

# DRC Working PAPER

WORKING PAPER NUMBER: 2015-02

## Impact of Contingent Work on Subsequent Labor Force Participation and Wages of Workers with Psychiatric Disabilities

May 2015

Judith A. Cook\*  
Jane K. Burke-Miller  
Dennis D. Grey

\*Corresponding author's contact information:

University of Illinois at Chicago, Department of Psychiatry, Center on Mental Health Services Research and Policy

1601 West Taylor Street, M/C 912, Room 468

Chicago, IL 60612

Telephone: (312) 355-3921

Email: [jcook@uic.edu](mailto:jcook@uic.edu)

Reference Number: 40112.MPR13-03b

The research reported herein was performed pursuant to a grant from the U.S. Social Security Administration (SSA) funded as part of the Disability Research Consortium. The opinions and conclusions expressed are solely those of the author(s) and do not represent the opinions or policy of SSA or any agency of the Federal Government. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, expressed or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of the contents of this report. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply endorsement, recommendation or favoring by the United States Government or any agency thereof.

This draft paper is intended for review and comments only. It is not intended for citation, quotation, or other use in any form without the permission of the author(s).

This page has been left blank for double-sided copying.

---

## CONTENTS

---

ABSTRACT .....	vii
A. Introduction .....	1
B. Methods .....	3
1. Study background .....	3
2. Measures .....	4
3. Statistical analysis .....	6
C. Results .....	6
D. Discussion .....	9
REFERENCES.....	13

This page has been left blank for double-sided copying.

---

 TABLES
 

---

1	Model variables and labor force outcomes associated with initial contingent versus non-contingent employment among workers with psychiatric disabilities (N=1,018) .....	17
2a	Cross sectional analysis of the likelihood of any subsequent contingent (temporary) employment following initial contingent versus non-contingent employment among workers with psychiatric disabilities (N=1,018) .....	19
2b	Cross sectional analysis of likelihood of any subsequent permanent (non-contingent) competitive employment following initial contingent versus non-contingent employment among all workers with psychiatric disabilities (N=1,018) .....	20
2c	Cross sectional analysis of total earnings during 24-month period following contingent versus non-contingent employment among all workers with psychiatric disabilities (N=1,018) .....	21
3	Longitudinal analysis of employment outcomes following initial contingent versus non-contingent employment among all workers with psychiatric disabilities (N=1,018): subsequent contingent employment; permanent competitive employment; and earnings per month. Results of random regression models. ....	25

---

 FIGURES
 

---

1	Contingent employment over 24 months following initial contingent versus non-contingent employment among all workers with psychiatric disabilities (N=1,018). ....	22
2	Permanent competitive employment over 24 months following contingent versus non-contingent employment among all workers with psychiatric disabilities (N=1,018). ....	23
3	Average monthly earnings over 24 months following contingent versus non-contingent employment among all workers with psychiatric disabilities (N=1,018). ....	24

This page has been left blank for double-sided copying.

---

**ABSTRACT**

---

Project number

MP13-03

Title

Impact of Contingent Work on Subsequent Labor Force Participation and Wages of Workers with Psychiatric Disabilities

Authors

Judith A. Cook, Jane K. Burke-Miller, Dennis D. Grey, Department of Psychiatry, University of Illinois at Chicago

Date

May 2015

Key findings and policy implications

This paper examines the impact of contingent labor (i.e., temporary jobs) on subsequent labor force participation and wages of workers with psychiatric disabilities. It uses data from the Employment Intervention Demonstration Program, a U.S. eight-site randomized trial of supported employment interventions for 1,648 adults with serious mental illnesses. We hypothesized that: 1) participant characteristics would predict the likelihood of contingent employment; 2) holding an initial contingent job would be associated with subsequent contingent work; and 3) initial contingent employment would be associated with poorer subsequent labor force outcomes. Critical components of the analysis include cross-sectional and longitudinal multivariable regression and random regression models assessing the impact of holding a first job that was contingent on later labor force participation outcomes, controlling for worker demographic characteristics, clinical diagnoses, receipt of evidence-based supported employment services, and geographic region. Key limitations of the study are lack of a nationally representative sample of adults with psychiatric disabilities, use of a study population of paid subjects who were interested in working, and inability to assess whether participants were channeled into temporary work due to factors such as job discrimination or their preference for contingent labor. We found that older workers were less likely to hold contingent jobs and that contingent labor was more likely among those who held a larger number of jobs during the study period. Having a first job that was temporary was significantly associated with greater likelihood of subsequent contingent employment. Initial contingent work was also associated with lesser likelihood of subsequent competitive employment and with lower total and monthly earnings. The policy implications of these findings are that contingent work is typically undesirable in vocational rehabilitation, leading to later temporary employment and poorer labor force outcomes. Supported employment and other return-to-work programs should not rely heavily on contingent jobs for aspiring workers and funders of such programs should be alert to the potentially negative impact of these types of positions on vocational outcomes.

This page has been left blank for double-sided copying.



## A. Introduction

Throughout most of the twentieth century, the notion of standard work arrangements dominated the field of labor force research and the development of related public policies. Standard work arrangements are defined as full-time employment in jobs that are expected to continue indefinitely, with workers engaging in activities performed onsite at the employer's place of business and under the employer's direction (Carré, 2000). Such arrangements were the norm in many industrialized countries and formed the basic framework for development of labor law, collective bargaining, and social security systems (Kalleberg, 2000). Beginning in the 1970s, global economic changes causing enhanced competition and uncertainty among employers led them to increase profits by making more flexible contracting arrangements with their employees, leading to the growth of nonstandard employment (Córdova, 1986). Nonstandard work arrangements reviewed by Kalleberg (2000) include part-time work, contract work, temporary help agencies, independent contracting, and temporary work.

Over the past several decades, considerable debate has addressed the impact of temporary work, also known as contingent labor, on workers' subsequent labor force participation and employment outcomes. Some of this research has examined trends and associations in the general workforce, and other studies have focused on the use of contingent employment in publicly-funded return-to-work programs for low-income and other vulnerable populations. While some have argued that temporary employment offers initial labor force exposure and greater flexibility for workers with specific needs and those with disadvantageous labor force positions (Lane et al., 2003; Morris & Vekker, 2001), others have expressed concerns that temporary jobs lead to more temporary employment that is low-wage (Autor & Houseman, 2010), offers few opportunities for career advancement (Nollen, 1996), and has a greater likelihood of subsequent unemployment (Bartik, 1997; Houseman & Polivka, 2000). The purpose of our analysis was to explore the impact of initial contingent labor on later labor force participation and wages of workers with psychiatric disabilities who were participating in a study of return-to-work services delivered in accordance with the federal definition of supported employment contained in the Rehabilitation Act Amendments, Public Law 102-569: Supported Employment Definitions.

Contingent work is a job without an explicit or implicit contract for long-term employment or one with highly variable minimum work hours (Polivka & Nardone, 1989). The U.S. Department of Labor, Bureau of Labor Statistics (BLS) defines contingent workers as "...persons who do not expect their jobs to last or who reported that their jobs are temporary" (BLS, 2005a. p.1). In February 2005, 4.1% of total employment was comprised of contingent workers, representing 5.7 million workers (ibid.). Compared to non-contingent workers, contingent workers were twice as likely to be under age 25 (27 versus 13 percent), and less likely to be white (79 versus 83 percent). More than half of all contingent workers (55%) said they would have preferred a permanent job yet another 33% reported that they preferred their current arrangement. Contingent workers age 25 to 64 were found at both ends of the educational attainment spectrum. Compared with non-contingent workers, contingent workers were more likely to have less than a high school diploma (16 percent compared with 9 percent) and more likely to hold at least a bachelor's degree (37 percent compared with 33 percent). A larger proportion of contingent than non-contingent workers were women (49 vs. 47%). Part-time workers (defined as working less than 35 hours per week) made up two-fifths of contingent

workers. Compared with non-contingent workers, contingent workers were more likely to be employed in professional and related occupations, and construction and extraction occupations. Contingent workers also had lower earnings than non-contingent workers. For example, in 2005, full-time contingent wage and salary workers had median weekly earnings of \$488 (BLS, 2005a) compared to \$643 among all full-time wage and salary workers (BLS, 2005b), an estimated difference of \$8,000 per year.

A study of the effects of temporary employment among West German workers during 1984 through 1999 used the German Socio-Economic Panel, a longitudinal representative survey of private households (Giesecke & Gross, 2003). Results indicated that temporary jobs were more likely among workers with both limited and higher education, both younger and older employees, and those with a larger number of previous spells of unemployment. Jobs held post-December, 1991 were more likely to be temporary, as were jobs in the agriculture/forestry and public sectors. Multivariate analysis showed that, when the most recent job was temporary, individuals had a lower chance of finding a new job that was permanent. The analysis also revealed “chains of temporary jobs” that were associated with deteriorating labor market opportunities (ibid., p. 170). Finally, temporary work was associated with subsequent unemployment. The authors concluded that rather than offering a chance for re-integrating workers into the labor market, temporary jobs increase the risk of unstable employment and subsequent unemployment.

Research on contingent employment also has focused on participants in publicly-sponsored welfare-to-work employment and training programs. This research is especially relevant to our study population, since the supported employment model being tested was defined in the Rehabilitation Act Amendments, Public Law 102-569, and is widely used in state-federal vocational rehabilitation programs. A review of studies of former welfare recipients who became employed in the years following welfare reform under the Personal Responsibility and Work Opportunity Reconciliation Act (2006) showed that large proportions (15% to 40%) entered temporary jobs (Autor & Houseman, 2010). For example, in Missouri, the proportion of welfare beneficiaries with a temporary help job doubled between 1993 and 1997, and among employed beneficiaries, the proportion increased by 50% (Heinrich et al., 2005). Among welfare beneficiaries in Missouri and North Carolina, the probability of having a job in the temporary help sector was significantly greater for non-white women, older workers, and residents of metropolitan versus non-metropolitan areas (ibid). Controlling for individual worker and local labor market characteristics, women working in the temporary help sector had *current* earnings that were about 60% of earnings for workers in other sectors, and the sum of their subsequent earnings was 85% of that for other workers (ibid.). Subsequent analysis (Heinrich et al., 2007) found that while temporary employment enabled quicker access to jobs, especially among welfare beneficiaries with severely limited work alternatives, failure to move out of temporary work was associated with substantially poorer work outcomes.

An analysis of Detroit’s “Work First” welfare-to-work program (Autor & Houseman, 2010) found that, compared to direct-hire job placements, temporary help job placements were associated with lower subsequent earnings and poorer work outcomes. For example, in their initial quarters of participation, temporary help workers earned \$101 less per quarter than direct-hire workers, and over seven quarters had earnings that were 93% of those placed into direct-hire jobs. They also found that temporary help placements reduced both tenure and earnings in the

longest job spell. On the other hand, placement into non-contingent jobs significantly improved later earnings and work outcomes. The authors concluded that temporary-help placements reduce subsequent job stability by leading to subsequent temporary help jobs at the expense of opportunities to obtain direct-hire employment.

Conversely, some recent studies suggest that temporary employment does not have serious effects on later earnings or employment likelihood. A study of British temporary workers (Booth et al., 2002) found that women showed no long-term earnings losses following temporary employment, while the effect on men's current earnings was less than 10% after controlling for job choice endogeneity. Using data on public assistance recipients from the Survey of Income and Program Participation (SIPP), Booth and colleagues (2002) showed that, compared to not working, temporary employment results in superior labor market outcomes. For example, while nonemployed individuals had only a 35 percent chance of being employed a year later, those holding temporary employment had almost twice the likelihood of being employed in the same period. In fact, Autor and Houseman's review of research in this area (2010) cites six U.S. and eight European studies in which all but one of the authors concluded that temporary-help jobs benefitted workers by enhancing labor force attachment or substituting for spells of unemployment.

The purpose of our analysis was to examine determinants of temporary employment and its impact on subsequent labor force participation outcomes of individuals with psychiatric disabilities participating in a randomized controlled trial study of supported employment. We used data from the Employment Intervention Demonstration Program (EIDP), a national multi-site study conducted from 1996 through 2001 that was designed to generate knowledge about effective approaches for enhancing employment among adults with serious mental illnesses (Cook et al., 2008). We tested three hypotheses. First, we predicted that the likelihood of holding contingent versus non-contingent jobs would be influenced by workers' demographic characteristics (age, gender, race/ethnicity) and human capital (education, recent work history). Second, we hypothesized that holding contingent employment would be associated with subsequent contingent work. Third, we predicted that contingent employment would be associated with poorer subsequent labor force outcomes (lower likelihood of competitive work and lower earnings).

## B. Methods

### 1. Study background

The EIDP was a 5-year study of supported employment programs for people with severe mental illnesses conducted in eight states (Arizona, Connecticut, Maine, Maryland, Massachusetts, Pennsylvania, South Carolina and Texas), and funded by the Center for Mental Health Services of the Substance Abuse and Mental Health Services Administration (Cook, Carey, Razzano, Burke, & Blyler, 2002). By means of a Cooperative Agreement funding mechanism, researchers, federal personnel, policy makers, and disability advocates developed and implemented a Common Protocol and Documentation (Employment Intervention Demonstration Program, 2001), uniform data collection methods, and a hypothesis-driven analysis plan. This effort was led by a Coordinating Center based at the University of Illinois at Chicago, Department of Psychiatry, in partnership with the Human Services Research Institute in Cambridge, Massachusetts.

Study participants (n=1,648) were recruited from existing clinical populations via case manager referral, self-referral, word-of-mouth, and newspaper advertisements. Participants met the following inclusion criteria: 18 years or older at the time of study enrollment; willing and able to provide informed consent; interest in working; and an Axis I DSM-IV diagnosis of mental illness accompanied by severe or moderate functional impairment. Subjects were recruited in waves, with data collection beginning February 1996 and ending May 2000, and all were monetarily compensated, with amounts varying from \$10 to \$20 per interview. All EIDP study sites administered the same semiannual interview assessments measuring demographic and human capital characteristics and weekly vocational assessments of employment status and job features. Once voluntarily enrolled in the study, lack of participation in EIDP services or research interviews were not criteria for exclusion from the study sample. At each site, study participants were randomly assigned to: 1) an experimental condition in which they received evidence-based supported employment services, defined as integrated services delivered by employment specialists who were part of multidisciplinary teams that met frequently to coordinate employment and other services, with the goal of placement into competitive jobs that were tailored to patients' career preferences, using a job search process beginning soon after program entry, and providing ongoing vocational supports throughout the entire study period, or 2) a comparison condition. The results of the randomized controlled trial of evidence-based supported employment services are described elsewhere (Cook et al., 2005a; Cook et al., 2005b). Individuals assigned to the experimental condition received supported employment services throughout the study's 24-month observation period.

Data in this analysis are from 1,018 study participants who started at least one job during the 24-month observation period. Characteristics of these 1,018 individuals were compared with the remainder of the EIDP cohort not included in the present analysis (n=630). Consistent with prior research on predictors of employment in the EIDP (Burke-Miller et al., 2006; Cook et al., 2005a; Razzano et al., 2006), inclusion in the contingent work analysis sample was statistically associated ( $p < .05$ ) with receiving evidence-based supported employment services, more recent work history, higher educational attainment, younger age, not having a substance abuse or schizophrenia spectrum diagnosis, and not being beneficiaries in the Social Security Administration (SSA) disability benefit programs: Supplemental Security Income (SSI); and Social Security Disability Insurance (SSDI). Otherwise, the group we analyzed did not differ from the larger study population in terms of gender, race/ethnicity, or presence of a bipolar diagnosis.

## 2. Measures

**Worker characteristics.** Employee characteristics were collected during the baseline EIDP interview by each site's research staff who were trained by the Coordinating Center to administer the study's Common Protocol, and included age in years, gender (male=1/female=0), race/ethnic group (racial/ethnic minority=1/Caucasian=0), educational attainment (1=less than high school/0=otherwise, 1=some college or more/0=otherwise), recent work history (1=employed in 5 years prior to study entry/0=otherwise), and SSA disability program status (1=enrolled in SSDI and/or SSI/0=not enrolled). We also characterized workers by the number of jobs they held during the study's 24-month observation period.

**Clinical characteristics.** Psychiatric diagnoses came from clinical assessments using either the Structured Clinical Interview for DSM-IV (First et al., 1995), or case file abstraction of DSM-IV diagnoses (American Psychiatric Association, 2000) made by treating psychiatrists and recorded in clinical files. In this analysis we examined the effects of schizophrenia spectrum disorders, bipolar disorders, and substance abuse or dependence disorders.

**Supported employment services.** Participants were characterized by whether they received evidence-based supported employment services (1=supported employment/other or no vocational services) defined as vocational services emphasizing rapid placement into competitive employment in a field of the worker's own choosing followed by ongoing support with no time limits (Cook et al., 2005a). In this model, psychiatric and vocational services were provided: 1) through multi-disciplinary teams on which psychiatric and vocational staff interacted on a face-to-face basis at least three times a week; 2) by psychiatric and vocational staff operating at the same physical location, 3) by the same agency or organization, and 4) using a single case record (Cook et al., 2005b). "Multi-disciplinary teams" were defined as designated units that included (at a minimum) psychiatrists, case managers, job developers, and employment support staff who met in-person. "Same location" was defined as having offices in a single building and "same agency" as a single organizational unit. "Single case record" was defined as a file that incorporated employment assessments and treatment plans, vocational outcome data, medication information, and case management notes.

**Geographic region.** Region of the country was used as a proxy for local labor market characteristics. Study sites were clustered in the Northeast (ME, MA, CT), Mid-Atlantic (PA, MD), Southeast (SC), and Southwestern United States (TX, AZ). Previous analysis (Cook, Mulkern, Grey et al., 2006) calculated the local unemployment rate for the geographic area surrounding each study site using Bureau of Labor Statistics, Current Population Survey reports from January 1996 (first month of study participation for initial group of participants) through November 2000 (last month of study participation for the final group). Unemployment rates remained fairly consistent over time and were similar by region, allowing us to calculate average regional unemployment rates as a measure of job availability in the local labor market. Unemployment rates in each region averaged: Northeast 3.3%; Mid-Atlantic 4.72%; Southwest 3.44%; and Southeast 5.36%.

**Employment features.** Job characteristics of every job held during the 24-month observation period were identified from employment start forms that were part of the study's Common Protocol. These were completed by each site's employment staff at the beginning of each job and weekly thereafter, and included information regarding: number of hours worked per week, hourly wage, whether the job was set-aside for a person with disability, whether there was a direct employer-employee relationship, and whether the job was temporary or permanent. Occupational category was classified by each site's employment staff using codes from the 1991 Dictionary of Occupational Titles (DOT) published by the United States Department of Labor (1991).

**Labor force outcomes.** All jobs held in the EIDP were voluntary. Contingent employment was categorized according to the BLS definition as a job that was not expected to last or one that was explicitly considered to be temporary. All respondents were classified as having a first job after study entry that was either contingent (temporary) or non-contingent (permanent). In

addition, all subsequent jobs were classified as contingent versus non-contingent. Dependent measures of contingent work included any subsequent contingent employment over the 24-month observation period (cross-sectional analysis) and monthly employment status in a contingent job (longitudinal analysis). Competitive employment was defined as a non-temporary job available on the open labor market, paying at least minimum wage, not set aside for a person with a disability, and with a direct employer-employee relationship. Dependent measures of competitive employment included holding a subsequent competitive job (cross-sectional) and monthly employment status in a competitive job (longitudinal). Earnings were calculated from weekly earnings data and summarized as mean total dollars earned over 24 months (cross-sectional), and as total dollars earned in each month (longitudinal).

### 3. Statistical analysis

Univariate comparisons of factors associated with having a first job after study entry that was temporary versus permanent were made using chi-square tests of association for categorical dependent variables, and analysis of variance for interval or continuous dependent variables. Predictors of subsequent labor force outcomes for workers were examined in a series of multivariable logistic regression analyses (cross-sectional) and linear random regression analyses (longitudinal). In both multivariable analyses variables were entered in hierarchical steps representing the following domains: 1) initial contingent employment; 2) worker characteristics; 3) clinical characteristics; 4) receipt of evidence-based supported employment services; and 5) geographic region. Absence of multicollinearity was confirmed by establishing that none of the model variables had zero-order inter-correlations of  $r \geq |.5|$ .

#### C. Results

Table 1 presents the characteristics of model variables by domain for the total group of workers and, separately, by contingent (31%, n=311) versus permanent (69%, n=707) initial employment status. The average age of all workers was 38 years, but those whose first job after study entry was temporary were slightly older than those whose first job was permanent (39 versus 37 years,  $p=.009$ ). Study participants were 52% male, 51% racial/ethnic minority, 31% had less than a high school education, 39% had some college or more education, and 76% had recent employment experience; these characteristics did not differ by initial contingent employment status. Study participants held an average of 2.5 jobs per worker during the 24-month observation period, and this also did not differ by initial contingent job status. The majority of all workers (69%) were SSI and/or SSDI beneficiaries, and the representation of SSI/DI beneficiaries was higher among workers with initial contingent employment than among those with initial permanent jobs (74% versus 67%,  $p=.024$ ). DSM-IV diagnosis was not associated with initial contingent work; 47% of workers had a schizophrenia spectrum diagnosis, 16% a bipolar disorder diagnosis, and 29% a substance abuse or dependence diagnosis. While 70% of the total group received evidence-based supported employment services, only 60% of those whose first job was temporary did so, compared to 74% of those with initial permanent jobs ( $p<.001$ ). The likelihood that participants' first job would be contingent differed significantly by geographic region, with initial temporary employment being more common in the Southeast, the region with the highest unemployment rate, and less common in the Southwest, a region with a low unemployment rate ( $p<.001$ ).

There were significant univariate differences in labor force outcomes associated with initial contingent employment. Close to half of those whose first job was temporary worked again in contingent employment, which was twice the proportion of those whose first job was permanent (41% versus 20%,  $p < .001$ ). There was a less notable difference in the proportion who went on to any permanent competitive work, which was 29% of initial contingent employees and 35% of initial permanent employees ( $p = .058$ ). However, there was a sizeable difference in total earnings over 24 months, with an average of \$4,037 for those who started in temporary jobs compared to \$5,471 among those who started in permanent jobs ( $p = .006$ ). Over 24 months, initial contingent job holders earned an average of \$177 per month and initial permanent job holders earned an average of \$239 per month ( $p < .001$ ). Workers who started in contingent jobs had a higher mean number of subsequent temporary jobs (.7 versus .3,  $p < .001$ ), and a higher proportion of subsequent temporary jobs compared to those who started in permanent positions (45% versus 19%,  $p < .001$ ). Across the 24-month study period, average hourly wage was lower for those whose first job was temporary than for those who started in a permanent job (\$5.72 versus \$6.07 per hour,  $p = .039$ ), even though both groups averaged above the minimum wage which was \$4.75/hour starting October 1, 1996 and rose to \$5.15/hour starting September 1, 1997 (U.S. Department of Labor, 2014). Finally, across the 24-months, weekly hours worked were lower for those who started in temporary work than those who started in permanent jobs (17 hours per week versus 20 hours,  $p < .001$ ).

Contingent and permanent initial jobs also differed significantly in terms of mean hourly wage (\$5.53 versus \$5.90,  $p = .036$ ) and mean hours worked per week (16 versus 20,  $p < .001$ ). Interestingly, the length of initial jobs did not differ significantly between those who started in temporary versus permanent positions, with an average job tenure of almost 5 months for both ( $p = .719$ ). Almost half of first jobs were in the service industry (44%), and service industry jobs were less often contingent than permanent (38% versus 46%,  $p = .018$ ). The next largest category of first jobs (27%) were clerical/sales, with no difference in contingent status. The third largest group of jobs (10%) were in construction, benchwork, agricultural or machine trades, which were more often seen in contingent than permanent first jobs (13% versus 8%,  $p = .030$ ).

Table 2a presents the results of a stepped logistic regression model predicting the likelihood of working in contingent employment subsequent to the first job. In the first step, initial contingent employment compared to initial permanent employment was associated with a three-fold greater likelihood of subsequent contingent work ( $p < .001$ ). This association remained significant when worker characteristics were added in step 2, while most of these characteristics were not significant. The two exceptions were SSI/DI beneficiary status and total number of jobs held over the 24-month observation period. The greater the number of jobs held during study participation the greater the likelihood of subsequent contingent employment. In addition, SSI/DI beneficiaries were more likely to hold subsequent contingent jobs than were non-beneficiaries. These relationships did not change when clinical characteristics were entered in step 3, and none of the DSM-IV diagnoses entered in that step were significant. In step 4, receipt of supported employment services was associated with a significantly lower likelihood of subsequent temporary employment. In step 5 adding geographic region, participants in the Southwest region of the country were half as likely to hold subsequent contingent employment as those living in the Southeast. In addition, SSI/DI beneficiary status and receipt of supported employment became non-significant. Thus, in the model's final step, those with initial contingent employment were almost 3 times as likely to hold subsequent contingent employment as those whose initial

jobs had been permanent. In addition, those who held a greater number of jobs were also more than twice as likely to hold contingent employment despite the effects of variables in all other domains.

Table 2b presents the same stepped analysis predicting any subsequent employment in a competitive job over the 24-month study period. In step 1, initial contingent work was not significant but in all other steps it was significantly associated with a lower likelihood of subsequent competitive employment. In step 2 and all following steps, older age was negatively associated with competitive work, while number of jobs was positively associated with this outcome. Also in step 2, SSI/DI beneficiary status was associated with a lesser likelihood of obtaining competitive work, but this relationship became non-significant in step 3 with the addition of clinical characteristics, and remained non-significant in all later steps. Receipt of evidence-based supported employment was significantly and positively associated with achieving competitive employment in step 4, even after adjusting for geographic region (which was non-significant) in the final step of the model.

Table 2c presents the results of a multivariable linear regression model predicting participants' total earnings over the 24-month study period with the same stepped entry of variables by domain. Throughout all steps, compared to those whose initial jobs were permanent, those with initial contingent employment earned significantly less, with coefficients of over -1300 ( $p < .05$ ) at each step, representing an estimated \$1,300 less in total earnings. Significant predictors of higher earnings also included older age, higher education (some college or more), recent work experience, greater number of jobs held, and residence in the Mid-Atlantic region compared to the Southwestern United States. Finally, SSI/DI beneficiary status was significantly associated with lower total earnings, controlling for all other model variables.

Figures 1 through 3 show the same three labor force outcomes, unadjusted over time, comparing those whose first job was contingent to those whose first job was permanent. In Figure 1, the proportion of participants holding temporary jobs was consistently higher among those who started in temporary work, although the difference decreased over time. In Figure 2, permanent competitive job placements increased for all study participants over time, but again, the proportion was consistently higher for those who started in permanent jobs. Similarly in Figure 3, average monthly earnings increased over time for all participants, but to a lesser extent for those who started in contingent jobs.

Table 3 presents the results of three confirmatory longitudinal random effects regression models predicting subsequent contingent employment over time, subsequent competitive employment over time, and monthly earnings over the 2-year study period. The variables in each step were identical to those tested in the cross-sectional model, with the addition of a time variable that modeled months 1 through 24. For the first model predicting subsequent contingent employment, having a first job that was temporary was associated with over six times the likelihood of subsequently working in contingent employment ( $OR = 6.51$ ,  $p < .001$ ). In addition, being older was associated with a lesser likelihood of temporary work, and holding a larger number of jobs was associated with a greater likelihood of temporary work. In the next model, initial contingent employment was significantly associated with a lesser likelihood of competitive work over time ( $OR = 0.23$ ,  $p < .001$ ), as was SSI/DI beneficiary status ( $0.76$ ,  $p < .001$ ). In addition, holding more jobs and receiving supported employment services were both



associated with greater likelihood of subsequent competitive employment (1.20,  $p < .001$  and 1.91,  $p < .001$  respectively), as were being in the Northeast and Mid-Atlantic regions compared to the Southeast. In the final model predicting monthly earnings, initial contingent employment was significantly associated with lower monthly earnings over time (coefficient  $-\$56.75$ ,  $p < .01$ ), as was SSI/DI beneficiary status, diagnosis of schizophrenia spectrum disorder, and diagnosis with substance use/abuse disorders. On the other hand, older age, completing some college or more education, and holding a greater number of jobs were significantly associated with higher monthly earnings, as was residence in the Mid-Atlantic region compared to the Southeast.

#### D. Discussion

The purpose of our analysis was to examine correlates of temporary employment and its impact on subsequent labor force participation outcomes of individuals with psychiatric disabilities who were voluntarily participating in a study of supported employment. Our first hypothesis, that the likelihood of contingent employment would be influenced by workers' demographic and other human capital features, received mixed support. In our cross-sectional and longitudinal models, gender, race/ethnicity, education, and recent work history were not significant predictors of contingent work. The only individual characteristic that was significant in both cross-sectional and longitudinal models was the number of jobs held during the 24-month observation period. Here, holding multiple jobs was significantly associated with a greater likelihood of contingent employment. This confirms the findings of prior research showing a link between temporary work and unstable employment careers characterized by job churning (Giesecke & Gross, 2003; Polivka, 1996). Another worker characteristic related to contingent employment was age. In the longitudinal analysis, older workers were less likely to hold contingent employment over time, even controlling for the effects of initial contingent work and all other model variables. This age finding mirrors that found in the general population of U.S. contingent workers (BLS, 2005a). As a type of human capital, worker age (acting as a proxy for work experience) may protect employees from holding contingent employment, as has been found in other studies (Giesecke & Gross, 2003). Interestingly, older workers also had higher earnings in both our cross-sectional and longitudinal models, supporting the argument that age acts as a "protective" factor.

Study findings strongly supported our second hypothesis, that initial contingent employment would be associated with subsequent temporary work. In the cross-sectional model adjusting for worker characteristics, clinical characteristics, receipt of supported employment, and geographic region, those whose first job in the EIDP was contingent were almost 3 times as likely to hold a temporary job again in the study. This effect was even stronger in longitudinal models examining monthly contingent employment status, supporting the view of contingent work as "chains of temporary jobs" that may be associated with deteriorating labor market opportunities for workers (Giesecke & Gross, 2003). In our description of initial job features, contingent jobs were less desirable than permanent jobs in that they paid less and offered fewer work hours. These findings support Autor & Houseman's argument (2010) that temporary placements reduce subsequent job stability by leading to more temporary positions at the expense of opportunities to acquire new work skills, or obtain permanent employment.

Cross-sectional and longitudinal models confirmed our third hypothesis that initial contingent work would have a negative effect on subsequent labor force outcomes. The intended

outcome of supported employment services is competitive employment, and in our analyses, we found that this service was indeed associated with a greater likelihood of obtaining competitive work. However, even controlling for receipt of evidence-based supported employment services, participants whose first job was temporary were about half as likely to work in competitive employment in subsequent positions. This finding suggests that vocational service providers and disability policy makers should look cautiously at service delivery models that rely heavily on contingent job placements for people with psychiatric disabilities who are attempting to return to jobs in the competitive labor market.

Also confirming the third hypothesis was our finding that initial contingent work was associated with lower total earnings in our cross-sectional model, and lower monthly earnings in our longitudinal analysis. This provides further support for the argument that temporary employment is not a viable alternative to permanent employment for enhancing workers' earning power. As others have found (Autor & Houseman, 2010; Benner et al., 2007; Lane et al., 2003), compared to non-contingent work, temporary jobs do not appear to improve subsequent earnings and may even diminish them over time.

In both cross-sectional and longitudinal analyses, individuals with schizophrenia and those with substance use disorders had lower earnings than those without these diagnoses. This may be due to the higher levels of functional impairment accompanying these specific disorders (Goff et al., 2011; Motzkin et al., 2014), acting as a brake on workers' earning power. In the longitudinal analysis, status as an SSI/DI beneficiary was related to lower earnings as well as lesser likelihood of achieving subsequent competitive employment. A possible explanation is that these beneficiaries are limiting their earnings to maintain SSI/DI eligibility and avoid decreasing the size of their monthly cash benefit amount, as others have found (Averett et al., 1999; Cook, 2006; MacDonald-Wilson et al., 2002; Schimmel et al., 2011). Another possible explanation is that beneficiaries are more likely to have higher degrees of functional impairment than non-beneficiaries (Strand & Rupp, 2007), which could negatively impact their earning power. A third possibility is that higher paying jobs and those in the competitive labor market may be a poor match for the needs and stamina of those workers whose higher level of disability qualifies them for SSI/DI beneficiary status (Baron & Salzer, 2002).

A number of caveats should be mentioned in regard to our study findings. First, we did not examine a nationally representative sample of adults with psychiatric disabilities and thus our results cannot necessarily be generalized to this group. Second, the study population consisted of paid volunteer subjects who were interested in working, which may not be representative of the broader population of individuals with psychiatric disabilities. Third, we were not able to examine the extent to which some individuals may have been channeled into temporary work due to job discrimination. Fourth, it is possible that unmeasured, underlying demographic characteristics of the study sample may be contributing to the effect of region that we found, and our data do not allow us to explore this possibility. Fifth, the extent to which study participants' pre-study work histories included contingent work may be influencing the study's results, but unfortunately, our data do not allow us to evaluate this possibility.

In the first decades of the twenty-first century, the rapid growth of temporary employment in its many manifestations has been well-documented by studies using U.S. federal employment and wage data (BLS, 2005a; Luo et al., 2010). As this sector of the labor force continues to

expand, so does the likelihood that individuals with disabilities in publicly-funded return-to-work programs will consider or be urged to consider employment in these types of positions. Our research findings, along with those of other scholars, suggest that the combination of initial temporary work and associated frequent job changing may act as a “trap” for workers, by making it harder for them to secure permanent employment down the line (Giesecke & Gross, 2003, p. 170). While the therapeutic and financial importance of employment for people with psychiatric disabilities is well-established (Bond et al., 2001; Evans & Repper, 2000; Polak and Warner, 1996), the merits of contingent work as a tool in return-to-work programs for this population are debatable. Our analysis suggests that contingent work may be a generally undesirable outcome for this group, resulting in less competitive work and lower earnings, along with job instability and continuing economic vulnerability (Stapleton et al., 2006).

This page has been left blank for double-sided copying.

REFERENCES

---

- American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders* (4th ed., text rev.). Washington, DC: Author.
- Autor, D.H., & Houseman, S.N. (2010). Do temporary-help jobs improve labor-market outcomes for low-skilled workers? Evidence from "Work First." *American Economic Journal: Applied Economics*, 2, 96-128.
- Averett, S., Warner, R., Little, J., & Huxley, P., (1999). Labor supply, disability benefits and mental illness. *Eastern Economic Journal*, 25(3), 279-288.
- Baron, R.C., & Salzer, M.S. (2002). Accounting for unemployment among people with mental illness. *Behavioral Sciences & the Law*, 20(6), 585-599.
- Bartik, Timothy J. (1997). Short-term employment persistence for welfare recipients: The 'effects' of wages, industry, occupation and firm size. Upjohn Institute Working Paper No. 97-46. Kalamazoo, MI: W.E. Upjohn Institute for Employment Research.
- Benner, C., Leete, L., & Pastor, M. (2007). *Staircases or treadmills? Labor market intermediaries and economic opportunity in a changing economy*. New York, NY: Russell Sage Foundation.
- Bond, G.R., Resnick, S.G., Drake, R.E., Xie, H., McHugo, G.J., & Bebout, R.R. (2001). Does competitive employment improve nonvocational outcomes for people with severe mental illness? *Journal of Consulting and Clinical Psychology*, 69(3), 489-501.
- Booth, A.L., Francesconi, M., & Frank, J. (2002). Temporary jobs: Stepping stones or dead ends? *The Economic Journal*, 112(480), F189–F213.
- Bureau of Labor Statistics, U.S. Department of Labor. (2005a). Contingent and alternative employment arrangements, February 2005. News USDL 05-1433, at <http://www.bls.gov/news.release/pdf/conemp.pdf>
- Bureau of Labor Statistics, U.S. Department of Labor. (2005b). The Editor's Desk, Earnings and educational attainment: second quarter of 2005, at <http://www.bls.gov/opub/ted/2005/jul/wk3/art04.htm>
- Burke-Miller, J.K., Cook, J.A., Grey, D.G., Razzano, L.A., Blyler, C.R., Leff, H.S., Gold, P.B., Goldberg, R.W., Mueser, K.T., Cook, W.L., Hoppe, S.K., Stewart, M., Blankertz, L., Dudek, K., Taylor, A.L., & Carey, M.A. (2006). Demographic characteristics and employment among people with severe mental illness in a multisite study. *Community Mental Health Journal*, 42(2), 143-159.
- Carré, F.J. (Ed.) (2000). *Nonstandard work: the nature and challenges of changing employment arrangements*. Ithaca, NY: Cornell University Press.

- Cook, J.A. (2006). Employment barriers for persons with psychiatric disabilities: Update of a report for the President's Commission. *Psychiatric Services*, 57(10), 1391-1405.
- Cook, J.A., & Burke, J. (2002). Public policy and employment of people with disabilities: Exploring new paradigms. *Journal of Behavioral Science & the Law*, 20; 541-557.
- Cook, J.A., Blyler, C.R., Burke-Miller, J.K., Macfarlane, W.R., Leff, H.S., Mueser, K.T., Gold, P.B., Goldberg, R.W., Shafer, M.S., Onken, S.J., Donegan, K., Carey, M.A., Razzano, L.A., Grey, D.D., Pickett-Schenk, S.A., & Kaufmann, C. (2008). Effectiveness of supported employment for individuals with schizophrenia: Results of a multi-site, randomized trial. *Clinical Schizophrenia & Related Psychoses*, 2(1), 37-46.
- Cook, J.A., Carey, M.A., Razzano, L.A., Burke, J., & Blyler, C. (2002). The pioneer: The Employment Intervention Demonstration Program. *New Directions for Evaluation*, 94; 31-44
- Cook, J.A., Leff, H.S., Blyler, C.R., Gold, P.B., Goldberg, R. W., Mueser, K.T., Toprac, M.G., McFarlane, W.R., Shafer, M.S., Blankertz, L.E., Dudek, K., Razzano, L.A., Grey, D.D., & Burke-Miller, J. (2005a). Results of a multisite randomized trial of supported employment interventions for individuals with severe mental illness. *Archives of General Psychiatry*, 62, 505-512.
- Cook, J.A., Lehman, A.F., Drake, R.E., McFarlane, W.R., Gold, P.B., Leff, H.S., Blyler, C.R., Toprac, M.G., Razzano, L.A., Burke-Miller, J.K., Blankertz, L.E., Shafer, M.S., Pickett-Schenk, S.A., & Grey, D. D. (2005b). Integration of psychiatric and vocational Services: A multi-site randomized, controlled trial of supported employment. *American Journal of Psychiatry*, 162(10), 1948-1956.
- Córdova, E. (1986). From full-time employment to atypical employment: A major shift in the evolution of labour relations. *International Labor Review*, 125(6), 641-657.
- Employment Intervention Demonstration Program (2001). Common protocol and documentation. Chicago, IL: Author. <http://www.psych.uic.edu/eidp/eidpdocs.htm>
- Evans, J., & Repper, J. (2000). Employment, social inclusion, and mental health. *Journal of Psychiatric and Mental Health Nursing*, 7(1), 15-24.
- First, M.B., Spitzer, R.L., Gibbon, M., & Williams, J.B.W. (1995). Structured Clinical Interview for DSM-IV: Patient Edition (SCID-P), Version 2. New York, New York State Psychiatric Institute, Division of Biometrics Research.
- Giesecke, J., & Gross, M. (2003). Temporary employment: Chance or risk? *European Sociological Review*, 19(2), 161-177.
- Goff, D.C., Hill, M., & Barch, D. (2011). The treatment of cognitive impairment in schizophrenia. *Pharmacology Biochemistry and Behavior*, 99(2), 245-253.

- Heinrich, C.J., Mueser, P.R., & Troske, K.R. (2005). Welfare to temporary work: Implications for labor market outcomes. *Review of Economics and Statistics*, 87(1), 154-173.
- Heinrich, C.J., Mueser, P.R., & Troske, K.R. (2007). The role of temporary help employment in low-wage worker advancement. National Bureau of Economic Research Working Paper #13520.
- Houseman, S.N., & Polivka, A.E. (2000). The implications of flexible staffing arrangements for job instability. In D. Neumark (ed.), *On the job: Is long-term employment a thing of the past?* New York, NY: Russell Sage Foundation.
- Kalleberg, A.L. (2000). Nonstandard employment relations: Part-time, temporary and contract work. *Annual Review of Sociology*, 26, 341-365.
- Lane, J., Mikelson, K.S., Sharkey, P., & Wissoker, D. (2003). Pathways to work for low-income workers: The effect of work in the temporary help industry. *Journal of Policy Analysis and Management*, 22(4), 581–598.
- Leff, S, Cook, J.A., Blyler, C., et al. (2005). Effects of job development and job support on competitive employment of persons with severe mental illness. *Psychiatric Services*, 56(10), 1237-1244.
- Luo, T., Mann, A., & Holden, R. (2010). The expanding role of temporary help services from 1990 through 2008. *Monthly Labor Review*, 133(8), 3-16.
- MacDonald-Wilson, K.L., Rogers, E.S. et al. (2003). A study of the Social Security work incentives and their relation to perceived barriers to work among persons with psychiatric disability. *Rehabilitation Psychology*, 48, 301– 309.
- Morris, M.D., & Vekker, A. (2001). An alternative look at temporary workers, their choices, and the growth in temporary employment. *Journal of Labor Research*, 22(2), 373-390.
- Motzkin, J. C., Baskin-Sommers, A., Newman, J. P., Kiehl, K. A., & Koenigs, M. (2014), Neural correlates of substance abuse: Reduced functional connectivity between areas underlying reward and cognitive control. *Human Brain Mapping*, 35, 4282–4292.
- Nollen, S. (1996). Negative aspects of temporary employment. *Journal of Labor Research*, 17(4), 562-582.
- Personal Responsibility and Work Opportunity Reconciliation Act of 1996 (PRWORA), Pub. L. No. 104-193, 110 Stat. 2105, enacted 1996-08-22.
- Polak, P., & Warner, R. (1996). The economic life of seriously mentally ill people in the community. *Psychiatric Services*, 47(3), 270-274.
- Polivka, A.E. (1996). Contingent and alternative work arrangements, defined. *Monthly Labor Review*, 119(10), 3-9.

- Polivka, A.E., & Nardonne, T. (1989). On the definition of 'contingent work.' *Monthly Labor Review*, 112(12), 9-16.
- Razzano, L.A., Cook, J.A., Burke-Miller, J.K., Mueser, K.T., Pickett-Schenk, S.A., Grey, D.D., Goldberg, R.W., Blyler, C.R., Gold, P.B., Leff, H.S., Lehman, A.F., Shafer, M.S., Blankertz, L.E., McFarlane, W.R., Toprac, M.G., & Carey, M.A. (2005). Clinical factors associated with employment among people with severe mental illness: Findings from the Employment Intervention Demonstration Program. *Journal of Nervous and Mental Disease*, 193, 705-713.
- Rehabilitation Act Amendments (1992). Public Law 102-569: Supported Employment Definitions. Retrieved from <http://www.gpo.gov/fdsys/granule/USCODE-2011-title29/USCODE-2011-title29-chap16-subchapV-sec790>.
- Schimmel, J., Stapleton, D.C., & Song, J.G. (2011). How common is 'parking' among Social Security Disability Insurance beneficiaries? Evidence from the 1999 change in the earnings level of substantial gainful activity. *Social Security Bulletin*, vol. 71, no. 4, 2011, pp. 77–92.
- Stapleton, D.C., O'Day, B.L., Livermore, G.A., & Imparato, A.J. (2006). Dismantling the poverty trap: disability policy for the twenty-first century. *Milbank Quarterly*, 84(4), 701-732.
- Strand, A., & Rupp, K. (2007). Disabled workers and the indexing of Social Security benefits. *Social Security Bulletin*, 67(4), 21-50.
- United States Department of Labor, United States Employment Service, and the North Carolina Occupational Analysis Field Center. (1991). *Dictionary of Occupational Titles (DOT) Revised Fourth Edition, 1991*. Washington, DC: United States Department of Labor, United States Employment Service, and Raleigh, NC: North Carolina Occupational Analysis Field Center [producer], 1991. Ann Arbor, MI: Inter-university Consortium for Political and Social Research [distributor], 1994. doi:10.3886/ICPSR06100.v1.
- United States Department of Labor, Wage and Hour Division (2014). *History of Federal Minimum Wage Rates Under the Fair Labor Standards Act, 1938 – 2009*. Retrieved from <http://www.dol.gov/whd/minwage/chart.htm>.



Table 1. Model variables and labor force outcomes associated with initial contingent versus non-contingent employment among workers with psychiatric disabilities (N=1,018)

		All workers (N=1,018)	Workers with temporary 1 <sup>st</sup> job (N=311)	Workers with permanent 1 <sup>st</sup> job (N=707)	p-value <sup>1</sup>
Step 1	Contingent Employment First job temporary	31%	--	--	--
	Worker Characteristics				
	Age in years, mean (s.d.)	38 (9)	39 (10)	37 (9)	.009
	Male	52%	54%	50%	.225
	Race/ethnic minority	51%	54%	50%	.250
Step 2	Less than high school education	31%	34%	30%	.204
	Some college or more	39%	38%	39%	.781
	Prior 5 years work experience	76%	73%	77%	.279
	Number of jobs in EIDP, mean (s.d.)	2.5 (1.8)	2.6 (1.9)	2.4 (1.8)	.135
	SSI/SSDI beneficiary at baseline	69%	74%	67%	.024
	Clinical Characteristics				
Step 3	Schizophrenia spectrum disorder	47%	50%	45%	.127
	Bipolar disorder	16%	15%	17%	.345
	Substance abuse/dependence	29%	29%	29%	.795
Step 4	Service Utilization Received supported employment	70%	60%	74%	<.001
	Region				
Step 5	Northeast	31%	29%	32%	.294
	Mid-Atlantic	24%	25%	23%	.363
	Southwest	34%	25%	38%	<.001
	Southeast	11%	20%	7%	<.001
	Labor Force Outcomes				
Outcomes	Any subsequent temporary employment	26%	41%	20%	<.001
	Any subsequent permanent competitive job	33%	29%	35%	.058
	Total dollars earned in 24 months, mean (s.d.)	5,033 (7,751)	4,037 (5,256)	5,471 (8,590)	.006
	Mean dollars earned per month (s.d.)	\$220 (412)	\$177 (328)	\$239 (443)	<.001
	Other Employment Features				
Other	# of subsequent temporary jobs (including 0)	.42 (.89)	.71 (1.16)	.29 (.71)	<.001
24 Month Work	% subsequent jobs that were temporary	28%	45%	19%	<.001
Features	Hourly wage across all jobs, mean (s.d.)	5.96 (2.46)	5.72 (2.30)	6.07 (2.51)	.039
	Weekly work hours across all jobs, mean (s.d.)	19 (11)	17 (10)	20 (11)	<.001

TABLE 1 (continued)

	All workers (N=1,018)	Workers with temporary 1 <sup>st</sup> job (N=311)	Workers with permanent 1 <sup>st</sup> job (N=707)	p-value <sup>1</sup>
Hourly wage, mean (s.d)	\$5.79 (2.60)	\$5.53 (2.50)	\$5.90 (2.64)	.036
Hours worked, mean (s.d.)	18 (12)	16 (12)	20 (12)	<.001
Job tenure in months, mean (s.d.)	4.9 (6.5)	4.8 (6.5)	4.9 (6.5)	.719
Service industry	44%	38%	46%	.018
Clerical/Sales industry	27%	30%	26%	.193
Construction/Benchwork/Agri/Machine Trade	10%	13%	8%	.030

Employment Intervention Demonstration Program: 1996-2001, s.d. = standard deviation,

<sup>1</sup>Significance (p-value) refers to chi-square associations for discrete variables and to analysis of variance (ANOVA) for continuous variables.

Table 2a. Cross sectional analysis of the likelihood of any subsequent contingent (temporary) employment following initial contingent versus non-contingent employment among workers with psychiatric disabilities (N=1,018)

		Multivariable logistic regression odds ratio, p-value				
		Step1	Step2	Step3	Step4	Step5
Step 1	Contingent Employment					
	First Job Temporary	3.04***	3.46***	3.44***	3.20***	2.88***
	Worker Characteristics					
	Age (5 year increments)		1.00	1.00	1.01	1.01
	Male		1.10	1.08	1.13	1.19
	Race/ethnic minority		.96	.93	.89	.73
Step 2	Less than high school education		1.29	1.29	1.27	1.26
	Some college or more		.98	1.00	.98	1.02
	Prior 5 years work experience		1.13	1.16	1.15	1.04
	Number of jobs in EIDP		2.04***	2.05***	2.10***	2.14***
	SSI/SSDI beneficiary		1.86**	1.76**	1.68*	1.51
	Clinical Characteristics					
Step 3	Schizophrenia spectrum disorder			1.15	1.20	1.36
	Bipolar disorder			.85	.83	.84
	Substance abuse/dependence			.92	.94	.99
	Service Utilization					
Step 4	Received supported employment				.62*	.75
	Region					
	Northeast					.54
Step 5	Mid-Atlantic					1.22
	Southwest					.41**
	Southeast					ref

Employment Intervention Demonstration Program: 1996-2001

\*\*\*p<.001, \*\*p<.01, \*p<.05

Table 2b. Cross sectional analysis of likelihood of any subsequent permanent (non-contingent) competitive employment following initial contingent versus non-contingent employment among all workers with psychiatric disabilities (N=1,018)

		Multivariable logistic regression odds ratio, p-value				
		Step1	Step2	Step3	Step4	Step5
Step 1	Contingent Employment					
	First Job Temporary	.79	.42***	.43***	.51**	.56*
	Worker Characteristics					
	Age (5 year increments)		.81***	.81***	.79***	.79***
	Male		1.06	1.02	.95	.92
	Race/ethnic minority		.97	.96	1.05	1.21
Step 2	Less than high school education		.83	.82	.81	.82
	Some college or more		.91	.92	.95	.92
	Prior 5 years work experience		.92	.92	.96	1.03
	Number of jobs in EIDP		3.80***	3.81***	3.83***	3.83***
	SSI/SSDI beneficiary		.65*	.66+	.72	.82
	Clinical Characteristics					
Step 3	Schizophrenia spectrum disorder			.99	.88	.80
	Bipolar disorder			.93	.98	1.00
	Substance abuse/dependence			1.19	1.15	1.15
	Service Utilization					
Step 4	Received supported employment				2.88***	2.49***
	Region					
	Northeast					1.36
Step 5	Mid-Atlantic					.69
	Southwest					1.79
	Southeast					ref

Employment Intervention Demonstration Program: 1996-2001

\*\*\*p<.001, \*\*p<.01, \*p<.05

Table 2c. Cross sectional analysis of total earnings during 24-month period following contingent versus non-contingent employment among all workers with psychiatric disabilities (N=1,018)

		Multivariable linear regression coefficient, p-value				
		Step1	Step2	Step3	Step4	Step5
Step 1	Contingent Employment					
	First Job Temporary	-1345*	-1325*	-1335*	-1360*	-1378*
Worker Characteristics						
	Age (5 year increments)		361**	341*	345*	291*
	Male		-1055*	-304	-294	-445
	Race/ethnic minority		-85	223	209	-299
Step 2	Less than high school education		-372	-188	-190	-67
	Some college or more		1742**	1553*	1546*	1499*
	Prior 5 years work experience		2378***	2062***	2060***	1296*
	Number of jobs in EIDP		680***	642***	648***	732***
	SSI/SSDI beneficiary		-2271***	-1731**	-1748**	-2102***
Clinical Characteristics						
Step 3	Schizophrenia spectrum disorder			-1805**	-1792**	-1386*
	Bipolar disorder			1096	1094	1000
	Substance abuse/dependence			-1691**	-1684**	-1456**
Service Utilization						
Step 4	Received supported employment				-169	-22
Region						
	Northeast					288
Step 5	Mid-Atlantic					4100***
	Southwest					504
	Southeast					ref

Employment Intervention Demonstration Program: 1996-2001

\*\*\*p<.001, \*\*p<.01, \*p<.05

Figure 1. Contingent employment over 24 months following initial contingent versus non-contingent employment among all workers with psychiatric disabilities (N=1,018).

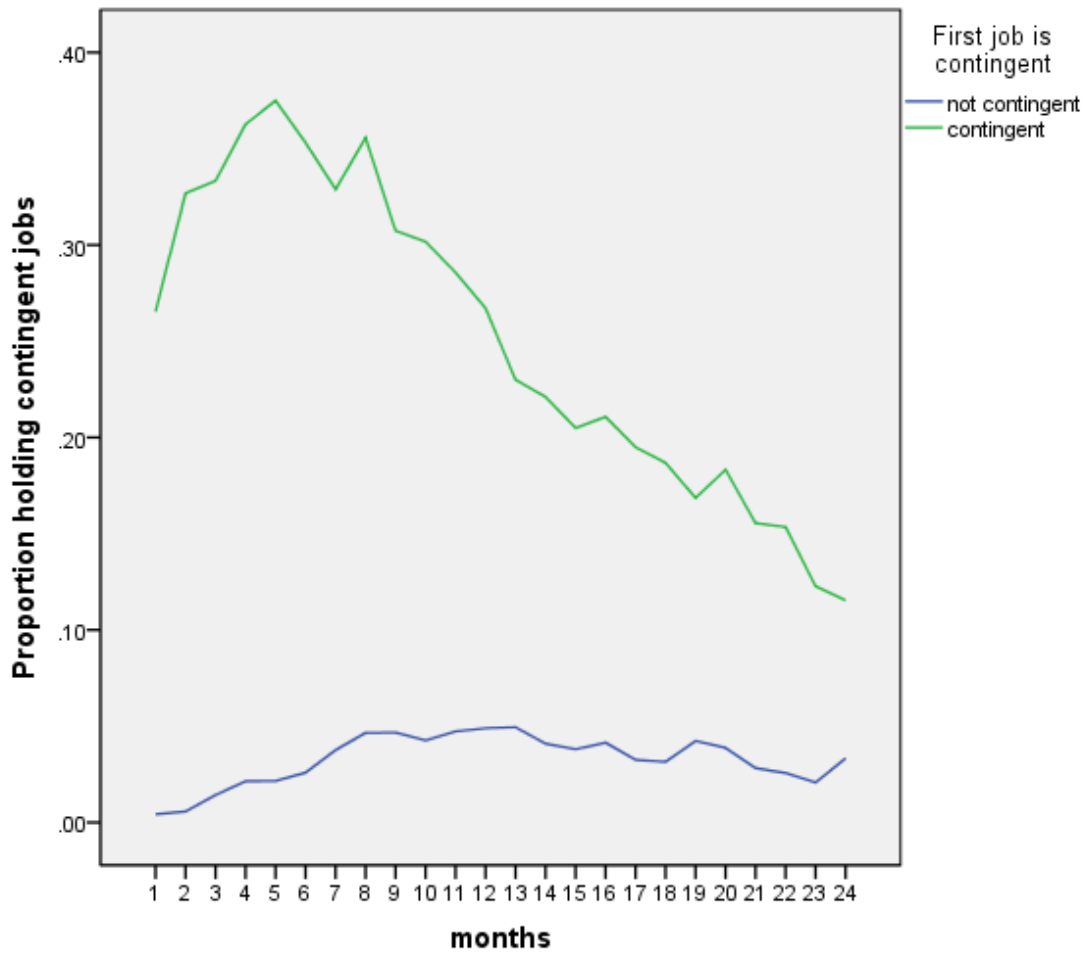


Figure 2. Permanent competitive employment over 24 months following contingent versus non-contingent employment among all workers with psychiatric disabilities (N=1,018).

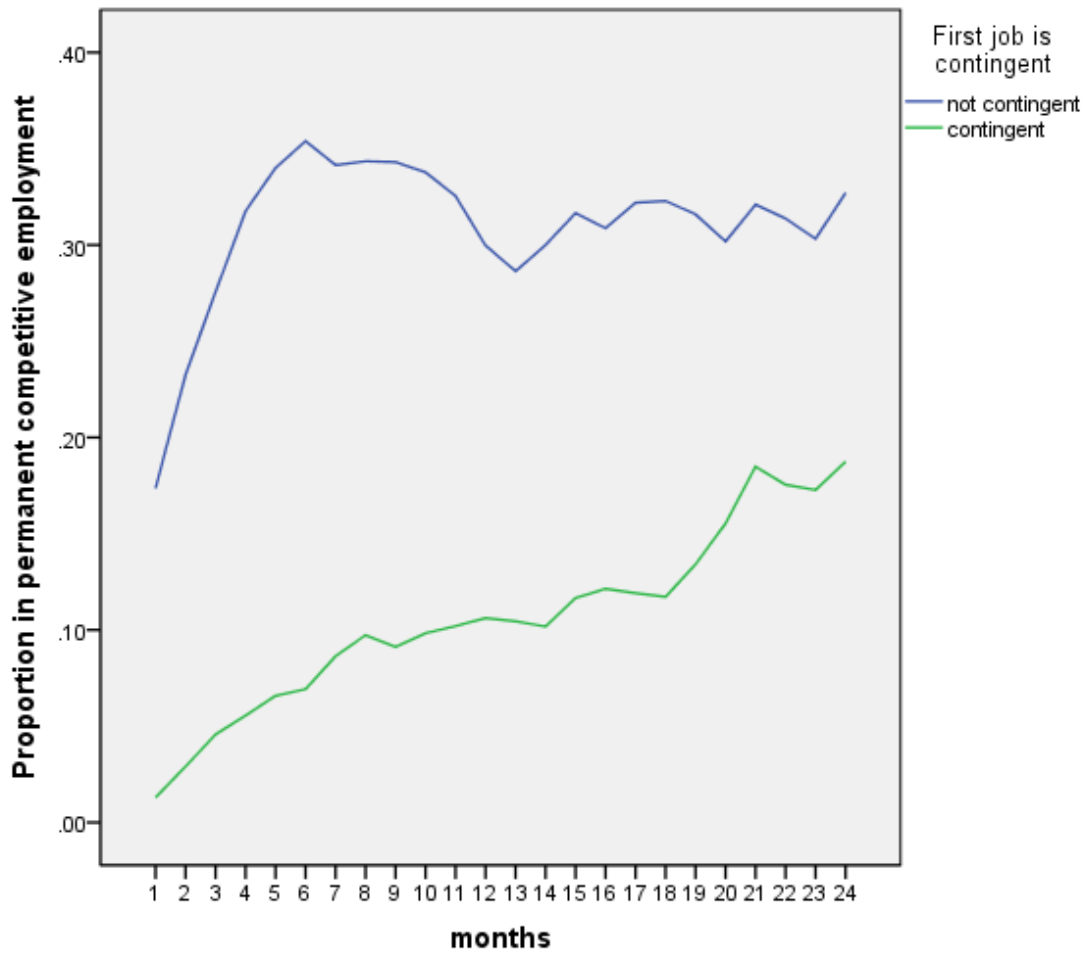


Figure 3. Average monthly earnings over 24 months following contingent versus non-contingent employment among all workers with psychiatric disabilities (N=1,018).

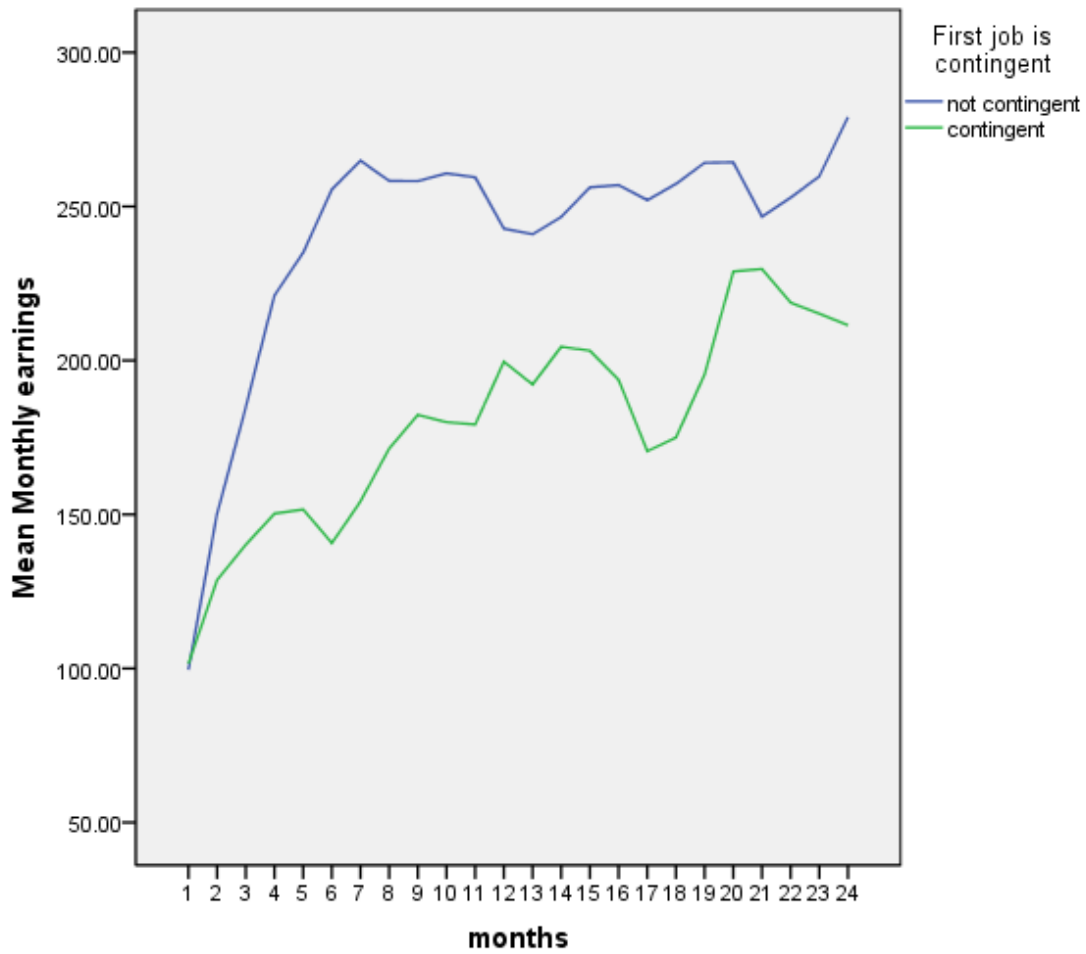




Table 3. Longitudinal analysis of employment outcomes following initial contingent versus non-contingent employment among all workers with psychiatric disabilities (N=1,018): subsequent contingent employment; permanent competitive employment; and earnings per month. Results of random regression models.

	Multivariable logistic random regression odds ratio, p-value		Multivariable linear random regression coefficient, p-value Earnings, \$
	Contingent employment	Permanent competitive employment	
Time (months 1-24)	.99**	1.02***	4.74***
<b>Contingent Employment</b>			
First Job Temporary	6.51***	.23***	-56.75**
<b>Worker Characteristics</b>			
Age (5 year increments)	.95*	1.06	11.94*
Male	1.01	.94	-8.05
Race/ethnic minority	1.01	.91	-11.03
Less than high school education	1.04	.96	-9.02
Some college or more	.97	1.10	51.86*
Prior 5 years work experience	1.08	1.32	67.77**
Number of jobs in EIDP	1.26***	1.20***	25.36***
SSI/SSDI beneficiary	.91	.76***	-58.33***
<b>Clinical Characteristics</b>			
Schizophrenia spectrum disorder	1.24	.85	-90.05***
Substance abuse/dependence	.90	1.00	-52.52*
Bipolar disorder	1.16	1.21	29.05
<b>Service Utilization</b>			
Received supported employment	.90	1.91***	-10.20
<b>Region</b>			
Northeast	.73	1.92***	20.23
Mid-Atlantic	1.15	1.90**	213.16***
Southwest	.075	1.12	39.94
Southeast	ref	ref	ref

This page has been left blank for double-sided copying.

[www.mathematica-mpr.com](http://www.mathematica-mpr.com)

---

Improving public well-being by conducting high quality,  
objective research and surveys

---

PRINCETON, NJ ■ ANN ARBOR, MI ■ CAMBRIDGE, MA ■ CHICAGO, IL ■ OAKLAND, CA ■ WASHINGTON, DC

---

**MATHEMATICA**  
— CENTER FOR —  
**STUDYING DISABILITY POLICY**

---

Mathematica® is a registered trademark  
of Mathematica Policy Research, Inc.