to decide in advance what fraction of clients they will serve. With respect to whom to serve, some agencies may choose to serve the neediest set of individuals, whereas others may decide that this approach is not the best use of their resources; they may prefer to spread those resources among a middle group of welfare recipients who may face fewer barriers, but who may be more likely to benefit from services. As discussed previously, because the multiple-characteristic approach allows program to rank individuals according to their risk of having adverse outcomes, it more readily allows programs to choose the number and types of clients they want to serve.

Step 6: **Time the Identification of Clients for Targeting.** Program staff also have to determine the timing of targeting decisions. For instance, decisions could either be made on a periodic basis, after information on a group of clients has been collected, or on a case-by-case basis, as soon as each client is ready to receive services. This choice will depend on a number of factors, including caseload size, staff size, how quickly services can be provided, assessments of how quickly clients need services, and how quickly the decision rules can be applied.

The timing choice does not affect the way the single-characteristic approach is applied, but it does affect the way the multiple-characteristic approach is applied. If programs make decisions periodically, then clients can be ranked on the basis of their likelihood of being high-risk cases, and programs could use these rankings to select cases for services. The rankings would be constructed by using aggregate "scores" for each person that are based on his or her characteristics (see Appendix A). States use this procedure to profile UI claimants who are likely to exhaust benefits. Programs that make decisions on a case-by-case basis would not be able to rank cases. Instead, they would provide services to an individual if the person's aggregate score were higher than some predetermined cutoff value (see Appendix A).

B. Preliminary Targeting Strategy Using National Data

To apply the targeting approach most effectively, each state or local agency should attempt to identify targeting characteristics appropriate to their local areas, and program staff must use local data to determine the most appropriate set of decision rules for their own location. Local area circumstances differ to varying degrees, as do the characteristics of individuals who live in each area. Consequently, agencies can create the best decision rules by using data specific to their own areas and identify the most efficient characteristics for targeting purposes.

In this section, we use data from the NLSY sample to identify targeting characteristics for programs that are considering providing job retention services to welfare recipients who find jobs.[29] The purpose of this analysis is two fold. First, for agencies that want to conduct their own targeting analysis, this discussion illustrates how to use the proposed targeting framework. Second, for agencies which currently lack the data or tools required to conduct targeting analyses, but which may be interested in targeting, the NLSY provides preliminary decision rules.

It is important to recognize that our decision rules are based on national data and on our definition of high-risk cases. Caseload characteristics in any given locality might differ from the characteristics of the individuals in our sample. Moreover, the relationship between individual characteristics and employment outcomes may differ across localities. Program staff who choose to use the rules proposed in this report should consider these findings as broad guidelines, and should adapt them to their local circumstances to the extent possible.

Using the NLSY data, we examined eight potential characteristics that programs could use to select individuals for targeting for job retention services: (1) was a teenage mother at the time of initial employment, (2) was employed less than half the time in the year preceding initial employment, (3) has no high school diploma or GED, (4) has a preschool child, (5) received less than $8.00 per hour (in 1997 dollars) as starting pay in job,

[29]In this section we focus on targeting welfare recipients who have found jobs for job retention services. The general targeting approach, however, can be used by agencies that may want to consider targeting clients for other types of services.

(6) receives no fringe benefits on the job, (7) does not have a valid driver's license, and (8) has health limitations.

In defining outcomes, we focus on sustained employment during the five year period after job start. We defined a high-risk case as one who worked less than 70 percent of the weeks during that period.[30] We now summarize the findings from our analysis.

- **It is possible to identify single characteristics by using the univariate procedure to identify and target services to high-risk cases.**

Table 10 shows the efficiency measures of the eight potential targeting variables. The first column presents the sample means (that is, the percentage of individuals who have each characteristic), and the second shows the proportion in that group who need services (that is, who had poor employment outcomes). We find that more than three-quarters of those in three of the eight groups (age less than 20 years, high school dropout, and health limitations) are high-risk cases. For instance, programs that targeted people younger than 20 years of age at the time of initial employment would serve about 17 percent of all welfare recipients who found employment. However, more than 80 percent of those served would be high-risk cases. Similarly, by targeting those with health limitations, programs would serve only 6 percent of all cases--but about 88 percent who receive services would be high-risk cases. If programs wanted to serve high school dropouts, they would serve about 34 percent of all cases. About three-quarters would need services.[31]

Targeting on most of the other variables individually produced either no better or only slightly better results than would have been obtained if the programs were to serve a random set of individuals who find jobs. This finding is driven in part by the fact that a high fraction of the sample members have these characteristics. For instance, more than 90 percent have a preschool child. However, according to our definition of high risk, only two-thirds of the full sample are likely to need services. Therefore, by targeting this group, programs will serve many more cases than need services, which will lead to inefficient use of resources.

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[30]Nearly two-thirds of the NLSY sample members was classified as being at high risk for adverse labor market outcomes. The 70 percent cutoff is based on the results of "cluster analysis" that split the sample into those who had low earnings and intermittent jobs (the high-risk cases that were employed less than 70 percent of the time) and those with higher earnings and more stable employment (the low-risk cases).

[31]The third column shows the percentage of all high-risk cases who would be served by targeting on each characteristic. For example, by targeting on those people younger than 20 years of age at time of initial employment, programs would serve about 22 percent of all high-risk cases.

TABLE 10

SELECTING INDIVIDUAL CHARACTERISTICS FOR TARGETING PURPOSES, USING THE UNIVARIATE PROCEDURE

	Percentage of Sample with Characteristic (1)	Percentage with Characteristic that Needs Services[a] (2)	Percentage of All High Risk Cases Receiving Services (3)
Age younger than 20 years	17.4	80.6	21.7
Employed less than half the time in year prior to job start	79.2	66.6	83.0
No high school diploma/GED	34.2	74.8	39.3
Presence of preschool child	92.4	64.4	93.6
Wage less than $8.00 (in 1997 dollars)	79.2	65.6	83.2
No fringe benefits	81.1	70.0	87.8
No valid driver's license	29.0	71.8	32.6
Has health limitations	6.1	88.1	8.3

SOURCE: Data from the 1979 to 1994 NLSY Surveys.
NOTE: Characteristics are defined at the start of the initial employment spells.

[a] Refers to those in the group who are at high risk for adverse employment outcomes.

- **Programs can do better by using a combination of characteristics by applying the multivariate procedure for targeting.**

By using the same set of eight characteristics, the multivariate procedure produced fairly accurate decision rules and was able to distinguish between high- and low-risk cases reasonably accurately. Table 11 displays findings on how well the multivariate method performed for different fractions of overall caseloads that programs might want to serve.[32] From columns 1 and 2, we see that if programs serve 10 percent of their caseloads, then more than over 90 percent of those served will need services (assuming that programs serve the cases at highest risk for negative employment outcomes). Similarly, if they choose to serve 50 percent of their caseloads, then more than 80 percent of those served will be high-risk cases who may benefit from services. The figures in column 2 suggest that as programs

[32]The purpose of Table 11 is to indicate how well the multivariate approach performs (compared with the single characteristic approach described in Table 10). Implementing the multivariate approach is discussed in the next bullet point.

TABLE 11

EFFICIENCY OF THE MULTIPLE CHARACTERISTICS APPROACH FOR TARGETING PURPOSES
(Using the Multivariate Procedure)

Fraction of Cases Served Ranked According to Highest Level of Risk (Percent) (1)	Percentage that Need Services[a] (2)	Percentage of All High-Risk Cases (3)
10	91.1	12.6
20	90.2	27.3
30	87.8	39.2
40	84.6	50.0
50	82.1	60.8
60	79.9	72.7
70	77.9	80.8
80	74.4	88.2
90	71.5	95.1

SOURCE: Data from the 1979 to 1994 NLSY Surveys.

[a]Refers to those in the group served who are at high risk for adverse employment outcomes.

become more selective with respect to the numbers to serve, it is better able to identify the highest-risk cases.[33]

Compared with the single-characteristic decision rule, the multivariate-decision rule will serve a greater proportion of high-risk cases for the same total number of people served. For example, programs that want to serve about 20 percent of their cases could choose to serve for example, teenage mothers (see Table 10), or could use the multivariate method to choose the 20 percent with the highest probability of poor outcomes. By targeting the single characteristic, 80 percent of those served will be high-risk cases; according to the multivariate methods, more than 90 percent will be high-risk cases (Tables 10 and 11).

[33]The multivariate decision rule also gives programs the flexibility to decide whom to serve or the types of services to provide. For instance, programs may believe that the top five percent of the highest-risk cases may be the hardest to serve and need extremely intensive services. Programs can identify these individuals, place them in the appropriate service group, and then work with the next 20 or 30 percent of the cases that may benefit from certain types of job retention services.

- **Implementing decision rules is straightforward. However, programs must take into account their own goals and area characteristics when applying these rules.**

If programs choose to use the univariate decision rules, then implementation is straightforward. Program staff would identify cases with a particular characteristic and would provide services only to those cases.

The multivariate decision rule could be implemented by program staff in two stages. In the first stage, program staff would calculate an aggregate score for each individual based on the characteristics the individual possesses. The weights attached to each characteristic are displayed in Table 12, and would be used to construct these aggregate scores.[34] For example, a high school dropout who has a wage of $6.00 per hour and no fringe benefits, and none of the other characteristics listed in Table 12 would receive an aggregate score of 10 (3 + 2 + 5). Individuals with higher aggregate scores are more likely to be high-risk cases than are those with lower scores.

In the second stage, programs would use the aggregate scores to identify cases requiring special services. If program staff decide to make targeting decisions periodically, after collecting information on a group of clients, then they would rank all these clients on the basis of their aggregate scores and would select those with the highest scores. However, if program staff decide to make targeting decisions sequentially, on a case-by-case basis, then

TABLE 12

CHECKLIST FOR MULTIVARIATE TARGETING

Barriers	Weight	Check Characteristic	Associated Points
Age younger than 20	✓✓	☐	--
Employed less than half the time in year prior to job start	✓✓	☐	--
No high school diploma/GED	✓✓✓	☐	--
Presence of preschool child	✓✓	☐	--
Wage less than $8.00 (in 1997 dollars)	✓✓	☐	--
No fringe benefits	✓✓✓✓✓	☐	--
No valid driver's license	✓✓	☐	--
Has Health Limitations	✓✓✓✓✓	☐	--
		Total Score	_____

SOURCE: Data from the 1979 to 1994 NLSY Surveys.
NOTE: Discussion of the calculation of the weights is contained in Appendix A.

[34]The weights are calculated from a simple regression model and reflect the relative magnitudes of the coefficient estimates from the model. The estimation of the model is described in Appendix A.

they would have to measure an individual's aggregate score against a cutoff value, and provide services if the aggregate score were higher than that cutoff value. The cutoff values are displayed in Table 13 and depend on the fraction of the caseload that the programs want to serve. In particular, the fewer cases a program wants to serve, the higher the cutoff value it will have to use. Thus, if the program had the goal of serving at least 70 percent of cases, then a client with an aggregate score of 10 would receive services (because the cutoff value would be 10). If the goal was to serve only 50 percent of cases, then this person would not receive services (because the cutoff value would be 12).

As we have mentioned, the decision rules described here were created using information on a nationally representative sample of youths who received welfare and found a job at some point between 1979 and 1990. The caseload characteristics in any locality might differ from the characteristics of the individuals in our sample. Moreover, the relationship between the characteristics and being a high-risk case may differ across localities. Program staff are encouraged to work with researchers to generate their own set of weights and cutoff values using local data. However, program staff who decide to use our results as guidelines should adjust them based on good sense judgements of local area characteristics (in the absence of data for analysis). For instance, in urban areas with mass transit, programs may want to ignore whether or not a welfare recipient has a driver's licence in calculating weights, as this characteristic is unlikely to form a barrier to work. Furthermore, program staff may want to adjust their cutoff values downward because they are dropping this characteristic from consideration.

TABLE 13

CUTOFF SCORES FOR MULTIVARIATE TARGETING

Fraction Served (Percent)	Cutoff Levels
70	10
50	12
30	14
20	15
10	17

SOURCE: Data from the 1979 to 1994 NLSY Surveys.
NOTE: Discussion of the calculation of the cutoffs is contained in Appendix A.

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APPENDIX A

STATISTICAL METHODS FOR THE MULTIVARIATE TARGETING ANALYSIS

The multivariate targeting procedure provides decision rules to target cases for postemployment services on the basis of a combination of their individual and job characteristics. This appendix provides details on the statistical aspects of how this procedure can be implemented by program staff who choose to create multivariate decision rules using their own caseload data. This same procedure was used to create the decision rules using the NLSY data that we describe in this report.

To construct decision rules using the multivariate procedure, programs must first identify individual and job characteristics that potentially can be used for targeting. In addition, programs must decide who the group is that they consider at risk of adverse employment outcomes. Finally, they must collect data on a representative sample of their caseload--the test sample--so that decision rules constructed using this sample will apply to cases they will serve in the future. The data must include information on the targeting variables *and* on employment outcomes so that programs can define which cases in the sample are high-risk cases (using their own definitions of a high-risk case).

The tools necessary to construct decision rules are (1) weights needed to assign to each targeting variable, and (2) cutoff values to determine which cases should be targeted for services. These tools are obtained from a regression model, where the targeting variables are used to predict whether a case in the test sample was a high-risk case. Program staff can then use these tools to determine whether cases programs serve in the future should be targeted for specialized postemployment services.

The tools necessary to construct decision rules using the multivariate approach can be obtained in three steps:

1. ***Estimate a logit regression model.*** Using data on the test sample, programs should regress the probability that a case was a high-risk case on the selected targeting variables (such as individual and job characteristics).[1] The parameter estimates from this model represent the effects of each targeting variable on the likelihood that a case should be targeted for services. Many statistical software packages (for example SAS, SPSS, and S+) can be used to estimate the model. Targeting variables that have little ability to predict who is a high-risk case (that is, that are statistically insignificant) should be

[1]For example, the following logit model could be estimated using maximum likelihood methods:

$$(i) \quad Pr(Case\ was\ High\ Risk) = \frac{e^{X'\beta}}{1+e^{X'\beta}},$$

where X is a vector of characteristics for an individual, and β is a vector of parameters to be estimated. Alternatively, a probit regression model could be estimated.

removed from the model, and the model should be re-estimated. The overall predictive power of the final model should be assessed using the criteria presented in this report.[2]

2. ***Construct weights to assign to each targeting variable.*** The weights are the parameter estimates from the logit model. Program staff may want to scale each of the weights by a fixed factor (for example, 10 or 100) and then round them to make the weights user-friendly.[3]

3. ***Construct cutoff values for different assumptions about the proportion of the caseload that programs may want to serve.*** To construct the cutoff values, programs first need to construct an "aggregate score" for each case in the test sample. The aggregate score for a particular case is a weighted average of measures of the case's characteristics, where the weights are those constructed in step 2.

   The cutoff values can then be constructed using these aggregate scores. Suppose that a program aims to serve 10 percent of the caseload. Then, the cutoff value for that program is selected so that 10 percent of those in the test sample have an aggregate score greater than the cutoff value, and 90 percent have an aggregate score less than the cutoff value. Similarly, the cutoff value for a program that aims to serve 40 percent of the caseload is that value such that 40 percent of those in the test sample have an aggregate score greater than that value.

Once these weights and cutoff values have been obtained using the test sample, programs can use these tools to target cases in the future for specialized postemployment services. The process of assigning cases, however, will differ depending on how sites choose to time the selection process. Programs may choose to target after collecting information on a large number of cases. In these instances, aggregate scores should be constructed for each case by taking a weighted average of the case's characteristics near the job start date and using the weights constructed in step 3 above. Cases should then be ranked on the basis of their

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[2]Specifically, this assessment can be performed in four main steps: (1) predicted probabilities should be constructed for each individual using equation (i) in the previous footnote based on the estimated parameters; (2) individuals should be sorted on the basis of their predicted probabilities; (3) a prespecified percentage of individuals with the largest predicted probabilities should be "selected" for services; and (4) the proportion of those selected for services who are actually high-risk cases should be calculated. The model has sufficient predictive power if the proportion calculated in step 4 is larger than the proportion that would occur if all cases were randomly assigned to services. The assessment should be performed for various prespecified percentages used in step 3.

[3]This procedure was used to create the checklist of weights in Table 12 of the report, where the logit model was estimated using data on the NLSY sample.

aggregate scores, and programs should select cases with large scores. Alternatively, programs may choose to assign a case in isolation as soon as they have information on the case. In these instances, a case should be targeted for services if the case's aggregate score is above the selected cutoff value (created in step 4 above). The relevant cutoff value to use will depend on the proportion of the caseload the program desires to target.