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Welfare and recidivism outcomes of in-prison education and training

Margaret Giles
Jacqui Whale

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Two other reports which summarise the overarching project and the analysable datasets are:

Giles, M. and Whale, J. (2013). Prisoner Education and Training, and Other Characteristics: Western Australia, July 2005 to June 2010, Phase 1 Report, Joondalup WA: Centre for Innovative Practice, Edith Cowan University.

Giles, M. and Whale, J. (2014). Characteristics of Prisoner Education and Training and Welfare Dependence: Western Australia, Phase 2 Report, Joondalup WA: Centre for Innovative Practice, Edith Cowan University.

This report should be cited as follows:
Giles, M. and Whale, J. (2014). Models of the Impacts of Prison Education and Training on Welfare Dependence and Recidivism: Western Australia, Report to Australian Institute of Criminology and Phase 3 Report, Joondalup WA: Centre for Innovative Practice, Edith Cowan University.

Acronyms

Abbreviation	Full title
ABE	Adult Basic Education
ANCO	Australian National Classification of Offences
ASOC	Australian Standard Offence Classification
CL	Centrelink
DEEWR	Federal Department of Education, Employment and Workplace Relations
ECU	Edith Cowan University
EVTU	Education and Vocational Training Unit of WA DCS
FaHCSIA	Federal Department of Families and Housing, Community Services and Indigenous Affairs
GED	General Educational Development
MRT	Most recent term in prison
ORI	Office of Research and Innovation
US	United States
VET	Vocational Education and Training
WA	Western Australia(n)
WADCS	WA Department of Corrective Services
WADTWD	WA Department of Training and Workforce Development

Executive summary

This report represents the final stage of a three-phase study of the project 'Labour market outcomes of education and training during incarceration'. The two earlier phases were the extraction of WA Department of Corrective Services (WADCS) prison and training data (Phase 1), and the extraction of Centrelink (CL) welfare data and the linkage of these data with the WADCS data (Phase 2). Analysis of the contribution of in-prison study to reduced recidivism and reduced welfare dependence (Phase 3) is reported here.

Phase 1 of the overarching project involved the extraction of five years of prisoner data (including socio-demographics, offences and prison education and training information) from the WADCS. The data were then cleaned and sorted and a Linkage Key (based on 14 alpha-numeric characters take from surname, given name, date of birth and gender) was constructed. Descriptive statistics were produced. The data included prisoners who had been in prison at any time during the period 1 July 2005 to 30 June 2010 (Giles and Whale 2013).

Phase 2 of the overarching project involved two steps. First, a subset of Centrelink welfare data (including a Linkage Key) was obtained from the Department of Education, Employment and Workplace Relations (DEEWR) on behalf of the Department of Families, Housing, Community Services and Indigenous Affairs (FaHCSIA) which (then) managed Centrelink data. Next these data were merged with the WA prisoner education and training dataset constructed in Phase 1 to produce a comprehensive longitudinal dataset. This WA prisoner education and welfare dataset contains prisoner/ex-prisoner socio-demographics, offences, prison time, recidivism, study, and welfare reliance (Giles and Whale 2014).

Phase 3 of the overarching project, summarised in this report, involved the analysis of the WA prisoner education and welfare dataset constructed in Phase 2 to examine the impact of in-prison study, and other factors, on recidivism and welfare use. The study tested different measures of recidivism, welfare dependence and in-prison study and, using multivariate regression and survival analysis techniques, the relative impacts of in-prison study on post-release outcomes.

This report finds that prisoners ***choose to study*** if their most serious offence type is Economic Crime and if they were incarcerated earlier in the dataset period. Factors influencing the ***successful completion of classes*** are the prisoner being of non-Aboriginal and Torres Strait Islander descent or male, the most serious offence type being an offence other than Economic Crime or the sentence type being Fine Default. Fewer prison terms or shorter prison terms can also contribute to all classes being successfully completed. Factors affecting ***up-skilling*** include the prisoner being non-Aboriginal and Torres Strait Islander or from rural WA, with sentence type of Fine Default or most serious offence of Economic Crime. Fewer prison terms and longer sentences also contribute to up-skilling. Prisoners who enrol in Forklift Classes or Resources Courses are more likely to up-skill than other prisoners.

How study in prison is measured is critical to estimating its influence on post-release outcomes such as ***recidivism*** and welfare dependence. Findings in this study include that prisoners who have ***up-skilled*** are less likely to recidivate (in terms of increased offence seriousness) and an ***increased number of successful classes*** will also reduce

recidivism. In addition, ex-prisoners who are best able to remain in the community for longer have studied and ***successfully completed all their classes***.

Study also affects ***welfare dependence***, in particular, receipt of unemployment benefits or student allowances. That is, the ***more classes that were successfully completed*** or involved ***up-skilling***, the shorter time the ex-prisoners spent on welfare in the immediate post-release period.

Although the study was constrained by the variables included in each of the contributing databases, the results confirm the usefulness of prison study generally in reducing re-offending and improving post-release outcomes. Future research could obtain additional data, such as self-report or verified education and employment information, verified physical and mental health status information, and learning disability diagnostic data, which have been shown, in the labour economics literature, to be important confounding factors for labour market participation and success.

Introduction

Spending public funds on educating and training prisoners can generate a significant return on investment, because as this report argues, studying in prison can reduce costly recidivism and welfare dependence.

What are the costs of recidivism? Let's start with incarceration. Prisoners cost money - about $120,000 per prisoner a year (WADCS 2010, adjusted by a percentage change in Consumer Price Index to 2013 dollars). With over 4,000 prisoners in WA prisons at any one time and a turnover of 8,000 prisoners per year, incarceration in WA is a costly business. In addition, there are policing and legal costs related to charging and sentencing alleged offenders; as well as costs to the community in relation to property damage, insurance premium increases, lives lost and harm and trauma to victims of crime. Reducing recidivism alone can therefore bring about huge cost savings to the government and the community.

Then there's the cost of welfare dependence. In the short term, these include payments to families of incarcerated breadwinners and unemployment benefits for ex-prisoners; just two of the many different types of welfare payments administered by Centrelink. In the longer term, intergenerational welfare looms for an increasing number of disenfranchised, unskilled and unemployed workers, including ex-prisoners who are further disadvantaged by having a criminal record. Improving employability and reducing welfare dependence can therefore reduce demand on the public purse, as well as promote more productive lives.

In Western Australia, considerable efforts have been made by the WA Department of Corrective Services (WADCS) to reduce recidivism and improve individual and community outcomes. Internal reviews of offending behaviour by the Education and Vocational Training Unit (EVTU) of the WADCS, which has provided courses and classes in Western Australia prisons for many years, show proportionately fewer repeat offences by ex-prisoners who studied in prison, compared with those who did not.

Missing from these reviews however is a bigger picture. This research project demonstrates how studying in prison can lead to better labour market outcomes and reduced recidivism, and provides an evaluation of the resulting impact on income support utilisation.

This study uses a new and recent longitudinal dataset, the WA prisoner education and welfare dataset (Giles and Whale 2014), to examine in-prison study in relation to recidivism and welfare dependence. It identifies study measures that are correlated with reduced re-incarceration and income support, and those that are least effective. This will enable correctional education authorities to better match in-prison study to prisoners and enable Centrelink to better service ex-prisoners at risk of long term unemployment. Both of these actions will produce cost savings in terms of lower imprisonment rates and reduced taxpayer-funded welfare payments and services.

In particular, the study uses records for the 14,643 prisoners in the WA prisoner education and welfare dataset for 2005 to 2010 to analyse the impacts of in-prison study generally on:

- reducing recidivism defined in terms of no return to prison, return to prison for less serious offences and return to prison after a longer period in the community;

- improving up-skilling or human capital investment defined in terms of the course levels for the first and last classes attended in a single prison term; and

- reducing income support, defined in terms of time on income support and allowance type.

The objectives of the study include determining factors that affect prisoners' decisions to study while incarcerated as well as factors affecting up-skilling; whether prison study reduces recidivism under any or all of the definitions of recidivism; whether prison study reduced the welfare dependence of ex-prisoners; and differences in welfare dependence and recidivism outcomes in terms of indigeneity, age, gender, offence seriousness, and post-release residential location.

Findings from this study will enable a better understanding of ex-prisoner outcomes in terms of recidivism and welfare dependence in WA. Moreover, the methodology employed will enable similar analyses of the value of prisoner education and training for correctional education authorities and welfare agencies in other jurisdictions in Australia and overseas.

Literature review

Education, crime and recidivism

Many international and Australian studies of correctional education conclude that study in prison reduces recidivism (Kling & Krueger 2001; Batchelder & Pippert 2002; Social Exclusion Unit Great Britain 2002; Lochner & Moretti 2004; Chavez & Dawe 2007; Anders & Noblit 2011; Nally et al. 2012). A US study by Steurer et al. (2001) found that re-arrest, re-conviction and re-incarceration rates were lower for those who undertook education and training while incarcerated compared with non-participants.

Nally et al. (2012), in their study of all-aged US prisoners found that 29.7 percent of prisoners who studied whilst in prison re-offended compared with 67.8 percent of prisoners who did not study. Another US study of prisoners aged 18 to 25 years (Anders & Noblit 2011) reported recidivism rates of 19 percent and 49 percent for prisoners who studied and those that did not, respectively. Moreover, some studies report that the recidivism rate is significantly decreased if offenders have attained a higher level of education (up-skilled) during incarceration (Chavez & Dawe 2007; Nally et al. 2012).

The relationship between improved education and reduced recidivism is summarised simply by Lochner and Moretti (2004) who, in their study of young people, argue that education reduces the propensity to commit crime in two ways. First, education increases the alternatives available to the young person and raises the cost of time spent in prison. Second, education makes individuals less impatient and more risk averse. Riddell also suggests that 'education may raise an individual's rate of time preference' and, as a result increase the 'cost of any future punishment that is the result of crime' (Riddell 2006: 21). High time discount rates are commonly accepted as the norm for individuals with a propensity to crime (Torre & Wraith 2012).

As reported by Davis et al. (2013) in their systematic review of the effectiveness of correctional education, study in prison unequivocally reduces post-release recidivism (all 50 studies) and may increase post-release employment (1 of 19 studies). Cho & Tyler

(2010), in their study of the post-release earnings and employment outcomes of prisoners in Florida, state that 66 percent of prisoners who studied adult basic education (ABE) course in prison were employed within one year of release compared with 62 percent of prisoners who did not study ABE. Raphael (2010), using nationally representative survey data on federal and state inmates in the US, reports a 7.1 percentage point difference between the employment rates of education program participants and those who did not participate.

In most cases, these studies used justice system data to examine recidivism and its link to prior prison study. Few studies have been able to relate reduced recidivism to post-release employment information for ex-prisoners. The study by Nally et al. (2012) is one such study. Here the authors have been able, through collaboration between corrective services and workforce development public agencies, to access identified post-release employment data (primarily occupation and income) on a cohort of ex-prisoners together with the prisoner/ex-prisoner socio-demographic and offence information. Thus, the authors were able to report on the links between in-prison study and both recidivism and post-release employment.

Most studies of the impacts of correctional education on recidivism and post-release labour market success or community connectedness, disaggregate in-prison study into broad categories related to level of education. For example, Nally et al. (2012) had three categories of study – below high school, high school or General Educational Development GED, and college education. No specific courses are mentioned by the authors although they do discuss whether or not the in-prison study represents up-skilling.

Generally these studies link the attainment of skills through in-prison study directly to employability and hence to reduced recidivism. There is also an indirect link summarised by Anders and Noblit (2011) as the effects of in-prison study participation on reducing opportunities to incur infractions (misbehaviour inside prison) which can jeopardise parole or early release and might also jeopardise opportunities for employment.

The types of recidivism measures in the literature are various. In its most uncomplicated form, it refers to the cessation of offending behaviour which can include offending, being charged, being sentenced and being incarcerated. For example, studies that use longitudinal incarceration data might refer to prisoners who reappear in the prison system more than once as recidivists and those that do not as successfully re-integrated into the community. Some studies suggest a revolving door of offenders leaving and re-entering the prison system as typical of recidivists. Other studies suggest a longer time frame in which to judge whether or not the offending behaviour has stopped. For example, Petersilia (2009) suggests that reduced recidivism can only be judged by at least seven years of lack of offending.

Broader definitions of reduced recidivism can include lessened severity of offences by repeat offenders and increased time in the community between offences (Tripodi et al. 2010). That is, de-escalation of offending behaviour could also be considered a positive outcome of reintegration including correctional education and anti-crime and other rehabilitation programs. Similarly, Giles and Whales (2013) report that adult prisoners who study in prison prior to their release but who subsequently re-offend, are often re-incarcerated for lesser offences and serve shorter sentences.

This study adds to the body of literature by testing the relative effects of different prisoner and class characteristics on reducing recidivism and welfare dependence. It also

disaggregates these influences to test whether these influences differ by gender, age, indigeneity and post-release residential location.

Human capital theory

Human capital theory argues that workers can improve their income and productivity through education and training (Mincer 1991, 1970) and that labour is valued in terms of its contribution to the production process (Preston 1997). From a justice perspective, improvements in human capital via education, on-the-job training and work experience increase 'the returns to legitimate work, raising the opportunity costs of illegal behaviour' (Machin et al. 2010: 2). This is the argument that underpins correctional education.

A number of Australian and overseas studies have shown that prison populations are characterised by relatively low levels of educational attainment and work experience (Hamlyn & Lewis 2000; WA Department of Justice 2002; New Zealand Department of Corrections 2003; Giles et al. 2007). Hence there is a push to fill the education deficit during incarceration.

In general, the existing literature on the educational attainment of prisoners has focused on participation in education and training. There are few quantitative studies on the motivations of prisoners to up-skill (improve their human capital) during incarceration. This may be due to the lack of data on prisoners' intentions or the lack of access to reliable and relevant data. Even when data are available, prisoners' reluctance to reveal their true intention for fear of being either excluded from study or being unfavourably considered during their parole hearing, may render their overt intentions to be inaccurate.

Moreover, there are few quantitative studies on the value prisoners place on investment in their human capital. One such study by Arditti and Few (2006) of the needs of female ex-prisoners found that job training programs in prison can mediate the effects of negative life histories. A second study by Tyler and Kling (2006) examined prison-based General Educational Development (GED) programs and their impact on the earnings of the ex-prisoners. A WA study by Giles et al. (2007) using survey data showed that adult sentenced prisoners who undertook vocational training whilst in prison expected better labour market outcomes than those prisoners who undertook general education programs or who did no study during their incarceration.

Research aims and objectives

This project will evaluate, using the WA prisoner education and welfare dataset, the contribution of in-prison study to ex-prisoner welfare dependence and recidivism.

The project will test different measures for the three main constructs. These are:

- recidivism (defined in terms of reduced subsequent prison terms within four years, subsequent sentences for less serious offences and delayed subsequent offending);
- welfare dependence (defined as proportion of six months post-release time on welfare); and
- in-prison study (in terms of choosing to study, successfully completing classes, and up-skilling).

Specifically, the research questions are:

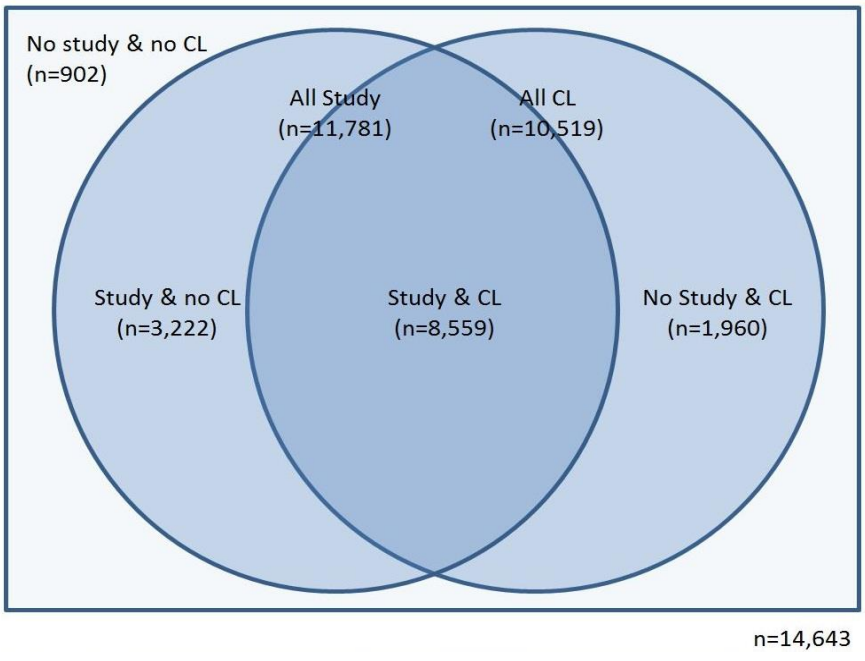
- What factors affect prisoners' decisions to study while incarcerated; in particular, are they choosing study to pass the time (education as consumption) or improve their skills (education as human capital investment)?
- What course subjects, levels and types do prisoners choose to study and how successful is their study?
- Does prison study in general reduce recidivism under any or all of the definitions of recidivism?
- Do only particular course subjects, levels and types reduce recidivism under any or all of the definitions of recidivism?
- Does prison study reduce the welfare dependence of ex-prisoners?
- Are there differences in welfare dependence and recidivism outcomes in terms of indigeneity, age, gender, offence seriousness, and post-release residential location?

Note that answers to these questions have been constrained by the measures available in the WA prisoner education and welfare dataset.

Data

The study used a new and recent longitudinal dataset of prisoner data extracted from the WA prisoner education and training dataset for 1 July 2005 to 30 June 2010 and linked to welfare benefit histories extracted from the Centrelink database by the Department of Education, Employment and Workplace Relations (DEEWR).

Figure 1: Prisoners: Study and/or Centrelink (CL)



The total number of prisoners recorded in this WA prisoner education and welfare dataset is 14,643 and the total number of records, including multiple terms for some prisoners, is 22,434. Figure 1 demonstrates the overlap of the datasets. It shows that 80 percent (n=11,781) of these prisoners had study records and 72 percent (n=10,519) of prisoners had Centrelink records. Only 6 percent (n=902) of prisoners had no welfare or study records.

The WA prisoner education and welfare dataset provides both longitudinal and cross-sectional arrays of prisoner, study and welfare characteristics. Table 1 summarises the numbers of prisoners, study records, and welfare records in the full dataset as well as in the subsets of the data which have been used in the estimation of multivariate models. Some of the models have been based on prisoners' most recent term (MRT) in prison and all of the models exclude prisoners whose last region of residence is outside WA (n= 594).

Table 1 Dataset Summary

		Studying Prisoners		Prisoners with CL	
	All Prisoners	Prisoners	Study records (Classes)	Prisoners	CL records
Full dataset	14,643	11,781	140,532	10,519	91,319
Most recent or only term (MRT)	14,643	10,485	98,169	10,519	91,319
Successfully completed at least 1 class (MRT)	n.a.[a]	9,777	96,368	7,061	59,791
Successfully completed all classes (MRT)	n.a.[a]	4,033	13,185	2,876	24,295

a: not applicable

The data items in the WA prisoner education and welfare dataset include, for each prisoner:

- socio-demographic data, such as date of birth, gender, indigeneity and residential location at time of imprisonment for each prison term;
- prison data, including sentence type for each prison term, most serious offence category for each prison term (both in terms of Australian National Classification of Offences (ANCO) and Australian Standard Offence Classification (ASOC)), number of prison terms, and number of days served for each prison term;
- in-prison study data with subject, level and type of study for each class taken as well as whether each class is successfully completed, incomplete or repeated; and
- welfare data including commencement and exit dates for each period on income support, the allowance type and the reason for exit from welfare (if applicable).

Analyses of the WA prisoner education and training dataset, previously reported in Giles and Whale (2013), show that the majority of prisoners are male (88%) with a mean age of 35 years. Most prisoners lived in metropolitan Perth prior to incarceration and about two in five are of Aboriginal or Torres Strait Islander (Aboriginal and Torres Strait Islander) background (39%). One third of prisoners have served more than one prison term, in full or in part, and over 13 percent of prisoners had served three or more prison terms. Female prisoners have served shorter sentences on average (mode of seven months) than male prisoners (mode of twelve months). Three in ten prisoners were incarcerated for ANCO category Offences against the Person and one in ten for Drug Offences. Prisoners with most serious offence of Economic Crime (34%) have offences including ANCO Robbery and Extortion, Property Offences or Drug Offences.

The proportion of Aboriginal and Torres Strait Islander prisoners incarcerated for Offences against the Person is 1.5 times greater than the respective proportion of non-Aboriginal and Torres Strait Islander prisoners and for Motor Vehicle, Traffic and Related Offences, 1.4 times greater. The average gap between prison terms is slightly higher for females (12.8 months) compared with males (12.3 months) and increases with age (an average of nine months for those aged 18 to 25 years compared with an average of 12.6 months and 14.5 months for those aged 26 to 40 years and 41 or more years, respectively).

Most prisoners in the dataset had studied at least one class with the proportion of male prisoners who studied being higher (81.1%) than the proportion of female prisoners who studied (75.9%), and the proportion of Aboriginal and Torres Strait Islander prisoners (82.0%) who studied being higher compared with the proportion of non-Aboriginal and Torres Strait Islander prisoners who studied (79.5%). Most prisoners with three or more prison terms have studied (98.3%) whilst of those with only a single prison term, 73.1 percent have studied. On average, prisoners have studied 11.9 classes across all their prison terms and 9.4 classes in their most recent prison term.

Analyses of the WA prisoner education and welfare dataset, which contains 14,643 prisoners, 140,543 study records and 91,319 Centrelink payment records, show that 72 percent of the prisoners had at least one matching CL record. This reflects that most prisoners who are about to be released from WA prisons are automatically enrolled for welfare benefits thus ensuring that ex-prisoners who may be work-ready are still able to access funds, job support and housing before they start their first job and receive their first pay. Non-Aboriginal and Torres Strait Islander prisoners (75%) are more likely than Aboriginal and Torres Strait Islander prisoners (67%) to have at least one CL record. The average age for those prisoners with matched CL records is 35 years, which is slightly younger than that for prisoners with no matched CL records of 36 years. Prisoners who last resided in metropolitan WA (79%) are more likely to have matched CL records than those who last resided in rural WA (66%). Prisoners with interstate or overseas addresses are less likely to have matching CL records (24%), reflecting the ineligibility for benefits of those from overseas. All but two of the prisoners from interstate/overseas with matching CL records are from interstate.

For the purposes of the multivariate analyses, different subsets of the WA prisoner education and welfare dataset are used. The choice of subset reflects firstly whether or not term-specific variables are being modelled. If the variables of interest are not term-specific, then data across all prison terms is used. If term-specific variables are used in the multivariate analyses, then only data for the most recent term is used. Further subsets of the data reflect whether or not specific sentence types or prisoners with specific characteristics are excluded. Finally subsets may be chosen depending on definitions of recidivism and welfare dependence.

Various definitions of recidivism and welfare dependence are used. These are listed in Table 2. There are three definitions of recidivism. Definition 1 refers to re-incarceration, that is, whether or not prisoners who are in the WA prisoner education and welfare dataset between 1 July 2005 and 30 June 2006, inclusive, return to prison by 30 June 2010. If there are subsequent prison terms for these prisoners, then they are considered recidivists. If there are no subsequent prison terms for these prisoners then they are not considered recidivists. Note that, as the dataset is truncated, we do not have complete prison histories, for example, we do not know if some prisoners who were released between 1 July 2005 and 30 June 2006 were re-incarcerated after 30 June 2010.

The most recent meta-analysis of the effectiveness of correctional education by Davis et al. (2013) found the most common time period for defining recidivism across 50 studies was re-incarceration within one or three years post release. In terms of risk of ongoing offending behaviour these time periods are quite short. Our definition 1 is thus a stricter measure suggesting that absence of recidivism over at least four years reflects better rehabilitation and integration back into the community.

Recidivism definition 2 refers to escalating offence seriousness defined in terms of prison term length. Hence for prisoners with at least two terms, if the most recent term is longer than the previous prison term then the prisoner is considered to be a recidivist. This definition assumes that offence seriousness and length of prison term are correlated (Fox 1993, Booth 2012).

Table 2 Samples and Definitions for recidivism and welfare dependence

	Definition	Sample	Characteristics
Recidivism	**1**	Prisoners released on or before 30 June 2006	Recidivists are those who have further prison terms. Non-recidivists do not have further prison terms.
	2	Prisoners who have served more than one term. Length of prison term is used to measure offence severity.	Recidivists are prisoners whose latest (discharged) term 't', is longer than their previous term 't-1'. Non-recidivists show the same or decreasing time served.
	3	Prisoners who have served more than two terms.	Recidivists are those where time spent in the community between term 't' and term 't-1' is less than the time between term 't-1' and 't-2'. Non-recidivists show the same or increasing time spent in the community.
Welfare dependence	**1a**	All prisoners with Centrelink records receiving any benefit type	Welfare dependent prisoners have at least one CL record of the specified type. Non-welfare dependent prisoners have no CL records of the specified type.
	1b	All prisoners with Centrelink records receiving either unemployment or student benefit only	
	2a	Ex-prisoners who were released from their only or most recent term and had spent six months outside of prison during the data period and who received at least one benefit type	Welfare dependence is defined as the proportion of the six month period during which they receive allowance payments of the specified type. The greater the proportion of time spent receiving benefits, the greater the welfare dependence of the ex-prisoner.
	2b	Ex-prisoners who were released from their only or most recent term and had spent six months outside of prison during the data period and who received at least one unemployment or student benefit payment.	

The third recidivism definition shown in Table 2 compares time in the community between prison terms for prisoners with at least three prison terms. Prisoners whose time between more recent prison terms is shorter than time between earlier prison terms are considered

recidivists. If time in the community is longer, then ex-prisoners could be considered to be non-recidivists and more successfully reintegrated.

Two definitions of welfare dependence are used in this report and two types of benefits are considered. First, welfare dependence is defined as being in receipt of benefits (definition 1) - all benefits, or unemployment benefits or student allowances. Second, welfare dependence is defined in terms of proportion of post-release time on benefits (definition 2) with a larger proportion of time denoting greater welfare dependence and a shorter proportion of time showing reduced welfare dependence.

Methodology

In summary, the methodology for this study employed multivariate regression techniques to estimate factors, including in-prison study, affecting the recidivism and welfare outcomes of prisoners/ex-prisoners. In addition, different measures of recidivism, welfare dependence and in-prison study were tested. Two survival (duration) analyses were also undertaken to examine time between offences and time to exit welfare.

The specific regression and survival analyses are:

Participation in education and training (Model 1)

Prisoners in the WA prison system have management plans which can include working in the prison and/or undertaking some study. Neither of these activities is mandated for any prisoner. Hence a prisoner's choice to study is voluntary.

The prisoners' decision to participate in education/training can be estimated as a binary choice model using a logistic regression approach:

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

where P_i^* is a latent (unobserved) continuous variable that captures the propensity (probability) towards participation in education/training while incarcerated of prisoner *i*, X is a row vector containing a number of factors to capture life transition events (e.g., first-time offenders, length of sentence), β is a column vector of weights to be estimated that link the variables in X to participation in education/training during incarceration, and ε is a stochastic (random) disturbance term.

This model estimates the relative impacts of prisoner and prison term characteristics on the decision to study. Given that the decision to study is voluntary, it is expected that there would be differences in the profiles of prisoners who study and those who do not study.

Successful completion of classes (Model 2)

The WA prisoner education and welfare dataset contains study attributes by class rather than course (pre-defined set of classes). These attributes include whether a prisoner successfully completed the class, repeated the class or withdrew from the class. The attributes also include the class type (vocational education and training (VET) or other education (OE)), level (for example, Certificate I or Bachelor degree) and subject (for example, construction or manual handling).

A key feature of this research is examining whether or not study per se or particular courses or qualifications contribute to better post release outcomes for ex-prisoners. The WA prisoner education and welfare dataset, whilst providing rich data on study choices for

individual prisoners, is less forthcoming at the aggregate level. That is, the diversity of class and course enrolments in the study part of the dataset is difficult to aggregate for the purposes of bivariate or multivariate analysis. What we have found, however, is that class enrolment data that identifies whether or not classes are completed successfully or not is a useful predictor of outcomes. Hence we have two measures of in-prison study – whether all classes taken in prison are successfully completed or not, and whether at least one class is successfully completed or no classes are successfully completed.

Among the prisoners who study during incarceration, the probability of successfully completing a class is defined as:

$$C_i^* = Z_i\delta + \varepsilon_i \quad (2)$$

where C_i^* is a latent variable that represents the propensity towards completion of a particular class for prisoner *i*, Z is the vector of explanatory variables (e.g., age, gender, type of class), δ is a vector of coefficients to be estimated and ε is a stochastic disturbance term.

This model estimates the influence of socio-demographic and prison term characteristics on successful class completion. Here the expectation is that some prisoners are more inclined, due to socio-demographic or other characteristics, to successfully complete classes than other prisoners. Different models are estimated for the successful completion of all classes and the successful completion of at least one class.

Up-skilling (Model 3)

To determine if prisoners are choosing study to improve their skills, the class level of the last class successfully completed during a single prison term and the first class successfully completed during that term are compared. If the former is at a higher educational level than the latter, then this choice represents up-skilling or an improvement in human capital. That is, the prisoner is choosing education and training as an investment. If the educational level is at the same or a lower level than the first class, then the prisoner may be studying to pass the time. This is education as consumption. The expectation is that up-skilling would reduce both recidivism and welfare dependence.

For this model, the propensity to invest in human capital during incarceration is expressed as:

$$I_i^* = Y_i\alpha + \varepsilon_i \quad (3)$$

where I_i^* is a latent continuous variable which denotes the propensity for investment in human capital during incarceration of prisoner *i*, and the vector Y contains explanatory variables. The binary dependent variable (I) is equal to unity for prisoners who invest in human capital (up-skill) and is equal to zero for those who are not investing in human capital. The modelling tests and corrects for sample selection bias (Heckman, 1979; Giles, 2003). That is, the estimated impacts of prisoner and prison term characteristics on up-skilling may be different for prisoners who choose to study and those who do not.

The correction model thus examines the factors affecting up-skilling conditional on prisoners choosing to study. It is expected that those prisoners who up-skill have a different profile to prisoners who do not up-skill and that selection bias is present.

Risk of recidivism (Model 4)

The model is estimated for three measures of recidivism - re-incarceration, increased offence seriousness and decreased time between re-incarcerations.

It is expected that successful class completion will be an important influence on reducing recidivism. For this model, the propensity to recidivate is expressed as:

$$R_i^* = G_i\lambda_1 + \varepsilon_i \quad (4)$$

where R_i^* is a latent continuous variable that captures the propensity towards re-incarceration, and G_i is a vector of explanatory variables (e.g., prior imprisonment, gender, up-skilling, number of successfully completed classes). The binary dependent variable R is equal to unity for prisoners who recidivated and is equal to zero for those who do not.

Duration between offences (Model 5)

To determine the time it takes for an ex-prisoner to be re-incarcerated (if at all), duration models are estimated (e.g., Schmidt and Witte 1989) at aggregate and disaggregated levels. This model examines the influences on time between incarcerations for those prisoners with more than one prison term. The model is represented by a hazard function of the form:

$$h(t) = \alpha\beta(\alpha t)^{\beta-1} \quad (5)$$

where β is the Weibull shape parameter, α is the location parameter with $\alpha = \exp^{-G\lambda}$ and G are covariates. In other words the location parameter allows the probability that the prisoner will be re-incarcerated at any given duration to vary across the population depending upon the particular combination of characteristics, including in-prison study, of the prisoner.

Risk of welfare dependence (Model 6)

Receipt of income support payments may reflect poor labour market outcomes as a result of, *inter alia,* poor schooling or prior employment experience. To determine factors affecting welfare dependence, proportion of time on unemployment benefit/student allowance is expressed as:

$$M_i = G_i\lambda_2 + \varepsilon_i \quad (6)$$

where M_i is the propensity towards welfare dependence, and G_i is a vector of explanatory variables (e.g., prior imprisonment, gender). As with Model 3, this modelling tests and corrects for sample selection bias. That is, the selectivity bias correction model examines the factors affecting welfare dependence conditional on prisoners registering for benefits. To the extent that, then the presence of selection bias indicates that

This model estimated the important influences on ex-prisoners use of income support, including whether or not they have studied in prison or whether they have up-skilled or not.

Duration of income support (Model 7)

To determine the time it takes for ex-prisoners to exit welfare, duration models are estimated. This analysis is similar to that for Model 5 and examines the influences on time to exit welfare for those prisoners who have at least six months post-release time in the community following their most recent term in prison. The hazard rate is the probability that an ex-prisoner will exit the income-support scheme.

The model is represented by a hazard function of the form:

$$h(t) = \alpha\beta(\alpha t)^{\beta-1} \quad (7)$$

where β is the Weibull shape parameter, α is the location parameter with $\alpha = \exp^{-G\lambda}$ and G are covariates.

Summary of Models

In summary, for each of the models (1) to (7), characteristics, such as indigeneity, age, gender, offence seriousness and pre-incarceration residential location, are included as predictor variables. In addition, separate equations for subsets of the data are estimated for Models 1 to 3 and 6. For example, Model 1 includes indigeneity as a regressor and the estimates are reported in Table 4. Separate regressions for Aboriginal and Torres Strait Islander and non-Aboriginal and Torres Strait Islander prisoners are reported in Appendix B.

Findings

The seven multivariate models presented in the Methodology section above were estimated using the WA prisoner education and welfare dataset, excluding 594 records related to prisoners whose last address is outside WA. The dependent and independent variables were constrained by measures available in the dataset. Appendix A lists the variable names and types.

The presentation of findings will include only parsimonious models and exclude discussion of variables whose coefficients are not statistically significant. The coefficients in the logistic regression models are marginal effects not odds ratios.

Participation in education and training (Model 1)

In Western Australian prisons, prisoners are offered the opportunity to study. Even if their sentence or parole requirements list enrolment in education and training courses, prisoners can still choose not to participate. Hence, their subsequent enrolment in any course reflects a choice to participate in education and training.

> *In summary, the findings suggest that prisoners from rural WA are more inclined to study as are prisoners whose most serious offence is an economic crime. Prisoners whose most recent prison term started later in the dataset tend not to enrol in classes compared with prisoners whose most recent term is earlier in the dataset. Prisoners with sentence type of Fine Default are less likely to enrol and prisoners with offence type Economic Crime are more likely to enrol in classes during their most recent prison term.*

Two versions of this model were estimated as shown in Table 4. Both models show estimates of coefficients and their statistical significance for a model of whether or not prisoners chose to study during their most recent prison term. In Model A, prisoners whose sentence type was Fine Default are excluded (n = 11,220). Note that prisoners with sentence type of Fine Default make up 20 percent of all prisoners in the dataset. Model B reports a similar estimation for all prisoners, that is, including those with sentence type Fine Default (n = 14,049).

Model A shows that prisoners from rural WA and prisoners with Economic Crime as their most serious offence are more likely to study in prison and prisoners whose most recent term was later in the dataset are less likely to study in prison. However, the explanatory power of this model is very low (2%). Estimates reported for Model B show that, by

including all prisoners in the sample and the binary Fine Default variable in the model, the model fit improves (24%). This suggests that sentence type, which includes Fine Default, is a key predictor or whether or not prisoners will choose to study. In particular, prisoners whose sentence type is Fine Default are less likely to choose to study.

Model estimates for subsets of the data are presented in Appendix B. Similar results are apparent for these subsets with some subsets also showing other characteristics as important to the study decision. Table B1 which estimates the effect of prisoner and prison term characteristics on the decision to study by prisoners aged 18 to 25 years shows that younger prisoners in this age bracket are less inclined to study. The quadratic age term (statistically significant at the 5 percent level) suggests that the probability of a prisoner choosing to study decreases until age 24 years and thereafter (at age 25) increases. The effect of being from rural WA is statistically significant for prisoners aged 26 to 40 years as shown in Table B2; the coefficient of the rural WA term is not statistically significant for other age groups (Tables B1 and B3). Being from rural WA is also a predictor for study for males as shown in Table B9.

Table 3 Prisoners (MRT): Factors affecting whether or not prisoners study during their prison term

Dependent variable = Study	**Model A**	**Model B**
Prisoner characteristics:		
Aboriginal and Torres Strait Islander	-0.1002	-0.0145
Male	-0.0326	-0.1172
Age	0.0065	-0.0087
Age Squared/100	-0.0223	-0.0065
Rural	0.1377*	0.1175*
Prison term characteristics:		
Economic Crime	0.5717***	0.4932***
Year	-0.1058***	-0.1715***
Fine Default		-2.5973***
Constant	213.9851***	346.2096***
Observations	11,220	**14,049**
Pseudo R^2	0.0204	0.2385
Degrees of freedom	7	8

*p <0.05, **p <0.01, ***p <0.001

Measures of other predictors of study enrolment, such as prior schooling history and ability (see the returns to education literature, for example, Mincer 1974), are not available in the WA prisoner education and welfare dataset.

Successful completion of classes (Model 2)

Many prisoners choose to study. However, not all studying prisoners successfully complete any or all of their classes or modules. Withdrawal before successful class completion is usually due to early or scheduled release from prison, sentencing requirements to undertake other non-education classes such as drug or alcohol rehabilitation programs, or lack of competency or interest. About one third of class enrolments result in withdrawals.

Whether studying prisoners complete any or all of the classes and why is important in terms of return on investment for corrections authorities with limited education and training budgets. Modelling either of these parameters should enable predictions of profiles of

prisoners who are most likely and least likely to complete all or any of their classes. Tables 4 and 5 report estimates of the contribution of socio-demographic and other characteristics to whether or not prisoners successfully complete all of the classes in which they enrolled in their most recent term or at least one of their classes, respectively.

> *In summary, prisoners who are less likely to successfully complete all classes are of Aboriginal and Torres Strait Islander descent, have Economic Crime as their most serious offence, or have more prison terms or longer prison terms. Male prisoners or prisoners with Fine Default as their most serious offence are more likely to successfully complete all classes.*

Estimates for Model A (Table 4, column 1) show that, compared with female prisoners, male prisoners are more likely to successfully complete all classes in which they are enrolled; compared with prisoners who are not of Aboriginal and Torres Strait Islander descent, Aboriginal and Torres Strait Islander prisoners are less likely to successfully complete all classes; compared with prisoners with other offences, those with most serious offence of Economic Crime are less likely to successfully complete all their classes. In addition, the longer the prison term and the greater the number of prison terms, the less likely are prisoners to successfully complete all classes. The model fit is 6.2 percent which suggests that most influences on whether or not prisoners successfully complete all their classes are not included in Model A.

There is little difference between the magnitudes of the regressors in Models A and B and no difference in their sign and significance. Model B (Table 4, column 2) shows that the bigger sample and inclusion of a binary variable denoting sentence type of Fine Default result in a slightly better model fit (8.5%).

Table 4 Prisoners (MRT): Factors affecting whether prisoners successfully completed all classes

Dependent variable = Successful All	**Model A**	**Model B**	**Model C**
Prisoner characteristics:			
Aboriginal and Torres Strait Islander	-0.2380***	-0.2106***	-0.1955***
Male	0.6741***	0.6384***	0.5531***
Age	0.0111	0.0124	0.0300*
Age Squared/100	-0.0026	-0.0041	-0.0260
Rural	-0.0317	-0.0230	0.0032
Prison term characteristics:			
Economic Crime	-0.1917***	-0.1843***	-0.1494**
Number of prison terms	-0.1928***	-0.1985***	-0.3668***
Number of days served	-0.0012***	-0.0012***	-0.0009***
Fine Default		0.7912***	0.8240***
Prison study characteristics:			
Art Studies			-2.6240***
Forklift Classes			-0.5355***
Resources Courses			-0.9123***
Welfare characteristic:			
Unemployment benefits	0.0666	0.0508	0.0469
Constant	-0.4989*	-0.4865*	0.0277
Observations	9,385	10,059	**10,059**
Pseudo R^2	0.0619	0.0853	0.1553
Degrees of freedom	9	10	13

* $p<0.05$, ** $p<0.01$, *** $p<0.001$

In their summary of the key features of the WA prisoner education and welfare dataset, Giles and Whale (2014) undertook three case studies related to particular subjects and courses that prisoners were offered by prison education centres in the period covered by the dataset. These case studies were chosen because there was local interest in the delivery and outcomes of prisoner education and training for the subgroups of prisoners who enrolled classes in these subjects and courses (pg. 29). Hence Model C (Table 4, column 3) includes all regressors from Model B as well as three subject-specific binary variables - Art Studies, Forklift Classes or Resources Courses. These variables have estimated coefficients that are negative and statistically significant at the 1 percent level indicating that prisoners who enrol in any of these courses are less likely to successfully complete all their classes in these and/or other courses compared with prisoners who do not enrol in these courses.

For the Art Studies prisoner-students, the desired outcome is less about successfully completing their classes and achieving specific competencies, and more about attendance, creativity and participation. These prisoners possibly have schooling deficits which means that art classes are being used as a useful segue to enrolment in other classes. An examination of the training data shows that 74 percent of students who enrol in at least one art class are also enrolled in adult basic education (ABE) classes. For studying prisoners who do not take any art classes, 61 percent are also enrolled in ABE classes. This difference is statistically significant (chi square = 80.4642, p<0.001). Giles and Whale (2014) report that Art Studies classes may be delivered in less structured classrooms, be more responsive to prisoner-student proclivities, be more individualised and be less competitive.

Table 5 Prisoners (MRT): Factors affecting whether prisoners successfully completed at least one class

Dependent variable = Successful At Least One	**Model A**	**Model B**	**Model C**
Prisoner characteristics:			
Aboriginal and Torres Strait Islander	-0.2671**	-0.2703**	-0.2079*
Male	-0.0278	-0.0207	-0.0612
Age	0.0386	0.0380	0.0244
Age Squared/100	-0.0514	-0.0523	-0.0364
Rural	0.1485	0.1448	0.1675
Prison term characteristics:			
Economic Crime	0.2088*	0.1894*	0.1127
Number of prison terms	-0.3607***	-0.3790***	-0.2524***
Number of days served	0.0002*	0.0001	-0.0001
Fine Default		-0.4038**	-0.3232*
Prison study characteristics:			
Art Studies			0.1016
Forklift Classes			2.1671***
Resources Courses			1.2413***
Welfare characteristic:			
Unemployment benefits	0.0666	0.0234	0.0340
Constant	2.5498***	2.6381***	2.2073***
Observations	9,385	10,059	**10,059**
Pseudo R^2	0.0267	0.0289	0.0856
Degrees of freedom	9	10	13

* $p<0.05$, ** $p<0.01$, *** $p<0.001$

Table 5 reports estimates of the contribution of socio-demographic characteristics and other influences on whether or not studying prisoners successfully complete at least one class in their most recent term. Models A (column 1) and B (column 2) of Table 5 show that prisoners who are of Aboriginal and Torres Strait Islander descent are less likely to successfully complete at least one class compared with non-Aboriginal and Torres Strait Islander prisoners. Studying prisoners with a most serious offence of Economic Crime are more likely, and recidivists less likely, to successfully complete at least one class. Neither Model A nor Model B are particularly good fits for the data with reported Pseudo R^2 measures or 2.6 percent and 2.9 percent, respectively.

The estimated coefficients for Model C (column 2) are similar to those reported for Model B in magnitude, sign and statistical significance. In addition the coefficients of the Forklift Classes and Resource Courses variables are positive and statistically significant suggesting that prisoners who enrolled in at least one class that leads to forklift certification or resource industry employment are more likely to have successfully completed at least one class in any subject. Model C has a slightly better fit than Models A and B but the Pseudo R^2 of 8.6 percent suggests that the variation in study success is due to factors not included in the model. That is, measures not included in the dataset, such as prior schooling, ability and learning disorders, could be more influential.

Appendix C shows results of model estimations for subsets of the data. Overall, the results are not dissimilar to those presented in Tables 4 and 5 for factors affecting whether or not studying prisoners successfully complete all or at least one class. Note that the models for Female prisoners (see Tables C15 and C16) do not include a variable for Forklift Classes as there were no enrolments by female prisoners in these classes. It is possible that such classes were not offered in the adult female prisons during the period of the dataset. This is not the case in more recent years.

Up-skilling (Model 3)

A focus on up-skilling in prison (defined as consecutive classes at increasing certification levels) is contentious. Correctional educators, whilst recognising the importance of completed qualifications are often more interested in providing a package of skills with which an ex-prisoner can more confidently approach the labour market. These skills are not necessarily a completed set of classes within an accredited course. Instead they may be complementary classes across a number of courses and they may be classes at different certification levels. Later classes, for example, may be at lower certification levels than earlier classes. As previously mentioned, enrolment in art classes (at Australian Qualifications Framework (AQF) level 1 or 2) may be a necessary adjunct to enrolment in school-level subjects (pre-AQF levels). Forklift classes may be undertaken concurrently with occupational health and safety classes or warehousing classes. The prisoner education and welfare dataset does not provide completed qualification information nor is it possible, given VET sector changes and evolution during the time period of the data, to accurately group classes in the WA prisoner education and welfare dataset into qualification sets.

Nonetheless, this section will report on the modelling of the relative contributions of prisoner and prison term characteristics to up-skilling as defined here. That is, prisoners are considered to have up-skilled if the course level for their first successful class is lower than the course level for last successful class (that is, there is an improvement in human capital). Prisoners have not up-skilled if their first successful class is higher than or the same as the course level for last successful class (that is, there is no improvement in

human capital). Note that, classes in the most recent term are ranked in chronological order from earliest enrolment to most recent enrolment. Prisoners who did not study, or who studied but did not successfully complete any classes, or who had only one successfully completed class fall into the 'Didn't up-skill' category. Up-skilling is undefined if the course content for either or both of the first and last successful classes is missing.

In summary, proportionately more of the 'didn't up-skill' group are Aboriginal and Torres Strait Islander, from rural WA or have sentence type of Fine Default. This group has a higher average number of terms and a lower number of days served than the group of prisoners who did up-skill in their most recent term. The analysis found that prisoners who do not choose to study have a profile that is different to prisoners who do study. This was taken into consideration when modelling factors affecting up-skilling using a sample of studying prisoners.

These results carry over into the multivariate analysis. That is, Aboriginal and Torres Strait Islander prisoners are less likely to up-skill in prison as are prisoners from rural WA. Prisoners whose most serious offence in their most recent prison term is Economic Crime are more likely to up-skill. The likelihood of up-skilling reduces as the number of prison terms increases. Finally, prisoners who enrol in Forklift Classes or Resources Courses are more likely to up-skill than other prisoners, reflecting the focus of these enrolments on post-release employment.

The results of the analysis of up-skilling are presented in two ways. First, a comparison of the profiles of prisoners who did and didn't up-skill is shown in Table 6. Then, multivariate analysis of factors affecting whether or not prisoners up-skilled in their most recent term is presented in Table 7.

Table 6 summarises proportions (top half of table) and means (bottom half) for prisoner and prison term characteristics in terms of up-skilling. The cell contents can be interpreted thus. Proportionately more of the 'didn't up-skill' group are Aboriginal and Torres Strait Islander and/or from rural WA and/or have sentence type of Fine Default. Proportionately fewer prisoners in the 'didn't up-skill' group have Economic Crime as their most serious offence and/or are male. The 'didn't up-skill' group has a higher average number of terms and a lower number of days served. The only characteristic in this table which shows no statistically significant difference between the 'up-skilled' and 'didn't up-skill' groups is age.

Table 6 Prisoners (MRT): Up-skilling by prisoner and prison term characteristics

	Up-skilled	**Didn't Up-skill**	
	(%)	**(%)**	**chi-square**
Aboriginal and Torres Strait Islander	26.0	42.4	238.5015***
Male	92.0	86.9	51.4743***
Rural	34.3	40.4	32.5472***
Economic Crime	42.2	32.4	89.6814***
Fine Default	2.6	24.2	607.4976***
	(mean)	**(mean)**	**t-test**
Age	33.235	33.180	-0.2588
Number of prison terms	1.390	1.581	9.6967**
Number of days served	637.757	362.118	-17.7339**
Observations	**14,018**		

* $p<0.05$, ** $p<0.01$, *** $p<0.001$

Estimates of Model 3 are shown in Table 7. Model A and Model B do not include correction for selection bias whereas Models C and D do. Selection bias is estimated and corrected for using Heckman's (1979) two stage approach in which the estimated probability that a prisoner chooses to study is included as a factor in the likelihood of the prisoner up-skilling. More formally, a selection equation (see Model 1) provides estimates which, if they are statistically significant, are included as an additional regressor in the substantive equation (Model 3), thereby correcting for a difference in profiles between prisoners who study and those that do not.

Results for Model A (Table 7, column 1) show that prisoners of Aboriginal and Torres Strait Islander descent are less likely to up-skill compared with other prisoners, and male prisoners or prisoners whose most serious offence is Economic Crime are more likely to up-skill compared with female prisoners and prisoners with other offences, respectively. Moreover, up-skilling is less likely the more prison terms a prisoner has and is more likely as time served by a prisoner increases.

Table 7 Prisoners (MRT): Factors affecting whether prisoners up-skilled

Prisoner characteristics	Model A (Logit)	Model B (Logit)	Model C (Heckman)	Model D (Heckman)
Prisoner characteristics:				
ATSI	-0.5685***	-0.5632***	-0.1093***	-0.1039***
Male	0.3899***	0.3793***	0.0546***	0.0232
Age	0.0202	0.0230	0.0037	0.0001
Age Squared/100	-0.0323*	-0.0360*	-0.0064	-0.0027
Rural	0.0316	0.0554	0.0147	0.0308*
Prison term characteristics:				
Economic Crime	0.2892***	0.2970***	0.0731***	0.0950***
Number of prison terms	-0.2706***	-0.2751***	-0.0384***	-0.0228***
Number of days served	0.0002***	0.0002***	0.0000***	0.0000***
Fine Default		-2.3542***	-0.4619***	-0.7651***
Prison study characteristics:				
Art Studies				0.0871***
Forklift Classes				0.3236***
Resources Courses				0.1161***
Constant	-1.4874***	-1.5362***	0.1198*	-0.0306
lambda			0.3424***	0.7012***
Observations	11,189	**14,018**	10,028	10,028
Pseudo R^2	0.0373	0.0960	0.0693†	0.1110†
Degrees of freedom	8	9	9	12

*$p< 0.05$, **$p< 0.01$, ***$p< 0.001$

†*Pseudo R^2 calculated as the square of the correlation between variable up-skilled and the fitted values under the model.*

These results are intuitively appealing. Aboriginal and Torres Strait Islander prisoners tend to have a bigger learning deficit than other prisoners hence their prison education is likely to be broader rather than sequential. Female prisoners tend to be less interested in entering the labour market on release due to care responsibilities so are less inclined to choose sequential qualification-focussed classes. Economic Crimes are, as the name suggests, about acquiring cash flow. The opportunity to find legal means of earning

income may be encouraging these prisoners to up-skill in preparation for re-entering the labour market. Re-incarceration is deleterious to the sustainability of human capital, possibly in a way that reduces the maintenance or improvement effects of in-prison study. This may explain the likelihood of up-skilling reducing as the number of prison terms increases. Finally, as time in prison increases, the more prisoners will seek activities such as education and training and, therefore, the more likely they are to progress through sequential classes or qualifications.

Results for Model B (Table 7, column 2) are similar to those for Model A but with the bigger sample size and the inclusion of the Fine Default variable, the model fit is improved – 3.7 percent for Model A and 9.6 percent for Model B. Prisoners with sentence type of Fine Default are less likely to up-skill. This is due to the average length of sentence being relatively shorter (114 days) for this sentence type compared with the average sentence length for prisoners with other sentence types (709 days).

Model C (Table 7 column 3) re-estimates Model B (Table 7 column 2) inclusive of Heckman's correction for selection bias. Lambda is the variable (inverse Mills ratio) (Heckman 1979) estimated from the model of factors affecting whether or not prisoners study (Model 1). The coefficient of lambda is shown in column 3 to be statistically significant at $p < 0.001$ suggesting that there is selection bias; that is, prisoners who do not choose to study have a profile that is different to prisoners who do study and this should be considered when modelling factors affecting up-skilling using a sample of studying prisoners. The variables included in the estimation of Model C explain 6.9 percent of the variation in the up-skilling variable, hence other factors play a bigger role in whether prisoners are up-skilling or not. This explanatory power is less than that reported for Model B (column 2) which does not correct for selection bias.

The final model shown in Table 7 is Model D (column 4). Here the sample is all studying prisoners (as in Models B (column 2) and C (column 3)) and Heckman's two stage correction for the representativeness of this sample is applied. Three subject specific binary variables are included and the coefficients of these are all positive and statistically significant at $p<0.001$. Hence prisoners who enrol in Forklift Classes and/or Resources Courses are more likely to up-skill than other prisoners. This reflects the focus of these enrolments on employability post-release. The similar result for prisoners who enrol in Art Studies classes is less interpretable given other results that show this group to be more challenged in their study efforts. In this model, the variable for gender is not statistically significant but this could reflect the fact that Forklift Classes have enrolments only from male prisoners and Resources Courses have proportionately fewer enrolments from female prisoners. That is, the gender effect is taken up by the subject-specific effects.

The coefficient of the lambda term in Model D (column 4) is statistically significant suggesting that selection bias is present and that correcting for that bias improves the generalizability of the model. The model fit is 11.1 percent; other variables not included in the model (as they are not available in the dataset) are collectively more influential in explaining whether or not prisoners up-skill in prison.

Risk of recidivism (Model 4)

The overall model is estimated for three different measures of recidivism – re-incarceration or return to prison within 4 to 5 years of release for prisoners released between 1 July 2005 and 30 June 2006; increased offence seriousness for prisoners with more than one prison term; and decreased time between re-incarcerations for prisoners with more than two prison terms.

In summary, the best fitting model uses, as the definition of recidivism, increased offence seriousness measured by increased length of subsequent prison term. Results from fitting this model show that prisoners who are Aboriginal and Torres Strait Islander, male, or with sentence type of Fine Default are more likely to recidivate. Prisoners who have up-skilled are less likely to recidivate and an increased number of successful classes or increased number of days served will reduce recidivism.

Recidivism: Return to prison

The prisoner sample used in the modelling is shown in Table 8 Column 1. It can be seen by the chi square and t-test results that the profile of prisoners who were discharged by July 2006 is different to the profile of prisoners in the rest of the dataset. In particular, the sample (n = 2,971) has proportionately more Aboriginal and Torres Strait Islander prisoners as well as prisoners who are male or from interstate or overseas. The sample has proportionately fewer prisoners with offence type of Economic Crime, with sentence type of Fine Default or with up-skilling study choices. In addition, the sample has prisoners with shorter days served and fewer successfully completed classes. Prisoners in the sample are also slightly younger.

Some of these differences are relatively easy to explain. For example, over time the proportion of women in prison has risen so the proportion of prisoners who are male will be higher in the earlier part of the dataset. Extradition to other states and territories or return to own country may be more prevalent in later years thereby reducing the proportion of prisoners from interstate or overseas in the later part of the dataset. Increased incarceration of fine defaulters over time has resulted in the sample (Table 8 column 1) having less than 10% of prisoners with this sentence type and the remainder of the dataset having more than twice this percentage.

Table 8 Prisoners: Discharge date by prisoner and prison term characteristics

Binary variables	Discharged by July 2006 (%)	Not Discharged before July 2006 (%)	chi-square
Aboriginal and Torres Strait Islander	43.9	37.3	43.1206***
Male	90.5	87.4	21.5770***
Rural WA	38.2	37.6	0.4381
Interstate/Overseas	6.7	3.4	68.0780***
Economic Crime	30.2	32.2	4.2432*
Fine Default	9.6	22.1	234.7769***
Study	61.7	76.9	282.4611***
Up-skilled	6.8	21.3	332.7041***
Continuous variables	**(mean)**	**(mean)**	**t-test**
Age	31.548	32.452	4.3911**
Number of days served	360.271	471.092	7.1507**
Number of successful classes	1.851	5.288	20.9737**
Observations	**2,971**	11,672	14,643

* p<0.05, ** p<0.01, *** p<0.001

It is unclear from the data whether proportionately more people are refusing or forgetting to pay fines, or whether the justice system is incarcerating proportionately more people with

this offence. Fines continue to be the most commonly used penal sanction in Australia and in most overseas jurisdictions with a similar justice system. Whilst the system of fines and fine enforcement has not changed much over time, there appears to have been a change in the operational tactics of police and justice authorities in response to the flouting of fines and the inability of fine enforcement strategies to be effective. The House of Representatives Standing Committee on Aboriginal and Torres Strait Islander Affairs (2011) reported that incarceration for fine default was more likely if the offender was of Aboriginal and Torres Strait Islander descent. Moreover, most fines are imposed for driving offences, particularly driving without a licence, which is a common offence amongst Aboriginal and Torres Strait Islander youth and young adults. The over-representation of Aboriginal and Torres Strait Islander people in prisons (the prisoner education and welfare dataset shows 40 percent of prisoners identify as Aboriginal or Torres Strait Islander compared with their representation in the WA population of 5 percent) is thus associated with the high proportion of offences that are classified as Fine Default.

Using the sub-sample of 2,971 prisoners who were discharged prior to July 2006, Table 9 shows the profiles of prisoners that were subsequently re-incarcerated (column 1) and those that were not (column 2). Thus, 58 percent of prisoners who were discharged in the first twelve months of the dataset (n = 1,734) were subsequently re-incarcerated at least once more within at least four years of their release and 42 percent of prisoners remained in the community (n = 1,237). Of those that returned to prison, 58 percent were of Aboriginal and Torres Strait Islander descent, 45 percent were from rural WA, 33 percent had Economic Crime as their most serious offence, 4 percent had Fine Default as their sentence type and 6 percent had up-skilled in their previous prison term. These proportions are different to the proportions for prisoners who did not return to prison within four years and these differences are statistically significant as shown by the chi square results.

Table 9 Prisoners: Recidivism (Definitions 1) by prisoner and prison term characteristics

Binary variables	Return to Prison (%)	No Return to Prison (%)	chi-square
Aboriginal and Torres Strait Islander	57.7	24.5	323.7790***
Male	90.9	90.0	0.7933
Rural WA	44.6	29.3	70.9455***
Economic Crime	32.7	26.8	12.0814***
Fine Default	4.3	17.1	136.1754***
Study	60.6	63.3	2.2065
Up-skilled	5.9	8.0	4.8499*
Continuous variables	**Returns to Prison (mean)**	**Doesn't Return to Prison (mean)**	**t-test**
Age	29.955	33.782	11.4847**
Number of days served	343.143	384.281	1.9604
Number of successful classes	1.740	2.006	1.7887
Observations	1,734	1,237	**2,971**

* p<0.05, ** p<0.01, *** p<0.001

Importantly, prisoners who stay out of prison for at least four years are less likely to be of Aboriginal and Torres Strait Islander descent or from rural WA or with an offence type of Economic Crime but more likely to have a sentence type of Fine Default. Recidivists are younger (30 years on average) compared with non-recidivists (34 years on average) and a larger proportion of non-recidivists have up-skilled (8%) compared with recidivists (5.9%).

Using the sub-sample identified in Table 8 and reported in Table 9, two regression models that estimate the relative contribution of prisoner, prison term and prison study characteristics to recidivism (defined as returned to prison within four years) are estimated. The coefficients of these estimations are shown in Table 10. Note that missing values for some of the variables has reduced the sample size for Model B (column 2) from 2,971 to 2,771.

Characteristics that contribute to re-incarceration include being Aboriginal and Torres Strait Islander, male or having offence type of Economic Crime. Factors reducing the propensity to recidivate are sentence type of Fine Default and study, in particular the number of successful classes. A negative correlation between study and recidivism is expected as other studies report that study increases the opportunity cost of crime (Lochner and Moretti 2004) and study improves labour market opportunities (Davis et al. 2013).

Table 10 Prisoners: Factors affecting Recidivism (Definition 1)

Dependent variable = Returns to prison	**Model A**	**Model B**
Prisoner characteristics:		
Aboriginal and Torres Strait Islander	1.3433***	1.3228***
Male	0.5592***	0.4889***
Age	0.0196	0.0310
Age Squared/100	-0.1066*	-0.1209**
Rural	-0.1468	-0.1035
Prison term characteristics:		
Economic Crime	0.2997**	0.3291***
Number of days served	-0.0006	-0.0005
Year	-0.1264	-0.0951
Fine Default		-1.3756***
Prison study characteristics:		
Number of successful classes	-0.0250*	-0.0263*
Up-skilled	-0.1132	-0.1125
Constant	253.5727	190.7956
Observations	2,548	**2,771**
Pseudo R^2	0.1185	0.1339
Degrees of freedom	10	11

*p< 0.05, **p< 0.01, ***p< 0.001

Economic Crime is the subset of offences that include ‘burglary and extortion’, ‘property offences’ and ‘drug offences’. In general, crimes to obtain funds or assets may reflect lack of means in which case, unless the underlying poverty is addressed, an offender will continue to offend in this way. This would be a reasonable explanation of the positive correlation between Economic Crime and recidivism shown in the estimates of both Models A and B. Prisoners with drug offences could be more heterogeneous as suggested in the Valuri, Indermaur & Ferrante (2002) report which stated that “drug offenders with no prior record represent the least risk in terms of re-offending and those drug offenders with prior non drug offences represent the greatest risk” (pg. v). Hence drug offenders with

criminal careers will be biasing the magnitude of the association of Economic Crime and recidivism.

Model A is estimated from the sample shown in Table 9 exclusive of prisoners with sentence type of Fine Default. Model B includes all prisoners from the sample and has an additional binary regressor for Fine Default. The explanatory power of Model A is 11.8 percent and of Model B is 13.4 percent. The coefficients in each Model have the same magnitude, sign and level of significance and the Fine Default term in Model B is large and statistically significant at p<0.001.

Recidivism: Increased offence seriousness

The prisoner sample used in this modelling includes prisoners with more than one prison term. Only the most recent term, t, and the term immediately prior, t-1, are considered here. In particular, the lengths of sentence, as a proxy for offence seriousness, in term t and term t-1 are compared.

Table 11 compares the profile of this sample (column 1) with the profile of all other prisoners in the WA prisoner education and training dataset (column 2). It can be seen that proportionately more Aboriginal and Torres Strait Islander prisoners have more than one prison term as do male prisoners and prisoners from rural WA. Prisoners with sentence type of Fine Default are proportionately fewer as are prisoners who up-skilled in their first term. In addition, prisoners who are younger or with fewer successful classes are more likely to be represented in the sample shown in column 1 and prisoners who are older or with more successful classes are shown in column 2.

The proportion of prisoners with longer prison sentences is higher in the sample of prisoners with only one term and lower in the sample of recidivists. Given the five year time frame of the WA prisoner education and training dataset, prisoners with longer sentences might only be included once in the data, not because they don't re-offend ever, but because the truncation precludes including their earlier or later prison history.

Table 11 Prisoners: Number of terms by prisoner and prison term characteristics

Binary variables	More than one term (%)	One term only (%)	chi-square
Aboriginal and Torres Strait Islander	55.4	32.7	617.4429***
Male	89.7	87.5	13.5663***
Rural WA	44.0	35.4	89.6580***
Economic Crime	29.3	30.9	3.5990
Fine Default	10.0	23.3	319.3496***
Study	72.2	73.6	2.6043
Up-skilled	13.6	20.1	79.6665***
Continuous variables	**(mean)**	**(mean)**	**t-test**
Age at Reception Date	30.516	33.139	14.0820**
Number of Days served	306.155	483.279	12.5761**
Number of Successful Classes	3.117	5.051	12.8091**
Observations	**3,837**	10,836	14,643

* p<0.05, ** p<0.01, *** p<0.001

Table 12 uses the sub-sample of prisoners who have more than one term (n = 3,837) and divides these into prisoners whose most recent term is longer than the previous term (recidivist; column 1) and prisoners whose most recent term is at most as long the previous prison term (non-recidivist; column 2). Estimates in Table 12 show that there are proportionately more prisoners in the recidivist group who are Aboriginal and Torres Strait Islander, male, from rural WA of with sentence type of Fine Default. There are proportionately fewer prisoners in the recidivist group with offence type of Economic Crime or who studied or up-skilled. Average number of days served is smaller for the recidivist group as is the average number of successful classes.

Table 12 Prisoners: Recidivism (Definition 2) by prisoner and prison term characteristics

Binary variables	Longer prison term (%)	Shorter or the same length of term (%)	chi-square
Aboriginal and Torres Strait Islander	59.4	52.7	16.9990***
Male	90.0	89.6	0.1860
Rural WA	46.7	42.2	7.4393**
Economic Crime	20.5	35.3	97.9608***
Fine Default	18.6	4.0	219.3378***
Study	56.5	82.9	321.0698***
Up-skilled	6.8	18.2	102.7273***
Continuous variables	**(mean)**	**(mean)**	**t-test**
Age	30.387	30.604	0.8227
Number of days served	160.132	405.980	21.5167**
Number of successful classes	1.654	4.117	13.5010**
Observations	1,558	2,279	**3,837**

* p<0.05, ** p<0.01, *** p<0.001

Table 13 presents estimates of two models. Using Definition 2 of recidivism for the dependent variable in the logit models results in a model fit of 20 percent for Model A and 22 percent for Model B. This means that the factors included in these models are better able to explain this definition of recidivism than the simple recidivism definition based on whether or not prisoners were re-incarcerated (Table 10). It can be seen that, using this length of sentence definition of recidivism, the coefficients of both study variables are negative and statistically significant. That is, *ceteris paribus*, prisoners who up-skill are less likely to recidivate and the greater the number of successful classes the less likely prisoners are to recidivate.

Table 13 Prisoners: Factors affecting Recidivism (Definition 2)		
Dependent variable = Longer prison term	**Model A**	**Model B**
Prisoner characteristics:		
Aboriginal and Torres Strait Islander	0.3721***	0.3205***
Male	0.5422***	0.4903***
Age	-0.0564	-0.0540
Age Squared/100	0.0621	0.0570
Rural	0.1183	0.1546
Prison term characteristics:		
Economic Crime	0.1553	0.1188
Number of days served	-0.0070***	-0.0069***
Year	-0.3745***	-0.3373***
Fine Default		0.8023***
Prison study characteristics:		
Number of successful classes	-0.0288**	-0.0321**
Up-skilled	-0.3149*	-0.3453*
Constant	753.0388***	678.5240***
Observations	3,390	**3,767**
Pseudo R^2	0.1967	0.2205
Degrees of freedom	10	11

*p<0.05, **p<0.01, ***p<0.001

Recidivism: Decreased time in the community

Another way of defining recidivism is to look at how much time ex-prisoners are able to live in the community before they re-offend following successive incarcerations. To do this, we need to look at prisoners in the dataset who have more than two terms. Then, we examine the most recent term, term t, the term immediately prior to the most recent term, term t-1, and the term previous to that, term t-2. Two measures of time in the community are calculated - time between term t-2 and term t-1 (penultimate gap), and time between term t-1 and term t (final gap). The model looks at whether the final gap is longer than the penultimate gap, which would indicate better reintegration into the community, or whether the penultimate gap is longer or the same as the final gap, which indicates recidivism as defined here. Note that study variables are constructed from class enrolments in term t-1.

Table 14 shows that the profile of prisoners with more than two terms is different to the profile of prisoners with one or two prison terms across all prisoner and prison term characteristics. In particular, prisoners with more than two prison terms tend to be of Aboriginal and Torres Strait Islander descent, male, from rural WA and younger with fewer average number of days served and fewer number of successful classes. Prisoners with one or two terms are, on average, non-Aboriginal and Torres Strait Islander, female, from metropolitan WA and older with a higher average number of days served and a higher number of successful classes. These differences are statistically significant at p<0.01 or p<0.001.

Table 14 Prisoners: Terms by prisoner and prison term characteristics

Binary variables	More than two terms (%)	Two terms or fewer (%)	chi-square
Aboriginal and Torres Strait Islander	61.0	35.2	471.5378***
Male	91.3	87.6	22.6491***
Rural WA	43.4	36.7	31.9030***
Economic Crime	23.7	30.9	41.9224***
Fine Default	10.8	21.8	125.0912***
Study	63.1	74.2	104.6139***
Up-skilled	11.4	19.6	74.4005***
Continuous variables	**(mean)**	**(mean)**	**t-test**
Age	31.025	32.797	7.3311**
Number of days served	235.067	460.230	12.4459**
Number of successful classes	2.106	4.884	14.2732**
Observations	**1,949**	12,694	14,643

* p<0.05, ** p<0.01, *** p<0.001

In Table 15, the profile of recidivists (defined in terms of recidivism Definition 3) is different to that of non-recidivists in relation to a number of prisoner and prison term characteristics. The recidivist sample has proportionately more Aboriginal and Torres Strait Islander prisoners and proportionately fewer prisoners with Economic Crime offences or with sentence type of Fine Default or who up-skilled during term t-1.

Table 15 Prisoners: Recidivism (Definition 3) by prisoner and prison term characteristics

Binary variables	Longer or the same time in the community (%)	Shorter time in the community (%)	chi-square
Aboriginal and Torres Strait Islander	63.0	58.6	4.0222*
Male	91.6	91.1	0.1497
Rural WA	44.6	42.0	1.3046
Economic Crime	19.9	28.0	17.6693***
Fine Default	5.3	17.0	68.3741***
Study	63.8	62.3	0.4770
Up-skilled	9.3	13.8	9.4032**
Continuous variables	**(mean)**	**(mean)**	**t-test**
Age	30.617	31.484	-2.4860
Number of days served	235.905	234.125	0.1947
Number of successful classes	1.862	2.379	-2.5675
Observations	1,031	918	**1,949**

* p<0.05, ** p<0.01, *** p<0.001

Table 16 presents estimates of two models. Note that some of the observations have missing values so Model B estimated from the full sample has less than 1,949 observations, shown in Table 15 column 3. Factors that contribute to recidivism in Model A are the offence being an Economic Crime and whether the prisoner up-skilled in term t-1. In addition the longer the sentence and the later in the dataset the prisoner served term t-1, the more likely they are to have been re-incarcerated.

Table 16 Prisoners: Factors affecting Recidivism (Definition 3)		
Dependent variable = shorter time in the community	**Model A**	**Model B**
Prisoner characteristics:		
Aboriginal and Torres Strait Islander	-0.1588	-0.1510
Male	-0.2172	-0.1746
Age	0.0530	0.0451
Age Squared/100	-0.0431	-0.0329
Rural	0.0329	0.0375
Prison term characteristics:		
Economic Crime	0.5548***	0.4890***
Number of days served	0.0011***	0.0012***
Year	0.6321***	0.6926***
Fine Default		1.1060***
Prison study characteristics:		
Number of successful classes	0.0200	0.0191
Up-skilled	0.4035*	0.3922*
Constant	-1270.4058***	-1391.9085***
Observations	1,709	**1,915**
Pseudo R^2	0.0799	0.1104
Degrees of freedom	10	11

*p<0.05, **p<0.01, ***p<0.001

Model B (Table 16 column 2) results are similar with the Fine Default binary variable being positive and statistically significant when included in the estimation for the full sample. The explanatory power of Models A and B are 8 percent and 11 percent, respectively.

Some of the results presented in Table 16 are surprising. For example, if a prisoner has up-skilled in prison, then they should be more employable. However, it is possible that these prisoners have unmeasured characteristics, such as housing, employment, and marital status, that offset the otherwise positive impact of up-skilling on recidivism. These characteristics are not available in the dataset but are more likely to impact on reducing recidivism defined in terms of ex-prisoners spending more time in the community between prison terms. That is, ex-prisoners who have affordable housing and regular employment and are partnered are more able to embrace their freedom in the community and will be more inclined to protect it by not re-offending (Visher 2007).

Another issue for the interpretation of Model 4 results is that, under this definition, the sample necessarily only includes recidivists. Correction for this selection bias could be problematic given unbalanced sample sizes - the sample size for the substantive model (for example, Model B in Table 16 column 2) is 13 percent (n = 1,915) of the sample size of the selection model (n = 14,643).

Duration between offences (Model 5)

Model 5 is a duration model that examines the time between prison terms for prisoners who have more than one prison term, in particular, the time between the most recent prison term (term t) and the term immediately prior to that (term t-1). The sub-sample is prisoners who were discharged by the end of June 2006. This truncation gives at least four years post-release time in which to observe subsequent offending (recidivism) behaviour.

The duration or survival models shown in Figures 4 to 11 are interesting in that they show deviations in cumulative recidivism rates for different groups of ex-prisoners for five years post release. The literature reveals that the longer ex-prisoners remain in the community and refrain from re-offending the lower the probability of re-incarceration. Whilst the WA prisoner education and welfare dataset truncates the data at 30 June 2010 and therefore we are unable to evidence ex-prisoner profiles beyond then, the high survival rates for some groups of ex-prisoners augur well for their reintegration back into the community.

> *In summary, groups of ex-prisoners who are best able to remain in the community for longer are older, non-Aboriginal and Torres Strait Islander, from metropolitan WA, or ex-prisoners who studied and successfully completed all their classes, prisoners with sentence type of Fine Default and prisoners whose offence type is Other Offence (for example, fisheries or people smuggling offences), particularly offences that are not considered Economic Crime. Mixed results are found in terms of gender - recidivism is slightly higher for female ex-prisoners in the first year post release and is higher for male ex-prisoners in the period from one to five years post release.*

Figure 2 gives examples of the type of consecutive prison terms that may apply to prisoners in the sub-sample of prisoners with more than one prison term. Prisoners who are included have prison histories 3 and 4 (non-recidivists); and 5, 6, 7, 8, 9 and 10 (recidivists). Prisoners with prison histories that look like 1, 2 and 11 are excluded because either their prison term is not concluded by (cases 1 and 2) or not commenced before (case 11) 1 July 2006.

Table 17 shows that the proportions of prisoners with short (under 12 months) and long (12 or more months) prison terms who subsequently return to prison differ and that this difference widens as the time period for examining their potential for recidivism lengthens. Hence, proportionately fewer prisoners with short prison terms return to prison within the first year post release (30%) compared with those with longer prison terms (38%). There is still a difference between proportions at the five year mark but the gap has narrowed – 54 percent of prisoners with short prison terms and 62 percent of prisoners with long prison terms return to prison within five years. Table 17 also presents recidivism results for particular socio-demographic, offence and welfare categories.

Figure 2: Examples of prisoner's prison terms

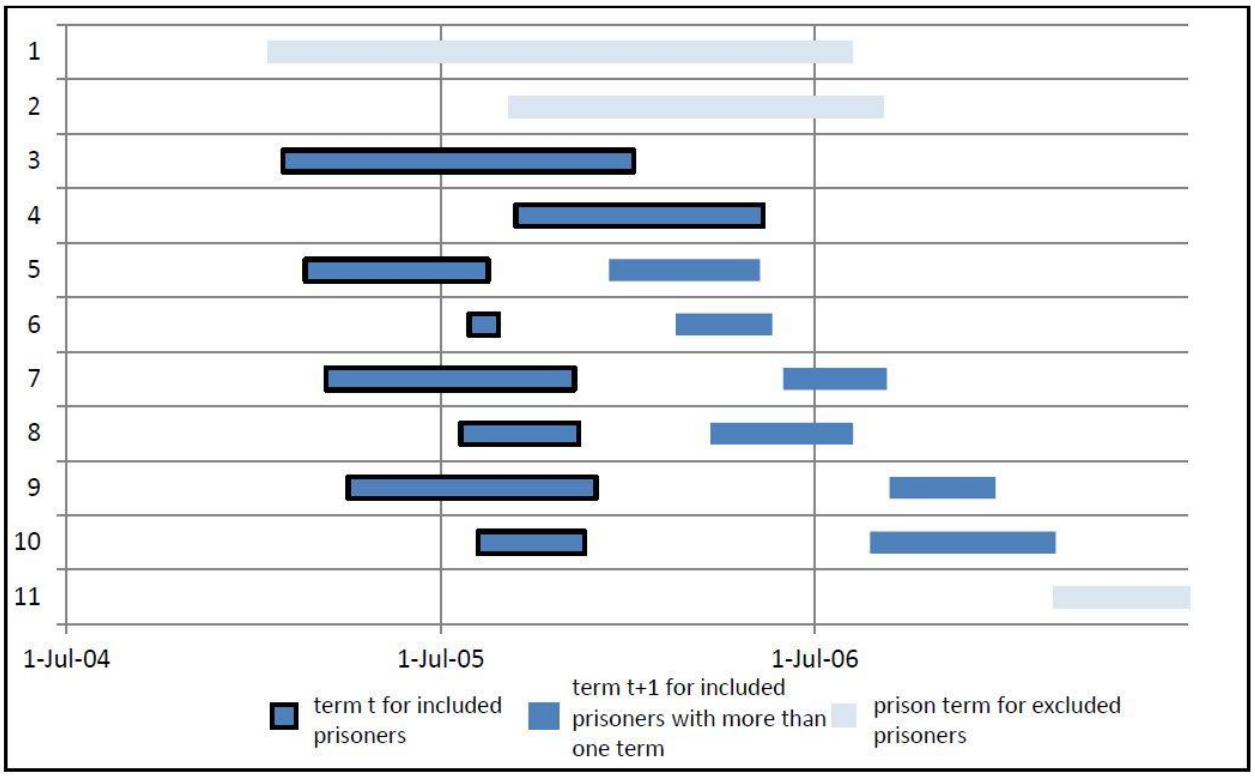


Table 17 Prisoners: Characteristics by length of prison term

	Discharged prison term	
	Short (n=2,082)	Long (n=879)
Category	**% Recidivate**	**% Recidivate**
Return to prison		
• within 1 year	29.5	38.0
• within 2 years	41.1	50.2
• within 3 years	48.8	56.3
• within 4 years	53.9	60.3
• within 5 years	56.5	62.0
Aboriginal and Torres Strait Islander	75.7	78.8
Male	56.9	61.9
Drug Offences	27.0	35.3
Successfully completed all classes	51.0	63.0
Prior CL U/E record	64.9	67.0
	mean (Recidivists)	**mean (Recidivists)**
Age	30.528	28.767
Proportion of time on unemployment benefits prior to most recent term	0.462	0.522
Number of days served	186.901	684.495

Prisoners with offence type Drug Offences are more likely to recidivate if their discharged prison term was 12 months or longer (35%) than if their prison term was under 12 months (27%). What does this mean? Drug offences include offences related to both using and dealing, with sentencing generally more lenient for using and less lenient for dealing. Hence it could be argued that the longer prison terms for drug offences are keeping

dealers from their occupation to which they are keen to return, thereby setting themselves up for return to prison. Fagan (1992) refers to three types of drug dealers – those that are young, skilled employed but poorly paid, those with marginal attachment to the labour market, and those who participate in the informal sector earning a living from other illicit activities. Imprisonment is unlikely to change the availability of these 'occupational' choices. Drug users on the other hand may find their prison sentence has enabled them to break their habit of drug use which they then carry forward into their post release lives. This may depend on whether they return to their old stomping grounds and friendship groups.

Other differences are shown in Table 17. From the group of prisoners with short prison terms, 65 percent of prisoners who received unemployment benefits prior to their most recent prison term recidivated. For the group of prisoners with longer prison terms, 67 percent of prisoners who received unemployment benefits prior to their most recent term recidivated. This may be explained by a difference in opportunity costs with shorter terms reflecting less serious offences and less of a criminal history compared with longer terms. Hence prisoners with shorter terms potentially have a greater attachment to the labour market.

Recidivism rates of 57 percent and 62 percent are reported for male prisoners in the short and longer term groups, respectively. This can be explained by the tendency for female prisoners to have shorter prison terms. Recidivism rates for Aboriginal and Torres Strait Islander prisoners in the two groups are 76 percent and 79 percent. Longer prison terms denigrate both human and social capital. However, they also create an environment within the prison that becomes familiar with rules that are known, simple and transparent. The average age at reception for recidivists whose discharged prison term is twelve months or more is younger (29 years) than for recidivists with shorter prison terms (31 years). The average number of days served are fewer for prisoners whose discharged prison term was under 12 months which is not unexpected.

The welfare story is summarised in Figure 3. Here the recidivism rates for prisoners with and without an unemployment benefits or student allowance payment record in the post-release period differ and this difference is greater for prisoners whose prison term was shorter than for those with longer prison terms.

Figures 4 to 11 present outcomes of duration (time in the community post release) models disaggregated by socio-demographic, study and welfare characteristics. These figures can be interpreted as follows. The graphs have two dimensions – the vertical axis shows the proportion of prisoners in each sub-group remaining in the community (ranging from 0 to 1) and the horizontal axis shows time from discharge up to a maximum of 5 years.

In Figure 4, four age groups are shown. At one year post release, 59 percent of ex-prisoners aged under 25 years are still free compared with 66 percent, 73 percent and 85 percent of ex-prisoners aged 25 to 34 years, 35 to 39 years and over 39 years, respectively. This confirms results reported for the age variable in Model 4. By four years post release the proportions of ex-prisoners still in the community are 37 percent, 40 percent and 47 percent for the three younger age groups, respectively, and 72 percent for older ex-prisoners. That is, recidivism is much lower for older aged ex-prisoners.

The difference in duration rates for Aboriginal and Torres Strait Islander and non-Aboriginal and Torres Strait Islander ex-prisoners is shown in Figure 5. In line with results for Model 4, Aboriginal and Torres Strait Islander ex-prisoners are re-incarcerated earlier and at a faster rate than non-Aboriginal and Torres Strait Islander ex-prisoners. Within four

years of discharge, only 26 percent of Aboriginal and Torres Strait Islander ex-prisoners are still in the community compared with 58 percent of non-Aboriginal and Torres Strait Islander ex-prisoners.

Figure 3 Recidivism rate by prison term and unemployment benefits/student allowance

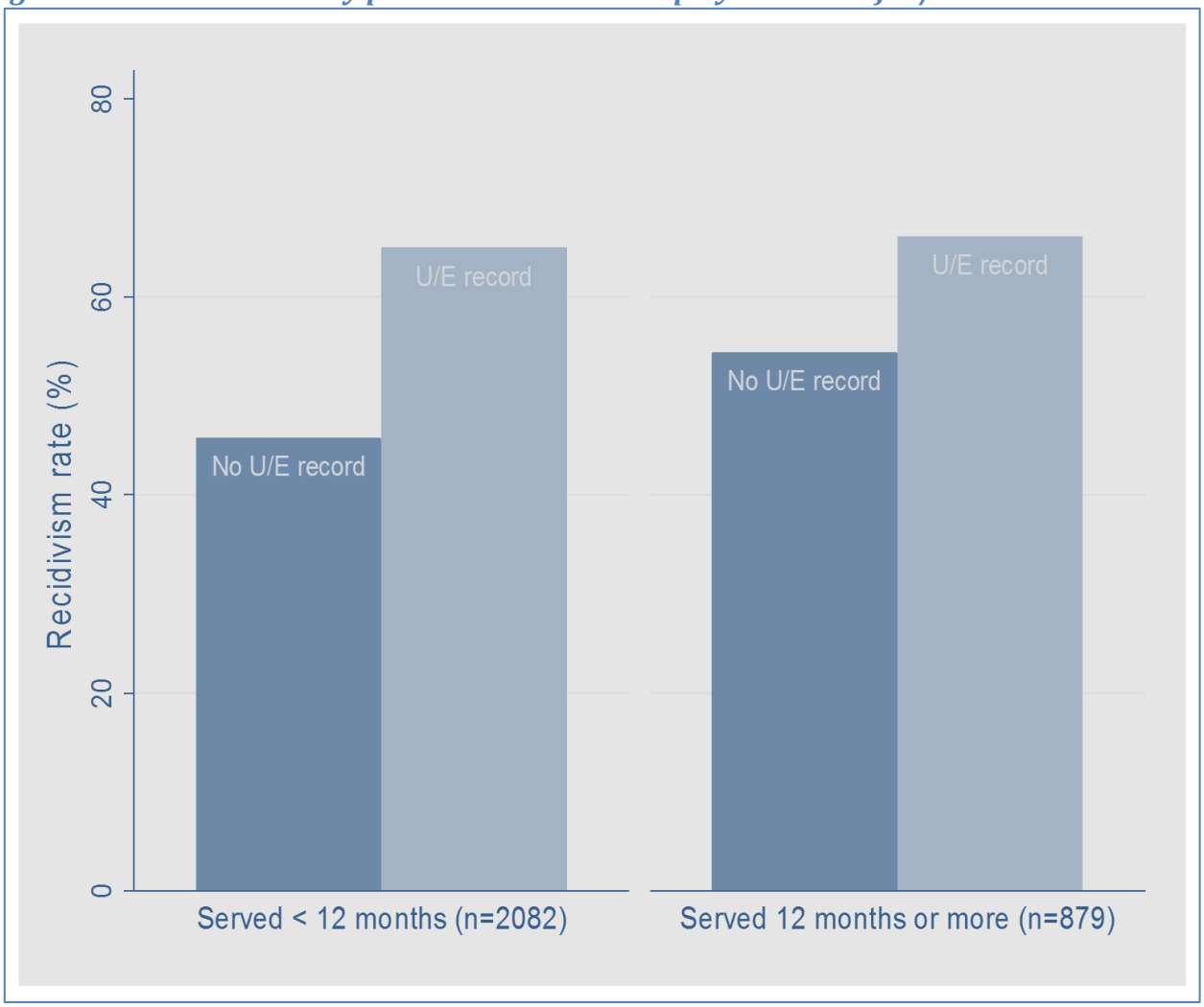


Figure 4 Kaplan-Meier survival estimates by Age

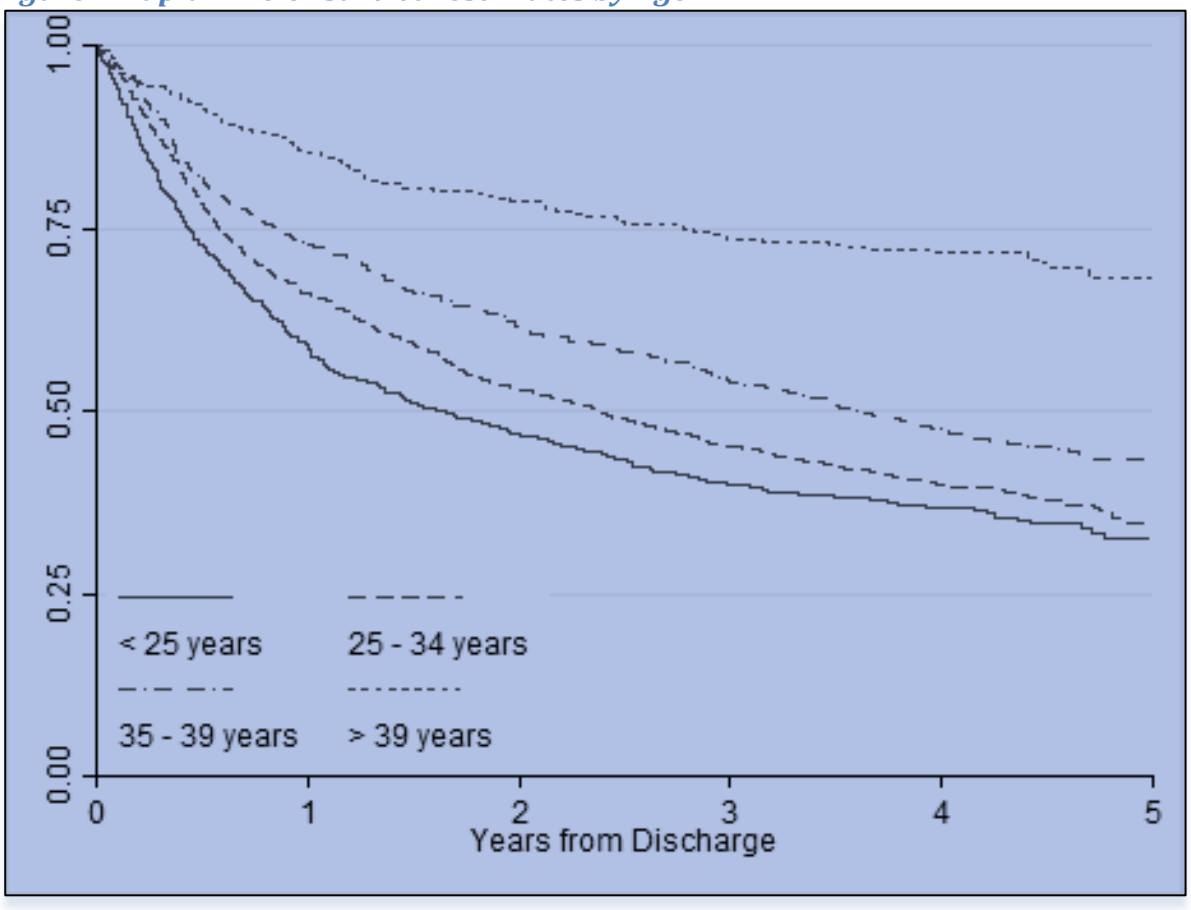
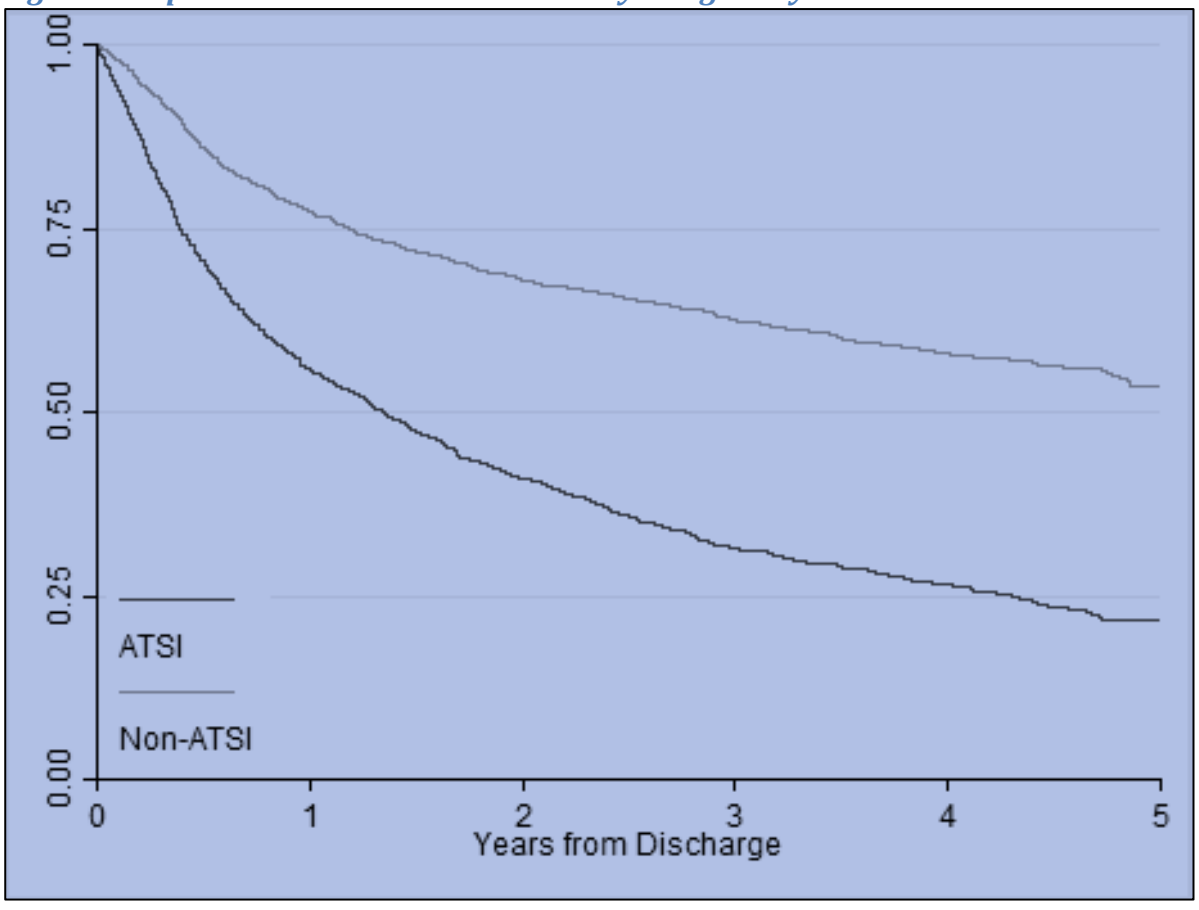
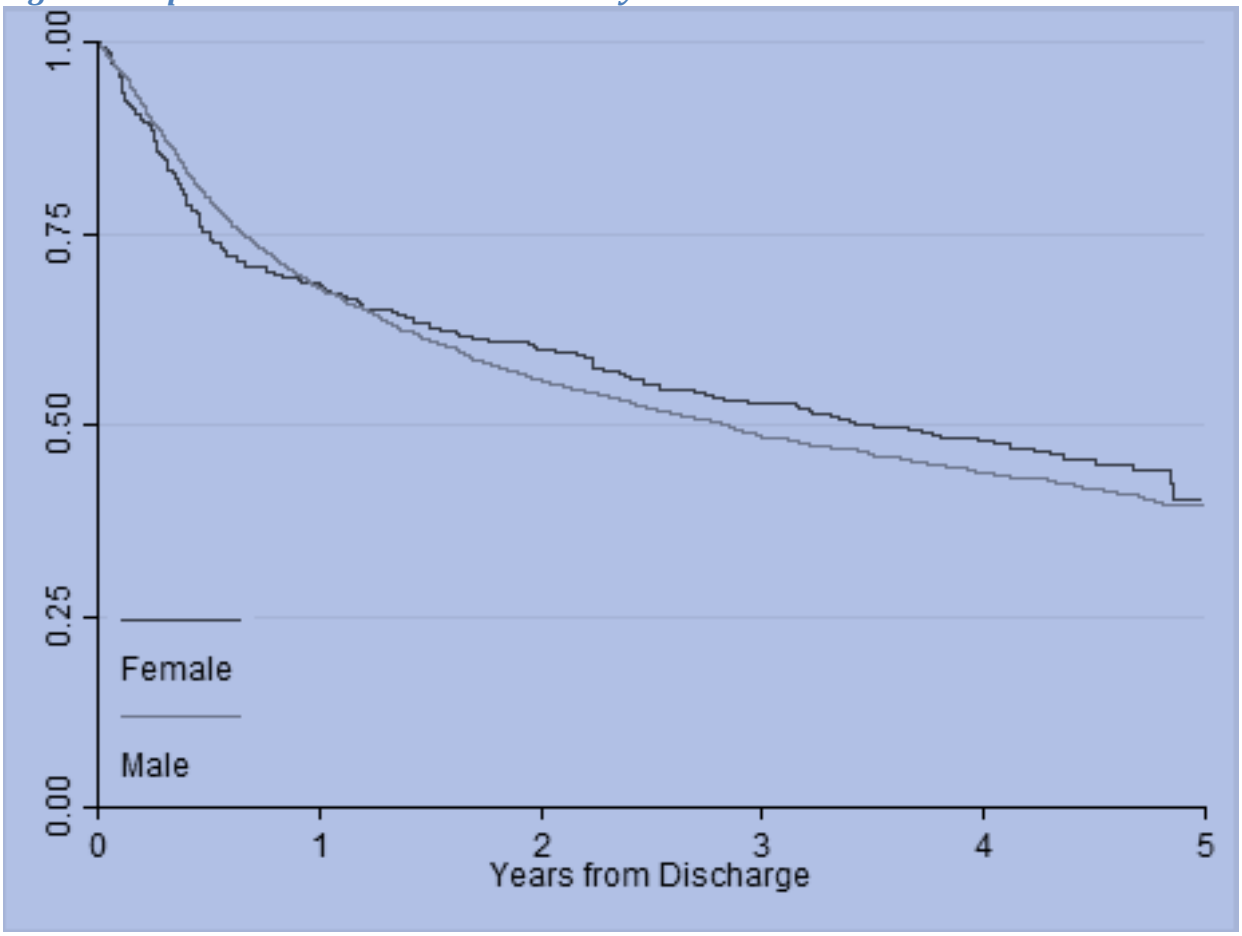


Figure 5 Kaplan-Meier survival estimates by Indigeneity



Minimal differences in duration rates are found for male and female ex-prisoners as shown in Figure 6. Whilst recidivism is slightly higher for female ex-prisoners in the first year post release, it is higher for male ex-prisoners in the period from one to five years post release.

Figure 6 Kaplan-Meier survival estimates by Gender



In Figure 7, the difference in post-release time in the community for ex-prisoners from rural WA compared with those from metropolitan WA is shown. Recidivism was shown in Model 4 to be higher for ex-prisoners from rural WA and in Figure 7 we see that this is consistent up to five years post release. The gap increases from five percentage points at 6 months post release to 16 percentage points at three years post release. By the fourth year post release, 48 percent of ex-prisoners from metropolitan WA are still in the community compared with 32 percent of ex-prisoners from rural WA.

As mentioned in the Methodology section, the WA prisoner education and welfare dataset provides rich data on the study choices and outcomes for individual prisoners but these data are difficult to aggregate. Hence examining class enrolments by particular course or content is not promising. Instead we can look at whether classes are successfully completed or not. This is the focus of Figure 8.

Figure 7 Kaplan-Meier survival estimates by Region

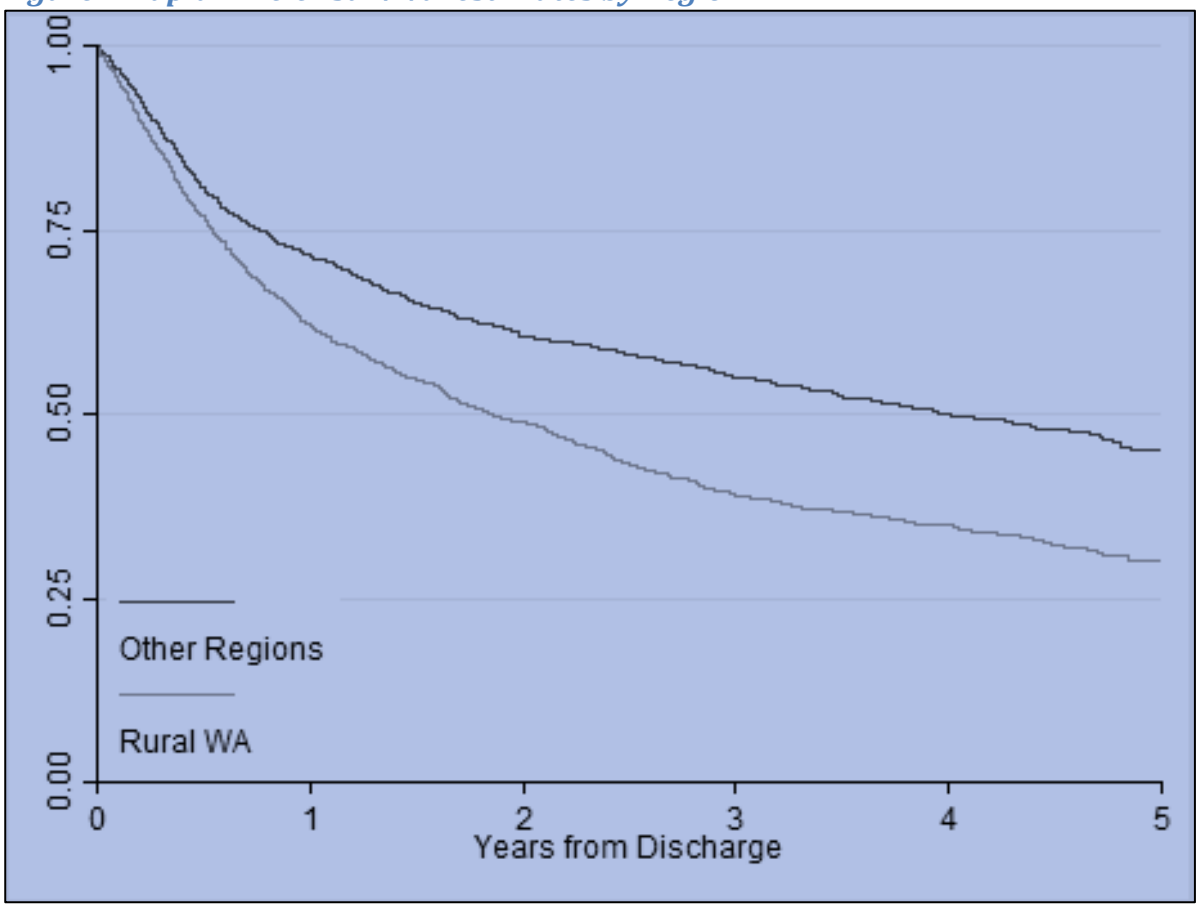
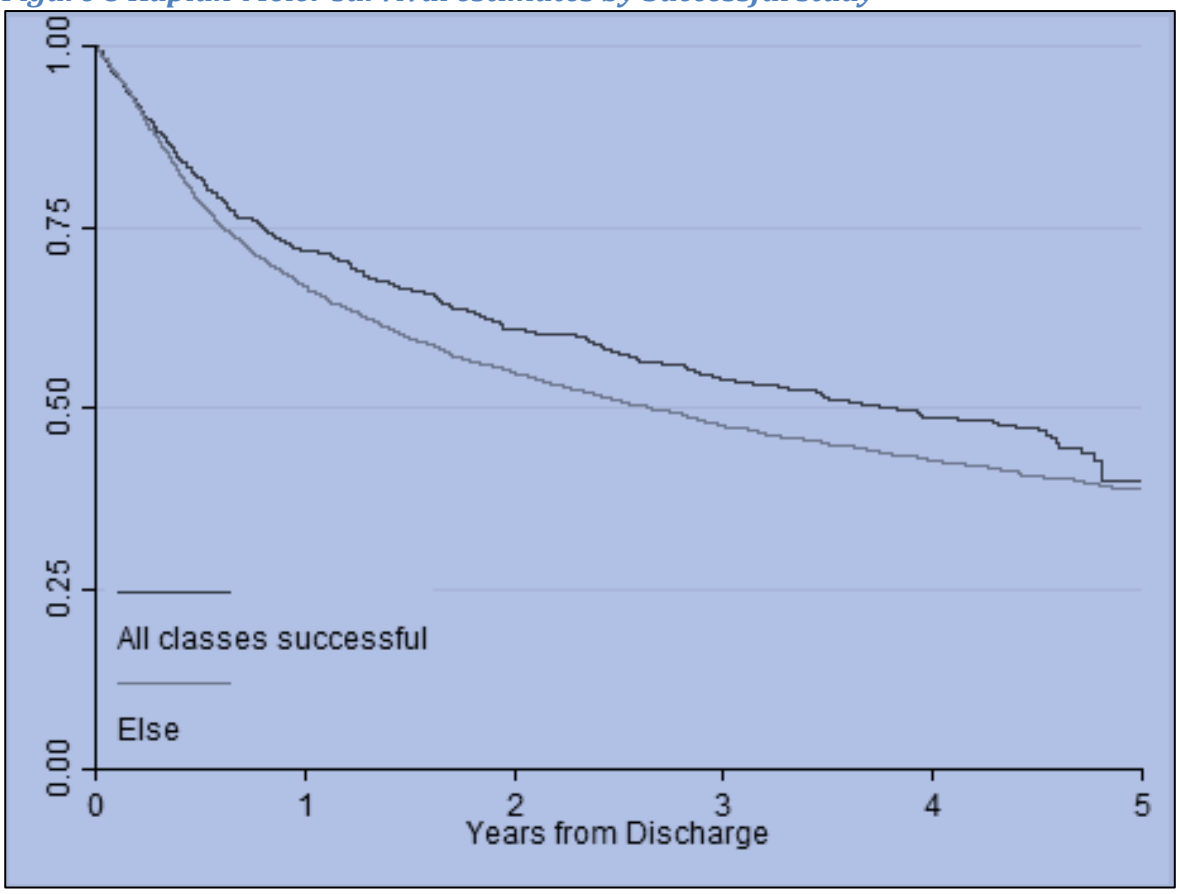


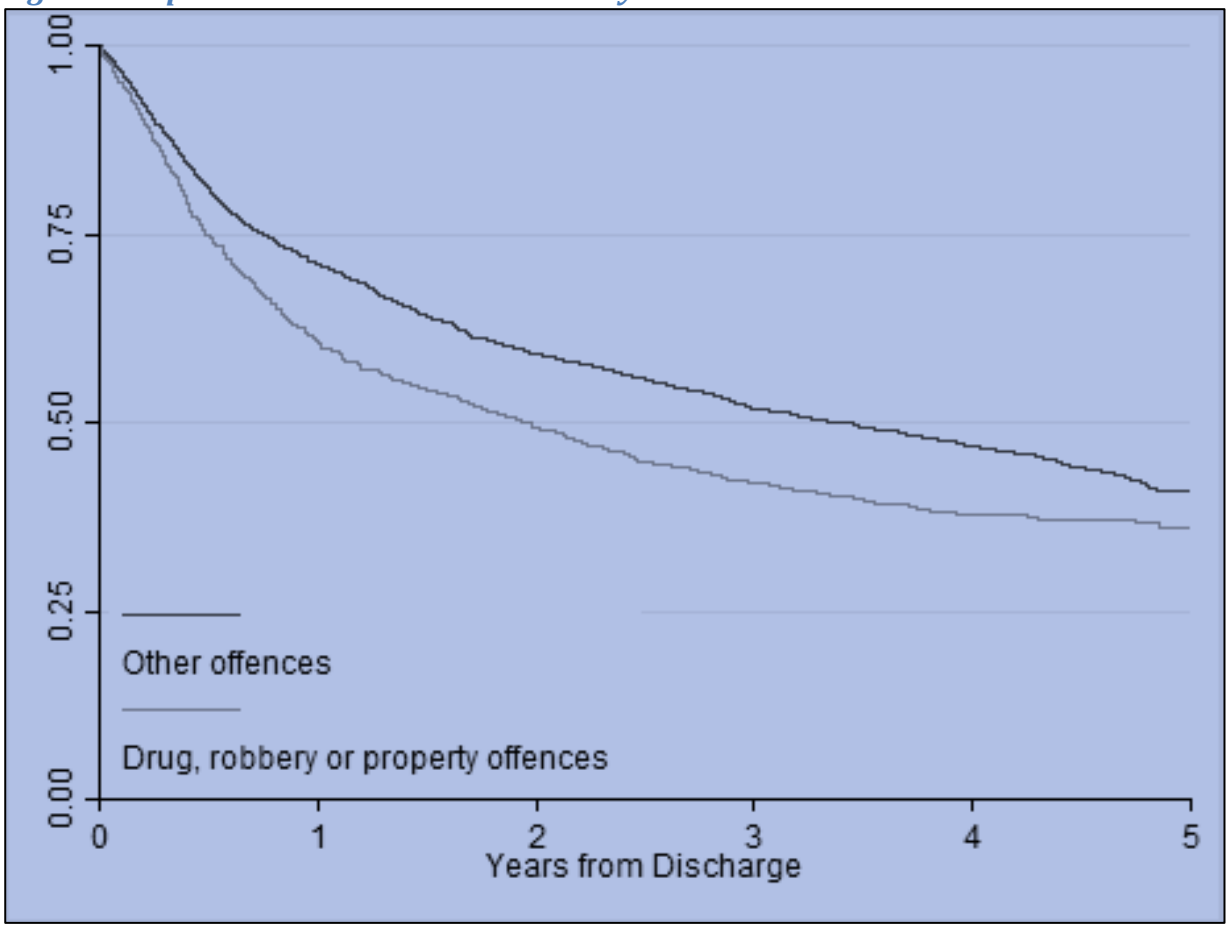
Figure 8 Kaplan-Meier survival estimates by Successful study



As discussed earlier, Figure 8 presents a comparison between prisoners who successfully completed all their classes and those who did not. Overall those prisoners who successfully completed all classes remained in the community for longer compared with those who did not. The gap in recidivism rates between the two groups, in this period, ranges from 3 percentage points at six months post release to 7 percentage points at 4.5 years post release, with 47 percent of prisoners with successful class completions and 40 percent of prisoners with at least one unsuccessful class completion or no study still in the community at 4.5 years post release. This suggests that the protective effect of successful study on outcomes, in particular recidivism, is not sustained in the longer term.

Results for Model 4 showed recidivism is higher if the offence is Economic Crime. This is replicated in Figure 9 which shows that prisoners with these offences recidivate at a higher rate across the five years post release. Thus, within one year 61 percent of ex-prisoners whose most serious offence in their most recent term is an Economic Crime remain in the community compared with 71 percent of ex-prisoners with other offences. After four years, this gap has narrowed with 38 percent and 47 percent of ex-prisoners with Economic Crime and other offences, respectively, remaining in the community.

Figure 9 Kaplan-Meier survival estimates by Economic Crime



As has been seen elsewhere in this report, prisoners whose sentence type is Fine Default have a different profile to other prisoners. This can be clearly seen in Figure 10 where the group of ex-prisoners whose sentence type in their most recent term is Fine Default has less recidivism from the start to the end of the five year post release period. Importantly the gap ranges from 18 percentage points at 6 months post release to 36 percentage points at 4.5 years post release. At this time, 74 percent of ex-prisoners with sentence type of Fine Default remain in the community compared with 39 percent of ex-prisoners with other sentence types.

Figure 10 Kaplan-Meier survival estimates by Sentence type

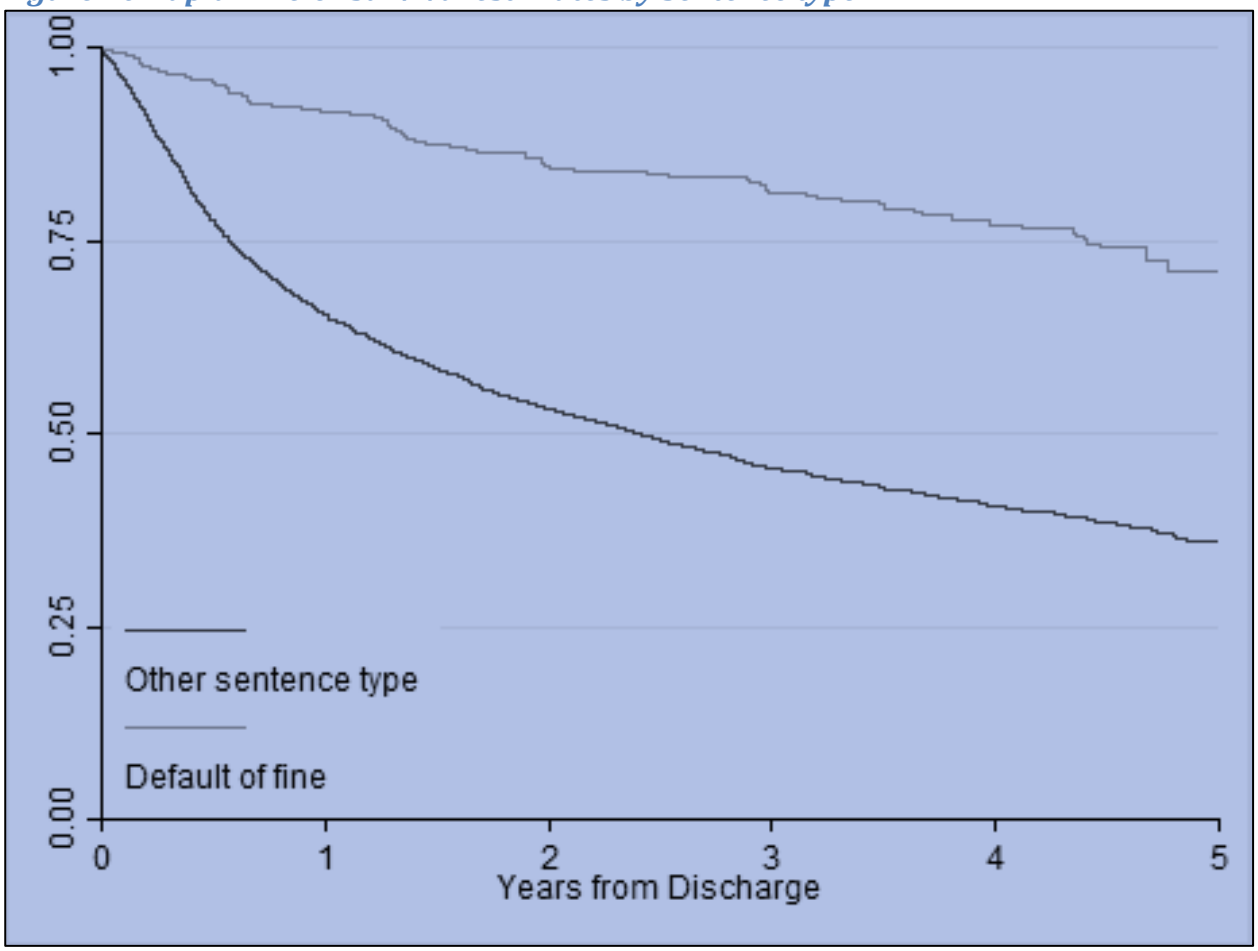


Figure 11 Kaplan-Meier survival estimates by ANCO category

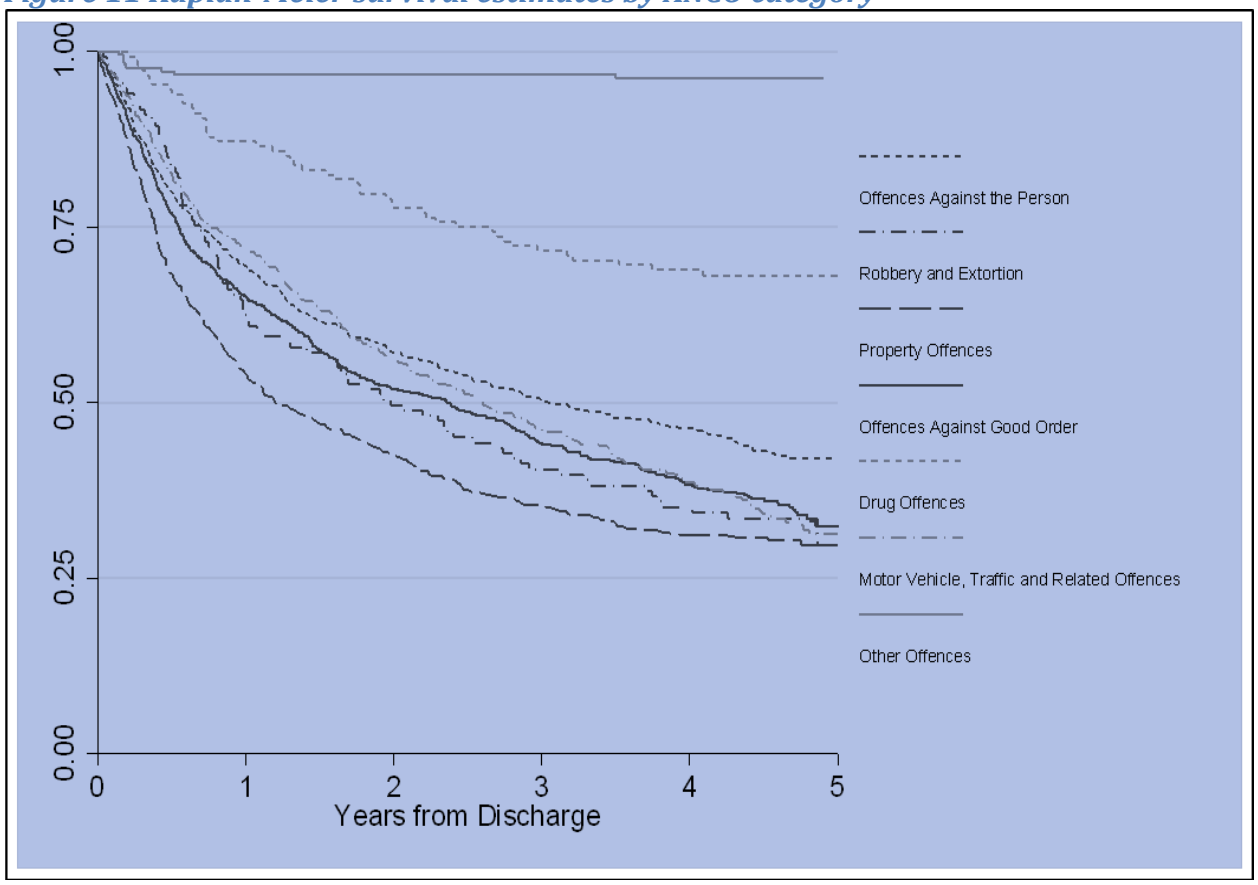


Figure 11 shows duration in the community for prisoners with various offence type categories. The outcome for prisoners with Other Offences is better compared with all other offence types – 97 percent of ex-prisoners with this offence type as their most serious offence in the most recent term are still in the community at the end of five years. The least successful group of ex-prisoners appears to be those with Property Offence as their most serious offence in their most recent term. Of ex-prisoners in this group, 32 percent have returned to prison within 6 months and a further 14 percent by the end of the first year post release. Within four years, only 31 percent of this group are still in the community.

Risk of welfare dependence (Model 6)

The sample here consists of those prisoners who were released from their only or most recent prison term and spent at least six months outside of prison. Proportion of time on benefit is calculated as the aggregate number of days receiving benefits in this six month period divided by 183 days.

How quickly ex-prisoners exit welfare may be due to characteristics identified in the WA prisoner education and welfare dataset. However, given that the measures of model fit for the three estimated models is poor, this is more likely to be influenced by factors for which measures were unavailable to the research, such as prior employment history, occupation, education outside prison, housing, and mental and physical health.

> *In summary, proportion of time on benefit is longer for ex-prisoners of Aboriginal and Torres Strait Islander descent and for later years of discharge compared with non-Aboriginal and Torres Strait Islander ex-prisoners and ex-prisoners discharged earlier in the dataset, respectively. In addition, the more classes that were successfully completed, the shorter time the ex-prisoners spent on welfare.*

Table 18 shows estimates from two ordinary least squares (OLS) models – Model A (column 1) and Model B (column 2) - and a two stage (OLS) model – Model C (column 3). Unlike models estimated and reported in other sections of this report, the variable for Year relates to the year discharged rather than the year imprisonment occurred. The reason for this is that Year discharged proxies the general unemployment rate at the time the ex-prisoner is entering the community and attempting to enter the labour market.

Estimates for Model A, for which the sample excludes prisoners with sentence type Fine Default, are shown in column 1. Here, ex-prisoners who are Aboriginal and Torres Strait Islander spend more time on benefits compared with non-Aboriginal and Torres Strait Islander ex-prisoners and male ex-prisoners spend less time on benefits compared with female ex-prisoners. The estimates also show that the greater the number of successful classes, the less time is spent on benefits post release.

Year discharged can be used as a proxy for labour market tightness. In the 2000s, the strength of the Australian labour market paralleled the growth in the economy with slower economic growth from 2000 to 2004, stronger growth from 2004 to 2008, returning to slower growth during the GFC from 2008 to 2009 (Borland 2011). Thus, the annual seasonally adjusted unemployment rate in WA over the period of the WA prisoner education and welfare dataset was 4.6 percent, 2.9 percent, 3.2 percent, 3.0 percent, 5.6 percent and 4.5 percent for July 2005 to July 2010 (ABS 2014). Hence it could be expected that ex-prisoners might spend more time on income support if they are released

in the later years of the dataset compared with earlier years, which is shown by the positive coefficient for the Year variable in all of the Models shown in Table 18.

Model B estimates are based on the sample that includes prisoners with all sentence types. The characteristics with statistically significant estimates are the same as those reported for Model A. The Fine Default variable is negative but is not statistically significant.

Model C (column 3) reports the estimation of Heckman's two stage selectivity bias correction model. The selection term, lambda, is not statistically significant which suggests that the profile of prisoners for whom Centrelink payment information is available in the WA prisoner education and welfare dataset is not different to the profile of prisoners without Centrelink payment information. Proportion of time on benefit is longer for ex-prisoners of Aboriginal and Torres Strait Islander descent and for later years of discharge compared with non-Aboriginal and Torres Strait Islander ex-prisoners and ex-prisoners discharged earlier in the dataset, respectively. Finally, Model C estimates show that the more classes that were successfully completed, the shorter time the ex-prisoners spent on welfare. This model explains less than five percent of the variation in time on benefits.

Table 18 Prisoners: Factors affecting welfare dependence

Dependent variable = proportion of post-release period on benefit	Model A	Model B	Model C
Prisoner characteristics:			
Aboriginal and Torres Strait Islander	0.1880***	0.1729***	0.2364***
Male	-0.0738***	-0.0646***	-0.1553
Age	0.0024	0.0024	-0.0256
Age Squared/100	-0.0018	-0.0018	0.0475
Rural	0.0040	0.0069	0.0664
Prison term characteristics:			
Economic Crime	-0.0270	-0.0169	-0.0608
Year discharged	0.0261***	0.0247***	0.0361**
Number of days served	-0.0000	-0.0000	-0.0001
Fine Default		-0.0218	0.3543
Prison study characteristics:			
Number of successful classes	-0.0032***	-0.0031***	-0.0031**
Constant	-51.7283***	-49.0265***	-70.9374**
lambda			-0.8131
Observations	3,266	3,797	**3,797**
R^2	0.0937	0.0801	0.0445†
Degrees of freedom	9	10	10

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

†*Pseudo R^2 calculated as the square of the correlation between variable proportion of post-release period on benefit and the fitted values under the model.*

Duration of income support (Model 7)

The duration models in this section are applied to all discharged prisoners (that is, excluding prisoners who are still in prison on 30 June 2010) with the most recent discharged term or only term being the reference term for prisoners with more than one term and prisoners with a single term, respectively. Time on welfare is taken to be time from this exit to when welfare payments cease or when a new prison term commences or 30 June 2010.

Outcomes in this model may be different to those for Model 6 due to the difference in samples. Also, in Model 6, ex-prisoners may have a number of non-consecutive periods of time in receipt of income support payments which are aggregated. In Model 7, only the first break in payment stream is counted. Note that breaks in payment streams of less than 6 weeks are ignored as these are most likely due to recipients failing to lodge documents on time rather than being temporarily employed or otherwise ineligible.

Figures 12 to 19 present outcomes of duration models (time to exit unemployment benefits or student allowances) disaggregated by socio-demographic, study and welfare characteristics. These figures can be interpreted as follows. The graphs have two dimensions – the vertical axis shows the proportion of prisoners in each sub-group (ranging from 0 to 1) who remain on welfare and the horizontal axis shows time from discharge up to a maximum of 5 years. As the dataset is truncated at 30 June 2010, all ex-prisoners will be shown to have exited welfare by the end of the fifth year at the latest.

> *In summary, the characteristics of ex-prisoners which, on average, lead to exit from welfare sooner are being male, younger or non-Aboriginal and Torres Strait Islander, from metropolitan WA, having up-skilled in prison, having either Economic Crime or Drug Offences as their most serious offence, or not being in receipt of unemployment benefits or student allowances prior to their most recent prison term.*

In Figure 12, it can be seen that the youngest age group (under 25 years) exits unemployment benefits or student allowances soonest, and the oldest age group (over 39 years) exits latest. The age gap is widest at the twelve months mark. Here 22 percent of ex-prisoners in the youngest age group are still receiving benefits compared with 31 percent of ex-prisoners in the oldest age group.

Figure 12 Kaplan-Meier survival estimates by Age

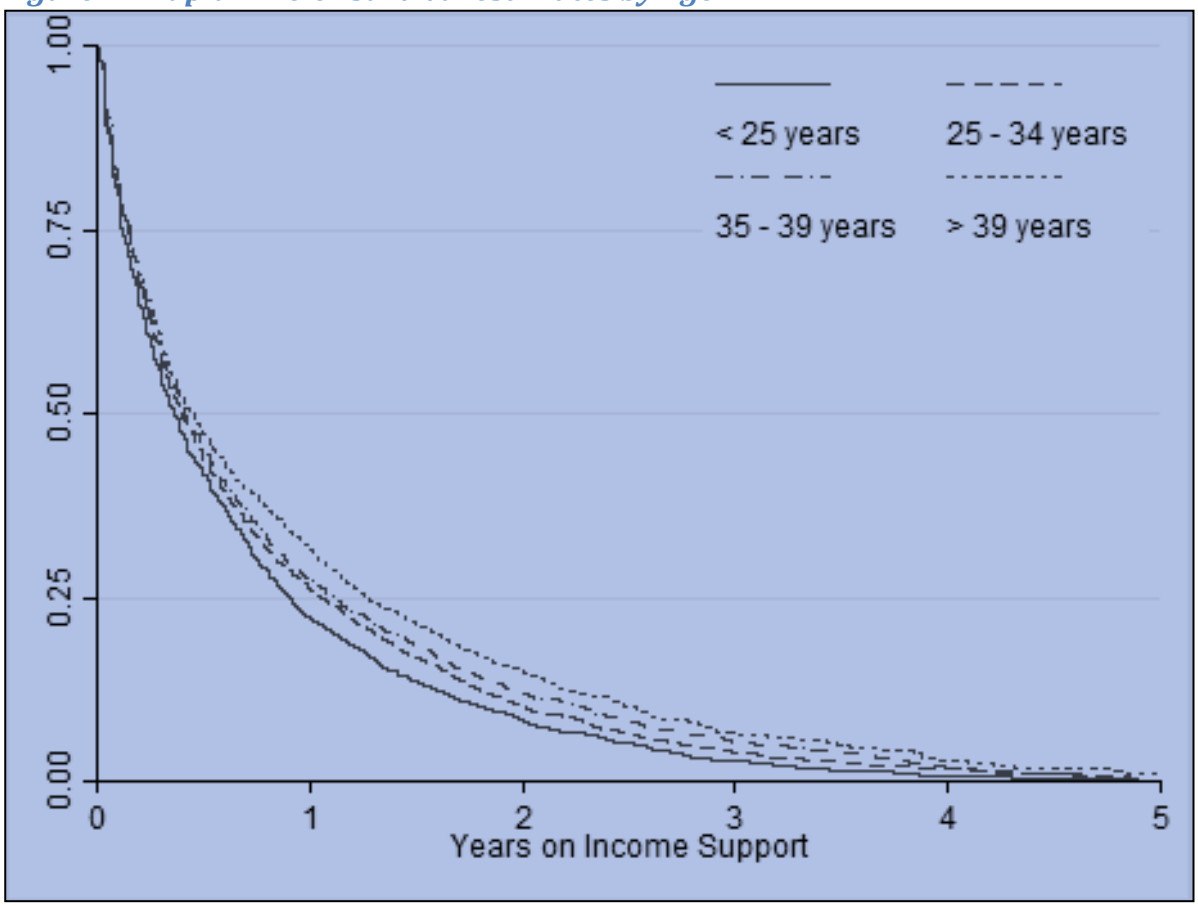
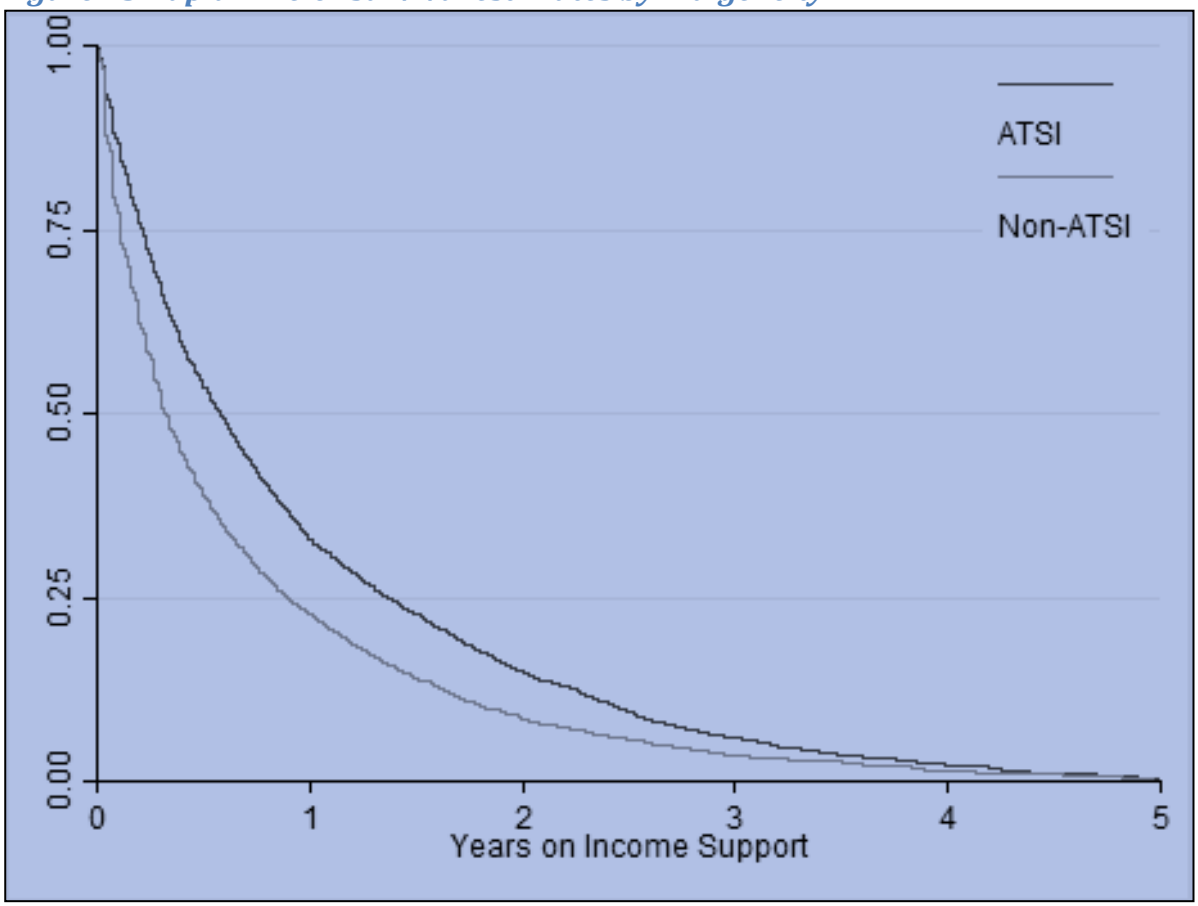


Figure 13 shows that non-Aboriginal and Torres Strait Islander ex-prisoners exit unemployment benefits or student allowances sooner than Aboriginal and Torres Strait Islander ex-prisoners at all points in the range. This is confirmed by Australian labour market studies which are unequivocal about Aboriginal and Torres Strait Islander labour market disadvantage, even in the absence of imprisonment histories (Norris Kelly and Giles 2005). Figure 13 shows that, the gap is maximised at six months from discharge with 53 percent of Aboriginal and Torres Strait Islander ex-prisoners yet to exit income support compared with 39 percent of non-Aboriginal and Torres Strait Islander ex-prisoners.

Giles and Whale (2013) reported that the proportion of Aboriginal and Torres Strait Islander prisoners in rural areas is greater than the proportion in metropolitan WA – 64 percent and 23 percent, respectively. It is expected that the difference in estimates of years to exit income support for Aboriginal and Torres Strait Islander and non-Aboriginal and Torres Strait Islander ex-prisoners shown in Figure 13 would be mirrored by a difference in time to exit unemployment benefits or student allowances for ex-prisoners from rural WA compared with metropolitan WA. This is the case as shown in Figure 14 with prisoners from rural WA exiting income support later than ex-prisoners from metropolitan WA with the widest gap of 9 percent occurring at six months.

Figure 13 Kaplan-Meier survival estimates by Indigeneity



The impact of study on time to exit welfare is shown in Figures 15 and 16. Firstly, Figure 15 shows little difference in exit from income support for ex-prisoners who have successfully completed all classes and those who have not. However, Figure 16 shows that, on average, proportionately more ex-prisoners who up-skill during their most recent term exit welfare sooner across the five years of data. For example, at one year post release, 22 percent of prisoners who have up-skilled are still receiving income support compared with 27 percent of prisoners who did not up-skill. This difference narrows so that by year 3 it is about two percentage points and by 54 months from exit, all prisoners who up-skilled are no longer receiving welfare payments. Whilst educationalists might argue that any study is important in providing students with better opportunities (Underwood 2006), the comparative results shown in Figures 15 and 16 suggest that particular educational pathways such as those that lead to up-skilling have better outcomes than classes that are not necessarily aligned to increasing certification.

Figure 14 Kaplan-Meier survival estimates by Region

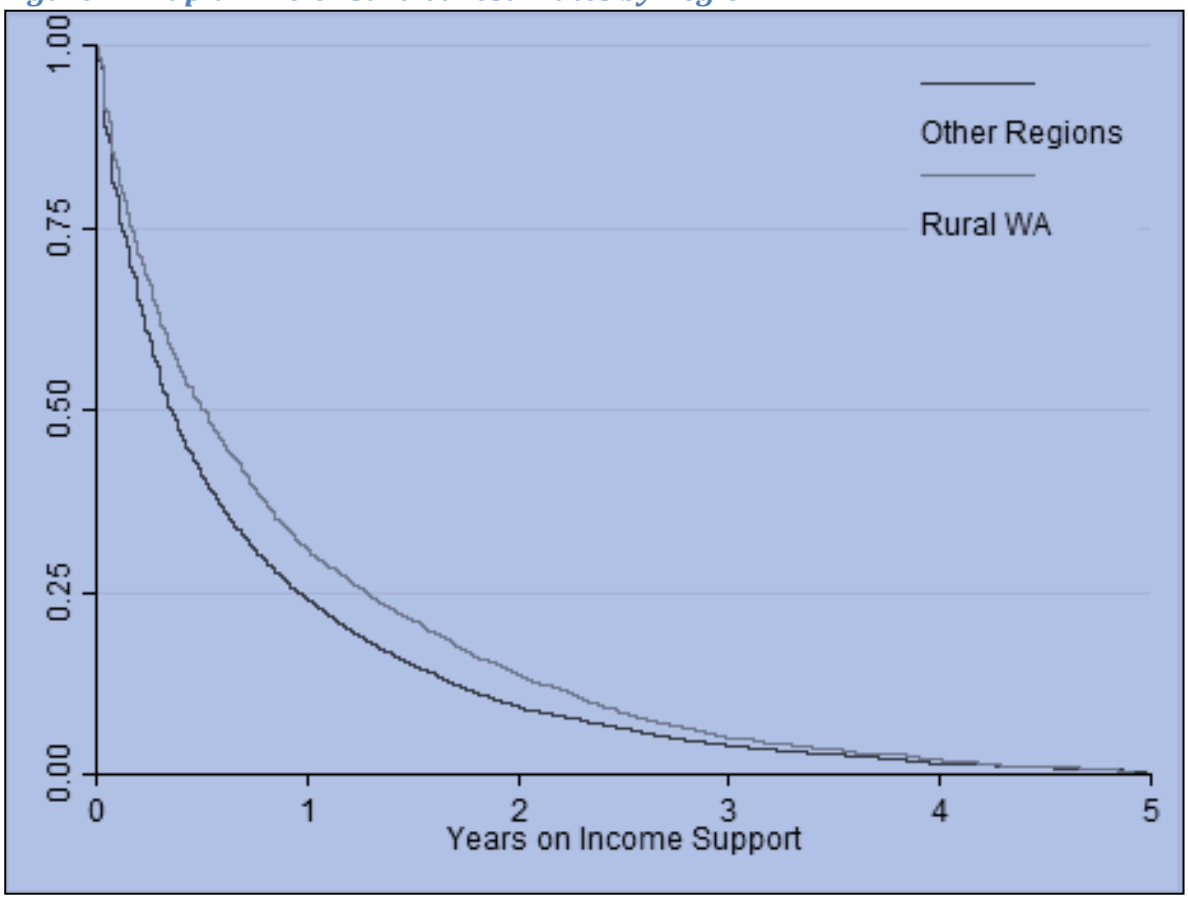
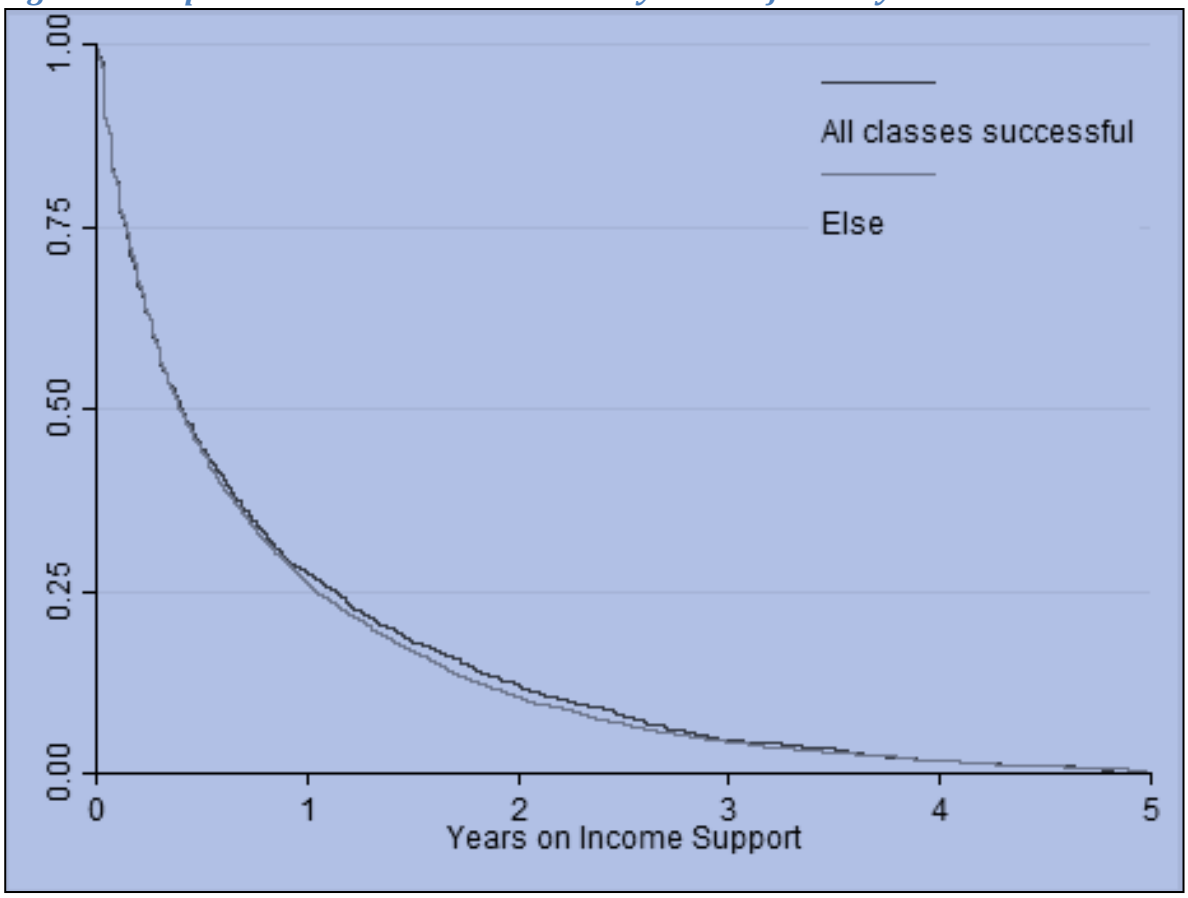


Figure 15 Kaplan-Meier survival estimates by Successful study



One of the difficulties in offering up-skilling opportunities to prisoners is confirming educational backgrounds and giving recognition for prior learning. Newly incarcerated prisoners, at their reception interviews, self-report their educational backgrounds and employment histories and these are not generally confirmed from official sources. For example, the WA Department of Training and Workforce Development (WADTWD) manages the state-wide vocational training qualification database and, although prison training data is regularly supplied to WADTWD, the information flow is not two-way.

Another difficulty pertains to recording of classes or courses taken in prison in WA in the WA Department of Corrective Services training database. At any one time, this database may not be up to date due to delays in data entry. This may impact on recognition of prisoners' prior learning which is particularly problematic if prisoners are transferring between prisons or having consecutive prison terms at the same or different prisons. Moreover, most of the entries are made by teaching or administrative staff at each prison using free format entry which complicates interpretation of classes within courses and courses within qualification sets. It also confounds aggregation of data across the prison training system. Jurisdictions other than WA have similar data entry issues.

Figure 16 Kaplan-Meier survival rates by Up-skilled

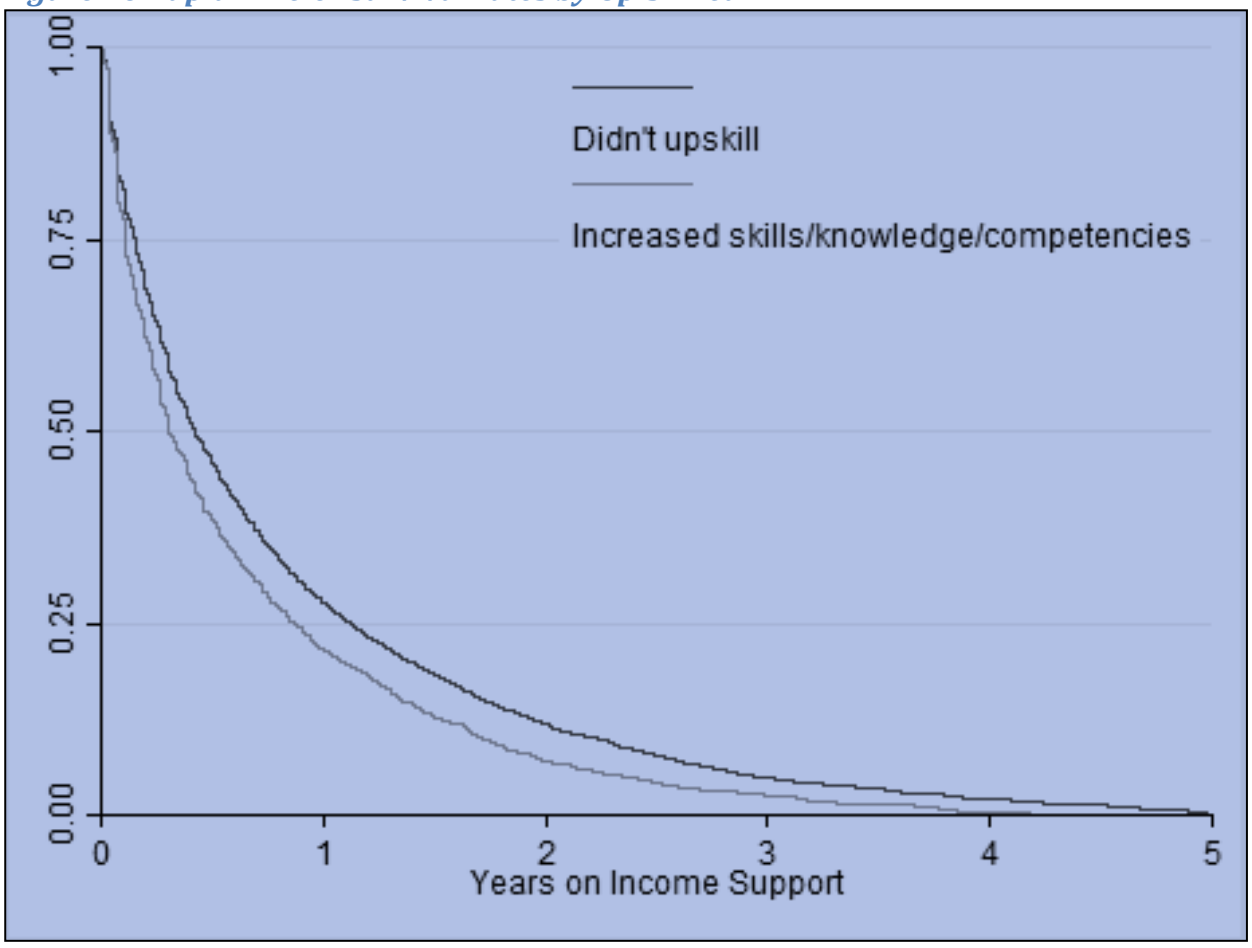


Figure 17 provides a comparison of time to exit from income support by two offence categories – Economic Crime (drug, robbery or property offences) and other offences. There is a slight difference between the survival estimates for these two groups. By the end of the first year, 23 percent of ex-prisoners with offences labelled Economic Crime are still on income support compared with 28 percent of ex-prisoners with other offences. This gap narrows to less than one percentage point by 36 months from discharge.

In terms of sentence type, ex-prisoners whose sentence type for their most recent term is Fine Default exit income support at a slower rate compared with ex-prisoners who have other sentence types. For example, at two years post release, 15 percent of ex-prisoners with sentence type of Fine Default and 10 percent of ex-prisoners with other sentence types are still on income support. These results are shown in Figure 18.

Exit from income support differs for ex-prisoners in their most recent term depending on their offence category. This is reported in Figure 19. Note that the small numbers in the Other Offences category has resulted in a step function rather than a smooth curve representing proportions of ex-prisoners and their time to exit income support. Comparing results for the other offence categories, we find that exit from income support occurs earlier for ex-prisoners with the most serious offence in their most recent term as Drug Offences and later for ex-prisoners with offence type Offences Against Good Order. The gap difference is greatest at six months post release – 28 percent compared with 48 percent of ex-prisoners with Drug Offences and Offences Against Good Order, respectively, still to exit welfare. This difference is less than one percentage point after four years.

Figure 17 Kaplan-Meier survival estimates by Economic crime

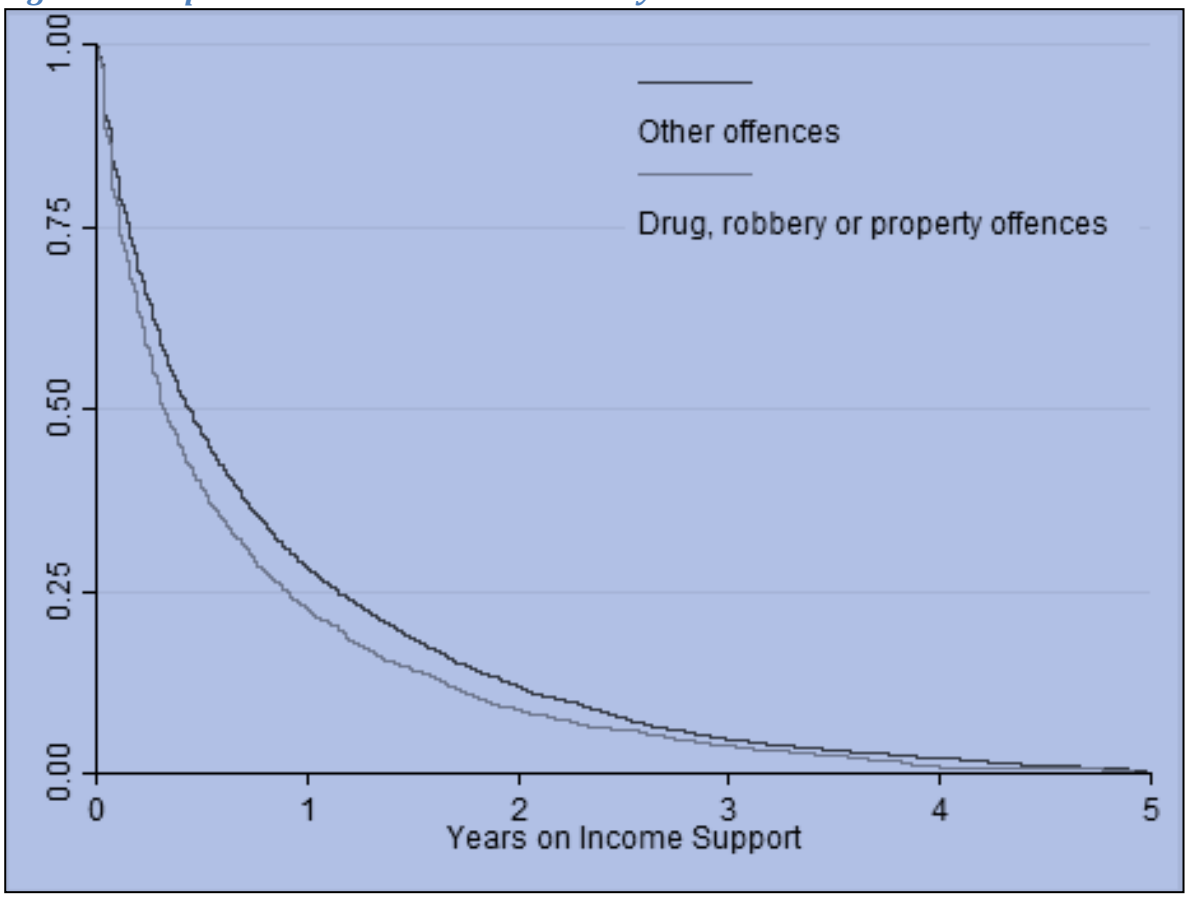


Figure 20 shows that male ex-prisoners exit welfare sooner than female ex-prisoners. For example at one year post release, the proportion of male ex-prisoners still on income support is 25 percent and the proportion of female ex-prisoners yet to exit welfare is 38 percent. The four year post release proportions are 2 percent and 3 percent, respectively.

Figure 18 Kaplan-Meier survival estimates by Sentence type

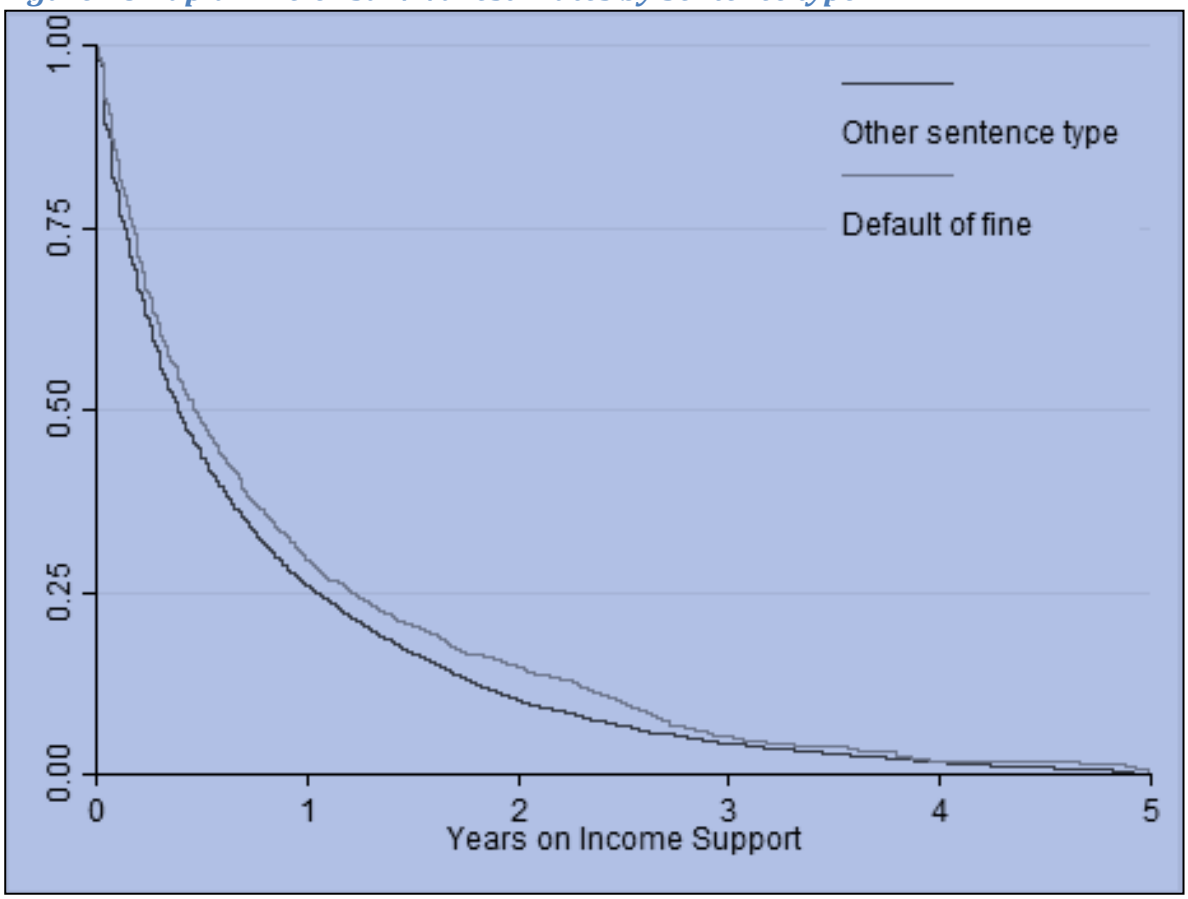


Figure 19 Kaplan-Meier survival estimates by ANCO category

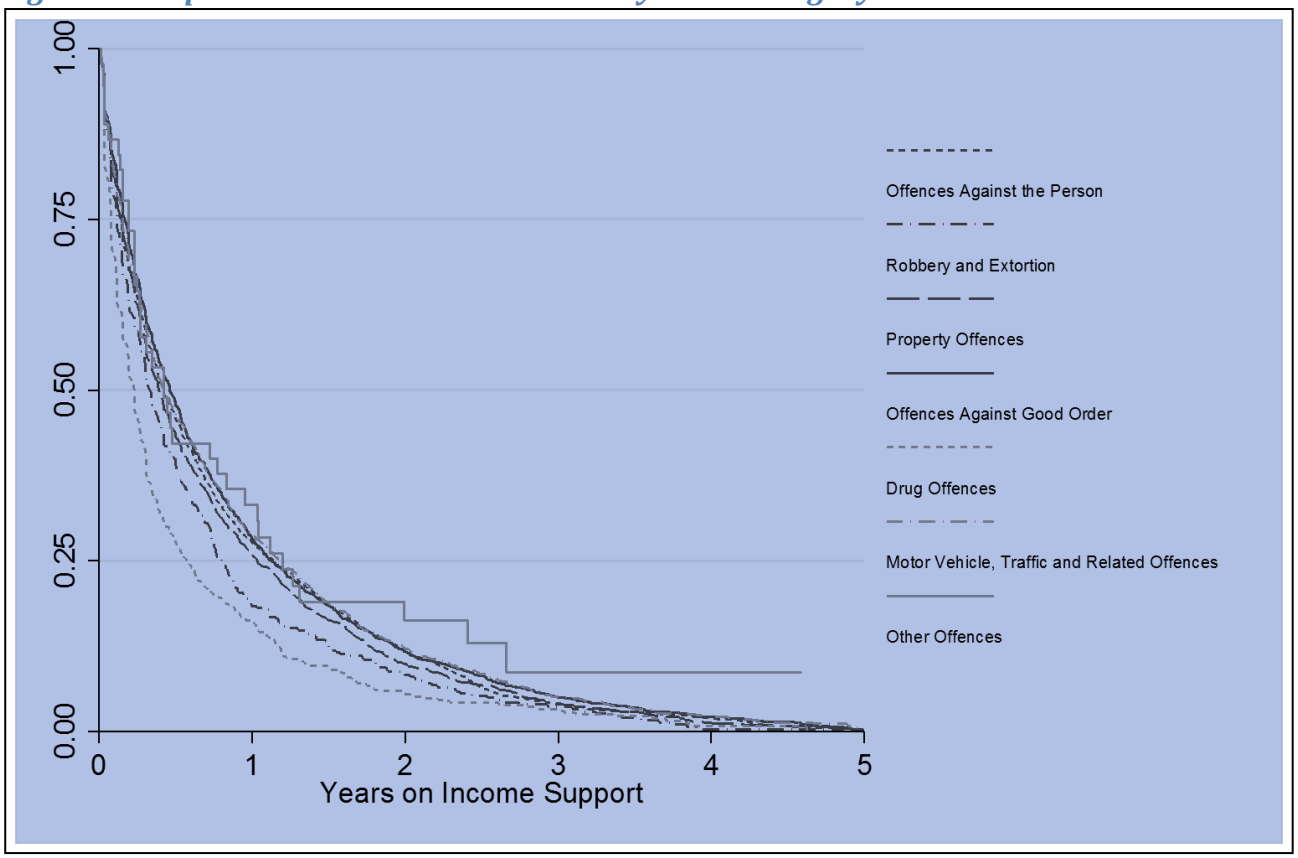
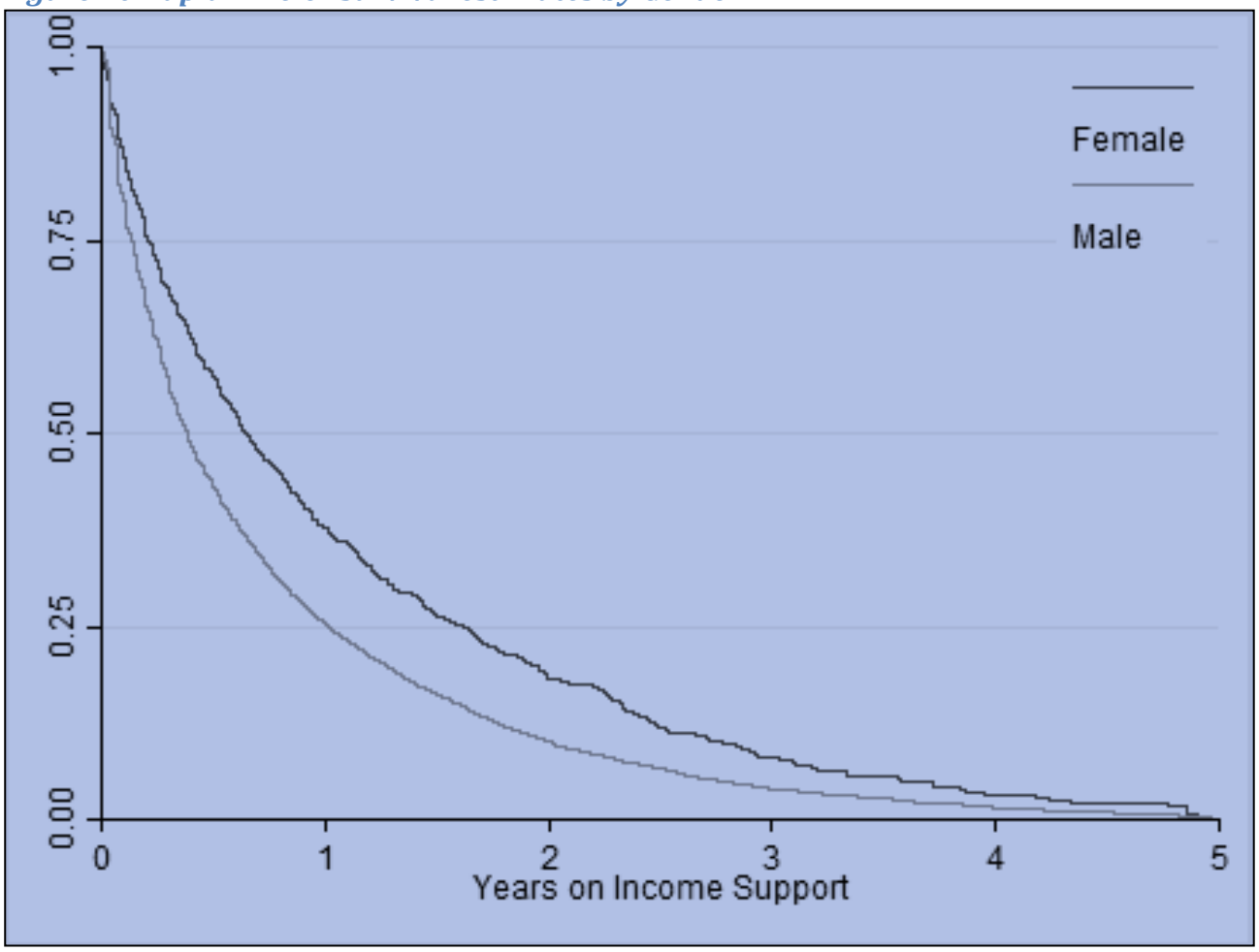


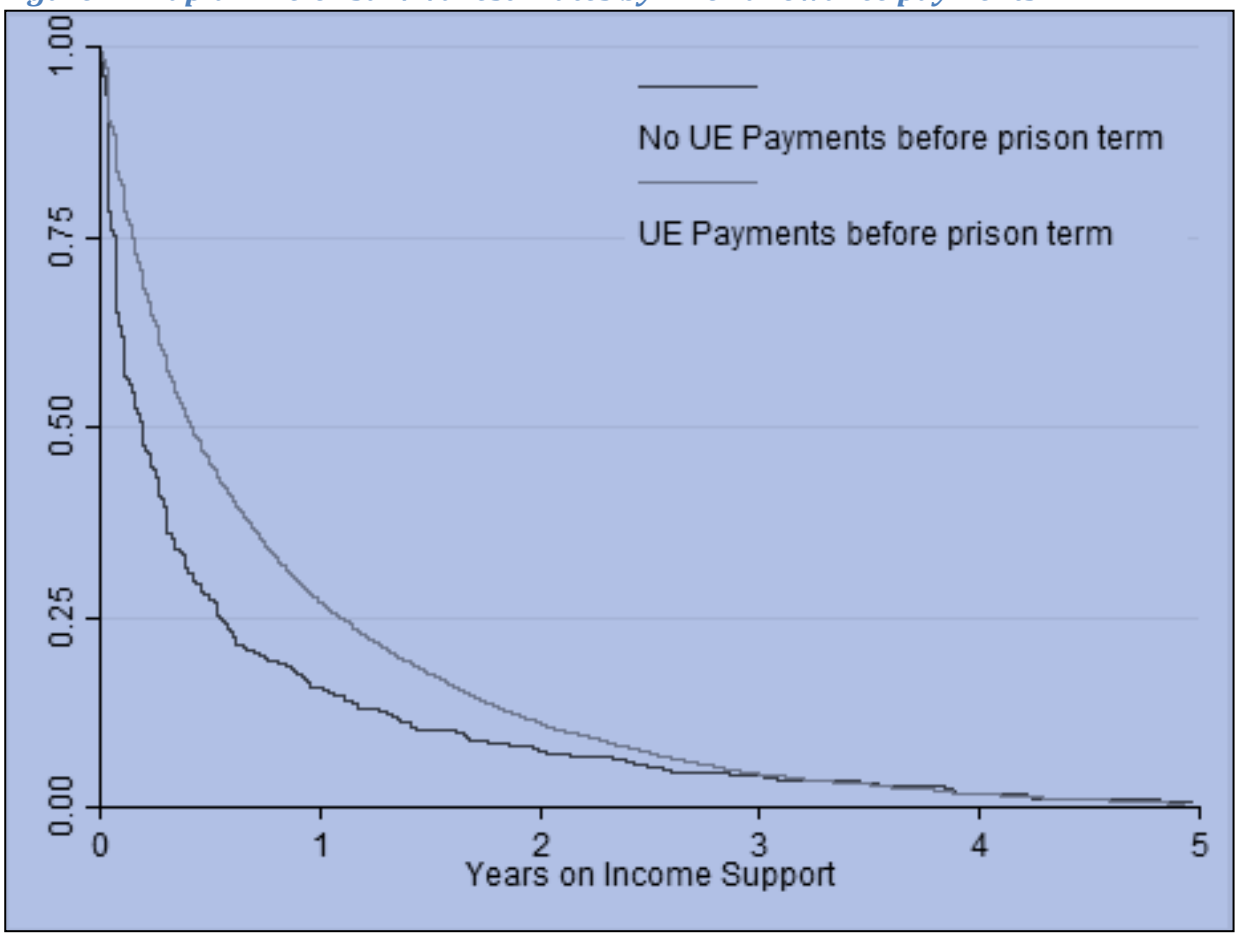
Figure 20 Kaplan-Meier survival estimates by Gender



The final set of survival estimates are shown in Figure 21. It can be seen that ex-prisoners with no history of receiving unemployment benefits or student allowances exit welfare sooner than ex-prisoners who received these payments prior to their most recent term. This is not unexpected as not needing social welfare prior to imprisonment might signify employment or employability which can carry over to the post release period despite the potential negative impacts of imprisonment on job search.

Overall, exiting income support, namely unemployment benefits or student allowances, differs for different groups of ex-prisoners. It is quicker for ex-prisoners who are younger, male, non-Aboriginal and Torres Strait Islander or from metropolitan WA, as well as those who have up-skilled in their most recent term, have Economic Crime or Drug Offence as their most serious offence, have a sentence type that is not Fine Default or who did not receive unemployment benefits or student allowances prior to their most recent prison term.

Figure 21 Kaplan-Meier survival estimates by Prior allowance payments



Ex-prisoners are slower to exit welfare if they are older, female, Aboriginal and Torres Strait Islander or from rural WA. Ex-prisoners might also be slower to exit income support if they did not up-skill in prison, have a sentence type of Fine Default, have offence type other than Drug Offences or Economic Crime or who received unemployment benefits or student allowances prior to their most recent prison term.

Conclusions

This report summarises the study experience of prisoners in the WA prisoner education and welfare dataset and the contribution of this to prisoner recidivism and welfare outcomes. The models are restricted by the measures available in this dataset and the results are averages.

Four measures of in-prison study are examined in this report – whether or not prisoners chose to study, whether or not all classes studied are successfully completed, the number of classes studying prisoners successfully completed and whether or not prisoners up-skill in prison.

Factors found to affect ***choice of study*** include if the most serious offence type is Economic Crime and if the prisoner is less recently incarcerated. Factors influencing the ***successful completion of classes*** are the prisoner being non-Aboriginal and Torres Strait Islander or male, the most serious offence type not being Economic Crime or the sentence type being Fine Default. Fewer prison terms or shorter prison terms can also contribute to all classes being successfully completed. Factors affecting ***up-skilling*** include the prisoner being non-Aboriginal and Torres Strait Islander or from rural WA, with

sentence type of Fine Default or most serious offence of Economic Crime. Fewer prison terms and longer sentences also contribute to up-skilling. Prisoners who enrol in Forklift Classes or Resources Courses are more likely to up-skill than other prisoners.

Some of these study measures are found to influence ***recidivism***. Prisoners who have up-skilled are less likely to recidivate (in terms of increased offence seriousness) and an increased number of successful classes will reduce recidivism. In addition, ex-prisoners who are best able to remain in the community for longer have studied and successfully completed all their classes.

Study also affects ***welfare dependence***, in particular, receipt of unemployment benefits or student allowances. That is, the more classes that were successfully completed or involved up-skilling, the shorter time the ex-prisoners spent on welfare post release.

Limitations

The study was constrained by the variables included in each of the contributing databases – the prisoner management data and the prisoner training data from the WA Department of Corrective Services and the income support data from Centrelink (provided by the (then) Department of Education, Employment and Workplace Relations). Nonetheless, the results confirm the usefulness of prison study generally in reducing re-offending and improving post-release outcomes.

Future research

To improve the model fit and strengthen the conclusions, future research could obtain de-identified prisoner reception data (obtained as self-report information via interview) and learning disability diagnostic data (obtained from routine testing by educational psychologists early in the prison term) which can be merged with the WA prisoner education and welfare dataset using a Linkage Key (see Appendix in Giles and Whale 2013). Data, such as prior employment, occupation and education, and physical and mental health status, have been shown in the labour economics literature to be important confounding factors for labour market success.

References

All URLs were correct in June 2014

ABS 2014. Labour Force Australian, Catalogue 6202.0. Canberra: Australian Bureau of Statistics.

Anders AD & Noblit GW 2011. Understanding effective higher education programs in prisons: Considerations from the Incarcerated Individuals Program in North Carolina. *The Journal of Correctional Education* 62(2)

Arditti J & Few A 2006. Maternal distress and women's reentry into family and community life. *Family Process* 47(3): 303-321

Batchelder JS & Pippert JM 2002. Hard time or idle time: Factors affecting inmate choices between participation in prison work and education programs. *The Prison Journal* 82(2): 269-280

Booth T 2012. *Accommodating justice: An exploratory study of structures and processes that shape victim participation and the presentation of victim impact statements in the*

sentencing of homicide offenders in the NSW Supreme Court. Doctor of Philosophy. Sydney: University of NSW. http://unsworks.unsw.edu.au/fapi/datastream/unsworks:11182/SOURCE01

Borland J 2011. The Australian Labour Market in the 2000s: The Quiet Decade. Reserve Bank of Australia Conference. http://www.rba.gov.au/publications/confs/2011/pdf/borland.pdf

Chavez R & Dawe S 2007. International research and trends in education and training provision in correctional settings, in Dawe S (ed), *Vocational education and training for adult prisoners and offenders in Australia: Research readings.* Adelaide: National Centre for Vocational Education Research (NCVER): 19-33

Cho RM & Tyler JH 2010. Does prison-based adult basic education improve post-release outcomes for male prisoners in Florida? *Crime & Delinquency*. doi: 10.1177/0011128710389588

Davis LM, Bozick R, Steele JL, Saunders J & Miles JNV 2013. Evaluating the effectiveness of correctional education: A meta-analysis of programs that provide education to incarcerated adults. http://www.rand.org/pubs/research_reports/RR266

Fagan J 1992. The Dynamics of Crime and Neighborhood Change. In The Ecology of Crime and Drug Use in Inner Cities. New York: Social Science Research Council.

Fox RG 1993. The meaning of proportionality in sentencing. *Melbourne University Law Rev*iew 19(3): 489-511

Giles MJ 2003. Correcting for Selectivity Bias in the estimation of road crash costs. *Applied Economics* 35(11): 1291-1301

Giles M, Le AT, Allan M, Lees C & Larsen AC 2007. The role of education and training in prison to work transitions, in Dawe S (ed), *Vocational education and training for adult prisoners and offenders in Australia: Research readings.* Adelaide: National Centre for Vocational Education Research (NCVER)

Giles, M. and Whale, J. (2013). Prisoner Education and Training, and Other Characteristics: Western Australia, July 2005 to June 2010, Phase 1 Report, Joondalup WA: Centre for Innovative Practice, Edith Cowan University.

Giles, M. and Whale, J. (2014). Characteristics of Prisoner Education and Training and Welfare Dependence: Western Australia, Phase 2 Report, Joondalup WA: Centre for Innovative Practice, Edith Cowan University.

Hamlyn B & Lewis D 2000. *Women prisoners: A survey of their work and training experiences in custody and on release*. Great Britain: Home Office Research Development and Statistics Directorate. http://www.iiav.nl/epublications/2000/women_prisoners.pdf

Heckman JJ 1979. Sample bias as a Specification Error. *Econometrica* 47: 153–61

House of Representatives Standing Committee on Aboriginal and Torres Strait Islander Affairs (2011). *Indigenous youth in the criminal justice system*. Canberra: Commonwealth of Australia.

Kling JR & Krueger AB 2001. *Costs, benefits and distributional consequences of inmate labor*, Working Paper No. 449. Princeton, NJ: Princeton University Industrial Relations Section

Lochner L & Moretti E 2004. The effect of education on crime: Evidence from prison inmates, arrests, and self reports. *American Economic Review* 94:155-189

Machin S, Marie O & Vuji S 2010. The crime reducing effect of education. *The Economic Journal 121*(552): 463-484 doi: 10.1111/j.1468-0297.2011.02430.x

Mincer J 1970. The distribution of labor incomes: A survey with special reference to the human capital approach. *Journal of Economic Literature 8*(1): 1-26

Mincer, J 1974. *Schooling, Earnings and Experience*. Columbia University Press: New York, NY.

Mincer J 1991. *Education and unemployment . NBER Working Paper Series, 3838*. http://www.nber.org/papers/w3838.pdf

Nally J, Lockwood S, Knutson K, & Ho T 2012. An evaluation of the effect of correctional ducation programs on post-release recidivism and employment: An empirical etudy in Indiana. *The Journal of Correctional Education* 63(1): 69-88

New Zealand Department of Corrections 2003. *Census of prison inmates and home detainees 2001*.
http://www.corrections.govt.nz/__data/assets/pdf_file/0010/667729/census2001.pdf

Norris K, Kelly R & Giles M 2005. Economics of Australian Labour Markets (6th ed.). Frenchs Forest, NSW: Pearson Education Australia

Petersilia J 2009. *When prisoners come home: Parole and prisoner reentry*. New York: Oxford University Press

Preston A 1997. Where are we now with Human Capital Theory in Australia? *Economic Record 73*(220): 51-78. doi: 10.1111/j.1475-4932.1997.tb00979.x

Raphael SP 2010. *Improving employment prospects for former prison inmates: Challenges and policy*. NBER Working Papers No. 15874 http://www.nber.org/papers/w15874

Riddell WC 2006. The impact of education on economic and social outcomes: An overview of recent advances in economics. Paper to the Workshop on An Integrated Approach to Human Capital Development. Canadian Policy Research Networks (CPRN) http://www.cprn.org/documents/44362_en.pdf

Schmidt P & Witte AD 1989. Predicting criminal recidivism using 'Split Population' Survival Time Models. *Journal of Econometrics* 40(1): 141-159

Social Exclusion Unit Great Britain 2002. *Reducing re-offending by ex-prisoners*. http://www.thelearningjourney.co.uk/file.2007-10-01.1714894439/at_download/file

Steurer SJ, Smith L & Tracy A 2001. *Three state recidivism study.* Report submitted to US Office of Correctional Education (OCE).

http://www.criminologycenter.fsu.edu/p/nationalDataClearinghouse/Publications%20Reports/OCE-CEA%20-%203_State_Study.pdf

Torre A & Wraith D 2012. Some empirical evidence on Offender Time Discount Rates. *Economic Papers* 31(2): 192-201

Tripodi SJ, Kim JS & Bender K 2010. Is employment associated with reduced recidivism? *International Journal of Offender Therapy and Comparative Criminology* 54(5): 706-720

Tyler JH & Kling JR 2006. *Prison-based education and re-entry into the mainstream labor market*. *NBER Working Papers Series* 12114. http://www.nber.org/papers/w12114

Underwood K 2006. The Case for Inclusive Education as a Social Determinant of Health. Working Paper. Munk Centre for International Studies, Toronto: University of Toronto, Ontario, October.

Valuri GM, Indermaur D & Ferrante, AM 2002. *The Criminal Careers of Drug Offenders in Western Australia: A study of the recidivism and criminal history of those arrested for a drug offence in Western Australia between 1989 and 1999*. WA Drug Strategy Occasional Paper Number 7. Crawley WA: Crime Research Centre.

Visher CA 2007. Returning Home: Emerging Findings and Policy Lessons about Prisoner Reentry. *Federal Sentencing Reporter*, Vol. 20(2): 93–102

WADCS 2010. *Annual Report 2009/2010*. Perth: WA Department of Corrective Services

WA Department of Justice 2002. *Profile of women in prison: Main findings of the prisoner Characteristics and Needs Survey of adult female prisoners in Western Australia*. http://www.correctiveservices.wa.gov.au/_files/about-us/statistics-publications/students-researchers/profile-women-prison-2002-final.pdf

Appendices

Appendix A Variables in the multivariate models

Table A1 Variables by name and type

Variable name	Variable	Variable type
Age	Prisoner's age at reception	Continuous
Art Studies	Prisoner was enrolled in at least one art studies class	Binary
Aboriginal and Torres Strait Islander	Prisoner is of Aboriginal or Torres Strait Islander descent	Binary
Economic Crime	Prisoner's most serious offence is classified as economic crime (ANCO categories 'Burglary and Extortion', 'Property Offences' and 'Drug Offences'))	Binary
Fine Default	Prisoner's sentence type is Default of Fine	Binary
Forklift Classes	Prisoner was enrolled in at least one forklift class	Binary
Male	Prisoner was male	Binary
Metro	Prisoner's postcode of residence is in the WA metropolitan area	Continuous
Number of days served	Number of days served of this term as at 30 Jun 2010	Continuous
Number of prison terms	Number of prison terms in this dataset for each prisoner	Continuous
Resources Courses	Prisoner was enrolled in at least one class in a course that matched to prerequisite courses for the resource industry	Binary
Rural	Prisoner's postcode of residence prior to their most recent prison term is in rural WA	Binary
Study	Prisoner enrolled in any class	Binary
Successful All	Prisoner successfully completed all classes in which they were enrolled	Binary
Successful At Least One	Prisoner successfully completed at least one class in which they were enrolled	Binary
Unemployment benefits	Prisoner was in receipt of unemployment benefits or student allowances in the six months prior to their most recent prison term	Binary
Year	Year most recent prison term commenced	Continuous

Appendix B Model 1 Estimates for subsets

Table B1 Prisoners aged 25 years or under: Factors affecting whether or not prisoners study during their prison term		
Dependent variable = Study	**Model A**	**Model B**
Prisoner characteristics:		
Aboriginal and Torres Strait Islander	-0.3433**	-0.1870
Male	-0.0357	-0.1497
Age	-0.6245	-1.0708*
Age Squared/100	1.3441	2.2432*
Rural	0.0350	0.0802
Prison term characteristics:		
Economic Crime	0.5126***	0.4441***
Year	-0.1303***	-0.1779***
Fine Default		-2.4028***
Constant	270.5826***	371.5765***
Observations	3,038	**3,811**
Pseudo R^2	0.0265	0.2279
Degrees of freedom	7	8

** p<0.05, ** p<0.01, *** p<0.001*

Table B2 Prisoners aged 26 to 40 years: Factors affecting whether or not prisoners study during their prison term		
Dependent variable = Study	**Model A**	**Model B**
Prisoner characteristics:		
Aboriginal and Torres Strait Islander	0.0598	0.0754
Male	0.0045	-0.1261
Age	-0.2129	-0.0972
Age Squared/100	0.3052	0.1331
Rural	0.1540	0.1561*
Prison term characteristics:		
Economic Crime	0.6111***	0.5218***
Year	-0.1474***	-0.2269***
Fine Default		-2.6435***
Constant	301.0122***	458.7137***
Observations	5,879	**7,434**
Pseudo R^2	0.0243	0.2575
Degrees of freedom	7	8

** p<0.05, ** p<0.01, *** p<0.001*

Table B3 Prisoners aged 41 years or over: Factors affecting whether or not prisoners study during their prison term		
Dependent variable = Study	**Model A**	**Model B**
Prisoner characteristics:		
Aboriginal and Torres Strait Islander	-0.1831	-0.0554
Male	-0.1295	-0.0731
Age	0.1112	0.1009
Age Squared/100	-0.1164	-0.1100
Rural	0.1894	0.0554
Prison term characteristics:		
Economic Crime	0.5773***	0.4887***
Year	-0.0288	-0.0748***
Fine Default		-2.7497***
Constant	56.5591	149.2320***
Observations	2,303	**2,804**
Pseudo R^2	0.0153	0.2154
Degrees of freedom	7	8

** p<0.05, ** p<0.01, *** p<0.001*

Table B4 Prisoners from metropolitan WA: Factors affecting whether or not prisoners study during their prison term		
Dependent variable = Study	**Model A**	**Model B**
Prisoner characteristics:		
Aboriginal and Torres Strait Islander	-0.1262	-0.0257
Male	-0.0411	-0.1583
Age	-0.0010	-0.0086
Age Squared/100	-0.0162	-0.0079
Prison term characteristics:		
Economic Crime	0.5644***	0.4675***
Year	-0.0891***	-0.1568***
Fine Default		-2.6387***
Constant	180.6283***	316.8161***
Observations	6,819	**8,543**
Pseudo R^2	0.0214	0.2479
Degrees of freedom	6	7

** p<0.05, ** p<0.01, *** p<0.001*

Table B5 Prisoners from rural WA: Factors affecting whether or not prisoners study during their prison term		
Dependent variable = Study	**Model A**	**Model B**
Prisoner characteristics:		
Aboriginal and Torres Strait Islander	-0.0629	0.0068
Male	-0.0217	-0.0525
Age	0.0134	-0.0108
Age Squared/100	-0.0253	-0.0016
Prison term characteristics:		
Economic Crime	0.5970***	0.5484***
Year	-0.1448***	-0.2003***
Fine Default		-2.5390***
Constant	292.0642***	404.1407***
Observations	4,401	**5,506**
Pseudo R^2	0.0203	0.2244
Degrees of freedom	6	7

** p<0.05, ** p<0.01, *** p<0.001*

Table B6 Aboriginal and Torres Strait Islander prisoners: Factors affecting whether or not prisoners study during their prison term		
Dependent variable = Study	**Model A**	**Model B**
Prisoner characteristics:		
Male	-0.0038	-0.0654
Age	0.0359	-0.0003
Age Squared/100	-0.0628	-0.0185
Rural	0.1053	0.0792
Prison term characteristics:		
Economic Crime	0.4278***	0.3257***
Year	-0.2191***	-0.2930***
Fine Default		-2.4212***
Constant	440.7872***	590.0949***
Observations	4,316	**5,533**
Pseudo R^2	0.0249	0.2245
Degrees of freedom	6	7

** p<0.05, ** p<0.01, *** p<0.001*

Table B7 Non-Aboriginal and Torres Strait Islander prisoners: Factors affecting whether or not prisoners study during their prison term		
Dependent variable = Study	**Model A**	**Model B**
Prisoner characteristics:		
Male	-0.0477	-0.1215
Age	-0.0146	-0.0210
Age Squared/100	0.0028	0.0078
Rural	0.1305	0.1206
Prison term characteristics:		
Economic Crime	0.6474***	0.5720***
Year	-0.0666***	-0.1174***
Fine Default		-2.7510***
Constant	135.7316***	237.8087***
Observations	6,904	**8,516**
Pseudo R^2	0.0213	0.2522
Degrees of freedom	6	7

** p<0.05, ** p<0.01, *** p<0.001*

Table B8 Female prisoners: Factors affecting whether or not prisoners study during their prison term		
Dependent variable = Study	**Model A**	**Model B**
Prisoner characteristics:		
Aboriginal and Torres Strait Islander	-0.0717	-0.0332
Age	0.0216	-0.0246
Age Squared/100	-0.0327	0.0174
Rural	0.1368	0.0102
Prison term characteristics:		
Economic Crime	0.6278***	0.4842**
Year	-0.2774***	-0.4287***
Fine Default		-2.3845***
Constant	558.1074***	862.9568***
Observations	1,182	**1,704**
Pseudo R^2	0.0471	0.2923
Degrees of freedom	6	7
Prisoner characteristics:		

** p<0.05, ** p<0.01, *** p<0.001*

Table B9 Male prisoners: Factors affecting whether or not prisoners study during their prison term		
Dependent variable = Study	**Model A**	**Model B**
Prisoner characteristics:		
Aboriginal and Torres Strait Islander	-0.1016	-0.0250
Age	0.0036	-0.0093
Age Squared/100	-0.0192	-0.0059
Rural	0.1353*	0.1292*
Prison term characteristics:		
Economic Crime	0.5588***	0.4933***
Year	-0.0936***	-0.1476***
Fine Default		-2.6437***
Constant	189.4303***	298.1808***
Observations	10,038	**12,345**
Pseudo R^2	0.0187	0.2319
Degrees of freedom	6	7
Prisoner characteristics:		

** p<0.05, ** p<0.01, *** p<0.001*

Appendix C Model 2 estimates for subsets

Table C1 Prisoners (MRT): Factors affecting whether prisoners successfully completed all classes age 18 to 25 years only			
Dependent variable = Successful All	**Model A**	**Model B**	**Model C**
Prisoner characteristics:			
Aboriginal and Torres Strait Islander	-0.1352	-0.1131	-0.1644
Male	0.5778***	0.6078***	0.5529***
Age	-0.2735	-0.1243	0.2118
Age Squared/100	0.6706	0.3374	-0.3911
Rural	-0.1314	-0.1505	-0.1066
Prison term characteristics:			
Economic Crime	-0.1591	-0.1433	-0.1011
Number of prison terms	-0.2886***	-0.3112***	-0.4964***
Number of days served	-0.0018***	-0.0020***	-0.0013***
Fine Default		0.6110***	0.5837***
Prison study characteristics:			
Art Studies			-2.8107***
Forklift Classes			-0.4576**
Resources Courses			-1.0255***
Welfare characteristic:			
Unemployment benefits	0.1103	0.0457	-0.0155
Constant	2.9186	1.3244	-1.7386
Observations	2,581	2,803	**2,803**
Pseudo R^2	0.0861	0.1001	0.1813
Degrees of freedom	9	10	13

** p<0.05, ** p<0.01, *** p<0.001*

Table C2 Prisoners (MRT): Factors affecting whether prisoners successfully completed at least one class age 18 to 25 years only			
Dependent variable = Successful At Least One	**Model A**	**Model B**	**Model C**
Prisoner characteristics:			
Aboriginal and Torres Strait Islander	-0.1947	-0.2427	-0.1308
Male	0.1701	0.2748	0.2064
Age	0.0842	0.6794	0.4659
Age Squared/100	-0.1704	-1.5237	-1.0909
Rural	0.1648	0.1169	0.1162
Prison term characteristics:			
Economic Crime	0.3254	0.3147	0.2311
Number of prison terms	-0.4885***	-0.4837***	-0.3558***
Number of days served	0.0001	0.0001	-0.0001
Fine Default		-0.4946	-0.3172
Prison study characteristics:			
Art Studies			-0.0325
Forklift Classes			15.8642
Resources Courses			1.2660***
Welfare characteristic:			
Unemployment benefits	0.0178	-0.0763	-0.0525
Constant	2.1753	-4.3167	-2.3954
Observations	2,581	2,803	**2,803**
Pseudo R^2	0.0373	0.0389	0.1017
Degrees of freedom	9	10	13

** p<0.05, ** p<0.01, *** p<0.001*

Table C3 Prisoners (MRT): Factors affecting whether prisoners successfully completed all classes age 26 to 40 years only			
Dependent variable = Successful All	**Model A**	**Model B**	**Model C**
Prisoner characteristics:			
Aboriginal and Torres Strait Islander	-0.2843***	-0.2531***	-0.2148**
Male	0.7281***	0.6914***	0.5648***
Age	-0.1864	-0.0787	-0.0463
Age Squared/100	0.3035	0.1427	0.0897
Rural	-0.0529	-0.0333	-0.0400
Prison term characteristics:			
Economic Crime	-0.1660*	-0.1677*	-0.1517*
Number of prison terms	-0.1555***	-0.1584***	-0.3185***
Number of days served	-0.0013***	-0.0014***	-0.0010***
Fine Default		0.8409***	0.9243***
Prison study characteristics:			
Art Studies			-2.6324***
Forklift Classes			-0.5159***
Resources Courses			-0.8741***
Welfare characteristic:			
Unemployment benefits	0.0736	0.0716	0.0904
Constant	2.5535	0.8089	1.1755
Observations	4,928	5,280	**5,280**
Pseudo R^2	0.0657	0.0801	0.1576
Degrees of freedom	9	10	13

** p<0.05, ** p<0.01, *** p<0.001*

Table C4 Prisoners (MRT): Factors affecting whether prisoners successfully completed at least one class age 26 to 40 years only			
Dependent variable = Successful At Least One	**Model A**	**Model B**	**Model C**
Prisoner characteristics:			
Aboriginal and Torres Strait Islander	-0.2783*	-0.2139	-0.1715
Male	0.1299	0.1282	0.0981
Age	0.2849	0.3245	0.2927
Age Squared/100	-0.3932	-0.4661	-0.4110
Rural	0.0732	0.0819	0.1362
Prison term characteristics:			
Economic Crime	0.2179	0.2098	0.1485
Number of prison terms	-0.3315***	-0.3660***	-0.2294***
Number of days served	0.0002	0.0002	-0.0001
Fine Default		-0.2575	-0.2365
Prison study characteristics:			
Art Studies			0.1162
Forklift Classes			2.3958***
Resources Courses			1.3001***
Welfare characteristic:			
Unemployment benefits	0.1178	0.0879	0.0891
Constant	-1.9985	-2.4459	-2.7346
Observations	4,928	5,280	**5,280**
Pseudo R^2	0.0295	0.0305	0.0920
Degrees of freedom	9	10	13

** p<0.05, ** p<0.01, *** p<0.001*

Table C5 Prisoners (MRT): Factors affecting whether prisoners successfully completed all classes age 41 and over only			
Dependent variable = Successful All	**Model A**	**Model B**	**Model C**
Prisoner characteristics:			
Aboriginal and Torres Strait Islander	-0.2521*	-0.2258	-0.1330
Male	0.6666***	0.5687***	0.5436**
Age	-0.0086	-0.0133	-0.0237
Age Squared/100	0.0052	0.0106	0.0153
Rural	0.1731	0.1801	0.2590*
Prison term characteristics:			
Economic Crime	-0.1425	-0.1297	-0.0506
Number of prison terms	-0.1494*	-0.1607*	-0.3467***
Number of days served	-0.0007***	-0.0007***	-0.0005***
Fine Default		0.9206***	0.8508***
Prison study characteristics:			
Art Studies			-2.4461***
Forklift Classes			-0.6919***
Resources Courses			-0.8587***
Welfare characteristic:			
Unemployment benefits	-0.0264	-0.0190	0.0108
Constant	-0.0631	0.1271	1.3253
Observations	1,876	1,976	**1,976**
Pseudo R^2	0.0389	0.0480	0.1286
Degrees of freedom	9	10	13

** p<0.05, ** p<0.01, *** p<0.001*

Table C6 Prisoners (MRT): Factors affecting whether prisoners successfully completed at least one class age 41 and over only			
Dependent variable = Successful At Least One	**Model A**	**Model B**	**Model C**
Prisoner characteristics:			
Aboriginal and Torres Strait Islander	-0.3572	-0.4696*	-0.4560
Male	-1.2518*	-1.4999**	-1.5218**
Age	0.1656	0.1481	0.1598
Age Squared/100	-0.1608	-0.1464	-0.1557
Rural	0.3158	0.3364	0.3199
Prison term characteristics:			
Economic Crime	-0.0424	-0.1211	-0.2295
Number of prison terms	-0.2685**	-0.2920**	-0.1636
Number of days served	0.0002	0.0001	-0.0000
Fine Default		-0.6427	-0.5468
Prison study characteristics:			
Art Studies			0.2345
Forklift Classes			1.1408*
Resources Courses			1.1289***
Welfare characteristic:			
Unemployment benefits	0.0001	0.0153	0.0284
Constant	0.0277	0.8737	-0.1499
Observations	1,876	1,976	**1,976**
Pseudo R^2	0.0269	0.0368	0.0810
Degrees of freedom	9	10	13

** p<0.05, ** p<0.01, *** p<0.001*

Table C7 Prisoners (MRT) from metropolitan WA: Factors affecting whether prisoners successfully completed all classes			
Dependent variable = Successful All	**Model A**	**Model B**	**Model C**
Prisoner characteristics:			
Aboriginal and Torres Strait Islander	-0.3272***	-0.2843***	-0.2781***
Male	0.5025***	0.4493***	0.3741***
Age	0.0105	0.0103	0.0301
Age Squared/100	-0.0082	-0.0076	-0.0334
Prison term characteristics:			
Economic Crime	-0.2203***	-0.2249***	-0.1833**
Number of prison terms	-0.1899***	-0.1945***	-0.3853***
Number of days served	-0.0010***	-0.0011***	-0.0008***
Fine Default		0.7041***	0.7735***
Prison study characteristics:			
Art Studies			-2.5393***
Forklift Classes			-0.4664***
Resources Courses			-0.9926***
Welfare characteristic:			
Unemployment benefits	0.0271	0.0012	-0.0182
Constant	-0.2964	-0.2337	0.3382
Observations	5,721	6,114	**6,114**
Pseudo R^2	0.0613	0.0719	0.1505
Degrees of freedom	8	9	12

** p<0.05, ** p<0.01, *** p<0.001*

Table C8 Prisoners (MRT) from metropolitan WA: Factors affecting whether prisoners successfully completed at least one class

Dependent Variable = Successful At Least One	Model A	Model B	Model C
Prisoner characteristics:			
Aboriginal and Torres Strait Islander	-0.3263*	-0.2963*	-0.2793*
Male	0.0121	-0.0591	-0.0935
Age	0.0276	0.0232	0.0038
Age Squared/100	-0.0431	-0.0390	-0.0160
Prison term characteristics:			
Economic Crime	0.2438*	0.2065	0.1052
Number of prison terms	-0.3597***	-0.3844***	-0.2216***
Number of days served	0.0000	-0.0000	-0.0002***
Fine Default		-0.4634*	-0.3834
Prison study characteristics:			
Art Studies			0.3047
Forklift Classes			2.3573***
Resources Courses			1.5620***
Welfare characteristic:			
Unemployment benefits	0.0876	0.0350	0.0615
Constant	2.8541***	3.0876***	2.6113***
Observations	5,721	6,114	**6,114**
Pseudo R^2	0.0241	0.0266	0.1093
Degrees of freedom	8	9	12

** p<0.05, ** p<0.01, *** p<0.001*

Table C9 Prisoners (MRT) from rural WA: Factors affecting whether prisoners successfully completed all classes			
Dependent variable = Successful All	**Model A**	**Model B**	**Model C**
Prisoner characteristics:			
Aboriginal and Torres Strait Islander	-0.1575	-0.1429	-0.1139
Male	0.9749***	0.9602***	0.8417***
Age	0.0049	0.0103	0.0239
Age Squared/100	0.0165	0.0100	-0.0051
Prison term characteristics:			
Economic Crime	-0.1345	-0.1204	-0.0822
Number of prison terms	-0.1932***	-0.1995***	-0.3404***
Number of days served	-0.0017***	-0.0018***	-0.0012***
Fine Default		0.8994***	0.8986***
Prison study characteristics:			
Art Studies			-2.6924***
Forklift Classes			-0.6555***
Resources Courses			-0.7986***
Welfare characteristic:			
Unemployment benefits	0.1399	0.1401	0.1603*
Constant	-0.7411	-0.8164*	-0.3511
Observations	3,664	3,945	**3,945**
Pseudo R^2	0.0700	0.0882	0.1694
Degrees of freedom	8	9	12

** p<0.05, ** p<0.01, *** p<0.001*

Table C10 Prisoners (MRT) from rural WA: Factors affecting whether prisoners successfully completed at least one class			
Dependent variable = Successful At Least One	**Model A**	**Model B**	**Model C**
Prisoner characteristics:			
Aboriginal and Torres Strait Islander	-0.1640	-0.2177	-0.1157
Male	-0.1873	-0.0297	-0.1015
Age	0.0441	0.0549	0.0465
Age Squared/100	-0.0502	-0.0663	-0.0571
Prison term characteristics:			
Economic Crime	0.0923	0.1096	0.0858
Number of prison terms	-0.3631***	-0.3773***	-0.3008***
Number of days served	0.0015***	0.0015***	0.0011***
Fine Default		-0.0662	-0.0578
Prison study characteristics:			
Art Studies			-0.1916
Forklift Classes			1.7379**
Resources Courses			0.7249***
Welfare characteristic:			
Unemployment benefits	0.0282	0.0003	0.0002
Constant	2.1499**	1.9318**	1.7480*
Observations	3,664	3,945	**3,945**
Pseudo R^2	0.0494	0.0490	0.0720
Degrees of freedom	8	9	12

** p<0.05, ** p<0.01, *** p<0.001*

Table C11 Aboriginal and Torres Strait Islander Prisoners (MRT): Factors affecting whether prisoners successfully completed all classes			
Dependent variable = Successful All	**Model A**	**Model B**	**Model C**
Prisoner characteristics:			
Male	0.8767***	0.8312***	0.7384***
Age	-0.0219	-0.0135	0.0175
Age Squared/100	0.0485	0.0370	0.0010
Rural	-0.0065	-0.0071	0.0253
Prison term characteristics:			
Economic Crime	-0.1557	-0.1351	-0.0640
Number of prison terms	-0.1829***	-0.1857***	-0.3208***
Number of days served	-0.0024***	-0.0025***	-0.0019***
Fine Default		0.7488***	0.7965***
Prison study characteristics:			
Art Studies			-2.7532***
Forklift Classes			-0.9998***
Resources Courses			-0.6179***
Welfare characteristic:			
Unemployment benefits	0.1347	0.1135	0.1181
Constant	-0.0765	-0.1501	-0.1222
Observations	3,550	3,869	**3,869**
Pseudo R^2	0.0946	0.1143	0.1915
Degrees of freedom	8	9	12

** p<0.05, ** p<0.01, *** p<0.001*

Table C12 Aboriginal and Torres Strait Islander Prisoners (MRT): Factors affecting whether prisoners successfully completed at least one class			
Dependent variable = Successful At Least One	**Model A**	**Model B**	**Model C**
Prisoner characteristics:			
Male	-0.0463	-0.0772	-0.1044
Age	0.0460	0.0668	0.0487
Age Squared/100	-0.0603	-0.0904	-0.0698
Rural	0.2226	0.1761	0.2165
Prison term characteristics:			
Economic Crime	0.1484	0.1606	0.1103
Number of prison terms	-0.3496***	-0.3796***	-0.2879***
Number of days served	0.0006**	0.0005**	0.0002
Fine Default		-0.3535	-0.3872
Prison study characteristics:			
Art Studies			-0.0709
Forklift Classes			1.6056**
Resources Courses			0.9254***
Welfare characteristic:			
Unemployment benefits	0.1669	0.0718	0.0871
Constant	1.8984**	1.7382**	1.6677*
Observations	3,550	3,869	**3,869**
Pseudo R^2	0.0322	0.0341	0.0648
Degrees of freedom	8	9	12

** p<0.05, ** p<0.01, *** p<0.001*

Table C13 Non-Aboriginal and Torres Strait Islander Prisoners (MRT): Factors affecting whether prisoners successfully completed all classes			
Dependent variable = Successful All	**Model A**	**Model B**	**Model C**
Prisoner characteristics:			
Male	0.5705***	0.5447***	0.4527***
Age	0.0184	0.0188	0.0253
Age Squared/100	-0.0146	-0.0149	-0.0237
Rural	-0.0773	-0.0605	-0.0429
Prison term characteristics:			
Economic Crime	-0.1877***	-0.1911***	-0.1641**
Number of prison terms	-0.2027***	-0.2077***	-0.3959***
Number of days served	-0.0009***	-0.0010***	-0.0007***
Fine Default		0.6851***	0.7031***
Prison study characteristics:			
Art Studies			-2.4510***
Forklift Classes			-0.4080***
Resources Courses			-1.0538***
Welfare characteristic:			
Unemployment benefits	0.0299	0.0161	0.0121
Constant	-0.5923*	-0.5602	0.3027
Observations	5,835	6,190	**6,190**
Pseudo R^2	0.0508	0.0611	0.1415
Degrees of freedom	8	9	12

** p<0.05, ** p<0.01, *** p<0.001*

Table C14 Non-Aboriginal and Torres Strait Islander Prisoners (MRT): Factors affecting whether prisoners successfully completed at least one class			
Dependent variable = Successful At Least One	**Model A**	**Model B**	**Model C**
Prisoner characteristics:			
Male	-0.0895	-0.0073	-0.0500
Age	0.0304	0.0181	0.0120
Age Squared/100	-0.0421	-0.0282	-0.0204
Rural	0.0892	0.1340	0.1200
Prison term characteristics:			
Economic Crime	0.2212	0.1970	0.1251
Number of prison terms	-0.3587***	-0.3712***	-0.2148***
Number of days served	0.0001	0.0001	-0.0001
Fine Default		-0.3711	-0.1990
Prison study characteristics:			
Art Studies			0.3360
Forklift Classes			2.6232***
Resources Courses			1.4754***
Welfare characteristic:			
Unemployment benefits	-0.0245	-0.0224	-0.0271
Constant	2.8480***	3.0364***	2.3158***
Observations	5,835	6,190	**6,190**
Pseudo R^2	0.0158	0.0169	0.0987
Degrees of freedom	8	9	12

** p<0.05, ** p<0.01, *** p<0.001*

Table C15 Female prisoners: Factors affecting whether or not prisoners successfully completed all classes			
Dependent variable = Successful All	**Model A**	**Model B**	**Model C**
Prisoner characteristics:			
Aboriginal and Torres Strait Islander	-0.4721**	-0.3955*	-0.4302*
Age	-0.1306*	-0.1099*	-0.0905
Age Squared/100	0.1782*	0.1542*	0.1319
Rural	-0.2726	-0.3028*	-0.3016
Prison term characteristics:			
Economic Crime	-0.1172	-0.0850	-0.1132
Number of prison terms	0.1093	0.1120	-0.0994
Number of days served	-0.0018***	-0.0019***	-0.0012***
Fine Default		1.1042***	1.2050***
Prison study characteristics:			
Art Studies			-1.9356***
Resources Courses			-1.2655***
Welfare characteristic:			
Unemployment benefits	-0.0716	-0.1596	-0.2109
Constant	2.0004*	1.6146	2.2377*
Observations	994	1,136	**1,136**
Pseudo R^2	0.0477	0.0824	0.1807
Degrees of freedom	8	9	11

** p<0.05, ** p<0.01, *** p<0.001*

Table C16 Female prisoners: Factors affecting whether or not prisoners successfully completed at least one class			
Dependent variable = Successful At Least One	**Model A**	**Model B**	**Model C**
Prisoner characteristics:			
Aboriginal and Torres Strait Islander	-0.1511	0.0270	0.0982
Age	-0.0639	-0.0788	-0.1481
Age Squared/100	0.1291	0.1614	0.2586
Rural	0.3077	0.0700	0.1229
Prison term characteristics:			
Economic Crime	0.9027**	0.8868**	0.8605**
Number of prison terms	-0.3795**	-0.3877**	-0.2207
Number of days served	0.0001	0.0002	-0.0001
Fine Default		-0.2612	-0.2460
Prison study characteristics:			
Art Studies			0.6497
Resources Courses			1.8069***
Welfare characteristic:			
Unemployment benefits	-0.1654	-0.1924	-0.1916
Constant	3.6325	3.7670	3.9668
Observations	994	1,136	**1,136**
Pseudo R^2	0.0600	0.0573	0.1338
Degrees of freedom	8	9	11

** p<0.05, ** p<0.01, *** p<0.001*

a: Forklift Classes=1 predicts success perfectly, so Forklift Classes dropped and 33 observations not used

Table C17 Male prisoners: Factors affecting whether or not prisoners successfully completed all classes			
Dependent variable = Successful All	**Model A**	**Model B**	**Model C**
Prisoner characteristics:			
Aboriginal and Torres Strait Islander	-0.2260***	-0.2043***	-0.1828**
Age	0.0190	0.0200	0.0368**
Age Squared/100	-0.0124	-0.0136	-0.0345*
Rural	-0.0028	0.0143	0.0401
Prison term characteristics:			
Economic Crime	-0.1971***	-0.1905***	-0.1503**
Number of prison terms	-0.2161***	-0.2257***	-0.3888***
Number of days served	-0.0012***	-0.0012***	-0.0009***
Fine Default		0.7155***	0.7674***
Prison study characteristics:			
Art Studies			-2.7938***
Forklift Classes			-0.5298***
Resources Courses			-0.8789***
Welfare characteristic:			
Unemployment benefits	0.0737	0.0653	0.0655
Constant	0.0420	0.0349	0.4545
Observations	8,391	8,923	**8,923**
Pseudo R^2	0.0619	0.0748	0.1530
Degrees of freedom	8	9	12

** p<0.05, ** p<0.01, *** p<0.001*

Table C18 Male prisoners: Factors affecting whether or not prisoners successfully completed at least one class			
Dependent variable = Successful At Least One	**Model A**	**Model B**	**Model C**
Prisoner characteristics:			
Aboriginal and Torres Strait Islander	-0.2642*	-0.2986**	-0.2300*
Age	0.0359	0.0343	0.0212
Age Squared/100	-0.0506	-0.0511	-0.0356
Rural	0.1238	0.1576	0.1741
Prison term characteristics:			
Economic Crime	0.1226	0.1019	0.0236
Number of prison terms	-0.3551***	-0.3751***	-0.2508***
Number of days served	0.0002*	0.0001	-0.0001
Fine Default		-0.4199*	-0.3095
Prison study characteristics:			
Art Studies			0.0198
Forklift Classes			2.1627***
Resources Courses			1.1885***
Welfare characteristic:			
Unemployment benefits	0.0993	0.0585	0.0734
Constant	2.6147***	2.7407***	2.2735***
Observations	8,391	8,923	**8,923**
Pseudo R^2	0.0253	0.0283	0.0836
Degrees of freedom	8	9	12

** p<0.05, ** p<0.01, *** p<0.001*

Appendix D Model 3 Estimates for two covariates

Table D1: Prisoners aged 18 to 25 years: Factors affecting up-skilling				
Dependent variable = Up-skilled	Model A	Model B	Model C	Model D
Prisoner characteristics:				
ATSI	-0.6998***	-0.7057***	-0.1449***	-0.1448***
Male	0.6555***	0.6265***	0.0781*	0.0392
Age	1.2009**	1.1469**	0.1481	0.0419
Age Squared/100	-2.6257**	-2.4925*	-0.3286	-0.1048
Rural	0.1694	0.2052*	0.0425*	0.0518
Prison term characteristics:				
Economic Crime	0.0806	0.1093	0.0383	0.0525
Number of prison terms	-0.1616**	-0.1699**	-0.0244*	-0.0092
Number of days served	0.0002***	0.0002***	0.0001***	0.0000**
Fine Default		-2.5252***	-0.5236**	-0.7321**
Prison study characteristics:				
Art Studies				0.0446
Forklift Classes				0.2988***
Resources Courses				0.0920***
Constant	-15.1222**	-14.5755**	-1.5315	-0.4464
lambda			0.4211*	0.7061**
Observations	3,025	3,798	2,790	**2,790**
Pseudo R^2	0.0388	0.1013	0.0719†	0.1039†
Degrees of freedom	8	9	9	12

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

†*Pseudo R^2 calculated as the square of the correlation between variable up-skilled and the fitted values under the model.*

Table D2: Prisoners aged 26 to 40 years: Factors affecting up-skilling				
Dependent variable = Up-skilled	Model A	Model B	Model C	Model D
Prisoner characteristics:				
ATSI	-0.4188***	-0.4173***	-0.0840***	-0.0756***
Male	0.3100**	0.3061**	0.0508**	0.0263
Age	0.1308	0.1484	0.0279	0.0119
Age Squared/100	-0.1988	-0.2259	-0.0422	-0.0173
Rural	-0.0856	-0.0584	-0.0112	0.0084
Prison term characteristics:				
Economic Crime	0.3908***	0.3959***	0.0720***	0.0887***
Number of prison terms	-0.3085***	-0.3090***	-0.0414***	-0.0258***
Number of days served	0.0002***	0.0002***	0.0000***	0.0000**
Fine Default		-2.2617***	-0.2467**	-0.4887***
Prison study characteristics:				
Art Studies				0.1039***
Forklift Classes				0.3234***
Resources Courses				0.1163***
Constant	-3.2260	-3.5195	-0.2079	-0.1695
lambda			0.1231	0.4097***
Observations	5,866	7,421	5,267	**5,267**
Pseudo R^2	0.0439	0.1023	0.0808†	0.1437†
Degrees of freedom	8	9	9	12

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

†*Pseudo R^2 calculated as the square of the correlation between variable up-skilled and the fitted values under the model.*

Table D3: Prisoners aged 41 years and over: Factors affecting up-skilling				
Dependent variable = Up-skilled	Model A	Model B	Model C	Model D
Prisoner characteristics:				
ATSI	-0.6495***	-0.6232***	-0.1297	-0.1407
Male	0.4090*	0.3930*	0.0498	0.0130
Age	0.0422	0.0296	0.0337	0.0501
Age Squared/100	-0.0460	-0.0355	-0.0367	-0.0536
Rural	0.1029	0.1057	0.0319	0.0426
Prison term characteristics:				
Economic Crime	0.3097**	0.2936*	0.1724	0.2221
Number of prison terms	-0.3568***	-0.3747***	-0.0521	-0.0332
Number of days served	0.0001	0.0001	0.0000	0.0000
Fine Default		-2.4055***	-1.4071	-2.0639
Prison study characteristics:				
Art Studies				0.1027
Forklift Classes				0.3600**
Resources Courses				0.1431
Constant	-2.1153	-1.7192	-0.9128	-1.6661
lambda			1.2473	1.9205
Observations	2,298	2,799	1,971	**1,971**
Pseudo R^2	0.0355	0.0878	0.0505†	0.0710†
Degrees of freedom	8	9	9	12

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

†*Pseudo R^2 calculated as the square of the correlation between variable up-skilled and the fitted values under the model.*

Table D4 Prisoners from metropolitan WA: Factors affecting up-skilling				
Dependent variable = Up-skilled (MRT): Metro only	Model A	Model B	Model C	Model D
Prisoner characteristics:				
ATSI	-0.3138***	-0.2768***	-0.0575***	-0.0641**
Male	0.3100**	0.3102**	0.0485*	0.0060
Age	0.0310*	0.0336*	0.0058	0.0015
Age Squared/100	-0.0445*	-0.0477*	-0.0088*	-0.0047
Prison term characteristics:				
Economic Crime	0.2968***	0.2991***	0.0746***	0.1062***
Number of prison terms	-0.3050***	-0.3129***	-0.0487***	-0.0264*
Number of Days served of this term as at 30 Jun 2010	0.0001***	0.0001***	0.0000**	0.0000
Fine Default		-2.6842***	-0.5257***	-0.9470***
Prison study characteristics:				
Art Studies				0.0944***
Forklift Classes				0.3165***
Resources Courses				0.1544***
Constant	-1.5831***	-1.6275***	0.0976	-0.0935
lambda			0.3514*	0.8266***
Observations	6,793	8,517	6,088	**6,088**
Pseudo R^2	0.0231	0.0927	0.0670†	0.1135†
Degrees of freedom	7	8	8	11

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

† *Pseudo R^2 calculated as the square of the correlation between variable up-skilled and the fitted values under the model.*

Table D5 Prisoners from rural WA: Factors affecting up-skilling				
Dependent variable = Up-skilled	Model A	Model B	Model C	Model D
Prisoner characteristics:				
ATSI	-0.8340***	-0.8567***	-0.1679***	-0.1542***
Male	0.6270***	0.5903***	0.0735**	0.0604*
Age	0.0078	0.0124	0.0022	-0.0008
Age Squared/100	-0.0195	-0.0256	-0.0051	-0.0014
Prison term characteristics:				
Economic Crime	0.1941*	0.1988*	0.0495*	0.0502*
Number of prison terms	-0.2183***	-0.2176***	-0.0253***	-0.0177*
Number of Days served of this term as at 30 Jun 2010	0.0004***	0.0004***	0.0001***	0.0001***
Fine Default		-1.8861***	-0.3670**	-0.4768***
Prison study characteristics:				
Art Studies				0.0775***
Forklift Classes				0.3260***
Resources Courses				0.0539***
Constant	-1.4363***	-1.4757***	0.1536	0.0956
lambda			0.3233*	0.4758***
Observations	4,396	5,501	3,940	**3,940**
Pseudo R^2	0.0641	0.1080	0.0803†	0.1188†
Degrees of freedom	7	8	8	11

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

† *Pseudo R^2 calculated as the square of the correlation between variable up-skilled and the fitted values under the model.*

Table D6 Aboriginal and Torres Strait Islander Prisoners: Factors affecting up-skilling				
Dependent variable = Up-skilled	Model A	Model B	Model C	Model D
Prisoner characteristics:				
Male	0.3312*	0.2905*	0.0387*	0.0217
Age	0.0597	0.0658*	0.0082*	0.0039
Age Squared/100	-0.0844	-0.0914*	-0.0113	-0.0063
Rural	-0.2329*	-0.2527**	-0.0418**	-0.0288*
Prison term characteristics:				
Economic Crime	0.3214**	0.3097**	0.0417*	0.0338*
Number of prison terms	-0.1495**	-0.1562***	-0.0164*	-0.0091
Number of Days served of this term as at 30 Jun 2010	0.0005***	0.0005***	0.0001***	0.0001***
Fine Default		-1.9713***	-0.1489*	-0.2529***
Prison study characteristics:				
Art Studies				0.0919***
Forklift Classes				0.3175***
Resources Courses				0.0420**
Constant	-2.8892***	-2.9482***	0.0001	-0.0159
lambda			0.0817	0.2208**
Observations	4,304	5,521	3,857	**3,857**
Pseudo R^2	0.0305	0.0787	0.0534†	0.1067†
Degrees of freedom	7	8	8	11

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

† *Pseudo R^2 calculated as the square of the correlation between variable up-skilled and the fitted values under the model.*

Table D7 Non-Aboriginal and Torres Strait Islander Prisoners: Factors affecting up-skilling				
Dependent variable = Up-skilled	Model A	Model B	Model C	Model D
Prisoner characteristics:				
Male	0.4120***	0.4289***	0.0764**	0.0410
Age	0.0136	0.0148	0.0010	-0.0028
Age Squared/100	-0.0246	-0.0266	-0.0043	-0.0008
Rural	0.1897**	0.2344***	0.0623***	0.0729*
Prison term characteristics:				
Economic Crime	0.2430***	0.2554***	0.0988***	0.1402**
Number of prison terms	-0.3589***	-0.3610***	-0.0596***	-0.0380**
Number of Days served of this term as at 30 Jun 2010	0.0001***	0.0001***	0.0000***	0.0000*
Prison study characteristics:			-0.7724***	-1.1823***
Fine Default		-2.5265***		
Art Studies				0.0841*
Forklift Classes				0.3201***
Resources Courses				0.1544***
Constant	-1.2432***	-1.2887***	0.1138	-0.0925
lambda			0.5832***	1.0431**
Observations	6,885	8,497	6,171	**6,171**
Pseudo R^2	0.0196	0.0861	0.0655†	0.1061†
Degrees of freedom	7	8	8	11

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

† *Pseudo R^2 calculated as the square of the correlation between variable up-skilled and the fitted values under the model.*

Table D8 Female Prisoners: Factors affecting up-skilling				
Dependent variable = Up-skilled	Model A	Model B	Model C	Model D
Prisoner characteristics:				
ATSI	-0.3127	-0.2462	-0.0488	-0.0384
Age	0.0642	0.0677	0.0083	0.0051
Age Squared/100	-0.0725	-0.0765	-0.0082	-0.0050
Rural	-0.4881*	-0.4511*	-0.0620*	-0.0557*
Prison term characteristics:				
Economic Crime	0.1320	0.1131	-0.0162	0.0067
Number of prison terms	-0.4254**	-0.4557***	-0.0293	-0.0179
Number of Days served of this term as at 30 Jun 2010	0.0003*	0.0003**	0.0000	0.0000*
Fine Default		-2.2314***	0.0279	-0.2041*
Prison study characteristics:				
Art Studies				0.0702*
Forklift Classes				0.2416***
Resources Courses				0.1447***
Constant	-2.1870*	-2.2521*	0.1402	-0.0086
lambda			-0.1599	0.1392
Observations	1,182	1,704	1,136	**1,136**
Pseudo R^2	0.0482	0.1170	0.0207†	0.1308†
Degrees of freedom	7	8	8	11

*$p< 0.05$, **$p< 0.01$, ***$p< 0.001$

†*Pseudo R^2 calculated as the square of the correlation between variable up-skilled and the fitted values under the model.*

Table D9 Male Prisoners: Factors affecting up-skilling

Dependent variable = Up-skilled	Model A	Model B	Model C	Model D
Prisoner characteristics:				
ATSI	-0.5948***	-0.5982***	-0.1216***	-0.1173***
Age	0.0172	0.0199	0.0032	-0.0006
Age Squared/100	-0.0295	-0.0331*	-0.0066	-0.0028
Rural	0.0761	0.1015	0.0306*	0.0477*
Prison term characteristics:				
Economic Crime	0.3009***	0.3125***	0.0967***	0.1165***
Number of prison terms	-0.2623***	-0.2652***	-0.0406***	-0.0244**
Number of days served	0.0002***	0.0002***	0.0000***	0.0000**
Fine Default		-2.3840***	-0.6530***	-0.9518***
Prison study characteristics:				
Art Studies				0.0930***
Forklift Classes				0.3263***
Resources Courses				0.1111***
Constant	-1.0558***	-1.1129***	0.1335*	-0.0417
lambda			0.5219***	0.8721***
Observations	10,007	12,314	8,892	**8,892**
Pseudo R^2	0.0350	0.0909	0.0640†	0.1024†
Degrees of freedom	7	8	8	11

*$p< 0.05$, **$p< 0.01$, ***$p< 0.001$

†*Pseudo R^2 calculated as the square of the correlation between variable up-skilled and the fitted values under the model.*

Appendix E Model 6 Estimates for two covariates

Table E1 Prisoners aged 25 years and under: Factors affecting welfare dependence			
Dependent variable = Proportion of post-release period on benefit	Model A	Model B	Model C
Prisoner characteristics:			
ATSI	0.2068***	0.1827***	0.1970**
Male	-0.0979*	-0.0640	-0.1276
Age	0.1076	0.0935	0.1681
Age Squared/100	-0.2404	-0.2107	-0.3533
Rural	0.0247	0.0427	0.0967
Prison term characteristics:			
Economic Crime	-0.0274	-0.0107	-0.1216
Year discharged	0.0300**	0.0297***	0.0467
Number of days served	0.0000	0.0000	-0.0000
Fine Default		-0.0324	0.4126
Prison study characteristics:			
Number of successful classes	-0.0025	-0.0025	-0.0025
Constant	-60.7875**	-59.9971***	-94.2749
lambda			-1.0239
Observations	883	1,028	**1,028**
R^2	0.1129	0.0945	0.0427†
Degrees of freedom	9	10	10

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

†*Pseudo R^2 calculated as the square of the correlation between variable up-skilled and the fitted values under the model.*

Table E2 Prisoners aged 26 to 40 years: Factors affecting welfare dependence			
Dependent variable = Proportion of post-release period on benefit	Model A	Model B	Model C
Prisoner characteristics:			
ATSI	0.1809***	0.1727***	0.1850***
Male	-0.0677**	-0.0622**	-0.0825
Age	-0.0586	-0.0863**	-0.1004
Age Squared/100	0.0882	0.1303**	0.1522
Rural	0.0067	0.0056	0.0192
Prison term characteristics:			
Economic Crime	-0.0184	-0.0098	-0.0141
Year discharged	0.0252***	0.0238***	0.0278*
Number of days served	-0.0000*	-0.0000*	-0.0000
Fine Default		-0.0126	0.0559
Prison study characteristics:			
Number of successful classes	-0.0033**	-0.0033***	-0.0033***
Constant	-48.9086***	-45.6433***	-53.3052
lambda			-0.1545
Observations	1,817	2,136	**2,136**
R^2	0.0969	0.0878	0.0839†
Degrees of freedom	9	10	10

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

†*Pseudo R^2 calculated as the square of the correlation between variable up-skilled and the fitted values under the model.*

Table E3 Prisoners aged 41 years or over: Factors affecting welfare dependence			
Dependent variable = Proportion of post-release period on benefit	Model A	Model B	Model C
Prisoner characteristics:			
ATSI	0.1753***	0.1571***	0.4996
Male	-0.0521	-0.0637	-0.2299
Age	0.0012	0.0089	-0.1899
Age Squared/100	-0.0026	-0.0097	0.2286
Rural	-0.0334	-0.0426	0.0614
Prison term characteristics:			
Economic Crime	-0.0488	-0.0469	-0.0522
Year discharged	0.0239*	0.0222*	0.0083
Number of days served	-0.0000	-0.0000	0.0000
Fine Default		-0.0579	0.8361
Prison study characteristics:			
Number of successful classes	-0.0029	-0.0030	-0.0030
Constant	-47.2044*	-44.0327*	-10.7121
lambda			-1.6064
Observations	566	633	**633**
R^2	0.0737	0.0613	0.0118†
Degrees of freedom	9	10	10

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

†*Pseudo R^2 calculated as the square of the correlation between variable up-skilled and the fitted values under the model.*

Table E4 Prisoners from metropolitan WA: Factors affecting welfare dependence			
Dependent variable = Proportion of post-release period on benefit	Model A	Model B	Model C
Prisoner characteristics:			
ATSI	0.1946***	0.1794***	0.1808***
Male	-0.0956***	-0.0803***	-0.0672
Age	0.0071	0.0069	0.0100
Age Squared/100	-0.0075	-0.0070	-0.0121
Prison term characteristics:			
Economic Crime	-0.0288	-0.0172	-0.0152
Year discharged	0.0314***	0.0284***	0.0274**
Number of days served	-0.0000	-0.0000	-0.0000
Fine Default		-0.0137	-0.0536
Prison study characteristics:			
Number of successful classes	-0.0042***	-0.0040***	-0.0040***
Constant	-62.4219***	-56.4879***	-54.5019**
lambda			0.0781
Observations	2,079	2,406	**2,406**
R^2	0.0821	0.0700	0.0680†
Degrees of freedom	8	9	9

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

†*Pseudo R^2 calculated as the square of the correlation between variable up-skilled and the fitted values under the model.*

Table E5 Prisoners from Rural WA: Factors affecting welfare dependence			
Dependent variable = Proportion of post-release period on benefit	Model A	Model B	Model C
Prisoner characteristics:			
ATSI	0.1829***	0.1670***	0.4192
Male	-0.0359	-0.0402	-0.1101
Age	-0.0058	-0.0050	-0.0480
Age Squared/100	0.0082	0.0068	0.0888
Prison term characteristics:			
Economic Crime	-0.0236	-0.0172	-0.1661
Year discharged	0.0159*	0.0174*	0.0403
Number of days served	-0.0000	-0.0000	-0.0001
Fine Default		-0.0373	0.5913
Prison study characteristics:			
Number of successful classes	-0.0015	-0.0017	-0.0015
Constant	-31.0972*	-34.2101*	-78.5660
lambda			-1.5419
Observations	1,187	1,391	**1,391**
R^2	0.0899	0.0758	0.0309†
Degrees of freedom	8	9	9

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

†*Pseudo R^2 calculated as the square of the correlation between variable up-skilled and the fitted values under the model.*

Table E6 Aboriginal and Torres Strait Islander Prisoners: Factors affecting welfare dependence			
Dependent variable = Proportion of post-release period on benefit	Model A	Model B	Model C
Prisoner characteristics:			
Male	-0.0243	-0.0287	-0.0094
Age	0.0009	0.0020	0.0109
Age Squared/100	-0.0007	-0.0023	-0.0212
Rural	-0.0089	-0.0064	-0.0686
Prison term characteristics:			
Economic Crime	0.0228	0.0216	0.0769
Year discharged	0.0118	0.0117	-0.0008
Number of days served	-0.0000	-0.0000	0.0000
Fine Default		-0.0755**	-0.2433
Prison study characteristics:			
Number of successful classes	0.0009	0.0013	0.0013
Constant	-22.9176	-22.6874	2.0919
lambda			0.4056
Observations	1,054	1,266	**1,266**†
R^2	0.0065	0.0139	0.0074
Degrees of freedom	8	9	9

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

†*Pseudo R^2 calculated as the square of the correlation between variable up-skilled and the fitted values under the model.*

Table E7 Non-Aboriginal and Torres Strait Islander Prisoners: Factors affecting welfare dependence			
Dependent variable = Proportion of post-release period on benefit	Model A	Model B	Model C
Prisoner characteristics:			
Male	-0.1170***	-0.1065***	-0.1798
Age	0.0054	0.0045	-0.0122
Age Squared/100	-0.0054	-0.0041	0.0227
Rural	0.0146	0.0161	0.0177
Prison term characteristics:			
Economic Crime	-0.0428*	-0.0276	-0.0345
Year discharged	0.0315***	0.0290***	0.0322***
Number of days served	-0.0000	-0.0000	-0.0000
Fine Default		0.0129	0.2025
Prison study characteristics:			
Number of successful classes	-0.0045***	-0.0044***	-0.0044***
Constant	-62.6608***	-57.4694***	-63.4114***
lambda			-0.3739
Observations	2,212	2,531	**2,531**†
R^2	0.0349	0.0303	0.0207
Degrees of freedom	8	9	9

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

†*Pseudo R^2 calculated as the square of the correlation between variable up-skilled and the fitted values under the model.*

Table E8 Female Prisoners: Factors affecting welfare dependence			
Dependent variable = Proportion of post-release period on benefit	Model A	Model B	Model C
Prisoner characteristics:			
ATSI	0.1358**	0.1284***	0.2767
Age	-0.0084	0.0017	-0.0322
Age Squared/100	0.0096	-0.0032	0.0151
Rural	-0.0244	-0.0102	-0.0947
Prison term characteristics:			
Economic Crime	-0.0432	-0.0337	0.1712
Year discharged	-0.0006	0.0041	-0.0471
Number of days served	0.0001	0.0001	0.0002
Fine Default		-0.0369	-1.1017
Prison study characteristics:			
Number of successful classes	-0.0014	-0.0010	-0.0008
Constant	2.0774	-7.4890	94.0158
lambda			2.4719
Observations	347	432	**432**
R^2	0.0597	0.0461	0.0042†
Degrees of freedom	8	9	9

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

†*Pseudo R^2 calculated as the square of the correlation between variable up-skilled and the fitted values under the model.*

Table E9 Male Prisoners: Factors affecting welfare dependence			
Dependent variable = Proportion of post-release period on benefit	Model A	Model B	Model C
Prisoner characteristics:			
ATSI	0.1942***	0.1797***	0.2625***
Age	0.0035	0.0024	-0.0293
Age Squared/100	-0.0030	-0.0016	0.0528
Rural	0.0070	0.0088	0.0706
Prison term characteristics:			
Economic Crime	-0.0264	-0.0163	-0.0584
Year discharged	0.0294***	0.0273***	0.0381**
Number of days served	-0.0000*	-0.0000*	-0.0001
Fine Default		-0.0170	0.3686
Prison study characteristics:			
Number of successful classes	-0.0037***	-0.0037***	-0.0036**
Constant	-58.4689***	-54.2808***	-74.9077**
lambda			-0.8166
Observations	2,919	3,365	**3,365**
R^2	0.0937	0.0798	0.0450†
Degrees of freedom	8	9	9

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

†*Pseudo R^2 calculated as the square of the correlation between variable up-skilled and the fitted values under the model.*