

**The Effect of Arrests on the Earnings of Young Men:  
Evidence from the National Youth Survey**

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### **Abstract**

This paper seeks to test the hypothesis that criminal background has a negative impact on earnings, using data on arrests from a national longitudinal survey on youth and delinquency. I estimate that having been arrested causes a reduction in annual earnings of 18 to 26 percent. I find some evidence that continued involvement in criminal activity is an important factor that influences the size of the earnings gap. I also find evidence that human capital factors -- education and work experience -- influence the association between arrests and earnings. My analysis suggests that other factors to which this earnings gap has been attributed -- such as individual background and attitude and social control factors -- are far less important than hypothesized. Using a wage decomposition, I find that there is a substantial unexplained portion of the earnings gap, over 55 percent, which therefore does not rule out stigma as an important cause of the earnings gap.

## 1. Introduction

There are more individuals under the supervision of the criminal justice system in the U.S. today than ever before. There are currently over six million people either incarcerated, on parole or on probation. With over two million people in federal and state prisons and jails, the incarceration rate is approaching 1% of the total population and is higher than in any other industrialized nation. From 1920 to 1970 the incarceration rate was quite stable, around 110 incarcerated per 100,000 people. Beginning in the mid-1970s this trend began to change, driven largely by more punitive crime legislation and prosecution. The incarceration rate in 2000 was over six times the 1970 rate, at 690 per 100,000 (Mawakkil, 2001).<sup>1</sup>

Race is a critical dimension of the current incarceration trend. Of the two million individuals currently incarcerated, over one million are African American. In 1996, the incarceration rate among whites was 193 per 100,000 while the rate among African Americans was 1571 per 100,000.

These rates of incarceration have important implications for the labor market. An increasing proportion of individuals are removed from the labor force each year. There are now more people under correctional supervision – in prison, on parole or on probation - than there are unemployed. An increasing number of individuals leave prison each year seeking employment while bearing a new or expanded criminal record. During 2001, over 600,000 individuals will be released from prison, many of whom will seek legitimate employment as a source of income and

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<sup>1</sup> The incarceration rate among women is increasing twice as fast (9.1% in 2000) as that among men (4.7%). In 2000, 138,000 women were incarcerated in the U.S., 3 times the number incarcerated in 1985.

self-sufficiency. Unemployment among ex-offenders has been estimated at between 25 and 40 percent (Finn and Fontaine, 1985). In California, for example, it is estimated that as many as 80 percent of ex-offenders remain jobless a year after being released from prison (Butterfield, 2000).

The lack of labor market opportunities for ex-offenders increases the likelihood of a return to criminal activity for those released from prison. Recidivism is very high: over 40 percent of inmates released from prison are rearrested within three years (Ryan, 1998; Mukemal, 2000; Heinrich, 2000). Sixty-eight percent of the individuals admitted to prison in California in 2000 were on parole at the time of their arrest (barring additional infractions, parole lasts three years) (Butterfield, 2000).

It is both conventional wisdom and a prediction of formal economic theory that ex-offenders face a stigma in their attempt to gain employment. It is hypothesized that for this reason, among others, ex-offenders experience worse employment outcomes than those without a criminal background, what I call an “ex-con earnings gap.” This paper seeks to test the hypothesis that criminal background has a negative impact on earnings using data on arrests from a national longitudinal survey on youth and delinquency.<sup>2</sup> An emerging body of research on this topic has found some evidence of an ex-con earnings gap. My contribution to the literature is that the dataset used here enables me to incorporate a much broader range of control variables in my analysis than any of the previous studies on this topic. Also, one of the methods that I will apply is a wage decomposition analysis, developed in the literature on gender and race wage discrimination, that, to my knowledge, has not been applied to studies of ex-offenders.<sup>3</sup> In

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<sup>2</sup> More recent studies on this topic (and other research I am conducting) focus on incarceration, rather than arrests. The dataset that I use here only has longitudinal data available on arrests.

<sup>3</sup> I am indebted to Robert Lalonde and Brian Jacob for suggesting the application of this method.

addition, the dataset used here has only been used in one other study on this subject, and I apply a range of analytical methods that were not used in that particular study.

In Section 2, I will examine the hypothesis that criminal background has a negative effect on earnings, reviewing relevant literature that provides a theoretical framework to explain the prediction of an ex-con earnings gap. In Section 3, I review the literature that provides empirical evidence for a causal relationship between criminal background and employment outcomes. In Section 4, I describe the data set that I will use in this analysis and present the methodology and models that I will use here. In Section 5, I present the results of my analysis and describe some limitations of this study. Finally, in Section 6, I draw some conclusions from the findings.

## **2. Theoretical Framework**

To begin with, there are structural factors in the labor market that explicitly constrain employment options for ex-offenders. Some jobs legally exclude ex-offenders and some licensing and bonding agencies refuse to license or bond ex-offenders. Some states legally bar employment of ex-offenders in professions that include health care, public sector positions, criminal justice occupations, education, child care and security services. Some state laws mandate background checks before a hire can be made in certain professions (Dale, 1976; Mukemal, 2000).

In addition to legal barriers to employment, there are other theoretical explanations for why a criminal background should lead to lower earnings. These include the stigma of a criminal background, human capital lost (or investment in human capital foregone) while participating in illegal activities or in prison, and engagement in social networks that do not facilitate access to employment.

Under a stigma explanation, a criminal background is a signal to potential employers that the jobseeker is untrustworthy and may not be a productive employee. Hiring is an investment decision made under uncertainty due to the asymmetric information between employers and jobseekers. Employers do not have full information about a jobseeker's marginal productivity and therefore must make a decision based solely on observable characteristics (Akerlof, 1970; Arrow, 1973; Spence, 1973). If employers have access to information about criminal background, it can serve as a key indicator of potential productivity.

There is also a possible human capital explanation for the earnings gap. Time spent engaged in criminal activity (and dealing with the court system if arrested and charged) necessarily reduces time available for investment in human capital. Likewise, time spent incarcerated removes the individual from the conventional labor market and results in lost work experience. It is possible that time spent in prison could be used to invest in human capital development but also likely that such time could result in the strengthening of knowledge more useful in the illegal sector.

Finally, there is a social capital explanation for why a criminal background might lead to lower earnings. Involvement in crime and time spent incarcerated increases the relationships that an individual has with other criminals and decreases opportunities to establish ties with individuals who might provide information and access to legitimate employment (Granovetter, 1995; Hagan, 1993; Sampson and Laub, 1993).

While each of the above mechanisms could be at work simultaneously, one could be more influential than the others. Any combination of the above mechanisms may cause ex-offenders to choose to re-engage in criminal activity and thus invest less time in trying to generate earnings in the legitimate labor market.

Some researchers add a life course perspective to a theoretical framework on crime and earnings (Bushway, 1996; Nagin and Waldfogel, 1998; Western, 2000; Sampson and Laub, 1993). According to this approach, not only is involvement in crime important, but the timing of that involvement in the individual's life course is also important. Thus criminal involvement is hypothesized to have a different impact depending on when it takes place and the way in which it disrupts an individual's career path. Nagin and Waldfogel (1998) have suggested that criminal involvement results in individuals being excluded from the "career job market" where human capital investments by employers facilitate increasing employee earnings over time. These investments on behalf of employees by employers in the career market require a significant degree of trust. Because ex-offenders are seen as less trustworthy, they are limited to the "spot market" where employers offer only temporary and seasonal employment and thus trustworthiness is less important. Nagin and Waldfogel assert that youth offenders who are forced into the spot market may actually experience an increase in earnings since jobs in the career market would have initially paid them less. However, over the long-term, these youth would suffer from the stagnant earnings of the spot market.

### **3. Empirical evidence from existing literature**

A small body of research has found some evidence that criminal background has a significant causal impact on employment outcomes.<sup>4</sup> Researchers have looked at a range of types of criminal background including involvement in criminal activity, arrests, convictions, incarceration, and prison sentence length. These studies have also examined a range of employment outcomes including probability of being employed, weeks worked, earnings, and

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<sup>4</sup> Table 1 presents an overview of recent findings in a summary table format.

earnings mobility. Researchers have examined the relevance of age, race and ethnicity, and type of crime. However, there is no single theory of criminal background and employment that underlies and guides existing research and thus it is difficult to draw strong conclusions about *why* there is an earnings gap by comparing the results of existing studies.

Researchers have used two main types of data sources: general population surveys and administrative data. Surveys such as the National Longitudinal Survey of Youth have been used in two ways: analysis based on self-reported criminal background and analysis based on the record of whether the respondent was in prison at the time of the interview. Administrative data on offenders -- criminal justice and unemployment insurance records -- have been used to generate earnings histories of offenders as well as pre-post comparisons of employment status.

The methodological problem of unobserved heterogeneity is particularly acute in the attempt to analyze the causal relationship between criminal background and employment. It is quite likely that many of the individual characteristics and circumstances that make someone more likely to participate in illegal activity would also cause that individual to have weaker labor force attachment. Thus models of the relationship between criminal background and employment must convincingly demonstrate that any perceived causal effect is not just the influence of a third, unobserved factor associated with the individual. Previous studies have used a variety of methodological approaches to deal with the problem of unobserved heterogeneity. Those studies that have access to a broad range of individual-level data control for as many variables as possible that can be theoretically related to crime and employment, including variables that measure self-control (i.e. drug use, juvenile delinquency) and informal social control (i.e. marital status) (Western, 2000). Several studies use fixed effect (Grogger, 1995; Nagin and Waldfogel, 1998; Waldfogel, 1994) and random effect (Grogger, 1992; Nagin and

Waldfogel, 1998; Waldfogel, 1994; Western, 2000) specifications to control for individual-level differences. Some researchers use versions of a pre-post, or difference-in-difference model to isolate a causal effect. (Bushway, 1996; Lott, 1990; Nagin and Waldfogel, 1995, Kling, 1999) An instrumental variable approach has been less widely used to control for heterogeneity (Freeman, 1992; Needels, 1996; Kling, 1999).

**Survey research.** Freeman (1992) analyzed three surveys -- the National Longitudinal Study of Youth (NLSY), the Boston Youth Survey, and the Inner City Youth Survey -- to examine the impact of self-reported criminal activity and incarceration on the employment of out-of-school young men, particularly African Americans. Freeman finds that young men who had been incarcerated were 16 percentage points less likely to be employed seven years later and 8 percentage points less likely to be employed four years later. Comparing his findings for jail time, probation, and self-reported criminal activity, Freeman concludes that more serious involvement with the criminal justice system has “massive” long term effects while lesser involvement has a negligible effect.

Like Freeman, Western (2000) analyzes NLSY data and in addition to using self-reported criminal background, creates a longitudinal indicator of prison time based on the survey report of where the interview was conducted each year. Western uses a larger set of control variables than Freeman and uses a random effects model to control for unobserved heterogeneity. He finds that incarceration leads to a 12 percent decrease in hourly earnings. Controlling directly for work experience, he suggests that as much as half the earnings gap is due to inexperience with paid employment.

Bushway (1996) analyzes the impact of arrests on labor market outcomes for young out-of-school white men using the National Youth Survey. He finds that arrests for men aged 27 and

under are associated with a 17 percent decrease in job stability and a 26 percent decrease in weekly earnings. However, confirming Nagin and Waldfogel's theory that criminal involvement at younger ages can in fact have a positive impact on earnings in the short term, Bushway finds that an arrest for men aged 21 and younger is associated with an increase in weekly earnings.

**Research using administrative data.** Lott (1990) uses data from the Federal Probation and Parole Sentencing and Supervision Information Systems (FPPSIS) of the Administrative Office of the U.S. Courts. Analyzing the impact of a federal conviction for assault, auto theft, burglary, drugs or forgery on individuals for whom pre-conviction and post-conviction earnings information was available, Lott finds that conviction has a negative and significant impact on earnings. Waldfogel (1994) also examines the FPPSIS data set and, using random and fixed effects models, finds that prison time results in a 28 percent decrease in monthly earnings for crimes that involved a "breach of trust" and a 21 percent decrease for crimes that did not involve such a breach. Given this difference, Waldfogel concludes that the decrease is caused more by the stigma of untrustworthiness associated with criminal involvement than lost work experience. In a third study using the FPPSIS data, Nagin and Waldfogel (1998) use fixed and random effects models to test their theory that age plays an important role in the effect of criminal involvement as described above. They find that for men aged 40 to 49, a conviction leads to a 8 percent decrease in earnings whereas for men under 25, a conviction leads to a 24 percent increase in monthly earnings.

In an earlier paper, Nagin and Waldfogel (1995) analyze a study of small sample of young men in Britain that combines self-reported and administrative data. Using a difference-in-difference model to remove time-invariant characteristics, they find that convictions lead to more job instability -- time unemployed, weeks on longest job held, number of jobs held -- and a 7

percent increase in earnings, although the latter finding was not statistically significant.

Grogger (1992) constructs a dataset of male arrestees in California, merging criminal justice data with unemployment insurance records. Using a random effects model, he finds that arrests have a small but significant effect, reducing the probability of being employed by 2 percentage points. Expanding on his previous work to analyze the impact of arrests on earnings and the impact of incarceration, Grogger (1995) finds that arrests lead to an initial decrease in earnings of 4 percent that disappears after 18 months. Using a fixed effects model, he also finds that incarceration leads to a 22 percent decrease in earnings that, unlike the impact of arrests, is sustained over time.

Kling (1999) also constructs a dataset using criminal justice records in the state of California but, unlike Grogger, he focuses on solely incarceration rather than arrests and, in particular, on the impact of the length of prison sentence. Kling uses an instrumental variable approach that takes advantage of the systematic differences in sentencing by judges to whom cases are randomly assigned. Examining outcomes 5 to 8 years later, he finds that incarceration has a negligible effect on employment probability, but causes 10 to 30 percent decrease in earnings. Finding that white collar criminals experience a higher decrease in earnings and that sentence length has no effect on earnings leads him to conclude, as did Waldfogel, that stigma appears to drive the earnings gap as opposed to a loss of work experience. Needels (1996) constructs a dataset on the employment of prison releasees in Georgia. She applies a Heckman two-step estimation approach using place of birth as an instrument and, like Kling, finds that prison sentence length (for her sample of men with previous prison records) does not seem to impact earnings. She also found that, for her sample, race and education has strong effects on earning levels (but not employment) while age had no significant effect on earnings.

**Limitations of existing research.** There are some key limitations in the analyses conducted thus far. First, studies that rely on self-reported data suffer from measurement error due to underreporting by respondents. There is evidence in the literature that respondents underreport criminal involvement by as much as 50 percent and African Americans may underreport by a factor of two to four times actual involvement.<sup>5</sup> Second, the studies that rely on administrative data may underestimate earnings because official employment data doesn't capture under-the-table wages, the earnings of individuals who move out of state are not reported, and given the lack of information on schooling, some respondents may show no earnings but actually be productively engaged in human capital development. Third, since the sample is drawn from those who come into contact with the criminal justice population, the analysis cannot make comparisons between offender and non-offender populations. Fourth, the studies that use administrative records have been limited to the offender population of a single state and thus are not nationally-representative.

**Summary of existing research.** To summarize the current state of knowledge, incarceration appears to have a larger effect on earnings (10 to 30 percent decrease) than arrests or convictions (zero to 26 percent decrease). Evidence suggests that the effects of arrests and incarceration on employment probability likely decrease significantly over time, however the effects of incarceration on earnings appear to be sustained. Young men appear to experience a boost in earnings after an arrest or incarceration, reflecting a shift into a "spot market" for employment with earnings that are initially higher but stagnant over the long term. Earnings reductions appear to be higher for white collar criminals and those in jobs that require high levels of trust, suggesting that the stigma of a criminal background drives the decrease in earnings. The

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<sup>5</sup> The effect of underreporting is to bias estimates of the earnings gap downwards (Freeman, 1987).

role of lost work experience is unclear: Kling (1999) and Needel's (1996) work suggests that sentence length (and implicitly work experience) does not appear to impact earnings, however when Western (2000) directly controlled for work experience he found that it was a significant factor in the size of the earnings gap.

#### **4. Data, Methodology and Models**

The National Youth Survey is a longitudinal study of delinquency and drug use among American youth. The survey has a nine-year panel design of which seven waves are currently available for public analysis. The survey was initiated in 1976 with a national probability sample of 1726 adolescents born from 1959 to 1965. Thus the youth were 11 to 17 years old in 1976 and 21 to 27 years old in 1986, the most recent survey year for which results are available. Due to the extremely low numbers of female ex-offenders in the sample, I focus my attention on the men in the sample. There are 918 men in the original survey of which 694 responded to most of the questions on the 1986 survey.<sup>6</sup> (See Table 3 for summary statistics.) Previous analysis of this data set by Bushway (1996) compared his NYS sample to a corresponding sample from the National Longitudinal Survey of Youth and found that the NYS dataset appears to be representative of this age cohort of American youth.

#### **Methodology**

Using regression analysis, I will test whether there is a significant difference in the annual earnings of those who have been arrested and those who have not, controlling for a range

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<sup>6</sup> Five individuals who reported spending some time in prison during 1986 were removed from the analysis to prevent forced time out of the labor force from confounding results.

of individual characteristics.

**Dealing with unobserved heterogeneity.** I approach the problem of unobserved heterogeneity in two ways. First, I will attempt to control for as many possible factors that might be associated with both criminal activity and employment outcomes. Because the NYS was designed to understand youth delinquency and its results, there is a range of key background variables available about each respondent. I will be able to control for a much broader range of correlates -- things like self-esteem, attitudes toward deviance, professional motivation -- than have previously been examined in this way. In particular, the NYS will allow me to control for self-reported current criminal activity, a factor which previous studies have rarely been able to account for directly. However, because the survey questions were modified each year, some of the control variables are only available in the 1986 wave of data so I am limited to a cross-sectional analysis of my complete model.

Second, I will take advantage of the longitudinal structure of the data to run a fixed effects model on three years of survey data: 1980, 1983 and 1986. Despite the numerous control variables I use in the cross-sectional model, it is still likely that there are unobserved factors that bias those results. The fixed effects model will effectively difference out any fixed individual characteristics across the time periods and thus remove individual propensities or characteristics that might cause both criminal involvement *and* low earnings.

**Selection of control variables.** Following the literature on ex-offenders (in particular Freeman, 1992; Grogger 1992, 1995; Western, 2000), I include several variables in the model that are intended to control for factors that may be associated with both criminal background and earnings. Variables like age, race, education, work experience, local labor market conditions and health status are familiar components of human capital studies. I also control for whether the

respondent is currently in school, given that this can be expected to reduce earnings. I control for current criminal activity, which would reduce time spent in the legitimate labor market, by using the respondent's self-report of illegal acts committed in the past year. Cognitive ability, measured here by earliest available GPA (following Freeman, 1992 and Bushway, 1996) may influence earnings potential and involvement in crime. Drug use is suggested by Western (2000) as a measure of self-control, which may explain both ability to secure and maintain employment as well as to refrain from illegal activity. Marital status has been used by many as a measure of informal social control, particularly Sampson and Laub (1993) who provide evidence that marriage is directly related to criminal activity and well as labor market outcomes. I use both parental status and attitudes about work as indicators of "professional motivation." Having children may provide an incentive to seek a stable income from the legitimate labor market. Attitudes about the importance of work indicate a respondent's proclivity to dedicate effort and resources to employment success. Attitudes about deviance are used to control for a respondent's perception of acceptable and unacceptable behavior as regards criminal activity. Self-esteem, measured here by a respondent's report of how his parents would "label" him, is included because it may influence both labor market success as well as criminal activity. Finally, peer delinquency is included here to control for the influence of personal networks ("social capital") which has been suggested to be key to labor market success (Granovetter, 1995; Western, 2000).

## Models

### *Cross-Sectional Model*

$$(1) Y_i = \beta_0 + \beta_1 C_i + \beta_2 A_i + \beta_3 R_i + \beta_4 S_i + \beta_5 H_i + \beta_6 X_i + \varepsilon_i$$

I will estimate Model (1) above with all variables measured in 1986. This will provide a cross-sectional analysis of the relationship between criminal background and earnings controlling for a range of other variables.  $Y_i$  are the annual earnings for a particular individual<sup>7</sup>,  $C_i$  (for criminal background) indicates whether or not the individual has ever been arrested,  $A_i$  indicates the respondent's age,  $R_i$  is an indicator variable for race (white or nonwhite),  $S_i$  indicates whether the respondent is currently in school,  $H_i$  measures health status, and  $X_i$  is a vector of control variables that includes human capital, labor market, cognitive, self-control, societal control, professional motivation, self-esteem, and peer delinquency.<sup>8</sup> I use a Tobit model to estimate this equation, to account for the fact that the data are censored because 35 respondents (5%) report zero annual earnings.

$$(2) Y_i = \beta_0 + \beta_1 C_i + \beta_2 A_i + \beta_3 R_i + \beta_4 S_i + \beta_5 H_i + \varepsilon_i$$

Model (2) above is a core model without the controls that will be used for comparison purposes to isolate the effect of each set of control variables.

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<sup>7</sup> In the data analyses presented here, I used annual earnings as the dependent variable and, as is conventional, also ran the models on log of annual earnings. Both sets of results are presented in the appendix. However, only the models without the log transformation will be discussed here given the much better fit of the non-logged model to the data. One implication of this is that I am focusing on results that allow observations with higher incomes to influence the estimates, rather than "smoothing" their impact through a log transformation.

<sup>8</sup> More detailed definitions of variables are provided in Table 2.

### ***Fixed Effects Model***

$$(3) \quad Y_{it} = \alpha_{0i} + \alpha_1 C_{it} + \alpha_2 1980_{it} + \alpha_3 1983_{it} + \alpha_4 S_{it} + \alpha_5 X_{it} + \eta_{it}$$

$$(4) \quad \bar{Y}_i = \bar{\alpha}_{0i} + \alpha_1 \bar{C}_i + \alpha_2 \bar{1980}_i + \alpha_3 \bar{1983}_i + \alpha_4 \bar{S}_i + \alpha_5 \bar{X}_i + \bar{\eta}_i$$

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$$(5) \quad (Y_{it} - \bar{Y}_i) = (\alpha_1 C_{it} - \alpha_1 \bar{C}_i) + (\alpha_2 1980_{it} - \alpha_2 \bar{1980}_i) + (\alpha_3 1983_{it} - \alpha_3 \bar{1983}_i) \\ + (\alpha_4 S_{it} - \alpha_4 \bar{S}_i) + (\alpha_5 X_{it} - \alpha_5 \bar{X}_i) + (\eta_{it} - \bar{\eta}_i)$$

Model (5) presents a fixed effect specification using panel data. Each observation in Equation

(3) is given a fixed effect --  $\alpha_{0i}$  -- that picks up any effects that are stable across time periods.

When the mean of each variable (Equation (4)) is subtracted from Equation (3), the fixed effect is differenced out because it does not change across years and thus the mean is equal to the variable in any given year. This differencing out of the fixed effect results in the fixed effects specification in Model (5).

The fixed effects model is limited to variables that are tracked in the survey questionnaire in each of the years in question as well as variables that vary across years (excluding race for example).  $Y_{it}$  are the earnings for a particular individual in time period t,  $C_{it}$  indicates whether or not the individual has been arrested by time period t,<sup>9</sup>  $1980_{it}$  and  $1983_{it}$  are indicator variables that indicate which year the data for each observation is from,  $S_{it}$  indicates whether the respondent was in school in time period t and  $X_{it}$  is a vector of control variables that includes

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<sup>9</sup> Thirty-eight individuals who reported spending some time in prison were dropped from the sample to prevent forced time out of the labor force from confounding results. Thus the analysis here is on the impact of arrests that do not lead to incarceration.

human capital, labor market, self-control and societal control.

***Wage decomposition***

A wage decomposition is often used in studies on race and gender wage discrimination to analyze earnings gaps and to determine to what extent the gaps can be attributed to observable versus unobservable factors (Altonji and Blank, 1999; Neumark, 1988; Oaxaca and Ransom, 1994). Using a decomposition, observed wage differences are separated into a portion explained by observable differences in individual characteristics and an unexplained portion. The unexplained portion is considered to represent possible “discrimination” or what would be referred to in the literature on ex-offenders as “stigma.” I adapt this methodology to determine how much of the gap between the earnings of those who have been arrested and those who have not been arrested is explained, in my cross-sectional model, by observable factors and how much is left unexplained.

$$(6) \quad \overline{Y^{na}} - \overline{Y^a} = \beta^{na} \overline{X^{na}} - \beta^a \overline{X^a} = \underbrace{\overline{X^a} (\beta^{na} - \beta^a)}_{\text{unexplained portion}} + \underbrace{\beta^{na} (\overline{X^{na}} - \overline{X^a})}_{\text{observable characteristics}}$$

Model (6) above presents the wage decomposition, where  $\overline{Y}$  represents mean income,  $\overline{X}$  represents mean individual characteristics, the  $\beta$ 's represent regression coefficients, the <sup>na</sup> superscript represents never arrested and the <sup>a</sup> superscript represents having been arrested. As the model suggests, the gap between the mean income of those who have never been arrested --  $\overline{Y^{na}}$  -- and the mean income of those who have been arrested --  $\overline{Y^a}$  -- can be decomposed into a portion that can be explained by observable characteristics --  $\beta^{na} (\overline{X^{na}} - \overline{X^a})$  -- and a portion

that is unexplained --  $\overline{X^a} (\beta^{na} - \beta^a)$ .

## 5. Results

**Comparison of means.** To get an initial sense of the relationship between criminal background and other variables, I first did a simple comparison of means for those individuals who have been arrested by 1986 and those individuals who have not. I ran t-tests to test the significance of the difference between means. These results are presented in Table 4. Thirty percent of the sample reported having been arrested prior to 1986. In some ways, the ever arrested and never arrested populations are alike: the mean age, proportion married, employment rate, health status, reported self esteem and reported career motivation are quite similar. However, those who have not been arrested are less likely to have children, have more years of schooling, and reported lower neighborhood unemployment and less drug use. Those who have been arrested reported poorer employment outcomes -- lower wages, lower earnings, and fewer weeks worked. Those who have been arrested had a lower GPA in 1976, are more accepting of deviant behavior, have more delinquent peers and are twice as likely to have committed a delinquent act in the past year.

**Cross-sectional analysis.** Table 5 presents the results from Model (1), the cross-sectional analysis of 1986 data. As the full model presented in Column 1 indicates, a strong and statistically significant relationship was found between earnings and arrests. My estimates suggest that having been arrested causes a decrease in annual earnings of \$2,364, or 18 percent of mean income.

Additional information can be gained by comparing the estimates from a core model with those from the addition of each set of control variables separately. Without control variables,

arrests are estimated to reduce earnings by \$3,783, or 28 percent (Column 2). However, once current criminal activity is added to the model (Column 3), the earnings gap is reduced to \$3,065, or 23 percent of mean income. Like Western (2000), I also find that much of this earnings gap is related to human capital factors: once years of education and work experience are introduced into the model (Column 4), the earnings gap is reduced all the way to \$2,243, 17 percent of mean income. When current criminal activity and human capital factors are added to the model together (Column 5), the earnings gap is reduced to \$1,927, 14% of mean income.

The introduction of the other control factors to the model -- labor market, cognitive skills, self-control, social control, norms, motivation, self-esteem and social capital -- separately from current criminal activity and human capital factors, does not have much effect on the size of the gap, reducing it by \$376 to \$3,407.

Controlling for all observable correlates together, there is an unexplained earnings gap of \$2,364. Some of this is certainly due to unobserved factors related to both criminal background and earnings for which I could not control. It is possible that some of this gap could also be attributed to a stigma explanation.

**Fixed effects analysis.**<sup>10</sup> Table 8 presents the results from the fixed effects model that uses three different years of data from the panel. Using the fixed effects specification, I also found a statistically significant relationship between arrests and earnings. The full model in Column 1 reports that having been arrested by a particular year causes a reduction of \$2,434 in annual earnings that year (26% of mean income). As Column 2 indicates, a core model without

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<sup>10</sup> A Tobit model was used in the cross-sectional analysis to account for the censored data structure. Table 7 presents a comparison of the results of the Tobit model and an OLS model. Given that the population with zero earnings is relatively small (5%), the estimates are comparable. For this reason, the fixed effects model does not adjust for the censored data.

controls results in a very similar estimate of \$2,450. Unlike the cross-sectional model, the addition of control variables to the core model results in only marginal changes in the estimate of the relationship between arrests and earnings.

**Wage decomposition results.** Using a wage decomposition analysis, I found that 35 to 45 percent of the earnings gap found in my cross-sectional model can be attributed to observable individual characteristics controlled for in the model, leaving 55 to 65 percent unexplained. While some of this unexplained portion may be attributable to “stigma,” it is likely that some would be explained by productivity-related characteristics that I was not able to control for directly in my model. However, the considerable size of the unexplained portion leaves open the possibility that stigma plays a significant role in the ex-con earnings gap.

**Other results of interest.** I ran several other specifications of the above models (not reported here) to examine additional aspects of the relationship between criminal background and earnings. Interactions of the human capital variables, both years of school and work experience, with the arrest variable were not statistically significant. The interaction of the race variable with the arrest variable was also not significant but running the models on whites separately from nonwhites suggests that the earnings gap is lower for whites than for nonwhites. The small sample size, particularly of nonwhite arrestees, prevents rigorous examination of these relationships and perhaps explains the insignificant interaction term on the race variable.

**Comparison of cross-sectional and longitudinal models.** Both models report a statistically significant relationship between arrests and earnings and provide estimates of other variables that, with some exceptions, share the same sign and magnitude. However there are two key differences between the model results. First, there is a substantial difference in the relative size of the estimate of the coefficient on arrests: 18 percent of mean income versus 26 percent of

mean income.<sup>11</sup> This may be explained by the fact that the models examine very different periods in the young men's lives in which the relationships between key factors may be changing even over the course of a few years. The longitudinal model examines the cohort as it moves from an age range of 15-21 (with the vast proportion of the youth in school, with little work experience and unmarried) to an age range of 21 to 27 (when few of the youth are in school, many have gained work experience, and a substantial proportion are married and have children). The cross-sectional model, on the other hand, examines a snapshot of the youth at the tail end of this period -- and can thus be expected to derive different estimates of the factors that influence their lives.

The second key difference is that the addition of control variables has much more impact on the variable of interest -- arrests -- in the cross-sectional model than in the fixed effects model. Besides the effect of the different time periods described above, this may also be an indication that the fixed effects specification is successfully controlling, as intended, for observed and unobserved heterogeneity that is related to the variable of interest.

For my purposes, there is important information to be gleaned from each model and the overall finding is that both models suggest that arrests do cause lower earnings in the range of 18 to 26 percent.

**Comparisons with previous findings.** The upper range of my estimate of the impact of arrests on earnings matches the 26 percent found by Bushway (1996) in his analysis of the NYS

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<sup>11</sup> It is interesting that the fixed effects model results in an earnings gap estimate that, in absolute terms, is comparable to the estimate from the cross-sectional model. However, given that the cumulative mean income for 1980, 1983 and 1986 is lower (\$9,000) than the mean income in 1986 alone (\$13,500) the estimates of the earnings gap are different in relative terms.

data.<sup>12</sup> The lower range of my estimate is comparable to Grogger's (1995) estimate of 15 percent from unadjusted tabulations of National Longitudinal Youth Survey (NLSY) data but much larger than his estimate of zero to 4 percent based on his analysis of California arrestees. As Grogger indicates, his California arrestee sample was different in significant ways from the NLSY sample (and my NYS sample), in particular with a much higher unemployment rate (54%) and lower mean earnings (between \$4,000 and \$5,000).

**Limitations.** My analysis in this paper has a number of limitations, some of which I hope to address in other research by using an additional data set (the Panel Study of Income Dynamics) and more sophisticated analytical models. The data used here is self-reported, which research has demonstrated results in under-reporting of criminal background (although the frequency of arrests reported is in line with estimates in the literature). The sample is quite small which contributes to a lack of precision. Given differences in survey questions in various waves of the survey, I was limited in my selection of control variables in the fixed effects model and unable to test my full model. There was a significant amount of attrition between the second and third survey years used in the fixed effects model here and this attrition was related to arrest background: 20 percent of those with a self-reported arrest by 1983 did not answer the survey in 1986, compared with only 9 percent of those without an arrest (Bushway, 1996). I limited my fixed effects analysis to those with data for all three years -- 1980, 1983 and 1986 -- which may have introduced some selection bias.

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<sup>12</sup> My research suggests that Bushway's result can be generalized to a larger population, given that his estimate was from an analysis of a much smaller sample (n=178), which he limited to out-of-school, white men who did not have an arrest in 1983.

## **6. Conclusion**

My results provide confirmation of findings by other researchers of a significant relationship between arrests and earnings. Having been arrested is associated with a decrease of between 18 to 26 percent of annual earnings. I find some evidence that continued involvement in criminal activity is an important factor that influences the size of the earnings gap. I also find evidence to confirm the findings of those who have suggested that human capital factors -- education and work experience -- influence the association between arrests and earnings. My analysis suggests that other factors to which this earnings gap has been attributed -- such as individual background and attitude and social control factors -- are far less important than hypothesized. I also find that there remains a substantial unexplained portion of the earnings gap, some of which is likely explained by unobserved factors that are related to both criminal background and earnings. My wage decomposition analysis suggests that 35 to 45 percent of the earnings gap can be attributed to observable individual characteristics while 55 to 65 percent remains unexplained. Thus my analysis does not rule out the possibility that the stigma of a criminal background and its impact on employer hiring decisions may play an important role in causing the earnings gap.

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**Table 1**  
**Recent Research Findings on Criminal Activity and Labor Market Outcomes**

Study	Data	Population	Ages	Independent Variable	Criminal Activity	Effect Found?
Lott, 1990	Admin	Federal convicts for assault, auto theft, burglary, drugs, forgery – 1984-5	Avg. 36	Change in income	Conviction	There is an income reduction and it is positively related to the size of pre-conviction income
Freeman, 1992	Self-report	Out-of-school young men	“Young men”	Weeks worked, probability of employment	Crime ever committed	11-19% less likely to be employed
					Incarceration	16% less likely to be employed 7 years after release
Grogger, 1992	Admin	Male arrestees in California	20-26	Probability of employment	Arrests	2% less likely to be employed in following year
Waldfoegel, 1994	Admin	Federal fraud and larceny offenders, 1984-87	Avg. late 30s	Average monthly income	Convictions/ Incarceration	5% points less likely to be employed, income decreased by up to 28% (prison <i>and</i> breach of trust) (prison, no breach of trust, up to 21%)
Grogger, 1995	Admin	Male arrestees in California	18-31	Annual earnings	Arrests	4% initial decrease in earnings, then 2-3% decrease, then disappears after 18 months
					Convictions/ Probation	No effect
					Incarceration	22% decrease in earning - sustained over time
	Self-report	National Longitudinal Survey of Youth (NLSY)		Arrests	Annual earnings 15% lower	
Nagin and Waldfoegel, 1995	Admin and Self-report	Young British men	17-19	Weekly take-home pay, weeks unemployed, time spent at longest job held, number of jobs held	Convictions	7% increase in pay (stat. insign), 3 more weeks spent unemployed, 8.2 month less time spent a longest job, number of jobs held increased by over 5

**Table 1 (cont.)**  
**Recent Research Findings on Criminal Activity and Labor Market Outcomes**

Study	Data	Population	Ages	Independent variable	Criminal Activity	Effect Found?
Bushway, 1996	Self-report	Out-of-school white men	27 and under	Job stability, weekly earnings	Arrests	16.6% decrease in job stability
			21 and under			26% decrease in weekly earnings
						Increase in weekly earnings
Needels, 1996	Admin and Self-report	Prison releasees in Georgia	Avg. 40	Annual earnings	Length of time incarcerated	Length of time incarcerated does not significantly effect earnings
Nagin and Waldfogel, 1998	Admin	Federal fraud offenders (also larceny offenders) 1984-87	Avg. 42	Average monthly income	Convictions	7.7% decrease in income
			40-49			29% decrease in income
			under 25			24% increase in income
Kling, 1999	Admin	Felony cases in California	Avg. 35	Earning and employment	Incarceration	0-3% less likely to be employed 5-8 years later
					Sentence length	10-30% lower earnings – earnings effect concentrated among white collar criminals
						No effect
Western, 2000	Self-report	NLSY 1983-98	Men – 19-26 through 34-41	Log hourly earnings	Incarceration	12% decrease in hourly earnings

**Table 2**  
**Variable Definitions**

<b>Variable</b>	<b>Definition</b>
Nonwhite	0 = White; 1 = Other
Married	0 = Not Married; 1 = Married
Kids	0 = No children; 1 = Has children
Years of school	Highest grade completed
Years of school <12	0 = Highest grade completed is 12th grade or higher; 1 = Highest grade completed is less than 12 <sup>th</sup> grade
12 ≤ Years of school <16	0 = Highest grade completed is less than 12 <sup>th</sup> grade or more than 16 <sup>th</sup> grade (college graduate); 1 = Highest grade completed is 12 <sup>th</sup> grade or higher but less than 16 <sup>th</sup> grade (college graduate)
Years of school ≥16	0 = Highest grade completed is less than 16 <sup>th</sup> grade (college graduate); 1 = Highest grade completed is 16 <sup>th</sup> grade or higher.
Job in past year	0 = No jobs in the past year; 1 = Had a job in the past year
Weeks worked past year	# of weeks worked at primary job in past year
Wage at primary job	Hourly wage received at primary job in past year
Income from primary job	Annual earnings from primary job in past year
Neighborhood unemployment	0 = Self-report that high unemployment is “not a problem” or “somewhat of a problem” in respondent’s neighborhood; 1 = Self-report that high unemployment is “a big problem” in respondent’s neighborhood
Urban residence	0 = Resident of suburban or rural area; 1 = Resident of urban area
Low health	0 = No physical problems that restrict activities; 1 = Has physical problems
Used drugs in past year	0 = Has not used one of the following drugs in the past year: marijuana, codeine, barbiturates, hallucinogens, tranquilizers, amphetamines, heroin, crack, cocaine; 1 = has used one of the above drugs in the past year
In school in past year	0 = Not enrolled in school during the past year; 1 = Enrolled in school
Years of work experience	# of years of work experience (aggregated weeks worked at primary job)
High self esteem	0 = Agree or strongly agree that parents would label the respondent one of the following: “bad kid” or “messed up” or disagree or strongly disagree that parents would label the respondent: “well-liked” or “likely to succeed”; 1 = Disagree, strongly disagree, or neither, that parents would label the respondent one of the following: “bad kid” or “messed up” or agree or strongly agree, or neither, that parents would label the respondent: “well-liked” or “likely to succeed”.
Deviance is OK	0 = Respondent believes it is wrong or very wrong to destroy property or break into a vehicle or sell hard drugs or steal more than \$50; 1 = It is little bit wrong or not wrong at all to do any one of the above
Delinquent peers	0 = In the past year, none or very few of the respondent’s friends have either destroyed property, broken into a vehicle, sold hard drugs, stolen more than \$50; 1 = In the past year, some, most or all of respondent’s friends have done one of the above
Delinquent act in past year	0 = In the past year, respondent has done none of the following: damaged employer’s property, damaged other property, stolen motor vehicle, stolen something more than \$50, set fire to property, carried a hidden weapon, attacked someone, been in gang fights, stolen money from employer, had sexual relations against someone’s will, hit parent, hit someone at work, sold hard drugs; 1 = In the past year, respondent has done one of the above
High career motivation	0 = Respondent believes to get ahead in work or career is not important at all; 1 = To get ahead in work or career is somewhat important or very important

**Table 3**  
**National Youth Survey Male Sample**  
**Summary Statistics**

<b>Variable</b>	<b>Summary Statistic</b>
Mean age	24 (2)
Proportion white	.80
Proportion married	.36
Proportion with kids	.31
Proportion with less than 12 years of school	.14
Proportion with 12 or more years of school but less than 16 years	.68
Proportion with 16 or more years of school	.18
Mean years of school	13.1 (2)
Proportion in school in 1986	.33
Mean years of work experience	4.4
Proportion reporting drug use	.51
Proportion living in urban area	.34
Proportion reporting high neighborhood unemployment	.14
Proportion reporting low health status	.12
Proportion reporting no jobs in past year	.04
Mean weeks worked	39 (16)
Mean wage at primary job	\$7.19 (5)
Mean earnings	\$13,457 (\$11,300)
Proportion ever arrested	.30
Proportion ever convicted	.10
Proportion ever incarcerated	.05
Number of cases	695

Note: Data reported is from 1986. Standard deviations in parentheses

**Table 4**  
**Comparison of Means**  
**1986: Ever Arrested vs. Never Arrested**

Variable	Ever Arrested	Never Arrested	Stat. Significant?
N	208	487	
Age	23.99	23.88	
Nonwhite	.17	.22	
Married	.37	.36	
Kids	.37	.28	*
Years of school	12.42	13.39	*
Years of school <12	.27	.08	*
12 ≤ Years of school <16	.49	.71	*
Years of school ≥ 16	.13	.20	*
Job in past year	.94	.96	
Weeks worked past year	35.41	40.80	*
Wage at primary job	\$6.35	\$7.54	*
Income from primary job	\$11,381.00	\$14,344.00	*
Neighborhood unemployment	.20	.12	*
Urban residence	.39	.33	
Low health	.12	.11	
Used drugs in past year	.71	.43	*
In school in past year	.28	.35	
Years of work experience	4.33	4.49	
GPA in 1976	3.54	3.70	*
High self esteem	.93	.94	
Deviance is OK	.15	.04	*
Delinquent peers	.18	.08	*
Delinquent act in past year	.39	.21	*
High career motivation	.98	.96	

\*difference of means is significant at .05 level

**Table 5**  
**Impact of Arrests on Earnings**  
**(Tobit Model on Cross-Sectional Data)**

		(1)	(2)	(3)	(4)	(5)	(6)
Core variables	Was arrested	-2364*** (881)	-3783*** (894)	-3065*** (904)	-2243*** (853)	-1927** (865)	-3407*** (910)
	Age	360 (229)	1621*** (210)	1599*** (209)	309 (227)	347 (228)	1397*** (210)
	Nonwhite	-392 (1034)	-3129*** (1015)	-2972*** (1008)	-855 (956)	-857** (954)	-1677 (1089)
	Low health	-741 (1216)	-4012*** (1290)	-3560*** (1284)	-1814 (1207)	-1672*** (1208)	-2211* (1279)
	In school	-5043*** (866)	-21809*** (5144)	-4714*** (887)	-5369*** (864)	-5348*** (863)	-4899*** (898)
	Criminal activity	Current Delinquency	-1946** (901)	-	-3853*** (947)	-	-1905** (899)
Human capital variables	12 ≤ School < 16	2334** (1210)	-	-	3108*** (1191)	3126*** (1190)	-
	Schooling ≥ 16	8355*** (1613)	-	-	10351*** (1485)	10019*** (1492)	-
	Work exp.	2062*** (244)	-	-	2327*** (240)	2248*** (242)	-
Labor market variables	Urban	702 (.827)	-	-	-	-	998 (871)
	Nhood Unempl	-1182 (1127)	-	-	-	-	-2631** (1186)
Cognitive variables	Earliest GPA	902* (507)	-	-	-	-	1661*** (504)
Self-control variable	Drugs	820 (804)	-	-	-	-	287 (850)
Social control variable Norms	Marital status	1558* (954)	-	-	-	-	2884*** (1004)
	Deviance OK?	757 (1504)	-	-	-	-	550 (1592)
Motivation	Career	4692** (2075)	-	-	-	-	5561** (2192)
	Children	1124 (1007)	-	-	-	-	921 (1060)
Self-esteem	Would be labeled high	4259** (1697)	-	-	-	-	6030*** (1775)
Social Capital	Peer delinq.	-159 (1310)	-	-	-	-	-1712 (1372)
Intercept		-17980*** (6180)	-21810*** (5145)	-20588*** (5112)	-5756 (5153)	-5901 (5148)	-35433*** (6045)
Pseudo R <sup>2</sup>		.02	.01	.01	.02	.02	.01
Obs.		694	694	694	694	694	694

Standard errors in parentheses.

\*p<.10 \*\*p<.05 \*\*\*p<.01

**Table 6**  
**Impact of Arrests on Log Earnings**  
**(Tobit Model on Cross-Sectional Data)**

		(1)	(2)	(3)	(4)	(5)	(6)
Core variables	Was arrested	-.16 (.17)	-.61*** (.18)	-.31* (.18)	-.27 (.17)	-.08 (.17)	-.50*** (.19)
	Age	-.18*** (.04)	.08* (.04)	.07* (.04)	-.22*** (.04)	-.20*** (.04)	.05 (.04)
	Nonwhite	.07 (.20)	-.57*** (.21)	-.50** (.20)	-.008 (.19)	-.01 (.18)	-.26 (.22)
	Low health	-.59** (.23)	-1.3*** (.26)	-1.10*** (.26)	-.78*** (.24)	-.69*** (.23)	-1.01*** (.27)
	In school	-.59*** (.17)	-.64*** (.19)	-.64*** (.18)	-.65*** (.17)	-.63*** (.17)	-.66*** (.19)
	Criminal activity	Current Delinquency	-1.15*** (.17)	- (.17)	-1.56*** (.19)	- (.17)	-1.11*** (.17)
Human capital variables	12 ≤ School < 16	.52** (.23)	-	-	.64*** (.23)	.64*** (.23)	-
	Schooling ≥ 16	1.34*** (.31)	-	-	1.77*** (.29)	1.56*** (.28)	-
	Work exp.	.56*** (.05)	-	-	.63*** (.05)	.58*** (.05)	-
Labor market variables	Urban	.05 (.16)	-	-	-	-	.05 (.18)
	Nhood Unempl	-.03*** (.22)	-	-	-	-	-.43* (.25)
Cognitive variables	Earliest GPA	.08 (.10)	-	-	-	-	.20* (.11)
Self-control variable	Drugs	.25 (.15)	-	-	-	-	.10 (.18)
Social control variable	Marital status	.16 (.18)	-	-	-	-	.51 (.21)
Norms	Deviance OK?	-.26 (.29)	-	-	-	-	-.33 (.33)
Motivation	Career	.75* (.39)	-	-	-	-	.99** (.46)
	Children	.02 (.19)	-	-	-	-	.07 (.22)
Self-esteem	Would be labeled high	.90*** (.32)	-	-	-	-	1.32*** (.37)
Social Capital	Peer delinq.	.30 (.25)	-	-	-	-	-.27 (.29)
Intercept		8.48*** (1.18)	7.36*** (1.07)	7.87*** (1.02)	10.8*** (1.01)	10.7*** (.98)	5.01*** (1.27)
Pseudo R <sup>2</sup>		.10	.02	.04	.08	.09	.03
Obs.		694	694	694	694	694	694

Standard errors in parentheses.

\*p<.10 \*\*p<.05 \*\*\*p<.01

**Table 7**  
**Impact of Arrests on Earnings**  
**(Tobit Model compared with OLS Model)**

		Tobit	OLS
Core variables	Was arrested	-2364*** (881)	-2306*** (856)
	Age	360 (229)	499** (222)
	Nonwhite	-392 (1034)	-474 (1002)
	Low health	-741 (1216)	-374*** (1170)
	In school	-5043*** (866)	-4978*** (844)
	Criminal activity	Current Delinquency	-1946** (901)
Human capital variables	12 ≤ School < 16	2334** (1210)	1984* (1168)
	Schooling ≥ 16	8355*** (1613)	7652*** (1561)
	Work exp.	2062*** (244)	1773*** (234)
Labor market variables	Urban	702 (.827)	683 (804)
	Nhood Unempl	-1182 (1127)	-1206 (1092)
Cognitive variables	Earliest GPA	902* (507)	841* (492)
Self-control variable	Drugs	820 (804)	646 (783)
Social control variable	Marital status	1558* (954)	1544* (929)
	Norms	Deviance OK? (1504)	830 (1457)
Motivation	Career	4692** (2075)	4271** (1989)
	Children	1124 (1007)	1059 (980)
Self-esteem	Would be labeled high	4259** (1697)	3598** (1613)
Social Capital	Peer delinq.	-159 (1310)	-414 (1271)
Intercept		-17980*** (6180)	-18202*** (5989)
Pseudo R <sup>2</sup> / R <sup>2</sup>		.02	.32
Obs.		694	694

Standard errors in parentheses.  
 \*p<.10 \*\*p<.05 \*\*\*p<.01

**Table 8**  
**Impact of Arrests on Earnings**  
**(Fixed Effects Model on Longitudinal Data)**

		(1)	(2)	(3)	(4)	(5)	(6)
Core variables	Was arrested	-2434*** (726)	-2450*** (756)	-2366*** (755)	-2263*** (724)	-2212*** (724)	-2675*** (753)
	In School	-5558*** (530)	-5644*** (542)	-5553*** (542)	-5780*** (526)	-5723*** (526)	-5336*** (545)
	Year1980	2790** (1124)	-5670*** (492)	-5715*** (491)	2898*** (1111)	2685** (1117)	-4911*** (525)
	Year1983	1069 (703)	-4145*** (422)	-4151*** (420)	1223* (698)	1111 (700)	-3713*** (436)
Criminal Activity	Current Delinquency	-747 (513)	-	-1404*** (527)	-	-897* (508)	-
	Human capital variables	12 ≤ School < 16	1820*** (672)	-	-	1574** (666)	1544** (665)
	Schooling ≥ 16	7125*** (947)	-	-	7070*** (945)	6990*** (945)	-
	Work Experience	1792*** (251)	-	-	1980*** (248)	1934*** (249)	-
Labor market variable	Urban	-590 (677)	-	-	-	-	-564 (701)
Self-control variable	Drug use	125 (541)	-	-	-	-	-186 (555)
Social control variable	Marry	2071*** (675)	-	-	-	-	2993*** (689)
Norms	Deviance OK?	-1353 (846)	-	-	-	-	-1419* (877)
Motivation	Career	1902 (1220)	-	-	-	-	2157* (1268)
Self-esteem	Would be labeled high	1110 (9156)	-	-	-	-	1283 (951)
Social Capital	Peer delinq.	-287 (668)	-	-	-	-	-19 (686)
	Intercept	2048 (2099)	16013 (398)	16306*** (412)	4580*** (1439)	5011*** (1459)	11981*** (1643)
R <sup>2</sup>		.40	.21	.21	.40	.40	.25
N		602	602	602	602	602	602
Obs.		1805	1805	1805	1805	1805	1805

Standard errors in parentheses.  
Observations are from 1980, 1983 and 1986.  
Earnings are in 1986 dollars.  
\*p<.10 \*\*p<.05 \*\*\*p<.01

**Table 9**  
**Impact of Arrests on Log Earnings**  
**(Fixed Effects Model on Longitudinal Data)**

		(1)	(2)	(3)	(4)	(5)	(6)
Core variables	Was arrested	-.53** (.24)	-.52** (.26)	-.44* (.25)	-.51** (.25)	-.44* (.24)	-.62** (.26)
	In School	-1.05*** (.18)	-.93*** (.18)	-.85*** (.18)	-1.13*** (.18)	-1.04*** (.174)	-.95*** (.19)
	Year1980	-.90** (.37)	-1.80*** (.17)	-1.84*** (.16)	-.49 (.38)	-.80** (.37)	-1.88*** (.178)
	Year1983	-.59** (.23)	-.70*** (.14)	-.70*** (.14)	-.35 (.24)	-.51** (.23)	-.78*** (.15)
	Criminal Activity	Current Delinquency	-1.30*** (.17)	-	-1.32*** (.18)	-	-1.29*** (.17)
Human capital variables	12 ≤ School < 16	2.29*** (.22)	-	-	2.35*** (.32)	2.31*** (.22)	-
	Schooling ≥ 16	2.42*** (.31)	-	-	2.54*** (.32)	2.42*** (.31)	-
	Work Experience	.03 (.08)	-	-	.11 (.08)	.05 (.08)	-
Labor market variable	Urban	-.38* (.22)	-	-	-	-	-.43* (.24)
Self-control variable	Drug use	.23 (.18)	-	-	-	-	-.44** (.19)
Social control variable	Marry	-.02 (.22)	-	-	-	-	-.16 (.23)
Norms	Deviance OK?	-.36 (.28)	-	-	-	-	-.33 (.30)
Motivation	Career	1.26*** (.40)	-	-	-	-	1.16*** (.43)
Self-esteem	Would be labeled high	.50* (.30)	-	-	-	-	.48 (.32)
Social Capital	Peer delinq.	.31 (.22)	-	-	-	-	.23 (.23)
	Intercept	5.71*** (.70)	9.20*** (.14)	9.47*** (.137)	6.64*** (.49)	7.26*** (.48)	7.66*** (.55)
R <sup>2</sup>		.26	.12	.16	.25	.25	.13
N		602	602	602	602	602	602
Obs.		1805	1805	1805	1805	1805	1805

Standard errors in parentheses.

Observations are from 1980, 1983 and 1986.

Earnings are in 1986 dollars.

\*p<.10 \*\*p<.05 \*\*\*p<.01