

**Prisoners' Labour Market History and Aspirations: A Focus on Western
Australia***

by

Margaret Giles
School of Economics and Commerce
The University of Western Australia

and

Anh T. Le
School of Economics and Commerce
The University of Western Australia

Abstract

This paper examines the employability and labour market aspirations of prisoners. The results suggest that repeat prisoners are less likely to be employed than non-repeat prisoners. However, a large proportion of the employment differential between repeat and non-repeat prisoners is due to differences in coefficients. There is no evidence to suggest that the frequency of incarceration affects individual characteristics which may limit prisoners' labour market aspirations after their release from prison.

Correspondence: Tram Le, School of Economics and Commerce, Mail Bag M251 (Economics), The University of Western Australia, 35 Stirling Highway, Crawley, WA 6009, Australia. Email: ale@biz.uwa.edu.au

I. Introduction

The labour market outcomes of ex-prisoners are important for a number of reasons. From an economic perspective, the lack of labour market success implies that ex-prisoners will be more reliant on social welfare such as benefit payments and health, housing, community care and labour market programs, all of which increase the financial burden on society. For example, the estimated direct cost of assistance to the unemployed for 2004-05 was \$5 181 million (Commonwealth of Australia 2005). In addition, unemployment represents a loss of output. That is, the economic growth rate and tax revenues can be enhanced if ex-prisoners are active labour market participants. From a social perspective, lack of labour market success may cause ex-prisoners to re-offend or engage in unhealthy behaviour such as using illegal drugs, consuming excessive alcohol or committing acts of violence. The annual cost of incarceration in 2004-05 was \$87 511 per prisoner (WA Department of Justice 2005). Hence, a reduction in the number of offenders, re-offenders and incarcerations can lead to substantial cost savings for the government.

The objective of this paper is to examine the employability of prisoners before they were incarcerated and their labour market aspirations after leaving prison. In particular, we are interested in whether repeat prisoners are disadvantaged in the labour market. The contributions of the paper can be identified as follows. First, the data set used in the paper is unique in that it is the first data set on prisoners in Western Australia which contains comprehensive information on their education and work history. This type of information is useful in predicting the labour market success of prisoners. Second, it is useful to determine if characteristics specific to prisoners affect their employability and the extent to which repeat prisoners are disadvantaged in employment relative to first time prisoners only. Third, there is

limited research on the labour market outcomes of ex-prisoners after their release. Moreover, the existing literature focuses on qualitative or bivariate analyses of the economic and social outcomes of ex-prisoners. This paper attempts to predict the choices that prisoners may make after leaving prison using a multivariate approach. Finally, this paper offers some information on the likelihood of ex-prisoners being active labour market participants after their release.

This paper is organised into six sections. Section II provides a literature review. A discussion of the data is presented in Section III. Section IV outlines the models to be estimated. The results are discussed in Section V. A conclusion is provided in Section VI.

II. Literature

Most literature suggests that crime incidence and recidivism are inversely related to the educational attainment and employment of the individual (Batchelder and Pippert 2002; Kling and Krueger 2001). That is, offenders are more likely to be less educated and/or to have less stable employment histories than non-offenders. Corrections Victoria estimates that about two-thirds of repeat offenders are unemployed at the time they re-offend (Victorian Department of Justice 2000-2001 cited in Graffam *et al.* 2004).

Whilst the correlation between criminality and labour market success is under no doubt, the direction of causation has been the subject of much debate. For example, many macroeconomic studies of the link between criminality and labour markets suggest that imprisonment is a functional response to labour surplus (Chiricos and DeLone 1992; Rusche and Kirchheimer 1968). That is, unemployment and

concomitant poor economic circumstances, and lack of meaningful and productive activity, lead to criminal behaviour.

More recent studies, however, suggest that the direction of causation is *contraire d'au*; that it is criminality, including imprisonment that contributes to high unemployment rates, low wages and low labour force participation rates, particularly of males (see, for example, Sutton 2002 for a summary of these influences). Two prominent reasons for this are the erosion of human capital during incarceration and the stigma of a criminal record affecting employment prospects.

An alternative explanation for the existence of a correlation between criminality and unemployment is that crime and unemployment are fuelled by factors commonly identified in both literatures. For example, lack of stability in people's private lives can affect employment stability and re-entry into employment. Many ex-prisoners find that support from family and friends is withdrawn during their period of incarceration and that they commence parole with no fixed abode and fractured or depleted social capital (through loss of networks). These influences impact on employment opportunities as a large proportion of jobs are found through social networks. For example, around one in five jobs in 1996 were obtained through information from friends and relatives (Australian Bureau of Statistics 2001). Prisoner networks and correctional authority job placement services help, to some extent, to replace these missing social networks, but it is not clear how successful these alternatives might be.

Periods of incarceration and homelessness send signals to employers on important 'soft skills', such as trustworthiness and reliability, and this can diminish employment prospects for ex-prisoners. In their 2001 survey of employers' preferences regarding job applicants with criminal histories, Holzer *et al.* (2002)

found that employer's willingness to hire ex-prisoners is quite limited. This is exacerbated by low labour market demand in areas with similar demographics to the ex-prisoner population. In the absence of background checks, employers tend to resort to excluding applicants with profiles similar to, inter alia, ex-prisoner groups. In the US, young black males are particularly prone to this form of discrimination.

Homelessness is a particular issue for job applicants, whether they are ex-prisoners or not. Not only might it signal 'soft skills' but it also makes it difficult for prospective employers to contact applicants for further processing and/or notification. Little Hoover Commission (1998) (cited in Petersilia 2000, p.5) found that, on average, ten percent of parolees in California were homeless, but that in the major cities of San Francisco and Los Angeles this figure was as high as 30 to 50 percent.

Moreover, returning to the labour market with a gap in their employment record also signals a decay of human capital (for a review of barriers to employment, see Singley 2004). This is compounded by ex-prisoners being less skilled and less attuned to the social cues that might arise within interviews (Boshier and Johnson 1974).

Prisoners and ex-prisoners are particularly prone to poor health, both physical and mental (Dutrex 2000 and Hirsch *et al.* 2002 cited in Graffam *et al.* 2004) and low self-esteem and/or motivation (Fletcher 2001 cited in Graffam *et al.* 2004 and Helfgott 1997) and these are positively correlated with low participation rates, employment levels and wages. For example, many prisoners suffer depression and are on medication. This illness can take place when they are first sentenced and realise the immediate impacts of incarceration on their lives. It can also emerge during long sentences as marriages fail, children and other family members stop visiting, and family crises, such as illness or death, occur. As a result of

deinstitutionalisation (this applies to Australia as well as many overseas countries), the rate of incarceration of the mentally ill has risen substantially. Whilst the proportion of prisoners with mental illness is not known for Australia, the rate for the US is about twenty per cent (Moore 1996). Other psychological problems are exacerbated by prison procedures including solitary confinement. Overcrowding in prisons also contributes to mental and physical 'ill-health'. All WA prisons have reported bed capacity limits which are regularly exceeded (generally, single cell accommodation being converted to double, and, in some instances, old accommodation blocks being re-commissioned).

Prisoners have been found to be less physically healthy, sometimes due to their pre-prison lifestyles. Moore (1996, p.4) states that prior to incarceration, prisoners 'often live as transients or in crowded conditions, tend to be economically disadvantaged, and have high rates of substance abuse, including intravenous drug use'. In prison, prisoners have access to health and dental care, but this does not mean that they have generally good health. Colds and influenza viruses spread quickly through prison populations due to the nature of prison housing and communal activities. Again, overcrowding tends to exacerbate this. Prisoners are also prone to communicable diseases such as tuberculosis, hepatitis and HIV (Curtis *et al.* 1994 cited in Moore 1996).

In addition to labour market repercussions, group dynamics (including the existence of gangs (Moore 1996; Petersilia 2000) and knowledge transfers in prisons can flow over into the outside world promoting anti-social behaviours such as incivility and disorder (Moore 1996), transience and loitering (Petersilia 2000) and recidivism. Petersilia (2000) states that, in the US, most re-arrests occur within six

months of release with two thirds of all parolees being rearrested within three years. Thus, magnification of unfavourable labour market effects occurs.

The Job Seeker Classification Instrument (JSCI) (Department of Employment Education Training and Youth Affairs 1998) has been used by government agencies such as Centrelink to measure a job seeker's relative labour market disadvantage. The JSCI can identify job seekers who are likely to be long-term unemployed. Highly disadvantaged job seekers are typically characterised as being more likely to: have limited English language skills; be an indigenous job seeker; be homeless or live in short-term emergency accommodation; have a low level of educational attainment; have personal factors or matters affecting their ability to gain employment; or be an ex-prisoner. This type of information is collected by Centrelink. Points are assigned to each of the 14 question responses on a number of characteristics such as age, educational attainment, birthplace and English proficiency. The score is derived by adding the points for each job seeker's question responses. The higher the JSCI score the higher the probability of a job seeker becoming long-term unemployed. For example, an indigenous job seeker is allocated 11 points while an Australian-born non-indigenous job seeker is allocated zero points. With regard to educational attainment, a job seeker who has completed less than 10 years of school or attended a special school is given six points. A job seeker who has a custodial period of one month or longer is given eight points compared to three points for those who have a custodial period of one month or less. It can be seen that ex-prisoners who served more than one month are deemed to be more disadvantaged in the labour market than those with a low level of education.

III. Data

The data set used in this study is from the 2003 survey of five adult metropolitan public prisons in Western Australia. The survey includes two female prisons and three male prisons. The minimum-security prison for women located in the inner metropolitan area has a capacity of 32-45 inmates. The response rate for the survey at this prison was about 50 percent of the sentenced prisoners. A second women's prison houses maximum-, medium- and minimum-security prisoners. It is located in the outer metropolitan area and can take between 85-164 inmates. The response rate here is 50 percent of sentenced prisoners. The maximum-security male prison houses 401-493 prisoners and is located in the outer metropolitan area. The response rate here is only 13 percent of sentenced prisoners. One minimum-security men's prison houses 160-172 prisoners and is located outside the metropolitan area south of Perth. The response rate at this prison is 87 percent of sentenced prisoners. A second male minimum-security prison is located outside of the metropolitan area east of Perth and can house 210-232 prisoners. The response rate at this prison is 90 percent of sentenced prisoners.

The data are collected by personal interviews with the prisoners. In order to assess the accuracy and reliability of the responses in the interviews, interviewers are asked to assess the respondent on three areas, namely literacy, competency and honesty. These represent the interviewer's perception of the respondent and do not follow rigorous definitions. For example, the perception of the respondent's literacy is not defined in terms of benchmarks for reading and writing. It refers to the respondent's apparent ability to comprehend the voiced questions, use the showcards or give appropriate responses. Almost all interviewed prisoners are deemed

competent and reliable in their responses and 94 percent are considered sufficiently literate or competent for the purposes of the survey.

The data set contains information from completed surveys by 453 prisoners, 21 percent females and 79 percent males. The survey contains personal information (*e.g.*, age, sex), employment history (*e.g.*, type of job, hours worked, earnings), past education and training (*e.g.*, highest level of schooling), prison information (*e.g.*, current sentence length and offence), and current prison education, training and work.

It should be noted that the sample of prisoners in this survey differs from the profile of all adult prisoners in Western Australia in a number of ways. First, there is an over-representation of female prisoners in the sample by 13 percentage points (21 percent of interviewed prisoners are females compared to eight percent of the adult prison population). Second, there is an under-representation of indigenous prisoners (21 percent in the survey compared with 35 percent in the general prison population). Third, there is a higher percentage of surveyed prisoners who have completed year 11 or higher (31 percent) compared to the metropolitan prison population (17 percent). Finally, the response rate for the male maximum security prison is low, being only 13 percent.¹

This paper focuses on prisoners aged 18-64 years.² Table 1 presents descriptive statistics of the characteristics of all prisoners within this age group.³ It can be seen that prisoners have a number of unique characteristics. First, only a small percentage of prisoners (18 percent) are employed in high skilled jobs prior to their current incarceration. Second, less than half of the prisoners who are labour market participants (44 percent) are employed in a paid job four weeks prior to their current incarceration. This is considerably lower than that for the general population where the employment rate for those in the labour force is around 93 percent. Third, while

nearly half of prisoners do not have a previous incarceration, 38 percent have had more than one prior incarceration. Fourth, the majority of prisoners (45 percent) have committed major crimes (*e.g.*, robbery with violence, sex offences, homicide). Fifth, about one quarter of prisoners are undertaking some form of training during their current incarceration. Finally, over half of the prisoners intend to either return to the job they had prior to their current incarceration or change career path (*e.g.*, look for better paid jobs, look for different jobs). This suggests that the majority of prisoners intend to actively participate in the labour market after their release. However, 45 percent of prisoners do not plan to actively participate in the labour market after their release. This can have important implications at the individual level with regards to economic hardship, low morale and possibility of re-offending, and at a societal level with regard to welfare consumption.

The average optimism score (Scheier and Carver 1987) among prisoners is 20 points and 48 percent of prisoners have an optimism score above this average score. The optimism index ranges from four to 32.⁴ From studies of the non-prison population (*e.g.*, Dolbier *et al.* 2001; Hjelle *et al.* 1996; Long and Schutz 1995; Montgomery *et al.* 2003; Scheier and Carver 1987 and Scott and Melin 1998), the average optimism index ranges between 19.90 and 23.38. Therefore, compared to the non-prison population, the optimism index from the WA prison sample seems to be at the lower end of the range.

Table 1
Means and Standard Deviations of Variables

Variable	Mean	Standard Deviation
Male (%)	79.21	40.62
Age (yrs)	33.77	10.38
Non-indigenous Australian-born (%)	58.43	49.38
Indigenous (%)	21.06	41.11
Overseas born (%)	20.55	40.46
Education (yrs)	9.37	3.17
Married (%)	49.19	50.05
Children (%)	54.50	49.85
Reside in metropolitan (%)	77.60	41.74
High skilled job prior to prison (%)	18.48	38.85
No prior incarceration (%)	47.34	49.99
One prior incarceration (%)	14.55	35.30
More than one prior incarceration (%)	38.11	48.62
Optimism index	19.79	4.76
Above average optimism (%)	47.81	50.00
Drugs offence (%)	16.63	37.28
Major offence (%)	45.27	49.83
Minor offence (%)	37.41	48.45
Training in prison (%)	27.94	44.92
Employment (%)	43.65	49.65
Return to last paid job prior to prison (%)	28.18	45.04
Change career path (%)	27.02	44.46
No employment prospects after prison (%)	44.80	49.79
<i>Sample</i>	433	

IV. Methodology

Two models are estimated in this paper, namely employment and labour market aspirations. The employment model used in this study is based on a standard model from previous research on employment/unemployment (see, for example, Le and Miller 1999 and Ross 1993). The model of employment can be expressed as:

$$E_i^* = \beta X_i + \varepsilon_i. \quad (1)$$

Where E_i^* is a latent variable that captures the propensity towards employment of prisoner i , X is a column vector of observed factors (*e.g.*, birthplace, age, educational attainment, number of times been in prison⁵), β is a row vector of coefficients and ε_i is a random error term. Since we do not observe the propensity towards employment, two outcomes are derived from E_i^* with reference to an arbitrary threshold of zero.

Thus, the prisoner is held to be employed ($E = 1$) where E^* exceeds zero, and is unemployed ($E = 0$) otherwise. The dependent variable in this analysis is the observed binary indicator of the respondents' labour force status prior to incarceration that corresponds to E in this model. The model constrains the predicted values from the estimation to be in the unit interval (*i.e.*, 0 to 1). The estimates of β are obtained using a logit procedure.⁶

With the logit model, the natural logarithm of the odds ratio of the probability of employment (E) to the probability of unemployment ($1 - E$), $\log = [E / (1 - E)]$ is expressed as a linear combination of the explanatory variables, namely $\log[E / (1 - E)] = \beta X_i$. The parameter estimates in the logit model therefore record the impact on the logarithm of the odds ratio of a small change in the explanatory variables.

Employment is measured as those who were employed in the four weeks prior to their current incarceration. However, unlike the Australian Bureau of Statistics Monthly Labour Force survey which denotes a set of particular dates, this four-week period is different for each prisoner. Therefore, the employment measure will be affected by business cycle activity in those four weeks. Prisoners starting their sentence in 1990, for example, will have experienced a weak labour market so their employment rate is likely to be low. Prisoners starting their sentence post 2000 will have experienced a stronger labour market with high employment rates. In order to take into account the business cycle effects on employment, the average annual unemployment rates for the starting year of each prisoner's current incarceration are incorporated into the model. Furthermore, different unemployment rates for metropolitan and non-metropolitan areas in Western Australia are used to capture different areas of residence of prisoners prior to their current incarceration.⁷

The second model to be estimated focuses on the labour market aspirations of prisoners after their incarceration. After their release prisoners have three discrete choices: return to the last paid job held prior to their incarceration ($j = 1$); change career path (*e.g.*, pursue further study, do something else, find better paid jobs) ($j = 2$) and either do not return to their old job (due to criminal record or other reasons) or do not intend to actively participate in the labour market ($j = 3$). These three categories form mutually exclusive groups. They can be analysed using a multinomial logit model. With the multinomial logit model, the probability that prisoner i with characteristics X will choose labour market option j ($j=1, 2, 3$) is expressed as:

$$P_{ij} | X_i = \frac{e^{\delta_j X_i}}{\sum_{k=1}^3 e^{\delta_k X_i}}. \quad (2)$$

Where the δ_j 's are (1 x m) vectors of coefficients to be estimated and X_i is a (m x 1) vector of exogenous variables likely to influence the category of labour market choice of prisoner i . Since each prisoner must choose one of the three labour market options, only two of these sets of coefficients can be uniquely defined. We normalise by setting the last option to zero (that is, $\delta_3 = 0$). Included in the set of explanatory variables would be personal characteristics, type of job prior to incarceration, type of offence committed for the current prison term, optimism index, training in prison and predicted real hourly wage.

It should be noted that equation (2) models what prisoners would like to do after their release from prisons. The actual labour market activity after being released from prison is not observed. This makes the analysis different from previous studies (*e.g.*, Steurer *et al.* 2001) which examine actual labour market activities of ex-

prisoners. In addition, we consider individuals who had a paid job at any point in time in the five years prior to their current prison sentence. Some individuals may have had a job five years earlier for a brief period and had since left the job. Given the possible time lag between the last job and the current prison sentence, these individuals are more likely to either change career or exit the labour market. Ideally, only prisoners who had a job in the four weeks prior to their current incarceration should be considered. However, due to small sample size a longer time period of employment is chosen.

Considerations are made with regard to the endogeneity of the individual's wage variable and the absence of information on the market wage rate for prisoners who did not work prior to their current incarceration. To account for this problem, a wage equation is estimated and the predicted wage is included in the multinomial logit model. The wage equation is expressed as:

$$\ln W_i = \gamma A_i + \varepsilon_i. \quad (3)$$

Where W_i is the real hourly market wage rate from the last paid job held prior to current incarceration of prisoner i , A is a column vector containing personal and human capital characteristics (*e.g.*, birthplace, gender, age, educational attainment, marital status and area of residence), γ is a row vector of coefficients and ε is a stochastic disturbance term.

Since the wage rate is observed only for prisoners who worked prior to their current prison sentence, correction is made for sample selection bias using the following steps. First, the probability of working is estimated using a logit procedure. In this case a reduced form labour supply function (equation 1) is estimated. The coefficients from equation (1) are used to construct the inverse Mills ratio (see Heckman 1979).

Second, the inverse Mills ratio is included in the wage equation (3) as an additional variable to correct for sample selection bias arising from estimating the equation using only working prisoners. The inclusion of the predicted real hourly wage variable in the labour market choice model is to capture the opportunity costs of not participating in the labour market for those who had a paid job prior to their current incarceration.

V. Results

The discussion will first focus on the employability of prisoners prior to their current incarceration (estimation of equation 1). Table 2 presents the marginal effects of the probability of being employed.⁸ Column (i) presents the base model. Column (ii) includes a number of interaction terms between the number of imprisonments and age, gender and indigenous status.

The McFadden R^2 is 0.11 and around 65 percent of cases are correctly predicted. A more useful way of viewing the prediction success is as an improvement upon a random assignment. A random assignment of individuals to the employment and unemployment outcomes using the sample ratios (for 416 prisoners) for these labour market states of 0.4365:0.5635 would have a prediction success of 51 percent. The improvement upon a random assignment is 14 percentage points, or 29 percent of the gap between the prediction success under random assignment and perfect prediction.

The results with regard to personal characteristics are consistent with *a priori* expectations. For example, looking at column (i) results, compared to the non-indigenous Australian-born prisoners, indigenous prisoners are 16 percentage points less likely to be employed. The results show that males are more likely to be

employed prior to their current incarceration than females by 31 percentage points. Age is entered into the employment model as a quadratic function. The impact of age on the probability of being employed is non-linear and significant. That is, employment initially increases with age but decreases for older prisoners and the turning point is around 42 years. However, the marginal effect of age on the probability of being employed is very small. Evaluated at 20 years of age, for each extra year of age, *ceteris paribus*, the probability of being employed is 1.83 percentage points.⁹ At 30 years it increases by 0.96 of a percentage point for each extra year of age and at 41.5 years the probability of being employed decreases marginally by 0.03 of a percentage point per extra year of age. Lower employment among older prisoners may reflect depreciation/obsolescence of human capital skills for this group. There is a positive relationship between educational attainment and employment. However, the marginal effect is relatively small, being 1.3 percentage points.

Family influences have a positive effect on the employability of prisoners. For example, compared to those who are not married, married prisoners are nine percentage points more likely to work prior to their current incarceration. In addition, prisoners who have children are 12 percentage points more likely to be employed than those who do not have children. These family variables may capture both demand-side and supply-side influences. From the supply-side perspective the greater family responsibilities of either married prisoners or those who have children are expected to increase their incentive to work. From a demand-side perspective, employers may be more likely to employ family-oriented persons because they are held to have greater work commitment, be more reliable and potentially more productive (Le and Miller 1999).

Table 2
Marginal Effects of the Probability of Previous Employment Prior to
Incarceration

Variable	Coeff. (i)	t-ratio	Coeff. (ii)	t-ratio
Constant	-0.410	-0.75	-1.005	-1.31
Indigenous	-0.158	-2.27	-0.018	-0.17
Overseas born	-0.011	-0.16	-0.003	-0.04
Male	0.314	5.68	0.329	2.84
Age	0.035	1.98	0.056	1.72
Age ² /100	-0.043	-1.89	-0.053	-1.24
Education	0.013	1.72	0.013	1.44
Married	0.092	1.68	0.101	1.79
Children	0.121	1.98	0.151	2.42
Reside in metropolitan area	0.059	0.86	0.072	1.04
Above average optimism	0.071	1.34	0.057	1.04
No prior incarceration	0.180	2.90	0.752	2.28
One prior incarceration	0.092	1.13	0.199	0.16
Unemployment rate	-0.157	-2.12	-0.165	-2.10
No prior incarceration x age	<i>n.a.</i>	<i>n.a.</i>	-0.028	-0.70
No prior incarceration x age ²	<i>n.a.</i>	<i>n.a.</i>	0.018	0.35
No prior incarceration x male	<i>n.a.</i>	<i>n.a.</i>	-0.030	-0.16
No prior incarceration x indigenous	<i>n.a.</i>	<i>n.a.</i>	-0.270	-2.39
One prior incarceration x age	<i>n.a.</i>	<i>n.a.</i>	0.032	0.45
One prior incarceration x age ²	<i>n.a.</i>	<i>n.a.</i>	-0.092	-0.92
One prior incarceration x male	<i>n.a.</i>	<i>n.a.</i>	-0.040	-0.15
One prior incarceration x indigenous	<i>n.a.</i>	<i>n.a.</i>	-0.230	-1.58
χ^2 (13)	63.29			
χ^2 (21)			78.21	
<i>McFadden R²</i>	11.04		13.64	
<i>Prediction success</i>	65.14		64.90	
<i>Sample</i>	416		416	

Note: n.a. = not applicable.

Marginal effects for continuous variables are calculated as $\partial E / \partial X = \beta(\bar{E})(1 - \bar{E})$ and as differences in predictions for binary variables. $\bar{E} = 0.4543$.

As discussed in Section II, ex-prisoners are more likely to face long-term unemployment than someone with poor skills (*e.g.*, low level of education). The negative relationship between prior incarcerations and employment may be due to a number of reasons. First, there may be a stigma attached to criminality. Hence, employers are reluctant to employ those who have prior criminal records. Second, the frequency of prior prison sentences may make it difficult for prisoners to maintain employment. The data show that 53 percent of offenders have been in prison at least

once prior to their current incarceration. The results from Table 2 show that an increase in the number of prison terms served reduces employment outcome for prisoners. For example, compared to those who had been in prison more than once before, those who had no prior incarceration are 18 percentage points more likely to be employed. However, there is no significant difference in the employment probability of prisoners who had been in prison once and those who had been in prison twice or more. This is consistent with previous studies (*e.g.*, Sutton 2002) which find prior prison sentence has a negative impact on the employability of prisoners. Moreover, the results suggest the difference in employability of prisoners is not so much the number of times they had been incarcerated but rather having prior imprisonments.¹⁰ The mean employment for those with no prior incarceration is 52 percent compared to only 39 percent for those who have prior imprisonment. It is interesting to note that the marginal effect of previous incarcerations is 17 times that of educational attainment. This is consistent with a higher JSCI score allocated to ex-prisoners than to individuals who have completed less than 11 years of school.

Eight interaction terms are included in the model of employment. These terms are included to take into account the impact frequency of incarcerations has on certain individual characteristics which may affect prisoners' employability prior to their current imprisonment. The first set of interaction terms captures how frequency of imprisonments affects the employability of prisoners as they age. The second set of interaction terms captures how frequency of imprisonments affects the probability of employment across gender. The final set of interaction terms measures how frequency of imprisonments affects the relative employment outcomes of indigenous prisoners and non-indigenous prisoners.

The results from column (ii) show that on the whole the frequency of prior incarceration does not affect individual's characteristics which may have negative effects on their employability. In addition, with the exception of the education variable, inclusion of the interaction terms does not significantly change the other coefficients in the model. The education variable is insignificant in the employment model containing the interaction terms. Only one out of eight interaction terms is statistically significant. This result shows that indigenous prisoners with no prior incarcerations are 27 percentage points less likely to be employed compared to non-indigenous prisoners with no prior incarceration. A number of implications can be derived from the results. First, given that indigenous prisoners have considerably lower levels of educational attainment (an average of eight years of schooling) than non indigenous prisoners (an average of ten years of schooling), any attempts to increase their human capital skills while in prison will have a strong impact on their employability, *ceteris paribus*. Second, for some indigenous prisoners, time in prison may offer them an opportunity to enhance their skills which may not have been possible on the outside.¹¹ Finally, prisoners who undertook a training course in prison have access to formal job placement networks upon their release. This improves their job search and increases their employment opportunities.

As noted earlier, employment of prisoners with prior incarceration is considerably lower than that for those with no prior incarceration. To assess whether the low level of employment among repeat prisoners is due to their characteristics or due to other factors such as employers' attitudes towards hiring people who have served a prison sentence, the predicted employment rate for repeat prisoners is computed using the coefficients from the employment model for non-repeat prisoners. That is

$$(\hat{E}_i^{RP}) = \hat{\beta}^{NP} X_i^{RP} \quad (4)$$

where \hat{E}_i^{RP} is the predicted employment for prisoners with prior incarceration and $\hat{\beta}_i^{NP}$ is the set of coefficients estimated for prisoners who have not been in prison prior to their current incarceration.¹² Equation (4) can be interpreted as employment for repeat prisoners if they were treated in the same way as non-repeat prisoners. Hence, if $\hat{E}_i^{RP} > E_i^{RP}$ (the actual employment of repeat prisoners) then the low actual employment among repeat prisoners may be due to employers' preference for non-repeat prisoners or other factors, rather than due to the personal characteristics controlled for in the model.

The predicted employment for repeat prisoners (equation 4) is 48 percent which is only marginally lower than the average employment for non-repeat prisoners (52 percent). However, the predicted employment of repeat prisoners is considerably higher than their average employment (39 percent). When predicted employment for non-repeat prisoners is computed using the coefficients of repeat prisoners, those with no prior incarceration have predicted employment of only 36 percent.¹³ This suggests that the difference may be due to the treatment of repeat and non-repeat prisoners in the labour market or other factors not controlled for in the model. In order to further examine the contribution of explained and unexplained components of the difference in employment probability, the decomposition of the employment models for repeat and non-repeat prisoners is undertaken.

The decomposition method for the logit model analogous to Blinder's (1973) approach for models estimated using ordinary least squares procedures has been proposed by Farber (1990). Under Farber's (1990) procedure, the difference in the average predicted probability of employment is decomposed into two components,

namely one that is attributable to differences in the characteristics of repeat and non-repeat prisoners and a part that is linked to differences in estimated coefficients. Using Farber's (1990) decomposition, the average predicted probability for group i is defined as:

$$P(\beta_i X_i) = \frac{\sum_{j=1}^n F(\beta_i X_{ij})}{n}. \quad (5)$$

Where $P(\dots)$ is the average predicted probability of employment and $F(\dots)$ is the cumulative distribution function for the logit model. The difference in the average predicted probability between repeat and non-repeat prisoners can be categorised into two parts as follows:

$$P(X^{NP} \beta^{NP}) - P(X^{RP} \beta^{RP}) = [P(X^{NP} \beta^{RP}) - P(X^{RP} \beta^{RP})] + [P(X^{NP} \beta^{NP}) - P(X^{NP} \beta^{RP})] \quad (6)$$

The first term on the right-hand side of equation (6) is part of the difference in employability that is due to differences in the values of the measured attributes used in the model to account for the probability of being employed. It shows the difference in the probability of being employed that would arise in a situation where both groups' characteristics were linked to employment in the same way. The second term on the right-hand side is the unexplained component of the difference in employment. This is the part of the difference in employment that is generally interpreted as an effect due to different treatments of the two groups. There are a number of ways the decomposition can be implemented, depending on the choice of repeat prisoners and non-repeat prisoners as the benchmark group.¹⁴

From the decomposition of the change in employment between repeat prisoners and non-repeat prisoners, the difference in employment probability between repeat and non-repeat prisoners is 13 percentage points. This positive value indicates

that non-repeat prisoners have an advantage in the labour market over repeat prisoners. However, a greater proportion of this advantage is due to unexplained factors. The explained component is negative, thus indicating that changes in characteristics have increased the employment rate of repeat prisoners relative to those of non-repeat prisoners. The component of change in employment that is due to changes in coefficients is positive. This shows that changes in coefficients have increased non-repeat prisoners' employment probability relative to those of repeat prisoners. The unexplained portion of the decomposition may capture the impact of model mis-specification, omitted variables and measurement errors, as well as changes in coefficients that might be linked to the labour market or employers' hiring preference for non-repeat prisoners over repeat prisoners. For these reasons, attributing the unexplained component to a specific causal factor is problematic.

Given that ex-prisoners are less likely to do well in the labour market than non-prisoners, it is useful to examine the labour market aspirations of ex-prisoners. Table 3 presents the results for the multinomial logit model of labour market activities (equation 2).¹⁵ The coefficients in column (i) give the marginal effects of returning to the last paid job held prior to incarceration. The coefficients in column (ii) give the marginal effects of changing career path. The coefficients in column (iii) give the marginal effects of either not returning to the last paid job due to having a criminal record (or other reasons) or exiting the labour market.¹⁶

Table 3
Marginal Effects of the Probability of Labour Market Aspirations— Base Model

<i>Variable</i>	Return to Last Job (i) <i>Coefficient</i>	Change Career (ii) <i>Coefficient</i>	Exit Labour Market (iii) <i>Coefficient</i>
Constant	-0.721 (-1.54)	0.678 (1.45)	0.043 (0.09)
Indigenous	0.029 (0.33)	0.051 (0.59)	-0.080 (-0.88)
Overseas born	-0.012 (-0.17)	0.064 (0.86)	-0.052 (-0.69)
Male	0.304 (2.84)	-0.165 (-1.57)	-0.139 (-1.28)
Age	-0.002 (-0.48)	-0.012 (-2.64)	0.014 (3.67)
High skilled job prior to prison	0.097 (1.24)	-0.085 (-1.08)	-0.012 (-0.14)
Married	0.030 (0.49)	-0.062 (-0.96)	0.031 (0.49)
Children	0.007 (0.11)	0.189 (0.28)	-0.026 (-0.40)
Training in prison	-0.059 (-0.93)	0.124 (2.00)	-0.065 (-1.01)
Above average optimism	0.033 (0.56)	0.081 (1.40)	-0.114 (-1.99)
No prior incarceration	0.009 (0.12)	-0.131 (-1.77)	0.122 (1.70)
One prior incarceration	0.021 (0.24)	-0.151 (-1.70)	0.130 (1.45)
Prison length	-0.002 (-2.76)	0.001 (1.56)	0.001 (1.68)
Drugs offence	0.078 (0.86)	0.076 (0.83)	-0.154 (-1.70)
Major offence	-0.061 (-0.87)	0.056 (0.81)	0.005 (0.08)
Predicted real hourly wage	0.225 (1.30)	-0.102 (-0.57)	-0.123 (-0.72)
Minimum-security prison	-0.019 (-0.20)	0.129 (1.33)	-0.110 (-1.09)
χ^2 (32)	85.13		
McFadden R^2	0.12		
Prediction success	51.22		
Sample	328		

Note: t-ratio in parentheses.
The standard errors are derived from a consistent variance-covariance matrix using Huber-White sandwich estimators.

There are a number of factors that affect the labour market choices of prisoners. First, compared to female prisoners, male prisoners are 30 percentage points more likely to return to their last job after their release from prison. Second, age has a negative effect on the probability of prisoners changing career after their

release from prison and a positive effect on them leaving the labour market. This may reflect difficulties of finding employment among older age groups. It can also reflect depreciation/obsolescence of human capital skills among the older age group.

Whilst the training received in prison increases the likelihood of prisoners changing their career after leaving prison by 12 percentage points, it does not matter to those who wish to either return to their previous paid jobs or exit the labour market. This suggests that for prisoners who wish to return to their last paid jobs or who choose not to participate in the labour market; training in prison may be viewed as filling in time.

The impact of optimism affects prisoners' labour market choices differently. Prisoners who are more optimistic are less likely to leave the labour market after leaving prison, while optimism does not appear to influence the decision of prisoners to either return to their last paid jobs or change career.

A number of interaction terms are included in the multinomial logit. These are the same interaction terms entered into the employment model (see Table 2). We want to see if the frequency of incarcerations affects certain characteristics of prisoners which may affect labour market activities after their release from prison. If the frequency of incarcerations affects certain characteristics of prisoners to reduce their employability, then it is reasonable to assume that it may also limit the choices prisoners have after leaving prison. These results are presented in Table 4. It should be noted that this table contains the coefficients of the interaction terms only.¹⁷ An interaction term between number of incarcerations and age is used to capture the impact of frequency of incarcerations on labour market aspirations of prisoners as they age. The second interaction term between the number of incarcerations and male measures the impact of frequency of incarceration on labour market aspirations

between male and female prisoners. The final interaction term between number of incarcerations and indigenous measures the impact of frequency of incarcerations on labour market aspirations between indigenous and non-indigenous prisoners.

Table 4
Marginal Effects of the Probability of Labour Market Aspirations — Interaction Terms

<i>Variable</i>	Return to Last Job (i) <i>Coefficient</i>	Change Career (ii) <i>Coefficient</i>	Exit Labour Market (iii) <i>Coefficient</i>
No prior incarceration x age	-0.005 (-0.68)	0.0001 (0.01)	0.005 (0.71)
No prior incarceration x male	0.330 (1.58)	-0.33 (-1.47)	0.007 (0.03)
No prior incarceration x indigenous	0.024 (0.12)	-0.161 (-0.71)	0.137 (0.73)
One prior incarceration x age	0.009 (0.84)	0.004 (0.36)	-0.013 (-1.28)
One prior incarceration x male	0.342 (1.08)	-0.574 (-1.80)	0.232 (0.77)
One prior incarceration x indigenous	0.066 (0.30)	-0.122 (-0.53)	0.056 (0.26)

Note: t-ratios in parentheses. The standard errors are derived from a consistent variance-covariance matrix using Huber-White sandwich estimators.

As indicated in Table 4, the only significant variable is the interaction term between number of incarcerations and gender. The result shows that compared to those with multiple imprisonments, men with one previous imprisonment are less likely to change careers after their release than female prisoners who had been incarcerated once before. Overall, the results on the interaction terms suggest that frequency of incarcerations does not have a negative effect on personal characteristics which may hinder individuals' employment prospects after their release.

Inclusion of the interaction terms, however, changes the significance of four variables in the multinomial logit model. Namely, the gender variable becomes insignificant in determining the intention to return to the last job prior to current incarceration. With regard to the intention of changing career after imprisonment, age

and two variables measuring prior incarcerations are now insignificant. The other variables appear to be robust across model specifications.

VI. Conclusion

In this paper prisoners' employability before incarceration and their labour market aspirations after release are examined. A number of important implications can be suggested from the results. First, a number of personal characteristics (*e.g.*, gender, age) that reduce the employability of prisoners before their current incarcerations also reduce their labour market aspirations after release. This suggests that certain prisoners may be long-term disadvantaged in the labour market.

Second, part of the lack of labour market success among ex-prisoners may be the stigma attached to criminality. Employers may be reluctant to employ individuals who have a criminal record. It appears that if ex-prisoners were treated in the same way in the labour market as the general population, they would have higher employment success. However, it is problematic to attribute the difference in employability between prisoners who are first time offenders and those who are repeat offenders to a specific factor. Hence, further work is needed in order to confirm that the lack of employment among prisoners is due to employers' hiring preference and not due to other factors. In order to increase the predictability of the labour market activity of prisoners after their release, information on employers' attitudes to prisoners and what prisoners actually do after their release is needed. Importantly, the immediate post-release period is critical in confirming labour market choices for ex-prisoners.

Finally, while the data show that 55 percent of prisoners intend to be actively involved in the labour market after their release from prison, 45 percent of prisoners

do not intend to participate. The intended absence from the labour market is quite high compared to the general population's actual non-labour market participation rate of 36 percent in 2004 (Australian Bureau of Statistics 2004). Previous studies have shown that lack of labour market success increases the probability of criminal activities. Hence, to reduce the rate of re-offending, ex-prisoners should be assisted to find employment. While we cannot directly observe labour market activities after incarceration with the current data set, we have shown possible diverse labour market aspirations among prisoners. Therefore, it would be useful to obtain data which allows researchers to directly observe labour market activities of prisoners after incarceration. In addition, it would be useful to gauge the impact of correctional authority job placement services on the employability of ex-prisoners, including duration of job search and job turnover of first job in the immediate post-release period.

Appendix

Definition of Variables

Dependent Variables

Employment: This variable is set equal to unity if the individual was employed in the four weeks prior to their current incarceration.

Hourly wage: This variable is computed from the real hourly wage of the most recent paid job prior to the current prison sentence. For hourly wage (where applicable) the midpoint of each band was used to construct a continuous measure of income. The open-ended upper limit was given a value of 1.5 times the lower threshold. There are 23 wage bands. The first 16 bands have increments of \$1. The next six bands have increments of \$5 and the final wage band is open-ended. The dependent variable used in this study is the natural logarithm of real hourly wage. The real wage is computed at 2002-03 prices.

Worked prior to current prison sentence: This variable is set equal to unity if the individual worked in the five years prior to coming to prison.

Labour market aspirations: Three categories of labour market aspirations are distinguished: (i) return to last paid job held prior to coming to prison; (ii) change career path or do something positive with one's life (*e.g.*, undertake further study, look for better jobs, new job); and (iii) do not go back to the last paid job because of criminal record (and other reasons) or exiting from the labour market. Benchmark group is category (iii).

Independent Variables

Male: This variable is set equal to unity if the individual is male. Females are assigned a value of zero.

Birthplace: This is a set of three variables each set equal to unity for: (i) non-indigenous Australian-born; (ii) indigenous; and (iii) overseas born. Benchmark group is the non-indigenous Australian-born prisoners.

Years of education: This variable measures the highest level of educational attainment prior to the current prison sentence.

High skilled jobs prior to prison: This variable is set equal to unity if the individual was employed as managers & administrators, professionals or associate professionals in the most recent job prior to coming to prison.

Training in prison: This variable is set equal to unity if the individual undertakes some training programmes during their current incarceration. This includes training and education or training and work or a combination of education, training and work.

Married: This variable is set equal to unity if the individual lives with a spouse or partner when not in prison.

Children: This variable is set equal to unity if the individual has children.

Reside in metropolitan area: This variable is set equal to unity if the individual resides in a metropolitan area in Perth when not in prison.

Optimism index: This variable has a valid range from zero to 32 points. High values indicate a high degree of optimism while low values indicate a low degree of optimism. The index is computed from eight statements from the Life Orientation Test (LOT) from Scheier and Carver (1985). The optimism index (LOT score) is the sum of the response values (details can be obtained from the authors).

Above average optimism: This variable is set equal to unity if the individual has an optimism score above the sample average optimism score.

No prior incarceration: This variable is set equal to unity if the individual has no prior imprisonment.

One prior incarceration: This variable is set equal to unity if the individual has one prior imprisonment.

Prison length: This variable measures the length of the current sentence (in months).

Drugs offence: This variable is set equal to unity if the individual's most serious reported offence for the current prison sentence involves drugs.

Major offence: This variable is set equal to unity if the individual's most serious reported offence for the current prison sentence involves money and or property and

against people (*e.g.*, robbery with violence) or offences against people (*e.g.*, homicide, assault, sex offences).

Minor offence: This variable is set equal to unity if the individual's most serious reported offence for the current sentence involves money and/or property (without violence) or other offences (*e.g.*, drink driving, resisting arrest, unpaid fines).

Predicted real hourly wage: This variable is computed from the real hourly wage rate received from the last paid job prior to incarceration.

Unemployment rate: This variable measures the average annual unemployment rates for the starting year of each prisoner's current incarceration.

Minimum-security prison: This variable is set equal to unity if the individual is held at a minimum-security prison.

REFERENCES

- Australian Bureau of Statistics (2001), Successful and Unsuccessful Job Search Experience, Australia, July 2000, Cat No. 6245.0.
- (2004), Labour Force Australia, June, Cat No. 6202.0.
- Batchelder, J.S. and J.M. Pippert (2002), “Hard Time or Idle Time: Factors Affecting Inmate Choices Between Participation in Prison Work and Education Programs”, Prison Journal, 82, 269-280.
- Blinder, A. (1973), “Wage Discrimination: Reduced Form and Structural Estimates”, Journal of Human Resources, 8, 436-455.
- Boshier, R. and D. Johnson (1974), “Does Conviction Affect Employment Opportunities”, British Journal of Criminology, 14, 264-268.
- Chiricos, T.G. and M.A. DeLone (1992), “Surplus Labor and Punishment: A Review and Assessment of Theory and Evidence”, Social Problems, 39, 421-446.
- Commonwealth of Australia (2005), Australian Government 2005-06 Commonwealth Budget, Commonwealth of Australia, ACT.
- Department of Employment Education Training and Youth Affairs (1998), Job Seeker Classification Instrument, DEETYA, ACT.

Dolbier, S., M. Soderstrom and M. Steinhardt (2001), “The Relationship between Self-Leadership and Enhanced Psychological, Health and Work Outcomes”, Journal of Psychology, 135, 469-485.

Farber, H.S. (1990), “The Decline in Unionisation in the United States: What Can Be Learned From Recent Experience”, Journal of Labor Economics, 8, S75-S105.

Graffam, J., A. Shinkfield, B. Lavelle and L. Hardcastle (2004), Attitudes of Employers, Corrective Services Workers, Employment Support Workers, and Prisoners and Offenders Towards Employing Ex-prisoners and Ex-offenders, Report to the Criminology Research Council (April).

Heckman, J.J. (1979), “Sample Selection Bias as a Specification Error”, Econometrica, 47, 153-161.

Helfgott, J. (1997). “Ex-offender Needs Versus Community Opportunity in Seattle, Washington”, Federal Probation, 61, 12-25.

Hjelle, L., C. Belongia and J. Nesser (1996), “Psychometric Properties of the Life Orientation Test and Attributional Questionnaire”, Psychological Reports, 78, 507-515.

Holzer, H.J., S. Raphael and M.A. Stoll (2002), Will Employers Hire Ex-prisoners? Employer Preferences, Background Checks and Their Determinants, Institute for Research on Poverty Discussion Paper, No. 1243-02.

Kling, J.R. and A.B. Krueger (2001), Costs, Benefits and Distributional Consequences of Inmate Labor, Princeton University Industrial Relations Section, Working Paper, No. 449.

Le A.T. and P.W. Miller (1999), A Risk Index Approach to Unemployment: An Application Using the Survey of Employment and Unemployment Patterns, Australian Bureau of Statistics Occasional Paper, Cat No. 6293.0.00.001.

Long, B. and R. Schutz (1995), “Temporal Stability and Replicability of a Workplace Stress and Coping Model for Managerial Women: A Multiwave Panel Study”, Journal of Counseling Psychology, 42, 266-278.

Montgomery, R., F. Haemmerlie and D. Ray (2003), “Psychological Correlates of Optimism in College Students”, Psychological Reports, 92, 545-547.

Moore, J. (1996), Bearing the Burden: How Incarceration Weakens Inner-City Communities, Paper presented at the Conference on the Unintended Consequences of Incarceration (January), New York.

Norris, K., R. Kelly and M. Giles (2005), Economics of Australian Labour Markets, sixth edition, Pearson Education Australia, Frenchs Forest NSW.

Petersilia, J. (2000), “When Prisoners Return to the Community: Political, Economic, and Social Consequences”, Sentencing and Corrections: Issues for the 21st Century, 9, 1-7.

Ross, R.T. (1993), "A Probit Analysis of Aboriginal Employment Prospects in New South Wales", Economic Record, 69, 253-258.

Rusche, G. and O. Kirchheimer (1968), Punishment and Social Structure, Russell and Russell, New York.

Scheier, M.F. and C.S. Carver (1987), "Dispositional Optimism and Physical Well-Being: The Influence of Generalized Outcome Expectancies on Health", Journal of Personality, 55, 171-209.

Scott, M. and L. Melin (1998), "Psychometric Properties and Standardization Data of Questionnaires Measuring Negative Affect, Dispositional Style and Daily Hassles: A Nation-wide Sample", Scandinavian Journal of Psychology, 39, 301-307.

Singley, S. (2004), Barriers to Employment among Long-Term Beneficiaries: A Review of Recent International Evidence, Centre for Social Research and Evaluation (CSRE) Working Paper, No. 04/04.

Steurer, S.J., L. Smith and A. Tracey (2001), Education Reduces Crime: Three-State Recidivism Study, Retrieved from www.ceanational.org.

Sutton, J.R. (2002), Imprisonment and Labor Market Outcomes: Evidence from 15 Affluent Western Democracies, Retrieved from <http://www.soc.ucsb.edu/faculty/sutton/Design/Assets/Comris4.pdf>.

WA Department of Justice (2005), Department of Justice Annual Report 2004/05,
Government of Western Australia.

* The authors wish to thank Paul Miller, the participants at the 2004/05 Australian Labour Market Workshop, The University of Western Australia, December 6-7 and two anonymous referees for helpful comments.

¹ WA Department of Justice argues that this maximum security prison houses the average prisoner in terms of offence category, length of prison sentence and gender (personal communications with WA Department of Justice 2003).

² This gives a sample of 433 prisoners. Twenty of the prisoners in the sample are aged over 64 years and are excluded from the analysis.

³ See Appendix for definitions of variables.

⁴ The actual score can range from zero (poor levels of optimism) to 32 (high levels of optimism). However, since scores are given for each response and the index is the sum of the response scores, the lowest index value tends to be greater than zero.

⁵ The frequency of previous incarcerations is included to capture person-fixed effects embedded in prior incarcerations that may reduce employability of the individual. Prior prison sentence can also inform on the lack of continuity of employment.

⁶ This approach is chosen over other procedures (*e.g.*, probit) for simplicity in interpreting the coefficients and computing the partial effects of independent variables on employment.

⁷ Given that only 1.5 percent of the prisoners resided outside of Western Australia before starting their current prison sentence, the unemployment rate for Western Australia is used.

⁸ The sample size differs from that in Table 1 because those who are not in the labour market (*e.g.*, unable to work) or who do not remember their employment activities are excluded. That is, the sample contains labour market participants only. The dependent variable takes a value of one if the prisoner had a paid job in the four weeks prior to their current incarceration and zero otherwise.

⁹ The marginal effect of age on the probability of being employed is evaluated at the mean employment as: $\partial E / \partial Age = (\hat{\beta}_{Age} + 2\hat{\beta}_{Age^2} * Age)(\bar{E})(1 - \bar{E})$. $\hat{\beta}_{age} = 0.1437$, $\hat{\beta}_{age^2} = -0.00175$, $\bar{E} = 0.4543$.

¹⁰ When variables on prison sentences (no prior incarceration and one prior incarceration) are replaced by a variable measuring any prior incarceration, the result shows that compared to those who had no prior incarceration, those who had been in prison are 15 percentage points less likely to be employed. The remainder of the coefficients are robust across model specifications.

¹¹ It should be noted that the type of training prisoners receive while in prison differs from labour market experience. Hence, human capital skills obtained while in prison will differ from those obtained in the market place outside of prison. Norris *et al.* (2005) argue that on-the-job training may be more important than formal education.

¹² Employment models (similar to equation (1)) are estimated separately for those who had prior incarceration and those who are first time offenders. Results can be obtained from the authors upon request.

¹³ Predicted employment for non-repeat prisoners is computed as: $(\hat{E}_i^{NP}) = \hat{\beta}_i^{RP} X_i^{NP}$.

¹⁴ The general meaning that can be attached to the explained and unexplained components is the same in these alternative decompositions.

¹⁵ Note that the sample size differs to that of Table 2 because only those who are employed in the five years prior to the current prison sentence are selected.

¹⁶ The sum of the marginal effects across the three employment options should equal zero.

¹⁷ Full set of results can be obtained from the authors upon request.