Productive Addicts and Harm Reduction: How Work Reduces Crime – But Not Drug Use

Christopher Uggen, *University of Minnesota*

Sarah K. S. Shannon, *University of Georgia*

From the Works Progress Administration of the New Deal to the Job Corps of the Great Society era, employment programs have been advanced to fight poverty and social disorder. In today's context of stubborn unemployment and neoliberal policy change, supported work programs are once more on the policy agenda. This article asks whether work reduces crime and drug use among heavy substance users. And, if so, whether it is the income from the job that makes a difference, or something else. Using the nation's largest randomized job experiment, we first estimate the treatment effects of a basic work opportunity and then partition these effects into their economic and extra-economic components, using a logit decomposition technique generalized to event history analysis. We then interview young adults leaving drug treatment to learn whether and how they combine work with active substance use, elaborating the experiment's implications. Although supported employment fails to reduce cocaine or heroin use, we find clear experimental evidence that a basic work opportunity reduces predatory economic crime, consistent with classic criminological theory and contemporary models of harm reduction. The rate of robbery and burglary arrests fell by approximately 46 percent for the work treatment group relative to the control group, with income accounting for a significant share of the effect. Keywords: money; work; crime; drugs; harm.

With prison releases at historic levels, a host of reentry programs has arisen to better integrate former prisoners into the social and economic fabric (Visher and Travis 2003). At the same time, the nation has been slow to recover from a deep recession, with long-term unemployment reaching a six-decade high in 2010 (Allegretto and Lynch 2010). In light of these trends, voices on the left are calling for job creation programs of the sort advanced in the New Deal period of the 1930s and the Great Society era of the 1960s and 1970s (Harvey 2011; Malveaux 2009). Voices on the right, in contrast, are calling for mandatory work policies for parolees and men with unpaid child support obligations (Mead 2007). But calls for high-investment jobs programs are only beginning to gain traction in a political and policy moment favoring short-term job placement and disciplinary welfare sanctioning (Schram et al. 2009). While its terms and conditions are ardently contested, supported work remains a potentially important policy lever for addressing social problems such as crime and drug use. Rigorous experimental evaluations of such programs can thus provide vital policy lessons, as well as much-needed scientific evidence on the causal significance of work.

Because work programs typically operate under the "principle of less eligibility," in which benefits cannot exceed the level of the lowest available wage, their impact is likely stronger during recessions than during boom times. When the unemployment rate stood at 4 percent during the late-Clinton era, basic work was more readily available, even for those at the rear of the labor queue. When unemployment rates exceed 9 percent—as was the case during the mid-1970s and 1980s and from 2009 to 2011—programs providing minimum wage jobs have potentially greater impact, for they offer participants something they would otherwise have great difficulty obtaining

The authors wish to thank Eric Grodsky, Suzy McElrath, Jeylan Mortimer, Rochelle Schmidt, Kelly Shelton, and Melissa Thompson for their valuable support and feedback. Direct correspondence to: Christopher Uggen, University of Minnesota, 267 19th Avenue South #909, Minneapolis, MN 55455. E-mail: uggen001@umn.edu.

***Social Problems*, Vol. 61, Issue 1, pp. 105–130, ISSN 0037-7791, electronic ISSN 1533-8533.**
DOI: 10.1525/sp.2013.11225.

on their own. The well-designed, experimental evaluations of job programs during past recessions are thus meaningful and informative guides for science and policy, particularly when analyzed with the more sensitive methodologies developed in recent years. To effectively curb crime or drug use, a program must meaningfully improve participants' employment prospects.

Although such projects are today characterized as "failed" social programs, two models actually met with some success in reducing crime in the 1970s, one providing money, the other providing jobs. With regard to money, the Transitional Aid Research Project (TARP), implemented in 1976, offered unemployment benefits for up to six months for a random sample of prisoners released in Texas and Georgia. These payments provided modest financial support to ease the reentry transition. When compared with a control group that did not receive payments, the TARP treatment group had lower recidivism and secured better quality jobs. They took longer to get those jobs, however, prompting the conclusion that TARP created a "work disincentive" for those receiving benefits (Rossi, Berk, and Lenihan 1980).

With regard to jobs, the National Supported Work Demonstration program provided basic, transitional work opportunities to hard-to-employ populations, such as former drug users, in nine U.S. cities from 1975 to 1979. Participants were randomly assigned to control status or offered a basic supported job opportunity for up to 18 months. Because Supported Work was based on an experimental design with a job "treatment," these data have yielded important knowledge about the causal significance of work in explaining crime and substance use (Piliavin et al. 1986; Uggen 2000). Previous analyses of the Supported Work "ex-addict" sample revealed that the intervention failed to curb illicit drug use, but did decrease rates of arrest (Dickinson 1981; Dickinson and Maynard 1981). These initial analyses were understandably focused on treatment effects, however, and did not estimate the time-varying effects of program participation, income, or other factors.

More recently, a randomized experiment testing transitional supported work for ex-prisoners at New York's Center for Employment Opportunities (CEO) revealed increased employment in the short term and decreased recidivism in the long term, though little effect on securing unsubsidized long-term employment (Redcross et al. 2009). Although limited in some respects, the CEO evaluation demonstrated that former prisoners deemed high risk (based on age, gender, and prior arrests) gleaned the most benefit from participation in the program, including reduced probability of rearrest and reduced probability of conviction in the second year after random assignment (Zweig, Yahner, and Redcross 2010). In light of the minimal employment effects, the mechanism by which the program reduced recidivism is unclear. CEO *graduates* showed much lower recidivism (10 vs. 44 percent) than nongraduates (Bushway and Apel 2012), suggesting that program completion may serve as a "signal" to employers regarding the applicant's employment potential (Bushway and Apel 2012). While such evidence is poorly suited to establishing causality, the contemporary CEO example shows the enduring salience of jobs programs as a means to reduce recidivism and promote work, but also the challenges such programs face in producing the full range of desired effects.

Perhaps earlier programs are recalled as failures because they did not produce the broadly *transformative* effects envisioned by their most optimistic proponents (if not their architects) (Hollister, Kemper, and Maynard 1984). A jobs program can, of course, provide some quantity of work and money, both of which, we will demonstrate, play a larger part in reducing predatory economic crime than in reducing substance use. Yet a short-term minimum-wage job cannot magically catapult the desperately poor into an idealized state of sobriety and middle-class success. Such a transformational vision represents a moral aspiration rather than a theoretically derived blueprint for change, and, we argue, this moral focus can obscure the real *pragmatic* gains such programs effect in improving participants' lives and reducing crime and its attendant social harms.

Building on the initial evaluations, we here apply event history methods to experimental Supported Work data, estimating the effects of a basic job opportunity on crime and use of cocaine and heroin. Then, to assess the income mechanism identified in the Transitional Aid Research Project, we decompose the experiment's impact into direct and indirect effects. To do so, we generalize a logit decomposition technique (Buis 2010) to our discrete time event history framework.

This involves "swapping" the observed income distributions from the experimental and control groups to estimate the experiment's economic and extra-economic effects. To help interpret the quantitative results in a contemporary context and to better understand how substance use and employment are intertwined in individual lives, we then analyze interviews with 29 young adults leaving drug treatment programs in 2007. These interviews probe the limits of harm reduction strategies that meet drug users "where they're at" with regard to program eligibility and participation. Finally, we consider more contemporary survey data from the National Longitudinal Survey of Youth, testing the robustness of our Supported Work findings during an era that included more prevalent methamphetamine use as well as a structural transition from manufacturing to a service-based economy. This multimethod approach helps provide provisional answers to two fundamental questions: Does work reduce crime and drug use among heavy substance users? And, if so, is it the income from the job that makes a difference, or is it something else?

Why Jobs and Income Matter for Crime and Drug Use

Work, Money, and Crime

More than 91 percent of the serious "index" crimes reported each year in the U.S. Uniform Crime Reports involve some kind of financial remuneration (FBI 2010). Though some crimes bring meager returns (Gottfredson and Hirschi 1990; Katz 1988), criminal rewards can be modeled just as any other form of systematic economic behavior, with age, experience, social relationships, and internal labor markets shaping income patterns (Johnson, Natarajan, and Sanabria 1993; Levitt and Venkatesh 2000; Uggen and Thompson 2003; Venkatesh 2008; Wilson and Abrahamse 1992). Sociological and economic theories of crime generally suggest that work reduces illegal activity among adults. Rational choice and opportunity theories propose an economic mechanism, emphasizing financial returns and time allocation (Becker 1968; Matsueda, Kreager, and Huizinga 2006; McCarthy 2002; Piliavin et al. 1986). To the extent that workers are occupied with conventional activities, they may have less time available to take advantage of criminal opportunities (Hirschi 1969; Osgood et al. 1996). But while work is an effective "money delivery system," as choice and opportunity theories suggest, it also offers something more in the form of informal social controls. Life course models, most notably John Laub and Robert Sampson's (2003) theory of age-graded social control, argue that social bonds developed in work and family life are at the heart of the process of desistance from crime (Laub and Sampson 1993; Sampson and Laub 1990). Accordingly, work should strengthen crime-involved individuals' social ties and thereby reduce their criminal activity.

While there are important differences in emphasis, these theories all contend that employment should reduce crime directly via informal social controls and indirectly by increasing legal earnings. Empirical studies offer some support for this view, finding that work is associated with decreased crime among adults (Bierens and Carvalho 2011; Sampson and Laub 1992; Uggen 2000; Uggen and Wakefield 2007; Wright, Cullen, and Williams 2002). This effect is age graded, however, with some studies showing deleterious work effects for adolescents, particularly those working more than 20 hours per week (Bachman and Schulenberg 1993; Staff and Uggen 2003; Wright and Cullen 2000; Wright et al. 2002; but see Apel et al. 2007; Apel et al. 2008; Paternoster et al. 2003; Staff et al. 2010).

Even among older samples, not all studies have linked employment with desistance. Peggy Giordano, Stephen A. Cernkovich, and Jennifer L. Rudolph (2002) found that job stability was not associated with desistance for either men or women. This was especially true for the African Americans in their sample, who more often lacked the combinatorial "respectability package" of marriage and employment. In qualitative interviews, career and employment were not salient "hooks for change" (Giordano et al. 2002:1053). Other scholars have noted that the *type* of work affects desistance. Neal Shover (1996:31) notes that jobs most likely to promote desistance are those that pay well, require creativity and intelligence, and allow for some autonomy, qualities not typically associated with the "dirty work" available to those with criminal backgrounds. Similarly, Shadd Maruna (2001) argues that work that is generative—providing fulfillment, opportunities to help others, and a chance to establish credibility with others—is most likely to support desistance.

Although gainful employment may reduce criminal behavior, those who have been incarcerated experience strong labor market discrimination (Pager 2003, 2007) and reduced lifetime earnings, human capital (Apel and Sweeten 2010; Uggen and Wakefield 2007), and employment prospects (Chalfin and Raphael 2011; Kling 2006; Lyons and Pettit 2011; Pettit and Lyons 2009; Sabol 2007; Western 2002, 2006). Nevertheless, policy efforts to improve these dim employment prospects sometimes meet with success. For example, post-release supervision may contribute to temporary increases in employment (Pettit and Lyons 2007; Sabol 2007). A recent cost-benefit analysis by the Washington State Institute for Public Policy reports that prison vocational education, work release, and community-based employment and training programs all return gains to individuals and communities that far exceed program costs (Drake, Aos, and Miller 2009). The CEO evaluation showed few employment effects but significant reductions in recidivism, especially among high-risk participants (Zweig, Yahner, and Redcross 2010; 2011). But other studies report more disappointing results, including a meta-analysis finding no significant effect of community-based employment programs on recidivism (Visher, Winterfield, and Coggeshall 2005). Still, experimental evaluations of such programs are rare, sample groups vary significantly, and risk factors such as drug use likely play an important role in assessing how employment programs work and for whom (Latessa 2011; Visher et al. 2005).

To the extent that employment *does* reduce crime, is it the work itself or simply income that accounts for these effects? With regard to the income mechanism, a generation of research has examined the effects of direct monetary transfers on crime.[1] For many, illegal earning opportunities clearly outpace the expected economic returns from legal work (Becker 1968; Fagan and Freeman 1999; McCarthy 2002; McCarthy and Hagan 2001). People with pronounced economic needs and limited opportunities may have especially strong incentives to earn money illegally. In particular, the illegal earnings of cocaine and heroin users escalate sharply during periods of active use (Uggen and Thompson 2003). As previously noted, the unemployment benefits provided as part of the TARP experiment helped lower recidivism, though they may also have prolonged the time until ex-prisoners obtained employment (Rossi et al. 1980). Taken together, such research motivates further investigation of whether and how provision of legitimate work and money (whether earned or unearned) may decrease crime.

Work, Money, and Drugs

While employment may promote desistance from crime, especially for adults over the age of 25 (Bierens and Carvahlo 2011; Uggen 2000; Uggen and Staff 2001), most studies find disappointingly small work effects on drug use (Dickinson 1981; Dickinson and Maynard 1981; Lidz et al. 2004; Silverman and Robles 1998). Moreover, the hypothesized pathways connecting work, income, and drug use are far more tenuous. Some studies pose a direct connection between drugs and crime, with cocaine and heroin use creating an "immediate earnings imperative" for users who lack the means to support an expensive illegal habit (Uggen and Thompson 2003). Heavy drug use can also weaken or sever the work and family bonds thought to promote desistance from crime (Laub and Sampson 2003). Analyzing a contemporary longitudinal study, Ryan D. Schroeder, Peggy Giordano, and Stephen A. Cernkovich (2007) find that network ties can inhibit criminal

1. Our focus is individual-level studies. At the aggregate level, however, welfare payments may lower rates of violent and property crime in cities and counties that offer more generous benefit levels (DeFronzo 1996, 1997; Hannon and DeFronzo 1998a, 1998b). The timing of welfare disbursement may also affect crime rates (Foley 2008). In cities where payments are made at the beginning of the month, rates of economic crimes (such as larceny, robbery, and motor vehicle theft) are lower early in the month but rise in the middle and end of the month, presumably once public assistance checks have been exhausted.

desistance among chronic drug users, especially when romantic partners are also involved in crime. This line of research suggests that drug use may reduce employment and increase crime, such that people increase their illegal earnings in response to escalating substance use.

Still other studies suggest a positive path from *legal income* to drug use, hospitalization, and death. As a participant in Marsh Ray's (1961) study of heroin relapse put it, "because I had money I couldn't maintain it [withstand the demands of the withdrawal sickness]" (p. 135). A California study of Supplemental Security Income (SSI) similarly found an increase in drug-related hospital admissions and mortality during the first five days of the month, when SSI recipients receive payments (Dobkin and Puller 2006). At the individual level, however, research on both heavy users and the general population report inconsistent patterns of association between income and drug use (Bray et al. 2000; Gill and Michaels 1992; Huang et al. 2011; Kaestner 1991, 1994; Kandel, Chen, and Gill 1995).

Although experimental jobs programs have shown weak effects on drug use, some researchers and most practitioners assume a negative association between work and drugs, viewing employment as a useful treatment intervention (Brown and Riley 2005; Ginexi, Foss, and Scott 2003; Silverman and Robles 1998). In general, treatment professionals cite employment as a means of integrating drug users into "straight" society and a source of self-esteem (Magura et al. 2004), even if earned income expands opportunities for use. Employment also appears to increase retention in drug treatment programs, which is correlated with positive treatment outcomes (Magura et al. 2004; Platt 1995). Nevertheless, whether due to faulty logic or to data and design limitations, there has been little conclusive evidence to date that would establish employment or vocational services as an effective means of substance use cessation (Magura et al. 2004).

The paucity of evidence regarding employment and drug use reveals a major blind spot in the transformative vision of work described above: employment does not appear to prevent relapse. Yet, there is good evidence linking work and income to reduced economic crime. This suggests that providing a basic job opportunity to people involved in both crime and drug use might bring tangible, if not transformative, social benefits, even if it does not halt drug use. Such is the philosophy of "harm reduction" approaches to drug and alcohol treatment—strategies that provide work or housing but do not insist upon abstention or complete cessation of use. Rather than punishing users, these approaches aim to minimize the individual and community-level damage associated with drug abuse (Beckett and Sasson 1999:193; Marlatt 1996; Marlatt, Larimer, and Witkiewitz 2011; Marlatt and Witkiewitz 2002; Sobell, Ellingstad, and Sobell 2000; Sobell and Sobell 1993; Witkiewitz and Marlatt 2006). Perhaps the best-known harm reduction programs are needle exchanges, designed to reduce the spread of AIDS and other diseases by providing clean needles to intravenous drug users (Marlatt 1996). This perspective is controversial because it seemingly offers tacit approval to risky behaviors, even as it encourages interventions that mitigate personal and societal costs.

From a harm reduction perspective, a jobs program for drug users may be justified by its potential to reduce crime or improve health, *even if it failed to dent rates of cocaine or heroin use*. To bring some evidence to bear on this idea, we analyze an experiment that randomly assigned people treated for drug problems to an experimental job program or to control status. We then present interview data from people leaving drug treatment to learn how and why they attempt to combine work with substance use. In doing so, we ask whether supported work can reduce harm, and if so, whether a financial mechanism is responsible for these salutary effects.

Data, Measures, and Estimation

Supported Work and Supplementary Data

The experimental data to be analyzed, taken from the National Supported Work Demonstration Project, represent perhaps the best available evidence on employment, crime, and drug use among a low-income population (Burtless 1995; Friedlander and Robins 1995; Hollister et al.

1984). Although much has changed since these data were collected in the 1970s, there is little evidence that such programs have developed significantly since that time (Greenberg, Michalopoulis, and Robins 2003). Unlike many employment and training programs, Supported Work did not "cream" participants from the population most likely to succeed. Instead, the program successfully recruited socially marginalized or disaffiliated individuals, particularly chronic cocaine and heroin users with extensive criminal records (Auletta 1982:22; Hollister et al. 1984).

To be eligible for Supported Work, members of the drug-involved sample (identified as "Ex-Addicts" in the original evaluations) were required to have been recently incarcerated, currently unemployed, employed for no more than three of the preceding six months, and enrolled in a drug treatment program within the past six months. Our analyses use the sample of 1,407 "ex-addicts" who were recruited from treatment and social service agencies and randomly assigned to experimental and control conditions. Those in the experimental group were offered subsidized jobs for up to 18 months, typically in construction and manufacturing, working in crews alongside six to eight other substance users. The model was one of "graduated stress," in which work expectations were progressively increased over time. Members of both the treatment and the control groups provided retrospective monthly work, income, crime, and drug use data at nine-month intervals for up to three years. Although event history data were collected as part of the experiment, these data were encrypted in an unusual format and were not analyzed in the original evaluation. The monthly activity arrays have since been decoded, permitting us to examine the effects of a basic work opportunity on crime and drug use (descriptive statistics are shown in Appendix A).

For the Supported Work analysis, the dependent variables include self-reported cocaine and heroin use and self-reported arrest for any crime, robbery, and burglary. We highlight the latter two offenses because they represent predatory economic crimes that inflict demonstrable harm on individuals and communities. The original Supported Work investigators validated the self-report arrest data with a careful reverse record check, comparing participants' police records to their self-reports.[2] The independent variables include the critical experimental status indicator, as well as monthly time-varying measures of income, supported employment, regular (unsubsidized) employment, and school attendance.

Minnesota Exits and Entries Project. We probe the experimental results in light of more contemporary qualitative evidence, taken from a study of young adults leaving drug treatment. The Minnesota Exits and Entries Project is a comparative study of community reentry for young adults who spent time in prison, juvenile justice, jail, foster care, military service, mental health treatment, and drug treatment. We draw upon semistructured interviews with 29 men and women leaving chemical dependency treatment. All study participants were between the ages of 18 and 25, had spent at least 21 days in treatment, and were scheduled for release within four weeks of the baseline interview. Interviews were conducted once in the facility prior to leaving treatment and a second time in a public location approximately three months after entering the community. During these 30 to 45 minute interviews, participants were asked about reentry challenges, including employment, health, relationships, and drug use (see Appendices B and C for descriptive information and pertinent portions of our interview guide).

National Longitudinal Survey of Youth (NLSY97). We also conduct supplementary analyses using more contemporary and nationally representative data: the 1997 National Longitudinal Survey of Youth (Bureau of Labor Statistics 2006). For comparability with Supported Work, we restrict analyses to NLSY respondents age 18 and over with a history of both arrest and illicit drug use (beyond marijuana) within the first three study waves. Round 1 of the survey was collected in

2. Consistent with other investigations (Elliott and Ageton 1980; Hindelang, Hirschi, and Weis 1981; Huizinga and Elliott 1986), race was the only variable related to discrepancies between self-reports and police records, with African Americans reporting somewhat less crime than was recorded in police records (Schore, Maynard, and Piliavin 1979). Because race is unrelated to program assignment, such group differences will not bias estimates of work treatment effects.

1997, with youth interviewed on an annual basis. We use the 2000–2010 data to examine relationships between work, legal income, and illegal earnings.

Event History Estimation

Event history models are sensitive to both how long persons remain in a state of abstinence or desistance and changes in their work status over time. More specifically, these models: (1) increase the precision of estimated work effects; (2) aid in determining the temporal ordering of work, crime, and drug use; (3) provide an appropriate model of censored cases (those who never resumed drug use or crime) over varying observation periods; and (4) allow work participation to be modeled as a time-varying rather than a fixed explanatory factor (see, for example, Allison 2010; Tuma and Hannan 1984; Yamaguchi 1991). In short, this approach yields estimates of treatment effects that are especially sensitive to the timing of work, crime, and drug use.

We first test work effects using survival analysis and demographic life tables (Namboodiri and Suchindran 1987). Because assignment to supported employment is determined by an exogenous random process, individuals do not "self-select" into this state. We can thus conduct simple nonparametric tests for differences in the survival distributions of relapse and recidivism for those assigned jobs and those not assigned jobs. We assess the time until first drug use, arrest, and robbery or burglary arrest after random assignment. This approach provides clear answers to primary research questions—whether *jobs* reduce recidivism or relapse to cocaine or heroin use—without imposing structure on the data or making untenable statistical assumptions about the underlying recidivism process.

Logistic Decomposition and Discrete-Time Models

We estimate the effects of *income* using logistic regression and discrete-time logistic event history models. Here, the dependent variable is the log-odds ratio of the probability of entering a period of substance use or arrest. Discrete-time models require some method of accounting for duration dependence, such as temporal dummy variables or other time transformations that can be assessed by their fit to the underlying data (Box-Steffensmeier and Jones 2004). Following Paul Allison (2010), we compared fit statistics for several specifications of time dependency, including linear, logarithmic, and quadratic models, with the logarithm of month yielding the best fit. We estimate models of the form:

$$log\left[\frac{P_{it}}{1-P_{it}}\right] = a_t + \beta_1 x_{it1} + \cdots + \beta_k x_{itk}$$

where i indicates individuals; t indicates time; X_1 represents explanatory variables; and β_1 represents the effects of these variables.[3] We also specify multivariate logistic, linear probability, and discrete-time event history models that treat employment as a time-varying explanatory variable. The latter tests are less "clean" than the primary analysis of experimental status, requiring stronger assumptions about selectivity and greater reliance on statistical modeling. Nevertheless, they show how the program affects current-month substance use and criminality among those who actually show up for the randomly assigned jobs.

Following Joshua D. Angrist (2006), we use two-stage least squares (2SLS) models to distinguish the effects of *assignment* to Supported Work (which is uncontaminated by selectivity processes) and active *participation* in the experiment (which is partly the result of self-selection) (Uggen 2000). Assignment effects are more conservative because (1) they count among the

3. These techniques are predicated on accurately modeling patterns of time dependence, which requires selecting an appropriate "clock" for the analysis. In experimental studies, the time origin is best specified as the time of randomized assignment. This allows for calculation of risk differentials across experimental and control conditions that commence when the treatment begins, with randomization ensuring an approximately equal distribution of other time origins (e.g., time since drug treatment, time since first or last drug use) across the two groups.

treatment group those who were assigned but never worked in the program, and (2) assignment is a fixed status that follows respondents throughout the study. Participation, in contrast, assesses the time-varying impact of employment during the period immediately preceding resumption of crime or drug use. Stated more crudely: were people on the job when they fell off the wagon? Unlike assignment, participation is not exogenously determined by the research design; those assigned jobs may or may not opt to stay in them. This element of choice or selectivity may bias estimated participation effects upwards, though we adjust our estimates with time-varying terms for having left Supported Work, for entering regular unsubsidized employment, and for school enrollment. The 2SLS analysis predicts endogenous treatment participation using the exogenous treatment assignment variable (first stage), the fitted values from which are used in place of treatment participation to obtain the local average treatment effect (LATE). This provides an estimate of the average effect of treatment assignment that is undiluted by lack of treatment compliance, addressing an important source of selectivity (Angrist 2006).

Beyond estimating work treatment effects on crime and drug use, we also wish to disentangle the economic and extra-economic components of these effects. Because our recidivism and relapse outcome variables are dichotomous, our models are nonlinear. As a result, we cannot decompose work effects as we might in an ordinary least squares (OLS) model, adding a covariate and summing the effects of each to obtain the total effect. We therefore adapt a logistic decomposition technique developed by Maarten Buis (2010) for use in our discrete-time logit event history models, applying a series of counterfactual computations to estimate indirect and direct effects of the job treatment. To assess the mediating effect of income in predicting arrest for robbery or burglary, we compute direct and indirect effects in a logit model, such that they sum to the total effect:

$$\overbrace{\ln(O_{x=1,z|x=1}) - (O_{x=0,z|x=0})}^{\text{Total Effect}}$$
$$= \underbrace{\ln(O_{x=0,z|x=1}) - \ln(O_{x=0,z|x=0})}_{\text{Indirect Effect}} + \underbrace{\ln(O_{x=1,z|x=1}) - \ln(O_{x=0,z|x=1})}_{\text{Direct Effect}}$$

where O denotes the odds of Y (arrest) occurring, X represents treatment ($X = 1$) or control ($X = 0$) assignment, and Z is the distribution of a mediating variable, in our case monthly income.

In this equation, the total effect is equal to the difference between the log odds of arrest for each group of X, given each group's distribution of the mediating variable Z. The direct and indirect effects are obtained using two counterfactual computations. To isolate the indirect effect of income, the decomposition assigns the experimental group's income distribution to the control group. Figure 1 shows the actual income distributions of the control and experimental groups at time $t = 6$ months from random assignment to illustrate this counterfactual approach. The mean income for the control group is \$969, versus \$1,325 for the experimental group. The program thus successfully boosted participants' income levels at the six-month mark. Relative to the treatment group, the control group has more people reporting zero income or otherwise bunched toward the low end of the distribution.

To calculate the first counterfactual, the income distribution for the control group is replaced with that of the treatment group. This switch helps distinguish the unique effect of income from the overall effect of assignment to supported employment. The actual log odds of arrest for the control group, given its factual distribution of income, is then subtracted from the counterfactual, yielding the indirect effect of income. The second counterfactual is found by assigning both groups the income distribution of the experimental group and taking the difference in the log odds of arrest between the two, thus isolating the direct effect of the experiment that *cannot* be attributed to changes in income. The total effect is simply the sum of the direct and indirect effects.

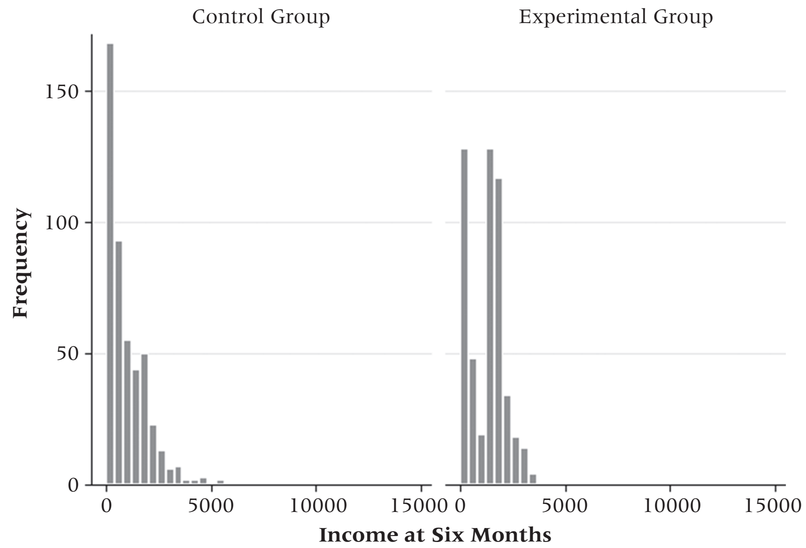

Figure 1 • ***Income Distribution of Experimental and Control Groups at Six Months***

Results

Nonparametric Survival Analyses

The survival curves for the dependent variables—cocaine or heroin use, any arrests, and arrests for robbery or burglary—are presented in Figures 2, 3, and 4. The horizontal axis represents time in months and the vertical axis represents the cumulative proportion of those at risk of drug use or arrest who have yet to report these activities. Each survival distribution is stratified by experimental status. Both groups begin the experiment at "1" on the vertical axis, since participants get a clean start at randomization and none have yet resumed drug use or crime. We evaluate the statistical significance of the treatment effect with simple log rank and Wilcoxon tests for the equality of the two distributions.

Figure 2 shows that assignment to Supported Work had little effect on relapse to cocaine or heroin use. We aggregate the two substances for ease of presentation, but the pattern is similar for each. Approximately 64 percent of the experimental group survived without such "hard" drug use for the 18 months they were eligible for program employment, relative to 67 percent of the control group. More tellingly, the treatment and control curves are almost indistinguishable during the early months of the experiment, when program participation was greatest. The nonsignificant chi-square tests for the difference of the two groups indicates that those offered supported work are no more likely to abstain than those assigned to control status and left to their own devices. If anything, the experimental group resumed cocaine and heroin use slightly earlier than the control group, though the two curves are statistically indistinguishable.

In contrast to the results for drug use, the experiment had a statistically significant overall effect on arrest (in Figure 3) and arrest for robbery or burglary (in Figure 4). For time to arrest, the curves begin to diverge at about the 9-month mark and the treatment differential widens thereafter. After 18 months, about 68 percent of the control group had yet to be arrested, relative to approximately 74 percent of the experimental group. This 6 percent gap represents about a 19 percent reduction over the baseline rate for controls (6/(100 – 68) = .19) in the first year and

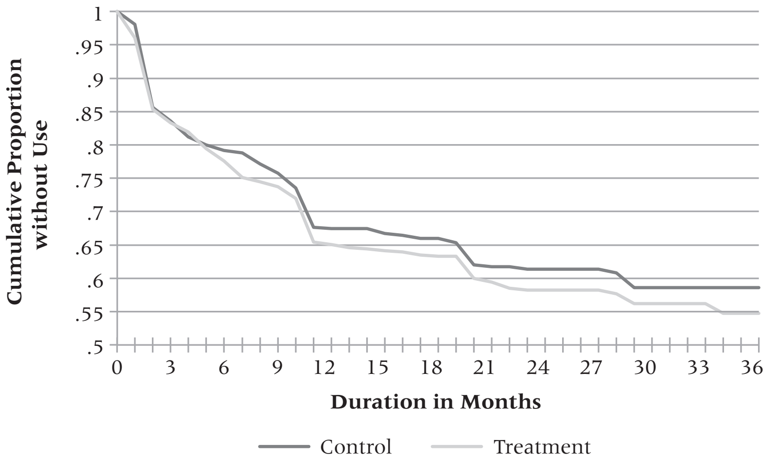

Figure 2 • *Time to Cocaine or Heroin Use*

Notes: N = 1,156; log-rank chi-square = 1.01 (p = .314); Wilcoxon chi-square = .88 (p = .348).

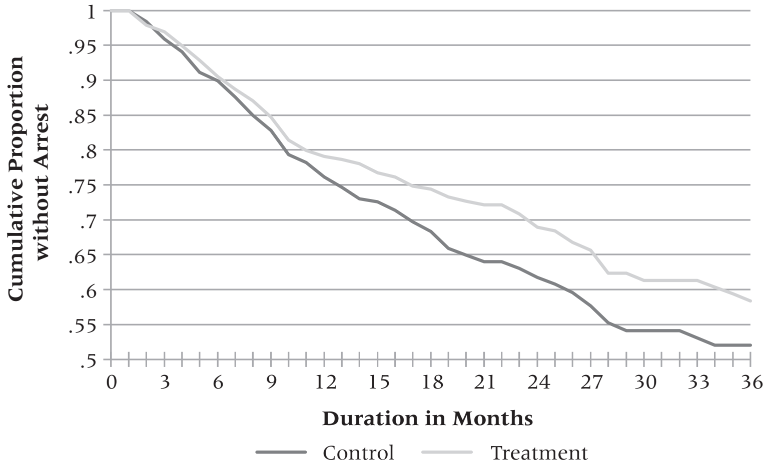

Figure 3 • *Time to Arrest for Any Crime*

Notes: N = 1,063; log-rank chi-square = 5.22 (p = .022); Wilcoxon chi-square = 3.95 (p = .047).

a half of the experiment. The log-rank and Wilcoxon chi-square tests for homogeneity over the two strata are statistically significant at the .05 level, indicating that the experimental group is significantly less likely to be arrested than the control group.

The same relationship obtains for robbery and burglary in Figure 4 (we combined the two predatory economic crimes after finding similar patterns in disaggregated analyses). While 87 percent of the control group remained free from robbery or burglary arrests for 18 months, over 93 percent of the treatment group survived to this point. This 6 percent difference represents an

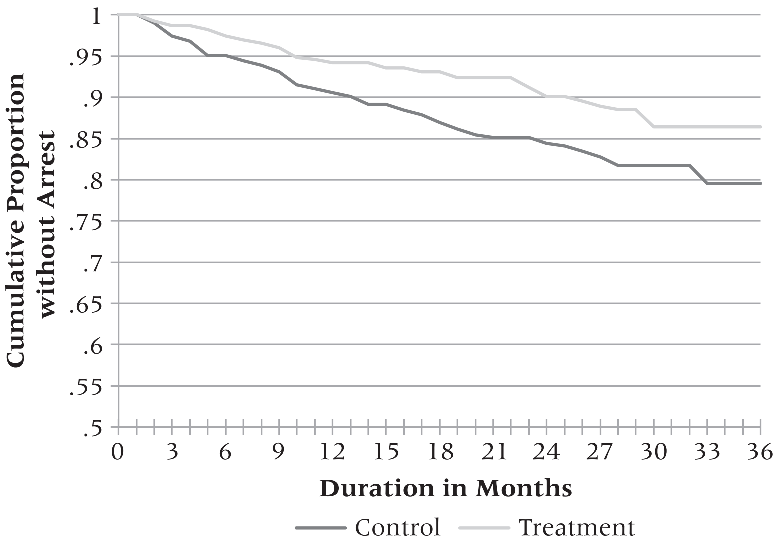

Figure 4 • ***Time to Arrest for Robbery or Burglary***

Notes: N = 1,063; log-rank chi-square = 9.12 (p = .003); Wilcoxon chi-square = 9.17 (p = .003).

impressive 46 percent reduction relative to the control group (6/(100 – 87) = .46) over the period. This gap is evident almost immediately upon program assignment and continues throughout, with the difference in distributions significant at $p < .01$. In short, assigning heavy cocaine and heroin users to supported employment markedly reduced their rate of arrest for robbery and burglary.

Estimating Work Treatment Effects in a Two-Stage Least Squares Analysis

Following Angrist (2006), we use experimental status as an instrument to obtain the effect of Supported Work on robbery or burglary arrest. The assignment effect (intent to treat) is an imperfect proxy because some of those assigned to treatment did not participate in Supported Work, while some in the control group obtained work on their own. Using instrumental variable analysis in the context of an experiment such as Supported Work produces the local average treatment effect (LATE), or the effect of treatment on those who complied with treatment but only by virtue of their assignment to it. The result for the first stage in Table 1 represents the proportion of the total sample who were compliers, in this case 32 percent. The 2SLS results estimate the LATE of Supported Work as a nearly 1 percent reduction in the probability of robbery or burglary arrest in any given month ($p < .01$).[4] This coefficient is more than twice the size of that in the reduced form in Model 2, which gives the estimated treatment assignment effect (or intent to treat). As Angrist (2006) notes, LATE is generally larger than the effect of treatment assignment, since noncompliance ordinarily dilutes the treatment effect.

Logit Decomposition

To isolate the indirect effect of income in reducing crime, we turn to the logit decomposition technique elaborated by Buis (2010) and presented in Model 1 of Table 2. The model includes a

4. Because robbery/burglary arrest is a binary outcome, these 2SLS results are interpretable in a linear probability framework in which the coefficient represents the percentage point change in the probability of arrest (Angrist 2006).

Table 1 • *Instrumental Variable (2SLS) Regression of Robbery/Burglary Arrest on Treatment Participation*

Variable	*First Stage Model 1 (SW Participation Regressed on Treatment Assignment)*	*Reduced Form Model 2 (Treatment Assignment Predicting Robbery/ Burglary)*	*2SLS Model 3 (Instrumented Participation Predicting Robbery/ Burglary)*
Treatment participation	.32***	−.003**	−.008**
	(.009)	(.001)	(.004)
Month (logged)	−.20***	−.002*	−.003**
	(.008)	(.001)	(.001)
Constant	.51***	.01	.01
	(.020)	(.002)	(.003)
N	1,032	1,032	1,032
Observations	21,699	21,699	21,699

Note: Clustered standard errors in parentheses.
*$p < .05$ **$p < .01$ ***$p < .001$ (two-tailed tests)

Table 2 • *Decomposing Direct and Indirect Effects of Supported Employment on Arrest for Robbery/Burglary*

Variable	*Assigned to Jobs*		*Working in Jobs*		*Compliers*	
	Model 1 Unadjusted	*Model 2 Adjusted*	*Model 3 Unadjusted*	*Model 4 Adjusted*	*Mode 5 Unadjusted*	*Model 6 Adjusted*
Total effect	−.45*	−.51**	−.96*	−1.07**	−1.38*	−1.35**
	(.18)	(.19)	(.35)	(.39)	(.56)	(.54)
	[.63]	[.60]	[.38]	[.34]	[.25]	[.26]
Indirect effect (income)	−.17***	−.14***	−.81***	−.52*	−.79***	−.59***
	(.04)	(.03)	(.15)	(.22)	(.14)	(.18)
	[.84]	[.87]	[.45]	[.60]	[.45]	[.55]
Direct effect	−.27	−.37*	−.15	−.55	−.59	−.75
	(.19)	(.19)	(.42)	(.44)	(.53)	(.57)
	[.74]	[.68]	[.86]	[.58]	[.55]	[.47]
Relative effect (indirect through income/total)	.37	.27	.84	.48	.57	.44
N	1,032	1,011	1,032	1,011	1,032	1,011
Observations	22,187	20,959	21,352	20,622	21,352	20,622

Notes: All models include logged month as a control for time. Models 3 through 6 include controls for having a regular job, being enrolled in school, and having left the Supported Work program. Adjusted models include additional controls for lagged incarceration and cocaine or heroin use.
Note: Clustered standard errors in parentheses.
*$p < .05$ **$p < .01$ ***$p < .001$ (two-tailed tests)

control for logged month and robust standard errors clustered by individual to adjust for within-person serial correlation. Paralleling our results in the 2SLS analysis, we find that the overall odds of arrest for robbery or burglary are 37 percent lower for those assigned to program jobs than for those in the control condition (1 − .63 = .37, odds ratios in brackets). The estimated coefficient for the indirect effect of income (−.17) represents the reduced rate of arrest for those not assigned a program job, *assuming that they had the same level of income as those who were assigned a job*. In other words, had the control group received the income distribution of the experimental group, as illustrated in Figure 1, their odds of arrest for robbery or burglary in any given month would have been about 16 percent lower (1 − .84 = .16).

The direct effect shows the odds of arrest for those assigned a job as compared to those in the control group, under the counterfactual assumption that both groups share the income distribution of the experimental group. Here, those assigned a program job experience a 26 percent reduction in the odds of arrest for robbery or burglary in any given month (1 – .74 = .26), representing the extra-economic effects of being assigned a program job. The relative effect is simply a ratio of the indirect income effect divided by the total effect. In this model, the indirect effect of income makes up about 37 percent of the total effect.[5]

To continue analysis of participation effects, we present the logit decomposition in Model 3 of Table 2. This model includes controls for logged month, having a regular job, being enrolled in school, and having left Supported Work. Errors are clustered by individual to address within-person serial correlation. These results show a much larger indirect effect of income on the odds of robbery or burglary arrest, such that those who did not participate in program jobs would have had a 55 percent reduction in the odds of arrest (1 – .45 = .55) if they had the same income as those who did participate. The indirect effect of income in the participation analysis is 84 percent, indicating that the lion's share of the total effect is comprised of the indirect effect of income.

There is an element of selectivity in the participation analysis, however, since factors such as the capacity to get up for work in the morning are surely correlated with both participation and crime. Adopting Angrist's (2006) approach, we used fitted values obtained in the first-stage 2SLS analysis to create a binary variable for treatment "compliers" in our sample. We then used this new variable in our logit decomposition to obtain a range of estimates for the relative effect of income. As with Model 3, controls for logged month, having a regular job, being enrolled in school, and having left Supported Work are included and errors are clustered to address within-person serial correlation. Once compliance problems are addressed in Model 5 of Table 2, income accounts for 57 percent of the total effect of Supported Work on robbery and burglary arrest.

One remaining threat to the internal validity of these results concerns whether income is exogenously determined. It is possible that factors other than treatment assignment influenced whether incomes rose or fell during the study period, in which case income would be related to recidivism for reasons that have nothing to do with Supported Work. We therefore estimated models using covariate adjustment for other changing life circumstances related to both crime and income levels: incarceration and use of cocaine or heroin, lagged by one month. These adjusted results are shown in Models 2, 4, and 6 of Table 2. When these factors are controlled in our decomposition analyses, the indirect effect of income remains significant and makes up a sizeable percentage of the total effect of Supported Work in reducing crime. Nevertheless, the relative effect of income is reduced to 27 percent for assignment to jobs, 48 percent for those participating in Supported Work, and 44 percent for those who complied with treatment. These results indicate that the true indirect effect of income likely falls between the experimental and participation estimates, with the assignment analysis providing the most definitive, albeit conservative, estimates.[6]

Insights from a New Qualitative Study . . . and an Old One

While much can be learned from experimental data, Supported Work has only a limited capacity to trace precisely how work and income affect crime and drug use. Our 2007–2009 Minnesota Exits and Entries Project (MEEP) interviews with people completing inpatient chemical dependency treatment provide some insight into these processes, as do early qualitative accounts of Supported Work. While not directly comparable to Supported Work, the MEEP interviews highlight the relationships between work, income, drugs, and crime in a contemporary setting.

5. Because self-reported measures were taken at nine month intervals, income misreporting represents a potential threat to inferences (Alwin 2007; Bollinger 1998; Gottschalk and Huynh 2010; Pedace and Bates 2000). As a check against such bias, we sorted income into three coarser bins: below the poverty level, one to two times the poverty level, and greater than twice the poverty level. Decomposition models that use these bins yield quite similar results to those reported above, suggesting that income measurement error is not a significant concern in this analysis.

6. A substantively similar result is obtained when we include income as a covariate in the 2SLS models of Table 1, where income reduces the LATE coefficient by 25 percent, from –.008 to –.006.

Participants in the two samples share some key characteristics, such as having recently completed drug treatment, but there are also noteworthy differences. For example, as Appendix A shows, the Supported Work sample was predominantly African American, while the MEEP sample was primarily white. Moreover, unlike MEEP participants, Supported Work participants were required to have been recently incarcerated. The MEEP sample was also younger, with a mean age of 22, relative to 28 in the Supported Work sample.

Despite these differences, MEEP participants' stories closely echo those relayed in Ken Auletta's (1982) account of an original Supported Work site. Like Auletta's group a generation earlier, the young adults today described engaging in income-generating crimes such as robbery and burglary, especially during spells of unemployment. They also shared the challenges of combining substance use with work as "productive addicts." We found three general patterns in the MEEP interviews, which we discuss in relation to Auletta's observations of Supported Work.

Less Income, More Crime

First, following our experimental results, our interviews help explain how robbery and burglary increase in the absence of legitimate sources of income. For example, 25-year-old Will told us he resumed robbery and theft after losing his job due to heroin-related absences: "I lost all my sources of income so then I got back into the life I used to know, of committing crimes and robbing places and stealing and stuff to provide for heroin." Noah, a heavy methamphetamine user, described how "schemes and scams and robbing people" provided money for drugs:

> I do have a felony on my record and I pretty much thought I'll never have a respectable job . . . I figured I'd be involved in crime if I wanted to make my means. I'd have to be involved in crime if I wanted to make any money, and I'd already figured I'd be doing drugs the rest of my life 'cause I was doing drugs and it became a lifestyle that every day it was all about drugs and getting money and pulling schemes and scams and robbing people and any dishonest thing I can do to make a dollar or get drugs.

Specifically, Noah told us he forged checks to facilitate buying drugs and committed burglary to steal marijuana for later resale. Cindy, a 25-year-old mother in treatment for methamphetamine addiction, also said she "stole things all the time and stole drugs" in order to maintain her habit.

Auletta's (1982) Supported Work informants shared similar stories about committing crime in the absence of legitimate income. Timothy said he stole for "necessities" while addicted to heroin (p. 12), eventually serving prison time for robbing a woman outside of a check-cashing store. Several others described involvement in various "hustles," including shoplifting and selling drugs. John shoplifted from high-end stores such as Macy's. "I tell you, that's not hurting nobody . . . Mr. Macy's, for instance. Take a little—five, ten dollars—that ain't gonna hurt him too much" (p. 55). As Mohammed noted, hustling is hard to resist when little income is coming in: "What do you do? How do you survive? It's a strong person that can make it off $87 a week. It's a strong person that will stretch the money that far, because there's nothing to stretch" (p. 56). In both MEEP and Supported Work, participants clearly attribute their robbery, burglary, and shoplifting crimes to unemployment or poverty. The resulting illegal income provides for "necessities," which might include drugs such as heroin and methamphetamine.

More Income, More Drugs . . . But More Informal Controls

A second pattern reported by MEEP and Supported Work participants, though less evident in our quantitative analysis, concerned income actually *increasing* drug use. Michelle, a 21-year-old expecting her first child, explained how working as a waitress facilitated her dependency. "I first got into meth when I was in college. I was working at [names restaurant] making good money . . . I just had so much money, I didn't know what to do with it." Similarly, Will told us he earned a good wage cleaning offices but spent much of it on drugs to add fun to his social life. "I'd get a big paycheck on Friday and I'd call up my girlfriend, like let's go get some ecstasy, pop those, go out to dinner . . . maybe go to the drive-in . . . So, when I'd get big money, I'd say . . . let's do all these [fun] things, but let's add drugs to the mix."

Becky, a 24-year-old cocaine user, interpreted her ability to resist drug use while earning a significant income as a sure sign of *recovery*: "I know I'm not going to use again . . . 'cause I was out for a month . . . I had lots of money, I could have gone out and done lots of drugs but I decided not to." Perhaps making Becky's point, Gladys, from the Supported Work site observed by Auletta (1982), received five thousand dollars in an insurance settlement after a car accident and "used the money not to get married and resettle in the South, as she had planned, but to buy drugs," exhausting the entire amount in two and a half weeks (p. 15). Such accounts echo those of Ray's (1961) heroin users, who reported greater difficulty resisting withdrawal symptoms when they had money in their pockets.

To the extent that income facilitates use, it may be the case that the Supported Work program actually succeeded in raising income while holding drug use in check. Though Supported Work did not decrease cocaine or heroin use, neither did it significantly increase drug use for the experimental group, despite the program's demonstrable positive effect on income. It is possible that countervailing mechanisms, including informal controls, effectively neutralized the temptation to resume use. On the one hand, those in Supported Work jobs received greater income and worked on crews with fellow users, both of which could foster drug use. The former was the case for Paul, one of Auletta's (1982) interviewees, who said he used more heroin while in the Supported Work program "because I had more money" (p. 227). For Michelle of our MEEP sample, the problem was one of associating with drug-using peers as a waitress.

> I've been serving for the last five years, which is decent money but something I can't go back to 'cause anywhere you can make money has alcohol and any restaurant I've ever worked at the cooks smoke weed, so and that's my biggest drug, so . . . and then meth and it was just a huge drug culture . . .

On the other hand, the extra-economic characteristics of Supported Work, such as informal controls and social support, likely inhibited drug use. Our contemporary interviewees viewed jobs as providing stability and structure, as well as access to sober peer networks. Becky, when asked about her "best case scenario" after treatment, repeatedly emphasized employment as part of providing a stable life for herself and her children. "I will have a job, a vehicle, and be sober. A house, car, and kids. And have a job and everything. Be stable."

Structure and keeping busy were cited as important features of employment, especially for those finding good jobs with established career lines. Robert—22 years old, formerly homeless and dependent on methamphetamine—got a post-treatment job as a unionized steel worker for $15 per hour and good benefits. Prior to this, Robert said, "My 401K was my grave, basically." But now his union job offered the sort of "stake in conformity" (Toby 1957) that could help structure his time and keep him from using.

> Even if I wanted to do drugs, I gotta go to work. I gotta come home from work and go to meetings. And I come to meetings and it's like I'm going to hang out with my buddies and they're sober. So it's like I don't have no time today to even do drugs or even think about it.

Cindy, too, looked forward to employment as something that would keep her busy, while connecting her with "healthy people" and positive social relationships:

> I'm gonna have to work right away. Keep myself busy and stuff. I genuinely like to work, though . . . But when I start working again, I'll find whoever doesn't go to the bar after work, or when I go to school and surround myself with healthy people, that's gonna be huge.

"Productive Addicts" and Harm Reduction

A third pattern we noted, among both MEEP and Supported Work participants, addresses a fundamental paradox in the experiment. If work indeed reduces crime but not drug use, some participants were clearly working during periods of active cocaine and heroin use. Nevertheless, the young adults we interviewed were extremely wary about combining work with sustained or intensive substance use. Will described himself as "a productive addict," who could maintain a job while using marijuana and pills. When he resumed *heroin* use, however, he quickly returned to his "old ways" of robbery and theft.

> Within six months of getting on [heroin], I lost my job . . . I just ran the streets for a whole year. No job, no nothing, just stealing every day to support it . . . When I lost my job [again] a couple months ago, I just went back to the old ways I knew of robbing stores and stuff like that just to get high.

Cindy likewise maintained a double life for over a year, working full time in a residential treatment center for mentally ill clients while using methamphetamine herself. Her days as a productive addict were cut short by a treatment stint, however, again highlighting the limited long-term compatibility of work and drug use.

> I worked all the time . . . it was an everyday program and I loved it. But I left that job to go to treatment . . . and I only lasted that treatment five days. When I came back, I tried calling the director and he never returned my calls.

Involvement with the criminal justice system could also disrupt periods of productive addiction. Noah managed to hold down a "good job" while using methamphetamine, until his family staged an intervention. This led to a fight with his brother and a phone call to police.

> I ended up going to detox and when I got out, I lost my job. I had a good job working as a direct support specialist taking care of handicapped people and I lost that due to just being gone for four days.

Similarly, Jason, a 21-year-old former dealer and methamphetamine user, described working as a handyman with his stepfather prior to a relapse that triggered a probation violation and mandatory treatment. "Everything was hunky-dory before I went to treatment. I was drinking and stuff, but I was making money and working and moving ahead, but now I'm losing money." Even Howard Smith, the basic skills class facilitator in Auletta's (1982) Supported Work site, had once been a productive heroin addict, working as a clerk at the New York State Athletic Commission: "I had a good job. I wasn't robbing or snatching pocketbooks. Heroin was in then . . . But I thought I still didn't have to be a mugger. I thought I'd be different" (p. 17).

Although our experimental findings imply that some forms of drug use can coincide with employment, the qualitative interviews reveal the real limits of such compatibility. Job loss due to profligate drug use was certainly common among those we interviewed. According to Will, "working got in the way of getting high every day." Ian, a 24-year-old in treatment for cocaine dependency, was able to maintain a computer tech job until his partying became incompatible with the work. "I've had a really high paying job before, and I lost that because I was living at a friend's house who was a drug dealer and it was a party every night." Jack, a 24-year-old, typifies this experience in our sample. Prior to his latest methamphetamine relapse, Jack worked for over two years as a collections agent.

> I just didn't show up 'cause I was high and it's like I had everything and then I threw it all away again for drugs. I had an apartment I had approved. I had a job for $13 an hour and then I went and used and fucked it all up.

While these interviews show how heavy drug use ultimately leads to job loss, they also raise the question of how work affects the volume or frequency of use. While data on the volume of drug use are limited in the Supported Work sample, we were able to examine how work and income affected frequency of drug use after nine months of the experiment. As Table 3 shows,

Table 3 • *OLS Regression of Drug Use Frequency on Supported Work, Regular Work, and Income at Nine Months*

Variable	*Cocaine Use (1–5)*		*Heroin Use (1–5)*	
	Model 1	*Model 2*	*Model 3*	*Model 4*
Supported work	.28	.51	−.28	−.10
	(.22)	(.34)	(.28)	(.35)
Income (hundreds)		−.01		−.02
		(.02)		(.02)
Regular work	.01	.21	−.80**	−.38
	(.28)	(.41)	(.35)	(.45)
Constant	1.83***	1.76***	2.80***	2.89***
	(.13)	(.17)	(.13)	(.16)
N	88	78	79	70
R-squared	.02	.04	.07	.11

Note: Clustered standard errors in parentheses.
*$p < .05$ **$p < .01$ ***$p < .001$ (two-tailed tests)

Supported Work had little effect on the frequency of cocaine or heroin use (with 1 coded as less than monthly and 5 coded as daily use) among self-reported users.[7] Consistent with our interview data, however, heavy heroin use is demonstrably incompatible with regular unsubsidized work, as evidenced by the significant negative coefficient in Model 3. These substance-specific findings suggest caution in generalizing too readily from the Supported Work era (in which heroin played a larger role) to the contemporary period (in which methamphetamine use plays a larger part). The ability to function at work is likely affected by the nature of substances being ingested; stimulants such as methamphetamine and cocaine may be more compatible with some types of employment than central nervous system depressants such as heroin.

Unlike low-wage workers in the Supported Work era of the 1970s, our MEEP participants learned that modern urinalysis tests confounded their efforts to hide their drug use from employers. Jamal, still in his teens, was sent to treatment after a failed drug test. Before this probation violation, Jamal was working at a warehouse making $13 per hour.

> It kind of hurt in a big way, 'cause I had all these things going for me. I lost a good job for somebody 19 [years old] and I thought I was making fairly good money and I had just got my own place.

Though few viewed work as a panacea or idealized transformational experience, these young adults generally saw employment as essential to their recovery and ability to avoid crime after treatment. Jack saw getting a job as a life or death issue in his future. "I hope to God that I'm working and in an apartment, I really do. Otherwise I could be dead, and I don't want that, I'm only 24 . . . I definitely don't want to relapse." Similarly, Jason saw work as necessary to keep him from returning to his previous life of selling and using drugs, saying, "I've just got to get myself a job and everything's gonna be peachy." His limited social networks and criminal record, however, worried him.

> I'm going to try to get a job, but I'm not going to get my hopes up, because even in my home town it's rough with my charges and stuff. And I don't know anybody. Pretty much all my jobs I got was from knowing somebody.

Both the experiment and the interviews show how work can reduce economic crime, but our data also reveal a more complex relationship between employment, income, and substance use.

7. This pattern of results is also apparent in the NLSY data. In a fixed-effects regression analysis predicting the frequency of "hard" drug use among those with a history of substance use and arrest, employment is not a significant predictor ($p = .890$) (not shown, available by request).

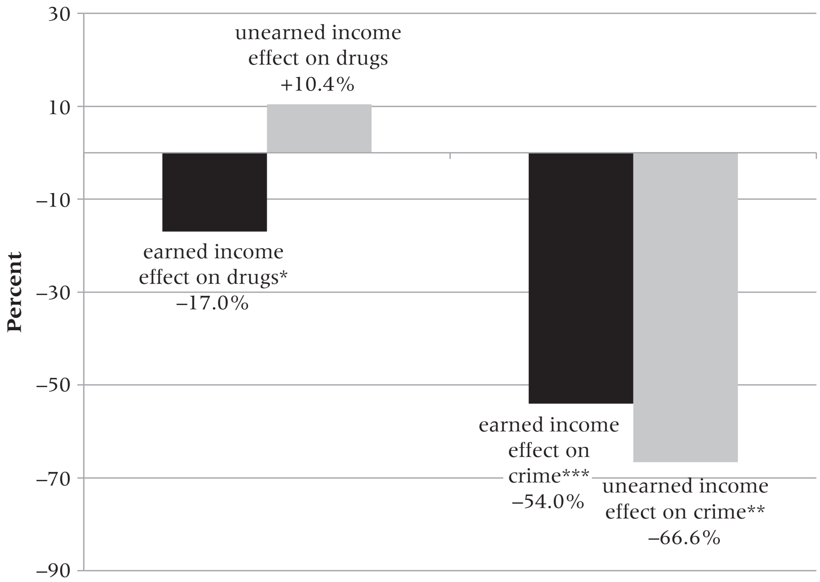

Figure 5 • *Estimated Effect of Earned and Unearned Monthly Income ($1000s) on Odds of Drug Use (Drugs) and Arrest for Robbery or Burglary (Crime)*

*$p < .05$ **$p <.01$ ***$p < .001$ (two-tailed tests)

Employment, of course, provides much more to workers than a paycheck. We speculate that the basic controls and structure provided by Supported Work may in fact have held drug use in check, while the income provided by the program curtailed involvement in systematic economic crime. If so, earned income from employment should have a different effect on drug use than unearned income, but any income should markedly decrease robbery and burglary, regardless of the source. To test this idea we estimated simple models to further disentangle work and income effects, comparing the effects of earned and legal unearned income, such as welfare transfers, on the odds of drug use and arrest for robbery or burglary, controlling for experimental status. Figure 5 summarizes these models, showing a pattern consistent with the accounts of our interview participants.

While unearned income has a nonsignificant but *positive* effect on drug use, each thousand dollars of earned income per month—whether from a Supported Work job or regular employment—decreases the odds of drug use by 17 percent. In contrast to the effects for drug use, however, both sources of income significantly lower the odds of arrest for robbery or burglary, with each thousand dollars of earned income reducing the odds by 54 percent and each thousand dollars of unearned income lowering the odds by 67 percent.[8] The difference between "work" and "income" effects supports the idea that workplace informal controls, which are notably absent in unearned cash transfers, play some role in curtailing drug use. On the other hand, it appears that income in *any* form, whether earned on the job or received as a transfer, significantly reduces predatory economic crime among drug users.

8. When employment is similarly disaggregated into supported work and regular work, supported employment is associated with a 71 percent reduction in the odds of arrest for robbery and burglary, relative to a 59 percent reduction for regular unsubsidized employment (results available by request).

Supplementary Analysis of the National Longitudinal Survey of Youth

Our Supported Work data were collected from 1975 to 1978, which precedes the crack and methamphetamine eras, as well as significant changes in low-wage labor markets. We therefore consider the robustness of our findings among a more recent cohort—the 1997 National Longitudinal Survey of Youth (Bureau of Labor Statistics 2006). To parallel the Supported Work drug treatment group, we selected individuals who reported both an arrest history and a history of hard drug use (illicit drugs other than marijuana) in any of the first three survey waves (1997–1999). We then estimated models of work, income, and illegal income in waves 4 to 14 (2000–2010) on an analytic sample of 172 individuals and 1,216 observations with a pooled average age of 23.5 (relative to 24.0 in the comparison Supported Work subsample under age 28).

Table 4 presents fixed effects models showing how work and income affect illegal earnings in the two samples. Because NLSY does not contain a directly comparable indicator of robbery and burglary arrest, we instead analyze a broad illegal earnings measure. All independent variables except drug use are lagged by one period, though the NLSY is an annual survey and Supported Work data are measured monthly. Not surprisingly, Models 1 and 5 confirm that work has a positive effect on logged *legal* income for both groups, net of school attendance and age. The negative age effect in Model 1 is an artifact of the Supported Work design, since the treatment group reported especially high earnings during the first few months of the program (for purposes of this table, "work" refers to either supported work or unsubsidized employment, to retain comparability between the SW and NLSY samples). Models 2 and 6 show that employment is negatively associated with logged *illegal* earnings in both samples and Models 3 and 7 show that work effects are either partially (in Supported Work) or wholly (in NLSY) mediated by earned legal income. Unearned legal income, in contrast, is a positive predictor in Supported Work and a nonsignificant predictor in NLSY. Model 4 shows that active cocaine or heroin use is associated with greater illegal earnings in both Supported Work and NLSY. The basic empirical generalizations observed in data from the

Table 4 • *Fixed Effects Estimates of Logged Legal and Illegal Earnings: 1975–1979 Supported Work Data versus 1997–2010 NLSY Data*

Variable	*Supported Work Ex-Addicts (< = 27 years old)*				*NLSY Drug Use & Arrests by W3 (Waves 4–14)*			
	Model 1 Legal $	*Model 2 Illegal $*	*Model 3 Illegal $*	*Model 4 Illegal $*	*Model 5 Legal $*	*Model 6 Illegal $*	*Model 7 Illegal $*	*Model 8 Illegal $*
Work	2.58***	−.43***	−.34**	−.31**	8.40***	−.41**	1.58**	1.31*
	(.42)	(.15)	(.15)	(.15)	(.11)	(.20)	(.70)	(.68)
School	−.57*	.18	.15	.13	−.39***	.40	.31	.30
	(.29)	(.25)	(.24)	(.22)	(.10)	(.28)	(.28)	(.28)
Age	−.54***	−.09	−.12	−.08	.13***	−.12***	−.10***	−.07**
	(.10)	(.07)	(.07)	(.07)	(.01)	(.03)	(.03)	(.03)
Log earned			−.04***	−.03***			−.24**	−.20**
legal income			(.02)	(.01)			(.08)	(.08)
Log unearned			.04*	.04*			−.00	−.00
legal income			(.02)	(.02)			(.03)	(.03)
Drug use				1.47***				1.41***
				(.26)				(.28)
Constant	16.65***	2.91*	3.58**	2.46	−2.28***	3.89***	3.39***	2.38***
	(2.62)	(1.73)	(1.77)	(1.73)	(.29)	(.60)	(.59)	(.60)
N	691	691	691	691	172	172	172	172
Observations	13,257	13,416	13,416	13,416	1,216	1,216	1,216	1,216
Log likelihood		−26,351	−26,303	−26,064		−2,542	−2,536	−2,502

Note: Clustered standard errors in parentheses.
*p < .10 **p < .05 ***p < .01 (two-tailed tests)

1970s appear to hold in two more contemporary samples—the nationally representative NLSY survey and the qualitative Minnesota Exits and Entries Project.

Employment and Harm Reduction

James Coleman (1993) devoted his American Sociological Association presidential address to a programmatic call for research directed toward the "rational reconstruction" of faltering social institutions. The National Supported Work Demonstration represents one such purposive attempt. It intervened in the lives of social actors to advance them along important stratification dimensions and intervened in labor markets with a goal of reducing social harm and improving societal functioning. Both theory and extant research lead us to expect that providing work and income to socially marginalized former drug users will reduce crime. But the advocates of such policies and the public often have much more in mind when setting up such programs. The idealized transformational vision and mythology of such programs implies a broad spillover from socioeconomic activity and law-abiding behavior to abstinence and other secondary traits. The project thus becomes one of making model citizens rather than using jobs to reduce crime. In truth, there is little scientific basis for expecting programs like Supported Work to dramatically curtail drug use, but much to suggest that they may reduce crime.

As we noted at the outset, employment interventions are best considered within the particular social and historical context in which they are embedded. The success of any transitional job strategy rests, in large part, on the labor market's capacity to absorb the labor of workers who will presumably transition off the program. In the current era of high joblessness and record numbers returning from drug treatment and prison, lessons from the programs of the mid-1970s recessionary period are particularly salient and instructive. In this article, we modeled the effects of randomized assignment to supported employment on self-reported drug use and arrest, emphasizing the predatory economic crimes of robbery and burglary.

Our analysis provides take-home lessons for current and future waves of policy interventions, but also for theories of crime and substance use. The nonparametric experimental analysis showed strong evidence for a causal relationship between work and arrest: providing cocaine and heroin users with basic supported employment reduced their rate of robbery and burglary arrests by over 30 percent. In large part, the program accomplished these reductions by providing income that would not otherwise be available through legitimate channels. By this standard, the program can be viewed as a pragmatic means to successfully reintegrate serious drug users into the workforce. Yet our new event history analysis also confirms the finding that so disappointed the architects and audiences of the original Supported Work evaluation reports: the jobs failed to inhibit drug use and, hence, failed to realize the transformative vision, turning the most disadvantaged and drug-involved U.S. citizens into sober and stable middle-class workers. While it is difficult to disentangle drug use and crime, the two are separable analytically and empirically.[9]

Our qualitative interviews shed some light on the complex dynamics involved in simultaneously juggling careers in crime, substance use, and legitimate work, while raising red flags regarding the long-term compatibility of heavy substance use and employment. While our results should encourage approaches that look beyond all-or-nothing abstinence-based models, they also suggest that stable work is likely incompatible with profligate use of illicit drugs such as heroin or methamphetamine.[10] In the period since Supported Work, harm reduction programs have

9. There are many reasons crime may be more susceptible than substance use to such interventions. For example, to the extent that biology or genetics plays a role in each process, the evidence is much stronger for substance use than for crime, with some studies estimating that about 40 to 60 percent of the risk of addiction can be explained by genetic factors (Volkow 2005).

10. This is also the case with profligate use of licit substances such as alcohol, of course, but the socially constructed "lifestyle concomitants" of illegal drug use complicate desistance processes in ways that alcohol does not (Schroeder, Giordano, and Cernkovich 2007:214).

emerged to provide a "middle way alternative" between total abstinence and continued harmful behavior, attempting to simultaneously reduce the negative consequences of substance use for affected individuals and their communities (Collins et al. 2011:23). Although this study and previous evaluations (Dickinson 1981; Dickinson and Maynard 1981) found only weak effects of Supported Work on drug use, the positive effects on desistance from *crime* are perhaps best viewed along a harm reduction continuum. The program decreased the predatory robberies and burglaries committed by former drug users and thereby lessened harm to individuals and communities.

In light of recent recessions and those to come, these results also highlight the real and demonstrable benefits of providing jobs to citizens with multiple barriers to employment. Contemporary supported work programs could thus be well integrated within a larger national employment and training strategy (Levitan and Gallo 1988). Apart from the important gains to public safety, such a move would have several benefits. The stigmatizing effects of program participation would be minimized to the extent that nonusers are also served; the social status of subsidized employment would be enhanced if it is seen as a real job, rather than a make-work task for unskilled criminals or drug users. And, when such opportunities are available to other groups, it becomes more feasible to elevate the quality of work opportunities beyond the minimum-wage jobs we considered here. Regardless of their legitimation or rationale, however, supported employment programs for heavy substance users represent a promising model for reducing predatory economic crimes such as robbery and burglary.

Appendix A • ***Characteristics of Supported Work "Ex-Addict" Group***

Characteristic	*Mean (sd)*
Age at assignment	27.8 (6.6)
Percent male	83
Percent African American	74
Percent Hispanic	11
Percent white	15
Years of education	10.5 (1.8)
Average number of arrests	8.5 (10.9)
Percent living with spouse or partner	29
Percent living with parent	33
Percent with children	27
N	1,407

Appendix B • ***Characteristics of Minnesota Exits and Entries Project Chemical Health Group***

Characteristic	*Mean (sd)*
Age at interview	22.3 (2.2)
Percent male	72
Percent white	79
Percent African American	7
Education	
Percent less than high school/GED	41
Percent high school/GED	41
Percent some college	17
Percent employed prior to treatment	45
Percent single	76
Percent with children	38
N	29

Appendix C • *Sample Questions from MEEP Interviews About Work and Income*

Pre-transition interviews

Thinking about the next few months, what are your immediate goals for employment?

Are there any specific strategies or plans that you have that will help you achieve your goals?

If you had to describe where you think you'll be a year from now, how would you describe your life? Best case/worse case scenarios?

Post-transition interviews

How do you fill your time during the day?

If not working: How do you support yourself (e.g., food, housing)?

If working: Tell me about your job (boss, friends, duties, benefits, pay)?

Tell me about other types of financial support you have (family, social services, welfare, etc.)?

References

Allegretto, Sylvia and Devon Lynch. 2010. "The Composition of the Unemployed and Long-Term Unemployed in Tough Labor Markets." *Monthly Labor Review* 133:3–18.

Allison, Paul. 2010. *Event History Analysis*. Thousand Oaks, CA: Sage.

Alwin, Duane. 2007. *Margins of Error: A Study of Reliability in Survey Measurement*. Hoboken, NJ: Wiley-InterScience.

Angrist, Joshua D. 2006. "Instrumental Variables Methods in Experimental Criminological Research: What, Why and How." *Journal of Experimental Criminology* 2:23–44.

Apel, Robert and Gary Sweeten. 2010. "The Impact of Incarceration on Employment during the Transition to Adulthood." *Social Problems* 57:448–79.

Apel, Robert, Shawn Bushway, Raymond Paternoster, Robert Brame, and Gary Sweeten. 2008. "Using State Child Labor Laws to Identify the Causal Effect of Youth Employment on Deviant Behavior and Academic Achievement." *Journal of Quantitative Criminology* 24:337–62.

Apel, Robert, Shawn Bushway, Robert Brame, Amelia Haviland, Daniel Nagin, and Raymond Paternoster. 2007. "Unpacking the Relationship between Adolescent Employment and Antisocial Behavior: A Matched Samples Comparison." *Criminology* 45:67–97.

Auletta, Ken. 1982. *The Underclass*. New York: Vintage.

Bachman, Jerome G. and John Schulenberg. 1993. "How Part-Time Work Intensity Relates to Drug Use, Problem Behavior, Time Use, and Satisfaction among High School Seniors: Are These Consequences or Merely Correlates?" *Developmental Psychology* 29:220–35.

Becker, Gary S. 1968. "Crime and Punishment: An Economic Approach." *Journal of Political Economy* 76:169–217.

Beckett, Katherine and Theodore Sasson. 1999. *The Politics of Injustice: Crime and Punishment in America*. Thousand Oaks, CA: Pine Forge.

Bierens, Herman J. and Jose R. Carvalho. 2011. "Job Search, Conditional Treatment and Recidivism: The Employment Services for Ex-Offenders Program Reconsidered." *The B. E. Journal of Economic Analysis & Policy* 11:1–40.

Bollinger, Christopher R. 1998. "Measurement Error in the Current Population Survey: A Nonparametric Look." *Journal of Labor Economics* 16:576–94.

Box-Steffensmeier, Janet M. and Bradford S. Jones. 2004. *Event History Modeling: A Guide for Social Scientists*. Analytical Methods for Social Research Series. Cambridge, UK: Cambridge University Press.

Bray, Jeremy W., Gary A. Zarkin, Michael L. Dennis, and Michael T. French. 2000. "Symptoms of Dependence, Multiple Substance Use, and Labor Market Outcomes." *American Journal of Drug and Alcohol Abuse* 26:77–95.

Brown, Victoria L. and Micah A. Riley. 2005. "Social Support, Drug Use, and Employment among Low-Income Women." *The American Journal of Drug and Alcohol Abuse* 31:202–33.

Buis, Maarten L. 2010. "Direct and Indirect Effects in a Logit Model." *The Stata Journal* 10:11–29.

Bureau of Labor Statistics, U. S. Department of Labor. 2006. National Longitudinal Survey of Youth 1997 cohort, 1997–2003 (rounds 1–7) [computer file]. Chicago, IL: The National Opinion Research Center, the University of Chicago [producer]. Columbus, OH: The Center for Human Resource Research, The Ohio State University, Columbus [distributor].

Burtless, Gary, 1995. "The Case for Randomized Field Trials in Economic and Policy Research." *Journal of Economic Perspectives* 9:63–84.

Bushway, Shawn D. and Robert Apel. 2012. "A Signaling Perspective on Employment-Based Reentry Programming." *Criminology & Public Policy* 11:21–50.

Chalfin, Aaron and Steven Raphael. 2011. "Work and Crime." Pp. 444–76 in *The Oxford Handbook of Crime and Criminal Justice*, edited by Michael Tonry. New York: Oxford University Press.

Coleman, James S. 1993. "The Rational Reconstruction of Society." *American Sociological Review* 58:1–15.

Collins, Susan E., Seema L. Clifasefi, Diane E. Logan, Laura S. Samples, Julian M. Somers, and G. Alan Marlatt. 2011. "Current Status, Historical Highlights, and Basic Principles of Harm Reduction." Pp. 3–35 in *Harm Reduction: Pragmatic Strategies for Managing High-Risk Behaviors,* 2d. ed., edited by G. Alan Marlatt, Mary E. Larimer, and Katie Witkiewitz. New York: Guilford Press.

DeFronzo, James. 1996. "Welfare and Burglary." *Crime & Delinquency* 42:222–30.

———. 1997. "Welfare and Homicide." *Journal of Research in Crime and Delinquency* 34:395–406.

Dickinson, Katherine. 1981. "Supported Work for Ex-Addicts: An Exploration of Endogenous Tastes." *The Journal of Human Resources* 16:551–99.

Dickinson, Katherine with Rebecca Maynard. 1981. *The Impact of Supported Work on Ex-Addicts*. New York: Mathematica Policy Research, Inc.

Dobkin, Carlos and Steven L. Puller. 2006. "The Effects of Government Transfers on Monthly Cycles in Drug Abuse, Hospitalization and Mortality." *Journal of Public Economics* 11–12:2137–57.

Drake, Elizabeth K., Steve Aos, and Marna G. Miller. 2009. "Evidence-Based Public Policy Options to Reduce Crime and Criminal Justice Costs: Implications in Washington State." *Victims and Offenders* 4:170–96.

Elliott, Delbert S. and Suzanne S. Ageton. 1980. "Reconciling Race and Class Differences in Self-Reported and Official Estimates of Delinquency." *American Sociological Review* 45:95–110.

Fagan, Jeffrey and Richard B. Freeman. 1999. "Crime and Work." *Crime and Justice* 25:225–90.

Federal Bureau of Investigation. 2010. *Crime in the United States, 2010*, Table 1. Retrieved August 7, 2013 (www.fbi.gov/about-us/cjis/ucr/crime-in-the-u.s/2010/crime-in-the-u.s.-2010/tables/10tbl01.xls).

Foley, C. Fritz. 2008. "Welfare Payments and Crime." NBER Working Paper Series No. 14074. Cambridge, MA: National Bureau of Economic Research, Inc.

Friedlander, Daniel and Philip K. Robins. 1995. "Evaluating Program Evaluations: New Evidence on Commonly Used Nonexperimental Methods." *American Economic Review* 85:923–37.

Gill, Andrew M. and Robert J. Michaels. 1992. "Does Drug Use Lower Wages?" *Industrial and Labor Relations Review* 45:419–34.

Ginexi, Elizabeth M., Mark A. Foss, and Christy K. Scott. 2003. "Transitions From Treatment to Work: Employment Patterns Following Publicly Funded Substance Abuse Treatment." *The Journal of Drug Issues* 33:497–518.

Giordano, Peggy C., Stephen A. Cernkovich, and Jennifer L. Rudolph. 2002. "Gender, Crime, and Desistance: Toward a Theory of Cognitive Transformation." *American Journal of Sociology* 107:990–1064.

Gottfredson, Michael R. and Travis Hirschi. 1990. *A General Theory of Crime*. Stanford, CA: Stanford University Press.

Gottschalk, Peter and Minh Huynh. 2010. "Are Earnings Inequality and Mobility Overstated? The Impact of Nonclassical Measurement Error." *The Review of Economics and Statistics* 92:302–15.

Greenberg, David H., Charles Michalopoulis, and Philip K. Robins. 2003. "A Meta-Analysis of Government-Sponsored Training Programs." *Industrial and Labor Relations Review* 57:31–53.

Hannon, Lance and James DeFronzo. 1998a. "The Truly Disadvantaged, Public Assistance, and Crime." *Social Problems* 45:383–92.

———. 1998b. "Welfare and Property Crime." *Justice Quarterly* 15:273–88.

Harvey, Phillip. 2011. *Back to Work: A Public Jobs Proposal for Economic Recovery*. New York: Demos.

Hindelang, Michael J., Travis Hirschi, and Joseph G. Weis. 1981. *Measuring Delinquency*. Beverly Hills, CA: Sage.

Hirschi, Travis. 1969. *Causes of Delinquency*. Berkeley: University of California Press.

Hollister, Robinson G. Jr., Peter Kemper, and Rebecca A. Maynard. 1984. *The National Supported Work Demonstration*. Madison: University of Wisconsin Press.

Huang, David Y. C., Elizabeth Evans, Motoaki Hara, Robert E. Weiss, and Yih-Ing Hser. 2011. "Employment Trajectories: Exploring Gender Differences and Impacts of Drug Use." *Journal of Vocational Behavior* 79:277–89.

Huizinga, David and Delbert S. Elliott. 1986. "Reassessing the Reliability and Validity of Self-Report Delinquency Measures." *Journal of Quantitative Criminology* 2:293–27.

Johnson, Bruce D., Mangai Natarajan, and Harry Sanabria. 1993. "'Successful' Criminal Careers: Toward an Ethnography within the Rational Choice Perspective." Pp. 201–21 in *Routine Activity and Rational Choice: Advanced in Criminological Theory*, edited by Ronald V. Clarke and Marcus Felson. New Brunswick, NJ: Transaction Publishers.

Kaestner, Robert. 1991. "The Effect of Illicit Drug Use on the Wages of Young Adults." *Journal of Labor Economics* 9:381–412.

———. 1994. "New Estimates of the Effects of Marijuana and Cocaine Use on Wages." *Industrial and Labor Relations Review* 47:454–70.

Kandel, Denise, Kevin Chen, and Andrew Gill. 1995. "The Impact of Drug Use on Earnings: A Life-Span Perspective." *Social Forces* 74:243–70.

Katz, Jack. 1988. *Seductions of Crime: Moral and Sensual Attractions in Doing Evil*. New York: Basic Books.

Kling, Jeffrey R. 2006. "Incarceration Length, Employment, and Earnings." NBER Working Paper No. 12003. Cambridge, MA: National Bureau of Economic Research.

Latessa, Edward. 2011. "Why the Risk and Needs Principles Are Relevant to Correctional Programs (Even to Employment Programs)." *Criminology & Public Policy* 10:973–77.

Laub, John H. and Robert J. Sampson. 1993. "Turning Points in the Life Course: Why Change Matters to the Study of Crime." *Criminology* 31:301–25.

———. 2003. *Shared Beginnings, Divergent Lives: Delinquent Boys to Age 70*. Cambridge, MA; Harvard University Press.

Levitan, Sar and Frank Gallo. 1988. *A Second Chance: Training for Jobs*. Kalamazoo, MI: Upjohn Institute.

Levitt, Steven D. and Sudhir A. Venkatesh. 2000. "An Economic Analysis of a Drug-Selling Gang's Finances." *Quarterly Journal of Economics* 115:775–89.

Lidz, Victor, Diane M. Sorrentino, Lenore Robison, and Scott Bunce. 2004. "Learning from Disappointing Outcomes: An Evaluation of Prevocational Interventions for Methadone Maintenance Patients." *Substance Use & Misuse* 39:2287–308.

Lyons, Christopher J. and Becky Pettit. 2011. "Compounded Disadvantage: Race, Incarceration, and Wage Growth." *Social Problems* 58:257–80.

Magura, Stephen, Graham L. Staines, Laura Blankertz, and Elizabeth M. Madison. 2004. "The Effectiveness of Vocational Services for Substance Users in Treatment." *Substance Use & Misuse* 39:2165–213.

Malveaux, Julianne. 2009. "1929 and 2009: A Public Job Program is the Answer." *The Progressive,* October 27. Retrieved October 1, 2011 (http://progressive.org/mpmalveaux102709.html).

Marlatt, G. Alan. 1996. "Harm Reduction: Come As You Are." *Addictive Behaviors* 21:779–88.

Marlatt, G. Alan and Katie Witkiewitz. 2002. "Harm Reduction Approaches to Alcohol Use: Health Promotion, Prevention and Treatment." *Addictive Behaviors* 27:867–86.

Marlatt, G. Alan, Mary E. Larimer, and Katie Witkiewitz. 2011. *Harm Reduction: Productive Strategies for Managing High Risk Behaviors.* 2d ed. New York: Guilford Press.

Maruna, Shadd. 2001. *Making Good: How Ex-Convicts Reform and Rebuild Their Lives*. Washington, DC: American Psychological Association.

Matsueda, Ross L., Derek A. Kreager, and David Huizinga. 2006. "Deterring Delinquents: A Rational Choice Model of Theft and Violence." *American Sociological Review* 71:95–122.

McCarthy, Bill. 2002. "New Economics of Sociological Criminology." *Annual Review of Sociology* 28:417–42.

McCarthy, Bill and John Hagan. 2001. "When Crime Pays: Capital, Competence, and Criminal Success." *Social Forces* 79:1035–59.

Mead, Lawrence. 2007. "Toward a Mandatory Work Policy for Men." *The Future of Children* 17:43–72.

Namboodiri, Krishnan and C. M. Suchindran. 1987. *Life Table Techniques and Their Applications*. New York: Academic Press.

Osgood, D. Wayne, Janet K. Wilson, Patrick M. O'Malley, Jerald G. Bachman, and Lloyd D. Johnston. 1996. "Routine Activities and Individual Deviant Behavior." *American Sociological Review* 61:635–55.

Pager, Devah. 2003. "The Mark of a Criminal Record." *American Journal of Sociology* 108:937–75.

———. 2007. *Marked: Race, Crime, and Finding Work in an Era of Mass Incarceration*. Chicago: University of Chicago Press.

Paternoster, Raymond, Shawn Bushway, Robert Brame, and Robert Apel. 2003. "The Effect of Teenage Employment on Delinquency and Problem Behaviors." *Social Forces* 82:297–335.

Pedace, Roberto and Nancy Bates. 2000. "Using Administrative Data to Assess Earnings Reporting Error in the Survey of Income and Program Participation." *Journal of Economic and Social Measurement* 26:173–92.

Pettit, Becky and Christopher J. Lyons. 2007. "Status and the Stigma of Incarceration: The Labor-Market Effects of Incarceration, by Race, Class, and Criminal Involvement." Pp. 203–26 in *Barriers to Reentry? The Labor Market for Released Prisoners in Post-industrial America*, edited by Shawn Bushway, Michael A. Stoll, and David Weiman. New York: Russell Sage Foundation.

———. 2009. "Incarceration and the Legitimate Labor Market: Examining Age-Graded Effects on Employment and Wages." *Law & Society Review* 43:725–56.

Piliavin, Irving, Rosemary Gartner, Craig Thornton, and Ross Matsueda. 1986. "Crime, Deterrence, and Rational Choice." *American Sociological Review* 51:101–19.

Platt, Jerome J. 1995. "Vocational Rehabilitation of Drug Abusers." *Psychological Bulletin* 117:416–33.

Ray, Marsh B. 1961. "The Cycle of Abstinence and Relapse among Heroin Addicts." *Social Problems* 9:132–40.

Redcross, Cindy, Dan Bloom, Gilda Azurdia, Janine Zweig, and Nancy Pindus. 2009. "Transitional Jobs for Ex-Prisoners: Implementation, Two-Year Impacts, and Costs of the Center for Employment Opportunities (CEO) Prisoner Reentry Program." New York: MDRC.

Rossi, Peter H., Richard A. Berk, and Kenneth J. Lenihan. 1980. *Money, Work, and Crime: Experimental Evidence*. New York: Academic Press.

Sabol, William J. 2007. "Local Labor-Market Conditions and Post-Prison Employment Experiences of Offenders Released from Ohio State Prisons." Pp. 257–303 in *Barriers to Reentry? The Labor Market for Released Prisoners in Post-Industrial America*, edited by Shawn Bushway, Michael A. Stoll, and David Weiman. New York: Russell Sage Foundation.

Sampson, Robert J. and John H. Laub. 1990. "Crime and Deviance over the Life Course: The Salience of Adult Social Bonds." *American Sociological Review* 55:609–27.

———. 1992. "Crime and Deviance in the Life Course." *Annual Review of Sociology* 18:63–84.

Schore, Jennifer, Rebecca Maynard, and Irving Piliavin. 1979. *The Accuracy of Self-Reported Arrest Data*. Princeton, NJ: Mathematica Policy Research.

Schram, Sanford, Richard Fording, Joe Soss, and Linda Houser. 2009. "Deciding to Discipline: Race, Choice, and Punishment at the Frontlines of Welfare Reform." *American Sociological Review* 74:398–422.

Schroeder, Ryan D., Peggy Giordano, and Stephen A. Cernkovich. 2007. "Drug Use and Desistance Processes." *Criminology* 45:191–222.

Shover, Neal. 1996. *Great Pretenders: Pursuits and Careers of Persistent Thieves*. Boulder, CO: Westview Press, Inc.

Silverman, Kenneth and Elias Robles. 1998. "Employment as a Drug Abuse Treatment Intervention: A Behavioral Economic Analysis." NBER Working Paper No. 6402. Cambridge, MA: National Bureau of Economic Research, Inc.

Sobell, Linda C., Timothy. P Ellingstad, and Mark B. Sobell. 2000. "Natural Recovery from Alcohol and Drug Problems: Methodological Review of the Research with Suggestions for Future Directions." *Addiction* 95:749–64.

Sobell, Mark B. and Linda C. Sobell. 1993. "Treatment for Problem Drinkers: A Public Health Priority." Pp. 138–57 in *Addictive Behaviors across the Life Span: Prevention, Treatment, and Policy Issues,* edited by J. S. Baer and G. A. Marlatt. Thousand Oaks, CA: Sage Publications.

Staff, Jeremy and Christopher Uggen. 2003. "The Fruits of Good Work: Job Quality and Adolescent Deviance." *Journal of Research in Crime and Delinquency* 40:263–90.

Staff, Jeremy, D., Wayne Osgood, John E. Schulenberg, Jerald G. Bachman, and Emily E. Messersmith. 2010. "Explaining the Relationship between Employment and Juvenile Delinquency." *Criminology* 48:1101–31.

Toby, Jackson. 1957. "Social Disorganization and Stake in Conformity: Complementary Factors in the Behavior of Hoodlums." *Journal of Criminal Law, Criminology and Police Science* 48:12–17.

Tuma, Nancy Brandon and Michael T. Hannan. 1984. *Social Dynamics: Models and Methods*. Orlando, FL: Academic Press.

Uggen, Christopher. 2000. "Work as a Turning Point in the Life Course of Criminals: A Duration Model of Age, Employment, and Recidivism." *American Sociological Review* 65:529–46.

Uggen, Christopher and Jeremy Staff. 2001. "Work as a Turning Point for Criminal Offenders." *Corrections Management Quarterly* 5:1–16.

Uggen, Christopher and Melissa Thompson. 2003. "The Socioeconomic Determinants of Ill-Gotten Gains: Within-Person Changes in Drug Use and Illegal Earnings." *American Journal of Sociology* 109:146–85.

Uggen, Christopher and Sara Wakefield. 2007. "What Have We Learned from Longitudinal Studies of Adolescent Employment and Crime?" Pp. 189–218 in *The Long View of Crime: A Synthesis of Longitudinal Research,* edited by A. Liberman. New York: Springer.

Venkatesh, Sudhir A. 2008. *Gang Leader For a Day: A Rogue Sociologist Takes to the Streets*. New York: Penguin.

Visher, Christy A. and Jeremy Travis. 2003. "Transitions from Prison to Community: Understanding Individual Pathways." *Annual Review of Sociology* 29:89–113.

Visher, Christy A., Laura Winterfield, and Mark B. Coggeshall. 2005. "Ex-Offender Employment Programs and Recidivism: A Meta-Analysis." *Journal of Experimental Criminology* 1:295–315.

Volkow, Nora D. 2005. "What Do We Know About Drug Addiction?" *American Journal of Psychiatry* 162:1401–02.

Western, Bruce. 2002. "The Impact of Incarceration on Wage Mobility and Inequality." *American Sociological Review* 67:477–98.

———. 2006. *Punishment and Inequality in America*. New York: Russell Sage.

Wilson, James Q. and Allan Abrahamse. 1992. "Does Crime Pay?" *Justice Quarterly* 9:359–77.

Witkiewitz, Katie and G. Alan Marlatt. 2006. "Overview of Harm Reduction Treatments for Alcohol Programs." *International Journal of Drug Policy* 17:285–94.

Wright, John and Francis Cullen 2000. "Juvenile Involvement in Occupational Delinquency." *Criminology* 38:863–96.

Wright, John, Francis Cullen, and Nicolas Williams. 2002. "The Embeddedness of Adolescent Employment and Participation in Delinquency: A Life Course Perspective." *Western Criminology Review* 4:1–19.

Yamaguchi, Kazuo. 1991. *Event History Analysis*. Newbury Park, CA: Sage.

Zweig, Janine, Jennifer Yahner, and Cindy Redcross. 2010. *Recidivism Effects of the Center for Employment Opportunities (CEO) Program Vary by Former Prisoners' Risk of Reoffending*. New York: MDRC.

———. 2011. "For Whom Does a Transitional Jobs Program Work? Examining the Recidivism Effects of the Center for Employment Opportunities Program on Former Prisoners at High, Medium, and Low Risk of Reoffending." *Criminology & Public Policy* 10:945–72.