

# **WELFARE-TO-WORK POLICY: EMPLOYER HIRING AND RETENTION OF FORMER WELFARE RECIPIENTS**

**Julia Lane**  
**Economics Department**  
**American University**  
**4400 Massachusetts Ave NW**  
**Washington DC 20016**  
[jjlane@american.edu](mailto:jjlane@american.edu)

**David Stevens**  
**Jacob France Center**  
**University of Baltimore**  
**1420 North Charles St**  
**Baltimore, MD 21201**  
[dstevens@ubmail.ubalt.edu](mailto:dstevens@ubmail.ubalt.edu)

First Draft: June 1997  
This Draft: March 2000

This work was partially supported by the Maryland Governor's Workforce Investment Board. An early version of this paper was presented at the Joint Center for Poverty Research's Conference Evaluating State Policy: The Effective Use of Administrative Data.

## **WELFARE-TO-WORK POLICY: EMPLOYER HIRING AND RETENTION OF FORMER WELFARE RECIPIENTS**

### **Abstract**

This paper sets out to explore the role of the employer in successful welfare to work transitions. We demonstrate the uses of administrative records in identifying the types of firms that repeatedly hire welfare recipients. We also develop sets of criteria to identify “successful” outcomes. Our results suggest that there is substantial untapped potential for using administrative data to identify not simply which industries hire welfare recipients, but those that are most likely to provide recipients with long lasting jobs, or at least jobs accompanied by sustained removal from welfare dependency.

## I. Introduction

There are three major factors to be considered in the implementation of welfare-to-work policy—welfare recipients, employers, and the match between the two. Although both the firm and the match are obviously important to both politicians and the welfare community, much policy analysis has only concentrated on the importance of personal characteristics in obtaining and maintaining work. However, there is abundant evidence that firms differ in personnel practices—both in wage-setting and in turnover policies. As a result, worker outcomes could potentially differ dramatically, depending on how workers are placed into different firms. The lack of research on this area is primarily due to the lack of data—there are very few datasets that have information on both firms and workers.

This paper is one of the first to provide an analysis of the effect on welfare recipients of the interaction between workers and firms, as well as one of the first to demonstrate the value of administrative data in this area. We construct an integrated longitudinal database on firms and workers using the universe wage record files from the state of Maryland. We merge these data with the universe of welfare records for the state. This enables us to document the impact of firm characteristics, such as previous hiring patterns and growth, on the ability of welfare recipients to successfully retain jobs and earn enough to stay off welfare.<sup>1</sup> In particular, we use administrative records to identify which industries primarily hire former welfare recipients, as well as industries' observable characteristics. We discuss whether there is firm specific persistence in the hiring of welfare recipients. Finally, we measure job quality by both how long a job lasts and whether the recipient returns to AFDC rolls.

The next section provides some background and context, followed by a description of the creation of the analytical dataset from the administrative records. Our discussion of findings begins with a straightforward description of the baseline outcomes for firms, workers, and match durations. We

then exploit the longitudinal nature and universal coverage of the unit-record database to estimate the effect of firm characteristics on worker outcomes.

## **II. Background**

Firm turnover and wage setting policies can have a noticeable effect on welfare recipients. If some firms deliberately choose high turnover policies, it is likely to have a disparate impact on low-wage workers, who have shorter job tenure and a greater number of job spells than other workers. Job loss for the least educated workers is particularly likely to lead to lower re-employment probabilities, higher probabilities of part-time work, and lower earnings (Farber, 1999). The combination of low wages and numerous spells between jobs has important implications for welfare reciprocity: the difference between poor and nonpoor low wage workers is that poor workers are employed for roughly the same number of hours per weeks, but 20% fewer weeks per year (Long and Martini, 1992). There are longer-term consequences, as well. Lost worktime not only leads to lost income, but also spurns skill depreciation (Topel, 1993), and lower training (Royalty, 1996). Finally, there is some evidence that new jobs have fewer benefits, such as health insurance and other fringe benefits.

Firms are likely to have different turnover and wage-setting policies because there are different costs associated with hiring and firing workers. These clearly depend on both the type of worker and the nature of the production process, and are thoroughly surveyed by Mortensen and Pissarides (1999). In addition, Kremer (1993) has proposed a promising model of hiring behavior in the context of worker heterogeneity and complex tasks, which he calls an ‘O-ring’ production function framework. Kremer’s model suggests that there will be variation in hiring patterns even across firms within an industry. In particular, different firms, with different production functions, will hire workers of different quality. This approach has since been extended by Kremer and Maskin (1996), who also suggest that, with complex

tasks, employers will hire workers with a narrow range of skills. The Kremer-Maskin model predicts that the rising mean and dispersion of skill distribution will cause organizations to specialize in hiring workers of one skill level or another. Hence, persistent hiring of particular types of workers by employers is also predicted by this model. This has been observed empirically—firms, even within quite narrowly defined industries, have quite different, and persistent, workforce composition, productivity, and turnover patterns (Foster, Haltiwanger, and Krizan, 1999; Haltiwanger, Lane, and Spletzer, 1999). Within the retail trade industry, for example, a coffee franchise like Starbucks has explicitly chosen a relatively high wage, high benefit, low turnover strategy to sell its coffee, while other shops will produce a different type of product with a different personnel strategy.

There is little empirical evidence of the effect of these firm policies on the job outcomes of welfare recipients, despite a voluminous literature on supply side behavior and consequences (see Moffitt, 1997 for an excellent review). However, it is clear that firms do affect worker outcomes: it is well known that wages vary by type of firm (Groschen, 1991), and that wages are particularly affected by firm size, industry, and turnover (Krueger and Summers, 1988; Davis, Haltiwanger and Schuh, 1996; Lane, Burgess, and Stevens, 1996). Thus, there is a potential link to welfare recipients, since it is well known that recidivism is affected by the wages that welfare recipients earn (Blank and Ruggles, 1994; Blank, 1997). Preliminary evidence on welfare recipients reinforces this—employment outcomes for welfare recipients are related to the type of firm and industry in which the worker is placed (Lane and Stevens, 1995; Bartik, 1997).

However, a full analysis of the effect of firms on workers requires the use of a linked longitudinal database with information on both sides of the labor market. Such datasets have only recently begun to be exploited, and they have begun to generate a large literature—indeed, a recent conference on linked

employer-employee data drew more than 200 people from 20 countries (see Haltiwanger et al., 1998 and 1999 for a survey of some of the literature; Abowd and Kramarz, 1999 for a related overview). A core finding of this emergent literature is that some firms pay idiosyncratically high wages, even after controlling for observable and unobservable worker characteristics (Abowd, Kramarz, and Margolis, 1999; Abowd, Finer, and Kramarz, 1999)—going some way to allay the concern raised by Gibbons and Katz (1992) that firm specific wage differentials reflect sorting along unobservable characteristics.

This paper draws on all of this literature in exploiting an unusually rich administrative linked employer-employee dataset with longitudinal information on the universe of welfare recipients, the universe of workers, and the universe of firms in the state of Maryland. The following sections describe the basic methodology and creation of this dataset in more detail.

### **III. Methodology**

The core issue is to examine the contribution of firm and worker characteristics to achieving “successful” work outcomes after a welfare recipient is matched with a firm. This can be looked at in two ways: a successful outcome for a worker, or the number of successful outcomes achieved by a given firm.

Successful outcomes are clearly conditional on matches that are acceptable to both the worker and to the firm—and the criteria depend on both worker and firm characteristics. The standard worker characteristics include age, race, sex, and education, together with unobserved ability. Mortenson and Pissarides suggest that the firm characteristics that are most important include hiring and firing costs, as well as firm job creation and destruction. These are closely related to the level of technology, which is identified by Kremer as an important contributing factor, although Kremer also discusses the importance of the characteristics of other workers in the firm.

Although many matching models are cast in terms of a hazard framework, in which the quality of a given match is re-evaluated by both worker and firm at the end of each time period, the outcome of interest in the first case here is not how long a match lasts, but rather whether or not it is successful.

Thus, rather than specifying a hazard model, we specify a model with a dichotomous outcome:

$$P(\text{success} | X; Z) = f(X\beta; Z\gamma)$$

where  $X$  reflects worker characteristics and  $Z$  reflects firm characteristics. Because we are interested in the reduced form effects of both of these characteristics on success, we use a linear probability model to estimate the effects (which, as Moffitt, 1999, points out, is the standard approach in this situation). The outcome of interest in the second case is the number of successful outcomes achieved by a firm, which can be modeled in a simple regression framework.

#### **IV. Data**

Two separate files were used in creating the analytical dataset. We describe each in turn, together with the decision rules necessary to summarize administrative information in an economically sensible way.

##### *Welfare recipient records*

The Office of Work Opportunities in the Family Investment Administration of Maryland's Department of Human Resources maintained two administrative databases that were used to build a longitudinal record of welfare dependency in Maryland for selected clients, depending on whether a particular client had been designated as the head-of-household for administrative purposes. The agency's Automated Income Maintenance System (AIMS) assigned a unique identification number to each case. The AIMS file included the actual benefit amount paid to the head-of-household of record each month, beginning in the early 1980s. A complementary Automated Master File (AMF) contained demographic information about each member of a case household, the application date, acceptance

date (if applicable), closure date (if applicable), and other case transaction dates that may have occurred. The oldest AMF files maintained by the France Center begin with July 1989.

### *Employment and earnings records*

The France Center also maintains the universe of quarterly employment and earnings records submitted to Maryland's Department of Labor, Licensing, and Regulation by the state's employers, who are required to do so in compliance with Maryland's unemployment compensation law. The France Center's longitudinal file of the universe of Maryland employment and earnings records begins with the April-June 1985 quarter, and currently includes a continuous series of quarterly data through September 1996. The database is routinely updated.

The data elements found in these quarterly employment and earnings, or *wage*, records include a reference to employer's state unemployment insurance tax account identifier, the social security number of each employee whose earnings amount has been reported during a particular quarter, as well as the dollar amount reported by that employer as having been paid to the employee. Other data elements, such as Standard Industrial Classification code, county, Federal Employer Identification Number, and average employment level during the week that includes the 12th of the month (for each of the three months in a reference quarter), are not part of the *wage* record. These data elements are subject to different confidentiality rules that reflect both national Bureau of Labor Statistics and state-specific Department of Labor, Licensing, and Regulation statutory and regulatory stipulations.

### *Creation of the analytical file*

This paper is interested in the successful outcome of a transition from welfare dependency to work (with or without continued receipt of welfare benefits), and more particularly on the hiring

employer in each of these transitional events. Because the dataset is quite large, and Maryland's economy is reasonably diverse, we subset the data to include only applicants for Aid to Families with Dependent Children (AFDC) benefits in Baltimore City's local offices between July 1989 and June 1990 — they constitute half of the state's welfare population. We further restricted the dataset so that the head-of-household's age was between 18 and 65. The median age of those retained for analytical purposes is 27, with the second and third quartiles bracketing the age interval 22 to 33. These recipients were tracked in the welfare record database from July 1989 through September 1996, and this was merged with the quarterly employment and earnings. Thus, this paper focuses on those who applied for welfare benefits in Baltimore City during 1989-90, and who subsequently received reported earnings from one or more jobs in Maryland between July 1, 1990 and September 30, 1996. In doing this, a series of definitional decisions had to be made, which are detailed in the appendix, but also are summarized briefly here.

### *Definitions*

One of the difficulties with analyzing welfare-to-work outcomes is the enormous amount of movement that occurs from welfare to work and back again. We created six stylized transition patterns, described in the appendix, and from this constructed two outcomes that mirror state outcome measures for: (1) whether the job provides a transition out of welfare (that is, the job lasts at least four quarters and the individual has not reapplied for welfare in Maryland during the observation period); and (2) whether the job lasts for at least four quarters.

The designation welfare *applicant* is used to make it clear that the criterion for selection was that a designated head-of-household tried to gain AFDC eligibility during this year. Attention was given

neither to previous AFDC history, nor the 3 percent of these original cohort members that did not receive at least one monthly welfare benefit check through September 1996.

Reference to "finding a job" here means that a Maryland employer reported a reference person's earnings to Maryland's Department of Labor, Licensing, and Regulation for unemployment insurance tax accountability purposes. Out-of-state employment, self-employment, Federal government employment, independent contractor status, and other related circumstances are not revealed in this database. Some care must be taken in using the term "job", since no actual job assignment, or occupational designation, appears in a *wage record*. An employee may be reassigned one or more times within an employing entity without this becoming known through the *wage record* as a data source. Here, reference to "a job" means that a particular employer UI tax account number and employee social security number pairing appears for one or more consecutive quarters. In this paper, a full quarter (or more) nonearnings gap, which may result from a seasonal or other "temporary" layoff, would result in a new job designation being assigned to the more recent period of reported earnings. In other research, we have searched multi-year periods to look for previous and subsequent pairings that match a reference record of reported earnings. This is not an important issue for the topics covered here. Finally, although the paper refers to a "firm" for the sake of convenience, the correct designation is a "reporting unit", which is an administrative employer identification number. The connection between this and the economic concept of a firm has been discussed in some detail in Burgess, Lane, and Stevens (2000) and Lane, Burgess, and Theeuwes (1998).

### *Measures of firm characteristics*

As a result of having information on the universe of workers, firms, and welfare recipients, we can construct quite detailed information about the hiring patterns of firms (as suggested by Kremer) and

actual (rather than worker reported) firm size and industry to proxy for technology and production processes (as suggested by Kremer, as well as Mortensen and Pissarides). In the former case, we can directly construct firm level measures of job creation and job destruction by comparing total employment between quarters, as well as the pattern of worker flows—both new hires and hires of AFDC recipients. In addition, we can construct the standard measures of firm size<sup>2</sup> as well as two digit industry.

#### **IV. Empirical Results**

The overall impression of welfare-to-work patterns is that surprisingly few recipients get work: almost half of the initial cohort of 15,535 welfare applicants in 1989/90 never show up on the employment records in the entire 27 quarter period until 1996. For those who do get work (8,413 of the cohort), there is a great deal of movement—they hold a total of just over 24,000 jobs during the period. This combines with a marked lack of success: only 18 percent of the total number of welfare applicants exhibit at least one successful transition from welfare to work (more detailed information is provided in the appendix). This impression is complemented by looking at the employer side. Very few employers provide jobs with successful outcomes: out of 24,631 jobs offered by 4,871 employers, only 276 employers offered 2,432 jobs with “successful” transition from welfare to work. In terms of the second criterion—whether the job lasted more than four quarters—1,785 employers offered a total of 4,662 such jobs. In addition, hiring is concentrated in very few industries. Seventy-five percent of all jobs offered are concentrated in 10 clusters: General Merchandise Stores; Eating and Drinking Establishments; Hotel and Other Lodging Places; Personal Services; Business Services; Health Services; Social Services; Wholesale Trade; Manufacturing; and Public Administration. Business

Services provided 28 percent of the jobs, Health Services 14 percent, and Eating and Drinking Establishments 11 percent.

We now turn to estimating the correlates of successful outcomes using the approach describe in the methodology section.

### *Individual results*

Using the individual as the unit of analysis, we estimate a linear probability model with a dependent variable that is given the value 1 if the job satisfied a successful outcome criterion, and 0 otherwise. This dichotomous variable is then correlated with the set of employer characteristics discussed in the preceding sections: employer size; hiring patterns, including employment growth, new hires as a proportion of all employment, and AFDC hires as a proportion of all employment; and industry dummies. We also included, but do not report here, 26 dummies for each quarter. Because multiple events were observed for individuals, we included individual fixed effects to control for individual heterogeneity as well as nontime-varying characteristics. The results of the analysis on 24,188 observations are reported in Table 1.

Individuals who found jobs in public administration, health services, or social services were more likely to experience a successful outcome by either measure, and individuals who had jobs in business services were less likely to be defined as having a successful outcome. Being hired by an expanding firm improves individual chances of success, but being part of large cluster of welfare recipient hires is associated with a lower probability of success. The employment size-class of a hiring employer does not appear as a correlate of successful outcome.

Table 1: Individual Level Analysis		
	Job lasts more than four quarters	Job lasts and provides AFDC exit
<b>Size of employer</b>		
Second Quartile of Industry	-.011 (1.27)	-.004 (.51)
Third Quartile of Industry	-.027 (3.33)	-.01 (1.21)
Fourth Quartile of Industry	-.018 (2.30)	-.005 (.34)
<b>Employer Hiring Patterns</b>		
Employment grew more than 50% in previous year	.057 (2.04)	.045 (1.51)
Employment shrank more than 50% in previous year	-.145 (13.76)	-.052 (4.69)
Reported no employment in subsequent year	-.182 (21.60)	-.057 (6.44)
New hires/total workers	-.012 (1.13)	.03 (2.66)
AFDC newhires/total workers	-.118 (3.14)	-.209 (5.20)
<b>Industry Affiliation</b>		
General Merchandise Stores(53)	-.078 (4.25)	-.034 (1.73)
Eating and Drinking Establishment (58)	-.029 (2.71)	-.02 (1.74)
Hotel and Other Lodging Places (70)	-.009 (.50)	-.02 (1.23)
Personal Services (72)	-.01 (.49)	-.007 (.32)
Business Services (73)	-.06 (7.52)	-.06 (3.99)
Health Services (80)	.089 (7.98)	.089 (7.39)
Social Services(83)	.106 (6.28)	.124 (6.86)
Wholesale Trade (50,51)	-.04 (1.95)	-.015 (.65)
Manufacturing (20-39)	-.002 (.13)	-.027 (1.81)
Public Administration (91-97)	.28 (10.64)	.261 (10.64)
R2	.519	.532

### *Employer level results*

We can turn the analysis around to examine the characteristics of employers who offer “successful” jobs to welfare recipients. For each employer, we constructed three measures of welfare recipient hiring behavior. Two of these are continuous: (1) the number of AFDC jobs as a proportion

of all jobs; and (2) the number of successful jobs as a proportion of all jobs. The third is binary: (3) whether the employer provided a job that satisfies the successful outcome criterion. We then correlated the hiring pattern variables used in Table 1 with these three dependent variables<sup>3</sup>. The results are reported in Table 2

	Number of AFDC jobs as proportion of all jobs	Number of "successful" jobs as proportion of all jobs	Provided a "successful" job
Employer Hiring Patterns			
Employment grew more than 50% in previous year	.048 * (6.79)	.016 * (2.51)	-.008 (.17)
Employment shrank more than 50% in previous year	-.012 * (4.88)	-.013 * (3.89)	-.036 (1.49)
Reported no employment in subsequent year	.003 (1.08)	-.006 * (2.11)	-.05 * (2.74)
New hires/total workers	-.089 * (22.83)	-.015 * (4.13)	.269 * (10.33)
AFDC new hires/total workers	-	.016 * (6.75)	-.023 (1.36)
Hired AFDC recently	-.012 * (3.26)	.011 * (3.25)	.058 * (2.30)
n of observations	13,111		
R2	.93	.81	.44
"successful" is defined as provided a job which lasted at least four quarters and the recipient did not return to AFDC.			

Growing employers are found to be more likely to hire welfare recipients and have successful outcomes; the opposite is true for contracting employers. However, unlike the individual results, the greater the overall influx of new hires to an employer, the less likely an employer is to either hire or provide successful outcomes to their welfare hires. Again, in apparent reversal of the individual level data, employers who hire larger proportions of welfare recipients are more likely to have successful outcomes than those who do not.

Perhaps the most interesting variable in measuring one aspect of the effect of persistence on hiring is that on the variable *hired a welfare recipient recently*. This captures whether or not the employer hired at least one Maryland welfare recipient in the past year. The negative coefficient in the first column suggests that employers may have evaluated the quality of their previous hiring of welfare recipients and reacted by not continuing to hire others. The positive coefficient in the second column, however, suggests that there is some positive correlation between previous hiring and successful outcomes. These findings urge caution in promoting hiring transactions today that may then sour employers on future cooperation, particularly when they may be less anxious to try untested sources of recruits.

We investigated the persistence component in more detail by running the same regressions as before, but we also included lagged values of the dependent variable. Industry level results appear in Table 3. We expect persistence to vary by industry based on our own previous research and Kremer's model, among other relevant sources of guidance. This is indeed the case. Although the persistence in AFDC hiring is consistently negative, persistence in successful hiring is sometimes strongly negatively and other times positively correlated with previous patterns.

Table 3: Coefficient on Recent Hiring: Persistence Measure						
Industry Affiliation	Number of AFDC jobs as proportion of all jobs	Number of "successful" jobs as proportion of all jobs		Provided a "successful" job		number of employers
		(1)	(2)	(1)	(2)	
General Merchandise Stores(53)	-.04 * (3.35)	-.015 (1.837)	-.005 (.08)	-.416 (1.54)	-	57
Eating and Drinking Establishment (58)	-.119 * (14.9)	.019 (1.68)	-.019 * (3.05)	.046 (.68)	-	727
Hotel and Other Lodging Places (70)	-.06 * (4.55)	-.0039 (.39)	.02 (1.56)	-.095 (.68)	-	133
Personal Services (72)	-.20 * (8.91)	.017 (.73)	-.08 * (4.14)	.0004 (.03)	-	178
Business Services (73)	-.109 * (17.86)	.014 * (2.21)	-.02 * (3.43)	.08 (1.23)	-	607
Health Services (80)	-.273 * (21.98)	-.029 * (2.79)	-.09 * (9.10)	-.06 (.71)	-	377
Social Services(83)	-.165 * (8.65)	.029 (1.41)	-.06 * (3.74)	.20 (1.64)	-	227
Wholesale Trade (50,51)	-.168 * (10.02)	.1089 * (3.24)	-.05 * (2.84)	.226 (1.26)	-	199
Manufacturing (20-39)	-.134 * (10.82)	.038 * (2.79)	-.05 * (5.33)	.21 (1.71)	-	304
Public Administration (91-97)	-.17 * (4.46)	-.055 (1.35)	-.01 (.34)	-.05 (.27)	.25* (2.23)	100
All others	-.16 * (26.81)	.014 * (2.09)	-.04 * (7.22)	.095 * (2.26)	-	1955

(1) "success" is job lasts at least four quarters and individual leaves AFDC; (2) "success" is job lasts at least four quarters

## VI. Conclusions

This paper set out to explore the role of the employer in the transition from welfare to work. A stock taking of a few employers in those industries, other employers can be approached. Constant monitoring of the data will also alert program officials to any sharp upticks or downturns in hiring and potentially prompt intervention. We demonstrate that hiring is indeed concentrated in a few industries: business services; health services, and eating and drinking establishments. We also demonstrate that factors other than industrial classification can also be used to identify likely employers. Employer size and growth rates are

two obvious candidates, but the data can also be used to establish other criteria. We also demonstrate that, at least in Maryland, hiring is persistent, and that those employers who frequently hire in the labor market are identifiable, as well as those whose hires have a relatively high proportion of AFDC recipients.

We developed sets of criteria to identify “successful” outcomes—where workers got jobs, stayed in them, and left welfare. Our analysis of this outcome, rather than the simple job placement outcome, suggests that individuals who find work in public administration, health services, or social services are more likely to succeed than those placed in business services.

This paper illustrates the value that can be derived from state employment security agency administrative records in analysing welfare-to-work transition events. Some of our results support anecdotal evidence—for example, that growing firms are good targets for placing welfare recipients. However, our approach reflects a local economy’s overall employment dynamics, which provides insights that are hidden from those who only have matched records of the welfare clients’ own employment outcomes.

These results suggest that there is substantial untapped potential for using administrative data to identify not simply those industries that hire welfare recipients, but also those that are most likely to provide recipients with long lasting jobs, or at least jobs accompanied by sustained removal from welfare dependency. The potential also exists for finding out what went wrong in industries that display negative persistence in hiring.

## References

- Abowd, J, F. Kramarz, and D. Margolis. (1999). "High Wage Workers and High Wage Firms." *Econometrica*, Vol. 67, No. 2, (March 1999): 251-333.
- Abowd, J H. Finer, and F. Kramarz. (1999). "Individual and Firm Heterogeneity in Compensation: An Analysis of Matched Longitudinal Employer-Employee Data for the State of Washington," in J. Lane et al. eds., *The Creation and Analysis of Employer-Employee Matched Data* Amsterdam: North Holland, 1999.
- Abowd, J. and F. Kramarz. (1999). "The Analysis of Labor Markets Using Matched Employer-Employee Data." in O. Ashenfelter and D. Card (eds.) *Handbook of Labor Economics*, Volume 3, Chapter 26 (Amsterdam: North Holland, 1999).
- Bartik, T. (1997). "Short Term Employment Persistence for Welfare Recipients: The 'Effects' of Wages, Industry, Occupation and Firm Size." W.E. Upjohn Institute Working paper, June 1997.
- Blank, R. (1994). "Persistence in Poverty and Welfare." *American Economic Review*, May 1994, p49-53.
- Blank, R. (1995). "Outlook for the U.S. Labor Market and Prospects for Low-Wage Entry Jobs," in Demetra Smith Nightingale and Robert H. Haveman, *The Work Alternative: Welfare Reform and the Realities of the Job Market*, Washington, D.C.: Urban Institute Press, 1995.
- Burgess, S., J. Lane, and D. Stevens. (forthcoming). "Job Flows, Worker Flows and Churning." *Journal of Labor Economics*, July 2000.
- Davis, S. J. Haltiwanger, and S. Schuh. (1996). *Job Creation and Destruction*, MIT Press, Cambridge, Massachusetts, 1996.
- Gibbons, R., and L. Katz. (1992). "Does Unmeasured Ability Explain Inter-Industry Wage Differences?" *Review of Economic Studies*, 59 1992: 515-35.
- Groshen, E. (1991). "Five reasons why wages vary among employers." *Industrial Relations* 1991., 350-81
- Haltiwanger, J, J. Lane, J. Spletzer, J. Theeuwes, and K. Troske. (1999). *The Creation and Analysis of Employer and Employee Matched Data* part of the North Holland Contributions to Economic Analysis Series. Amsterdam, The Netherlands, 1999.
- \_\_\_\_\_. (1998). "Overview of the International Symposium on Linked Employer-Employee Data." *Monthly Labor Review*, July 1998, pg. 48-49.

- Hamermesh, D. (1999). "LEEping into the future of labor economics: the research potential of linking employer and employee data.", *Labour Economics* (6)1 (1999) pp. 25-41.
- Holzer, H. (1996). "Employer Demand, AFDC Recipients and Labor Market Policy." Institute for Research on Poverty Discussion paper 1115-96, University of Wisconsin-Madison, November, 1996.
- Kremer M. (1993). "The O-Ring Theory of Economic Development." *Quarterly Journal of Economics*, August 1993.
- Kremer M., and E. Maskin. (1996). "Wage Inequality And Segregation by Skil." Harvard Institute of Economic Research Working Paper 1777, August 1996.
- Krueger, A., and L. Summers. (1988). "Efficiency Wages and the Inter-Industry Wage Structure." *Econometrica*, vol. 56, no. 2 (March 1988), 259-293.
- Lane, J., and D. Stevens. (1995). "Family, Work and Welfare History: Work and Welfare Outcomes." *American Economic Review*, May 1995, 266-270.
- Lane, J., D. Stevens, and S. Burgess. (1996). "Worker and Job Flows." *Economics Letters*, 51, 1996 109-113.
- Lane, J., S. Burgess, and J. Theeuwes. (1998). "The Uses of Longitudinal Matched Employer/Employee Data in Labor Market Analysis." *Proceedings of the American Statistical Association*, 1998
- Moffitt R. (1992). "Incentive Effects of the U.S. Welfare System: A Review." *Journal of Economic Literature*, March 1992.
- Moffitt, R. (1999). "Econometric Methods for Labor Market Analysis." in O. Ashenfelter and D. Card (eds.) *Handbook of Labor Economics*, Volume 3, Chapter 24 (Amsterdam: North Holland, 1999).
- Mortensen, D., and C. Pissarides. (1999). "New Developments in Models of Search in the Labor Market." in O. Ashenfelter and D. Card (eds.) *Handbook of Labor Economics*, Volume 3, Chapter 39 (Amsterdam: North Holland, 1999).

## Appendix

### *Stylized Transition Patterns*

The first critical measurement task using the merged file created from the administrative record sources described above is to identify transition events that have different welfare policy and program management implications. These events are difficult to define: there are many different sequential quarterly welfare and/or work profiles of a cohort of AFDC applicants over more than six years (July 1990-September 1996) exhibit many patterns. Our response to this challenge involved aggregating the monthly welfare case records into quarterly clusters that could be aligned with the quarterly employment and earnings records. Each merged record then contained twenty-five aligned quarters that could be described by four categories:

- (1) For the reference quarter, a person's social security number appears in Maryland's quarterly employment and earnings records, but not in the AIMS file. This situation is designated as job only.
- (2) The person's social security number appears in the AIMS file for any one, two or three months in the quarterly aggregation of monthly data that was created, but not in the quarterly employment and earnings records for the reference period. This circumstance is called welfare only.
- (3) A person's social security number appears in both the AIMS and employment and earnings files, as these are described in (1) and (2) above, respectively. This is defined as job and welfare.
- (4) A person's social security number does not appear in either of the files as defined in (1) and (2). This is designated as neither job nor welfare.

This straightforward taxonomy allowed us to create a continuous series of four one-digit codes for each of the 1989-90 Baltimore City AFDC applicants over the next twenty-five reference quarters. Preliminary diagnostics carried out with these series resulted in the selection of six stylized patterns and a seventh residual category.

The six stylized patterns are:

- (1) Welfare to job--occurs whenever a member of the cohort moves from a *welfare only* or *job and welfare* designation in a quarter to a *job only* status in the next quarter. A transition from *welfare only* or *job and welfare* to *neither job nor welfare* placed the person in the seventh residual category for this transition event.
- (2) Job, welfare, job--happens when a cohort member moves from a *job only* status in a reference quarter to *job and welfare* in the next quarter (and up to a maximum of two additional sequential quarters) and then on to *job only* in the final quarter of the series.
- (3) Welfare, job, welfare--turns (2) inside-out and describes quarterly series that "sandwich" *job and welfare* quarters between *welfare only* observations.
- (4) Job to welfare--is the opposite of (1) in terms of beginning and ending status; here the beginning of the series is *job only*, which then transitions into either *welfare only* or *job and welfare*.
- (5) Overlap--describes quarter-to-quarter series that include only *job and welfare* circumstances.
- (6) Skip--is any three quarter series that has a *neither job nor welfare* code in the middle quarter, with any combination of *job only*, *welfare only* or *job and welfare* in the beginning and ending quarters of the three-quarter series.

The set-up for the statistical analysis is based on these six stylized patterns of welfare and work transition events that emerge from the administrative records. Each observed "switching" event is treated in the descriptive section as an independent occurrence; the goal is simply to catalog the frequency of each type of transition.

#### *Welfare recipient outcomes*

The overwhelming impression from an analysis of the data is one of tremendous movement into and out of jobs for those who get work. Unfortunately, this characterises just over half (54%) of the total 15,535 applicants during the period July 1989 through June 1990. The balance, 46 percent did not appear in Maryland's wage record database at any time during the next 75 months: from July 1990 to September 1996.

The movement into and out of jobs is evident in that the cohort who did appear in Maryland's wage record database held a reported 24, 631 jobs during these six-plus years — and average of just under 6 per person . A reasonably good characterization of the different transition states for this cohort is provided in Figure 1.

<sup>1</sup> These outcome measures reflect the same ones as the states are responsible for: they are evaluated on (1) the percent of eligible TANF recipients who begin work; (2) the percent of those beginning work who retain that job; and (3) the quality of the jobs represented in (1) and (2).

<sup>2</sup> These are converted to dichotomous variables in the case of both firm size and job creation and destruction, both because of the likely nonlinearity of the effects, and because of the large number of very small firms in these types of datasets.

<sup>11</sup> We employed both fixed effects and simple least squares in estimating the regressions: the results are essentially unchanged regardless of which methods are reported here,

