

The Rehabilitative Ideal versus the Criminogenic Reality: The Consequences of Warehousing Prisoners

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Research Summary

Using data on more than 55,000 offenders released from Minnesota prisons between 2003 and 2011, we examine whether criminogenic effects arising from imprisonment may stem from a lack of institutional programming. In addition to assessing the relationship between recidivism and warehousing (i.e., the absence of involvement in any programming), we examine the impact of participation in multiple correctional interventions. The results show that 31 percent of the Minnesota prisoners were warehoused, which significantly increased the odds of recidivism by 13 percent. Participation in at least one successful recidivism-reduction intervention lowered the odds of recidivism by 12 percent, while involvement in two effective programs decreased it by 26 percent. We conclude by discussing the implications of warehousing, which was more likely to occur for prisoners with brief stays in prison who were admitted as probation or parole violators.

Introduction

In theory, criminal sentencing should incapacitate dangerous offenders, deter would-be offenders, and provide a proportionate level of punishment to convicted offenders (Tonry, 2006). Ideally, criminal punishments should also rehabilitate offenders, hasten their desistance from criminal careers, and restore their lives and those of victims (Charles Colson Task Force on Federal Corrections, 2016; Cullen and Gilbert, 2012). Incarceration is often criticized for falling short of most of these goals. Although there is some evidence that incarceration can reduce crime rates by incapacitating criminals (Byrne, 2013), Clear (2007) argues that incarceration also indirectly increases criminal offending by disrupting families and neighborhoods. Moreover, incarceration has not proven to be an effective deterrent (Nagin, 2010; Nagin, 2013), and observers have increasingly questioned whether the punitive effects of incarceration are proportionate to the offenses of those incarcerated (Raphael and Stoll, 2008).

While incarceration may not meet goals of incapacitation, deterrence, and just deserts, a large and growing body of research suggests that correctional-based programming can be rehabilitative, decreasing the likelihood of recidivism (e.g., Andrews, 2010; Gendreau, French, and Gionet, 2004; Smith, Gendreau, and Swartz, 2009). After decades of trial and error, correctional administrators can now rely on a standardized set of evidence-based practices and principles to design and deliver correctional programming. The principles of effective interventions, along with several pre-packaged evidence-based interventions, have become fixtures in federal, state, and local corrections systems.

Yet, despite the proliferation of evidence-based practices, recidivism rates appear to remain intractably high (Durose, Cooper and Snyder, 2014), and prison populations have decreased only slightly in the past few years after multiple decades of explosive growth (Carson, 2015). There have been few attempts to assess the extent to which prison programs are reaching prisoners, but the most recent evidence suggests that programs are serving a shrinking proportion of prisoners (Lynch and Sabol, 2001; Mears, Lawrence, Solomon, and Waul, 2002). All of these facts together invite the question: does incarceration meet any of its presumptive goals? Has evidence-based correctional practice failed, or are prisoners simply being warehoused without any attempts to prepare them to reenter society?

The Effects of Incarceration

One of the *prima facie* benefits of incarceration is that it takes repeat offenders and dangerous individuals off the streets, thus preventing future crimes. Have we benefited from the rise of mass incarceration over the past few decades in the form of prevented crimes? The evidence is mixed. Studies relying on individual-level data have reported the lambda (i.e., the annual number of crimes a prisoner would have likely committed had s/he not been incapacitated) ranges from as little as two offenses (Wermink, Apel, Nieuwbeerta, and Blokland, 2013) to as many as 187 (Zedlewski, 1987). In research using aggregate-level data, the findings indicate a null effect for county-level data (Kovandzic and Vieraitis, 2006), modest effects for state-level data (DeFina and Arvanites, 2002; Levitt, 1996; Marvell and Moody, 1994), and relatively large effects for national-level data (Cohen and Land, 1987; Devine, Sheley and Smith, 1988; Marvell and Moody, 1998).

Incapacitation is not the only means of preventing new crimes; prisons are also theorized to have specific-deterrent effects, as well as the potential to be rehabilitative (Morris and Tonry, 1991). However, the results from several studies suggest that prison does not deter or rehabilitate offenders, and may even have a criminogenic effect (Bales and Piquero, 2012; Cid, 2009; Nagin, Cullen, and Johnson, 2009; Vieraitis, Kovandzic, and Marvell, 2007; Villettaz, Killias, and Zoder, 2006). While incarcerated, prisoners are often isolated from potential sources of pro-social support, such as friends and family members. Therefore, prisons are “finishing schools for criminals” wherein prisoners learn from each other how to become more adept or prolific at committing crime (Mannix, 2016). Moreover, following their release, prisoners bear the stigmatizing mark of a criminal record, which carries a host of collateral consequences. In addition to the challenges released prisoners face in finding proper housing, they routinely experience difficulties in securing stable employment (Petersilia, 2000), which diminishes their earning potential and upward mobility (Western and Pettit, 2010).

In apparent contrast to studies suggesting that prisons do not rehabilitate offenders, a sizable body of research, which has come to be known as the “what works” literature, indicates there are correctional interventions that have demonstrated success in reducing recidivism. The “what works” literature emerged on the heels of the infamous “nothing works” conclusion drawn in the mid-1970s by Martinson and colleagues in their research on the effectiveness of correctional programming (Lipton, Martinson and Wilks, 1975; Martinson, 1974). Meta-analyses have identified a number of successful correctional interventions often delivered within prison, including educational programming (Aos, Miller, and Drake, 2006; Davis, Bozick, Steele, Saunders, and Miles,

2013), employment programming (Wilson, Gallagher and MacKenzie, 2000), cognitive-behavioral therapy (Lipsey, Landenberger, & Wilson, 2007; Wilson, Bouffard, & MacKenzie, 2005), substance abuse treatment (Mitchell, Wilson and MacKenzie, 2007), and sex offender treatment (Lösel and Schmucker, 2015).

The growth of the “what works” literature eventually gave rise to the principles of effective correctional interventions and, more narrowly, the risk-needs-responsivity (RNR) model. The risk principle holds that interventions should be concentrated on the higher-risk offenders so as to optimize the use of programming resources, which are often limited. Recidivism risk should be assessed using actuarial risk assessment tools that have been validated and normed (Andrews and Bonta, 2010), and more intensive programs should be reserved for higher-risk offenders (Sperber, Latessa, & Makarios, 2013). The needs principle signifies what areas should be treated. Interventions that target the criminogenic needs (dynamic risk factors) of offenders are more likely to decrease recidivism because changes can be made in these areas. Because individual characteristics can affect responsiveness to treatment programming, the responsivity principle indicates that treatment delivery should be tailored to the learning styles, abilities, and strengths of offenders (Andrews, Bonta, and Wormith, 2006). In addition to following the RNR model, correctional interventions are more likely to be effective when they use cognitive-behavioral and social learning strategies (Andrews and Dowden, 2006), employ core correctional practices (e.g., “firm but fair” with offenders, model and reinforce pro-social behavior, teach problem-solving skills, use community resources, and develop a therapeutic alliance with offenders) (Dowden and Andrews, 2004), and are

implemented in a manner that is consistent with how they were designed (i.e., program integrity) (Lowenkamp, Latessa and Smith, 2006).

How do we reconcile findings that prison is criminogenic with evidence from the "what works" literature? Neither body of literature has considered the extent to which prisoners participate in programming, especially interventions that have demonstrated success in reducing recidivism. For example, prior research on the link between prison and crime has typically treated prison as an opaque, monolithic concept—a "black box". In studies using individual-level data, in particular, prisoners are often compared with non-custodial populations in the absence of any controls for participation in programming. The worse recidivism outcomes for prisoners in these studies may thus reflect diminished access to effective interventions.

The "what works" literature, on the other hand, consists almost entirely of individual program evaluations and meta-analyses of specific types of programming. Although this literature has identified interventions that are effective in reducing recidivism, it has not delineated the extent to which prisoners participate in these interventions. Therefore, while the "what works" literature suggests that cognitive-behavioral therapy (CBT), for example, is effective in reducing recidivism (Lipsey, Landenberger, & Wilson, 2007; Wilson, Bouffard, & MacKenzie, 2005), CBT will likely have a negligible impact on overall recidivism rates if only two percent of the prison population has access to it.

The absence of prior research on the prevalence of prisoner involvement in programming is not unique to the "what works" literature. The corrections literature in general has yielded relatively little evidence on the rate of prisoner participation in

programming, and none of it has been very recent. What exists, however, suggests that many prisoners are not involved in interventions while they are incarcerated. Moreover, the rate at which prisoners were “warehoused” (i.e., idle) appears to have increased during the 1990s, perhaps as a consequence of growing prison populations resulting from mass incarceration policies. Using 1998 data compiled by the Criminal Justice Institute, Austin (2001) reported an estimated 24 percent of prisoners in the U.S. were idle and not participating in a work or educational program. In their analysis of data from the 1991 and 1997 Survey of Inmates in State and Federal Correctional Facilities, Lynch and Sabol (2001) indicated that the percentages of soon-to-be released prisoners who had participated in pre-release, educational and vocational programming had decreased from 1991 to 1997. Analyzing the same data, Mumola (1999) found that 25 percent of state prisoners to be released in the next 12 months in 1991 had entered prison-based drug treatment compared to only 10 percent in 1997.

Present Study

Based on a sample of 55,676 releases from Minnesota prisons between 2003 and 2011, we examine the extent to which participation in institutional programming had an impact on recidivism outcomes. We extend the “what works” literature by evaluating the aggregate effects of programming over the entirety of each prisoner’s confinement time on a system-wide basis. In doing so, we not only examine the extent to which prisoners are warehoused, which we define as the absence of any involvement in institutional interventions during a prisoner’s entire confinement period, but also whether warehousing affects recidivism.

Along with evaluating the effects of warehousing on recidivism, we look at the relationship between reoffending and the number of interventions in which offenders had participated. Moreover, given that all but a handful of the interventions offered in the Minnesota Department of Corrections (MnDOC) have been previously evaluated, we investigate whether the effects of programming vary on the basis of what prior research has found. That is, we compare the effects of successful recidivism-reduction interventions (SRRIs) and unproven recidivism-reduction interventions (URRIs) on recidivism.

Because we do not compare custodial and non-custodial populations, this study does not attempt to determine whether prison is criminogenic. Nevertheless, by carrying out one of the first system-wide analyses of the impact of prison programming (or lack thereof) on recidivism, we attempt to address a number of questions that have implications for both the “what works” and prison-crime literatures. What is the warehousing rate, at least for Minnesota prisoners? What predicts who will get warehoused? What effect, if any, does warehousing have on recidivism? Does participating in more than one institutional intervention have an impact on reoffending? Likewise, does participating in multiple interventions with a track record of success have a greater effect on recidivism? And, if providing prisoners with programming lowers recidivism, how much would need to be provided to prisoners to yield an appreciable reduction in a state’s overall recidivism rate?

In the following section, we briefly review the literature on MnDOC programming, which includes published evaluations on 17 different correctional interventions. Next, we describe the data and methods that were used. Following a

presentation of the results, we conclude by discussing the implications of the findings for correctional research, policy and practice.

Minnesota’s “What Works” Literature

Since 2006, there have been evaluations of 17 correctional interventions used with Minnesota prisoners. The evaluations cover programming relating to prison-based chemical dependency treatment (Duwe, 2010), prison-based sex offender treatment (Duwe & Goldman, 2009), a correctional boot camp (Duwe & Kerschner, 2008), mental health release planning (Duwe, 2015a); prison visitation (Duwe & Clark, 2013; Duwe & Johnson, 2015)¹, employment programming (Duwe, 2014b, 2015b; Northcutt Bohmert & Duwe, 2012), educational programming (Duwe & Clark, 2014), prisoner reentry programs (Clark, 2014; Duwe, 2012, 2014a; Minnesota Department of Corrections, 2006, 2011), sex offender reentry (Duwe, 2013a), faith-based programming (Duwe & King, 2013; Duwe & Johnson, 2013), cognitive-behavioral programming (Duwe & Clark, 2015), and life skills programming (Clark & Duwe, 2015).

As shown in Table 1, the sample sizes for these evaluations range from a low of 62 (MnCOSAs) to a high of 16,420 (prison visitation). Each of these evaluations used recidivism as an outcome measure, and the follow-up period for recidivism varied from a minimum of 6 months to a maximum of 17 years. Quasi-experimental designs have been the most common research design used, although a randomized controlled trial (RCT) has

¹ Prison visitation has not always been considered a correctional intervention. Unlike most correctional programs, there is seldom a limit on the number of prisoners who can participate (i.e., receive visits). Moreover, in most instances, visitation is not a program with well-defined beginning and end points that offenders must complete. Nevertheless, we regard prison visitation as an intervention because it has been found to be associated with a reduction in recidivism (Bales and Mears, 2008; Cochran, 2014; Mears, Cochran, Siennick and Bales, 2012), including Minnesota prisoners (Duwe and Clark, 2013; Duwe and Johnson, 2015). And prison visitation can provide offenders with pro-social support, which addresses anti-social peers—a major criminogenic need.

Table 1. Summary of Minnesota Department of Corrections Program Evaluations

<i>Intervention</i>	<i>Characteristics</i>						
	<u>Program Type</u>	<u>Program Entry</u>	<u>N</u>	<u>Release Period</u>	<u>Follow-up Period</u>	<u>Design</u>	<u>Reduced Recidivism?</u>
EMPLOY	Employment Re-entry	Voluntary	464	2006-2008	2.5-4.5 years	QED	Yes
Chemical Dependency Treatment	Substance Abuse	Mandatory/Coercive	1,852	2005	3-4 years	QED	Yes
Sex Offender Treatment	Sex Offender Treatment	Mandatory/Coercive	2,040	1990-2003	3-17 years	QED	Yes
MnCOSAs	Sex Offender Re-entry	Voluntary	62	2008-2011	3-47 months	RCT	Yes
IFI	Faith-Based	Voluntary	732	2003-2009	1-7 years	QED	Yes
CIP	Boot Camp	Voluntary	2,902	1993-2002	3-12 years	QED	Yes
Work Release	Employment	Voluntary	3,570	2007-2010	2-6 years	QED	Yes
AHP	Employment	Voluntary	448	1998-2005	3-10 years	QED	No
Education	Education						
Secondary Degree		Mandatory/Coercive	1,820	2007-2008	2-3 years	QED	No
Post-Secondary Degree		Mandatory/Coercive	1,386	2007-2008	2-3 years	QED	Yes
MCORP*	Prisoner Reentry	Mandatory/Coercive	630	2008-2010	2.5-5.5 years	RCT	Yes
PRI*	Prisoner Reentry	Mandatory/Coercive	330	2008-2009	6-18 months	QED	No
SOAR*	Prisoner Reentry	Mandatory/Coercive	329	2003-2005	8-36 months	RCT	No
Power of People	Life Skills	Voluntary	1,774	2006-2011	1-6 years	QED	No
SPMI Release Planning	Mental Health	Voluntary	796	2004-2011	1.5-9.5 years	QED	No
HRRR Reentry Program	Prisoner Reentry	Voluntary	240	2011	19-25 months	RCT	Yes
Moving On	Cognitive-Behavioral						
High Fidelity		Voluntary	430	2003-2010	4.5-11.5 years	QED	Yes
Low Fidelity		Mandatory/Coercive	1,760	2011-2013	6-42 months	QED	No
Prison Visitation	Social Support	Voluntary	16,420	2003-2007	3.5-7.5 years	SC	Yes

* Pilot projects no longer operating

Notes: QED = Quasi-experimental design; RCT = Randomized controlled trial; SC = Statistical control

MnCOSAs = Minnesota Circles of Support and Accountability

IFI = InnerChange Freedom Initiative

CIP = Challenge Incarceration Program

AHP = Affordable Homes Program

MCORP = Minnesota Comprehensive Offender Reentry Plan

PRI = Prisoner Reentry Initiative

SOAR = Serious Offender Accountability and Restoration

SPMI = Serious and Persistent Mental Illness

HRRR = High-Risk Revocation Reduction

been used in four of the evaluations (Clark, 2014; Duwe, 2012; Duwe, 2013a; Duwe, 2014a; Minnesota Department of Corrections, 2006).

Among the evaluated interventions, there were two that had varying effects on recidivism. For example, in the education programming evaluation, the results showed that earning a post-secondary degree reduced recidivism while earning a secondary degree did not (Duwe and Clark, 2014). Similarly, the evaluation of Moving On revealed the program reduced recidivism when it had a relatively high degree of fidelity but failed to lower reoffending when it lacked integrity (Duwe and Clark, 2015).² Separating the effects for these two interventions brings the total number of program effects to 19. Of the 19 program effects, participation was mandatory or coercive for eight of the interventions while the remaining 11 were completely voluntary. Moreover, Table 1 indicates 12 have been found to be successful in reducing recidivism, whereas seven had no effect on recidivism outcomes.

Later in this study, we distinguish the interventions delivered within the MnDOC on the basis of: 1) their evaluated performance in reducing recidivism and 2) the type of program participation (mandatory/coercive versus voluntary). The 12 interventions that have proven to be effective in lowering recidivism are considered successful recidivism-reduction interventions (SRRI's). Conversely, the seven remaining interventions that have not reduced recidivism are categorized as unproven recidivism-reduction interventions (URRI's). Also falling into the URRI category are several interventions

² High-fidelity Moving On was delivered to female prisoners prior to 2011, and its operation was largely consistent with how the program was designed. Class sizes were relatively small (less than 10 participants), the program lasted at least three months, and participation was voluntary. On the other hand, when low-fidelity Moving On was offered from 2011 to 2013, it had large class sizes (more than 40 participants), the length of the program was shortened, and certain parts of the curriculum were removed. Duwe and Clark (2015) found that program integrity matters for recidivism outcomes, for the results showed that high-fidelity Moving On reduced reoffending whereas low-fidelity Moving On did not.

provided to MnDOC prisoners that have yet to be formally evaluated. These include Thinking for a Change (T4C), a cognitive-behavioral program that existing research has found to be effective (Wilson, Bouffard, & MacKenzie, 2005), prison labor, and participation in educational programming that does not result in obtaining a degree. Moreover, the institutional programming data include participation in a host of smaller programs and classes pertaining to a variety of issues, including parenting, victim impact, money management, career planning, and transitioning from prison to the community. Among the unevaluated interventions, participation in educational programming not leading to a degree is mandatory/coercive, while the rest are voluntary.³

Data and Methodology

The sample for this study consisted of 55,676 offenders released from Minnesota prisons between 2003 and 2011.⁴ Our outcome measure was recidivism, which was operationalized as 1) a rearrest and 2) a reconviction for new misdemeanor, gross misdemeanor or felony-level offenses. As shown later, however, we report only the results for reconviction due not only to the similarity in results between rearrest and reconviction, but also to the numerous ways in which we estimated the effects of warehousing and program participation on recidivism.

Recidivism data were collected on offenders through June 30, 2015. Because the offenders in this study were released between January 2003 and December 2011, the follow-up time ranged from 3.5 to 12.5 years. Rearrest and reconviction data were

³ Participation in the low-fidelity Moving On, SOAR, PRI and MCORP programs was mandatory, while involvement in educational programming (including secondary and post-secondary degrees), chemical dependency treatment, and sex offender treatment was more coercive. Participation in the remaining 14 interventions/program effects was completely voluntary.

⁴ A copy of the dataset that has been stripped of any identifying information may be obtained from the primary author upon request.

obtained from the Minnesota Bureau of Criminal Apprehension. Because these data do not capture rearrests and reconvictions that took place outside Minnesota, the findings presented later underestimate the true recidivism rates for the offenders in this study.

Independent Variables

We included a number of measures that are not only commonly associated with recidivism risk, but may also affect participation in programming. As shown in Table 2, which describes most of the variables used in this study, our dataset contains demographic measures pertaining to gender, race/ethnicity, age and marital status. Moreover, we included a number of measures for criminal history, the strongest predictor of recidivism. In addition to measuring the total number of supervision failures (i.e., probation and/or parole revocations), the criminal history measures comprise the total number of convictions and the total number of convictions for felonies, violent offenses, drug offenses, and property crimes. We also provide measures that assess the degree to which offenders specialized in felony, violent, drug, and property offending.⁵

Previous research on Minnesota prisoners has shown that suicidal history, gang (i.e., security threat group or STG) involvement, and prison misconduct increase an offender's risk for recidivism (Duwe, 2014c). We also accounted for prison admission type, offense type, commitment county (the Minneapolis and St. Paul/Twin Cities metro area versus Greater Minnesota), length of stay and type of post-release supervision (i.e.,

⁵ The specialization/diversity items measure the extent to which offenders specialized in felonies, violent crimes, drug offenses, etc. The formula for calculating the specialization/diversity measures is adapted from research that has examined offending specialization/diversity for offenders in general (Agresti and Agresti, 1978; Mazerolle, Brame, Paternoster, Piquero, and Dean, 2000; Sullivan, McGloin, Pratt, and Piquero, 2006). To illustrate, the following is the formula we used to measure violent offending specialization/diversity: $1 - ((\text{Violent Offense Convictions}/\text{Total Convictions}) * (\text{Violent Offense Convictions}/\text{Total Convictions}))$. A value of "0" for this item indicates the offender has complete specialization in violent offenses, whereas a value of "1" indicates complete diversity of offending.

Table 2. Dataset Description

Predictors	Predictor Description	Mean	SD
Gender	Male = 1; Female = 0	0.904	0.294
Race/Ethnicity	Non-Hispanic white is the reference category		
African-American	African-American = 1; Non-African-American = 0	0.334	0.472
American Indian	American Indian = 1; Non-American Indian = 0	0.091	0.288
Hispanic	Hispanic = 1; Non-Hispanic = 0	0.040	0.197
Asian	Asian = 1; Non-Asian = 0	0.015	0.120
Age at Intake (years)	Offender age in years at time of admission to prison	33.698	9.718
Supervision Failures	Number of prior revocations while under correctional supervision	1.609	1.602
Total Convictions	Total number of convictions, including index conviction(s)	11.987	9.328
Felony Convictions	Total number of felonies, including index conviction(s)	2.125	2.069
Felony Specialization/Diversity	Specialization/diversity in felony offending	0.853	0.265
Violent Convictions	Total number of violent offenses, including index conviction(s)	1.573	1.950
Violent Specialization/Diversity	Specialization/diversity in violent offending	0.907	0.214
Drug Offense Convictions	Total number of drug offenses, including index conviction(s)	0.969	1.383
Drug Specialization/Diversity	Specialization/diversity in drug offending	0.951	0.154
Property Convictions	Total number of property offenses, including index conviction(s)	3.182	4.514
Property Specialization/Diversity	Specialization/diversity in property offending	0.887	0.194
Married	Married = 1; Unmarried = 0	0.097	0.296
Metro Commit	Twin Cities metropolitan area = 1; Greater Minnesota = 0	0.525	0.499
Admission Type	New Court Commitment is the reference		
Probation Violator	Probation Violator = 1; new commit and parole violators = 0	0.304	0.460
Parole Violator	Parole Violator = 1; new commit and probation violators = 0	0.316	0.465
Offense Type	Violence offense is the reference category		
Drugs	Drug offense = 1; non-drug offense = 0	0.253	0.435
Property	Property offense = 1; non-property offense = 0	0.240	0.427
Felony DWI	Felony DWI offense = 1; non-Felony DWI offense = 0	0.046	0.210
Other	Other offense = 1; non-other offense = 0	0.135	0.342
Length of Stay (LOS)	Length of stay in prison (months)	13.024	18.023
Suicidal History	Suicidal history = 1; no suicidal history = 0	0.138	0.345
Security Threat Group (STG) involvement	Level of STG involvement in prison (scale = 0 to 10)	0.872	1.667
Prison misconduct	Number of discipline convictions during confinement period	3.040	8.490
Education Programming	Education programming not resulting in a degree	0.279	0.449
Secondary Degree	Earned secondary degree in prison = 1; other = 0	0.108	0.311
Post-secondary Degree	Earned post-secondary degree in prison = 1; other = 0	0.042	0.201
MINNCOR (prison labor)	Prison labor participation = 1; none = 0	0.160	0.367
Affordable Homes Program (AHP)	Affordable Homes Program (AHP) = 1; none = 0	0.002	0.043
Work Release	Work release = 1; none = 0	0.089	0.284
EMPLOY	EMPLOY = 1; none = 0	0.013	0.111
Thinking for a Change	Thinking for a Change = 1; none = 0	0.035	0.183
Moving On (High Fidelity)	Moving On (High Fidelity) = 1; none = 0	0.003	0.058
Moving On (Low Fidelity)	Moving On (Low Fidelity) = 1; none = 0	0.003	0.050
Challenge Incarceration Program (CIP)	CIP = 1; No CIP = 0	0.042	0.200
Chemical dependency (CD) treatment	CD treatment = 1; none = 0	0.109	0.312
Sex offender treatment	Sex offender treatment = 1; none = 0	0.015	0.123
MN Circles of Support/Accountability	MnCOSA = 1; none = 0	0.001	0.023
InnerChange Freedom Initiative (IFI)	IFI = 1; none = 0	0.013	0.113
Prison visitation	At least one prison visit = 1; none = 0	0.417	0.493
Serious Offender Accountability Restoration	SOAR = 1; none = 0	0.003	0.057
Prisoner Reentry Initiative	PRI = 1; none = 0	0.003	0.054
MN Comprehensive Offender Reentry Plan	MCORP = 1; none = 0	0.007	0.084
High-Risk Revocation Reduction	HRRR program = 1; none = 0	0.002	0.039
Power of People (PoP)	PoP = 1; none = 0	0.017	0.131

Serious Persistent Mental Illness (SPMI)	SPMI release planning = 1; none = 0	0.013	0.114
Miscellaneous Programs	Number of Miscellaneous Programs	0.866	1.579
Post-Release Supervision	Standard supervised release is the reference		
Intensive Supervised Release (ISR)	ISR = 1; No ISR = 0	0.216	0.412
Discharge/unsupervised release	Discharge = 1; released to supervision = 0	0.153	0.360
Release Year	2003 to 2011	2007.272	2.491
N		55,656	

** $p < .01$

* $p < .05$

SD = standard deviation

SE = standard error

HR = hazard ratio

supervised release, intensive supervised release or discharge/released to no supervision) because prior studies have indicated these variables are significant predictors of recidivism for Minnesota prisoners (Duwe, 2010; Duwe and Clark, 2013). Lastly, we included release year to help control for any differences observed over time regarding recidivism and program participation.

As indicated in Table 2, there were 23 discrete programming categories. Data on close to half of these interventions were acquired from the Correctional Operations Management System (COMS), the MnDOC’s database. Data on the other interventions, such as EMPLOY⁶, MnCOSA, or the prisoner reentry programs (e.g., SOAR, PRI, MCORP, and HRRR), were obtained from a variety of other sources, often the providers of these programs. Due to the varying effects on recidivism for different types of education programming for Minnesota prisoners (Duwe and Clark, 2014), we grouped education programming into three separate measures: 1) earning a secondary degree in prison, 2) obtaining a post-secondary degree/certification in prison, and 3) participating in education programming that did not result in a degree. Likewise, we divided Moving

⁶ EMPLOY is not an acronym but is the actual name of the program, which focuses on delivering employment assistance and services to offenders during the last three months of their confinement and up to 12 months following their release from prison.

On into two separate measures: 1) high-fidelity Moving On (pre-2011) and 2) low-fidelity Moving On (2011-2013). Further, as noted earlier, the programming data include a number of smaller programs and classes relating to parenting, victim impact, money management, career planning, transitioning from prison to the community, etc. We grouped these small-scale interventions, none of which have yet to be evaluated, into a single “miscellaneous” category.

Aggregate Measures of Participation in Programming

Using data on the 23 categories of interventions, we created a number of variables that were aggregate measures of participation in programming. We created the warehousing variable by assigning a value of “1” to offenders who did not participate in any of the 23 institutional interventions and a value of “0” to those who participated in at least one intervention. To determine whether the prior effectiveness of interventions matters for recidivism outcomes, we divided the 23 interventions into two groups: 1) successful recidivism-reduction interventions (SRRI’s) and 2) unproven recidivism-reduction interventions (URRI’s). The SRRI category contained the 12 interventions that have reduced recidivism in prior research, whereas the URRI category included the 11 interventions that have not been evaluated or have been unsuccessful in decreasing recidivism in past research.

To determine whether participation in multiple interventions affects recidivism, we created 15 different measures. We first counted the total number of interventions, the total number of SRRIs, and the total number of URRI’s in which offenders were involved while incarcerated. Next, we grouped the three measures—any intervention, SRRI, and URRI—into the following six categories: zero interventions, participation in one

intervention, participation in two interventions, participation in three interventions, participation in four interventions, and participation in five or more interventions. Finally, we created variables that compared the presence of programming with the absence of it.

With the five discrete measures pertaining to any interventions, the first measure compares offenders who participated in one intervention with offenders who did not participate in any interventions, the second compares offenders who participated in two interventions with those who did not participate in any, the third compares offenders involved in three interventions with those who did not participate in any, and so on. It is also worth noting the SRRIs measures contain offenders who also participated in URRI programs and vice versa. For example, in comparing offenders who did not participate in any SRRIs versus those who participated in, say, two SRRIs, the latter contains all offenders who were involved in two SRRs regardless of how many URRI's in which they participated. In our analyses measuring the effects of SRRIs, we controlled for the number of URRI's in which offenders had been involved. Likewise, for the URRI analyses, we controlled for the number of SRRIs in which offenders had participated.

In Table 3, we further describe these measures by depicting the extent to which offenders in our sample were involved in institutional programming and the three-year reconvictions rates associated with each category. For example, within the any intervention column, we see that 31 percent of the offenders were warehoused and 64 percent of these offenders were reconvicted within three years of release.⁷ In the same

⁷ A few points of clarification are in order regarding the warehousing rate of 31 percent. First, the warehousing rate reported here measures the absence of participation in any intervention. In contrast, the idle rate reported by the MnDOC measures offenders who are capable of working but have not been assigned, have been terminated from their assignments or have refused an assigned placement (Minnesota Department of Corrections, 2014). Second, the MnDOC's idle rate, which has recently ranged between 16 to 18 percent, is quite a bit lower than the warehousing rate of 31 percent. However, the idle rate is a one-day snapshot of the prison population, whereas the warehousing rate reported here looks at all offenders

column, the results show that 17 percent of the offenders participated in one intervention and the three-year reconviction rate was 61 percent. In general, as participation in correctional interventions increased, the recidivism rate decreased. Indeed, the rate drops to 57 percent for offenders participating in two interventions, 53 percent for those involved in three interventions, 47 percent for those who participated in four interventions and 43 percent for those involved in five or more.

Table 3. Descriptive Statistics and Recidivism Rates by Program Participation

<i>Number</i>	<i>Any Intervention</i>			<i>SRRI</i>			<i>URRI</i>		
	<u>Rate</u>	<u>N</u>	<u>% of Total</u>	<u>Rate</u>	<u>N</u>	<u>% of Total</u>	<u>Rate</u>	<u>N</u>	<u>% of Total</u>
0	0.642	17,084	0.307	0.627	28,594	0.514	0.625	22,277	0.400
1	0.614	9,319	0.167	0.559	17,033	0.306	0.555	12,161	0.218
2	0.570	8,365	0.150	0.438	6,118	0.110	0.524	9,432	0.169
3	0.533	7,306	0.131	0.323	3,275	0.059	0.503	5,465	0.098
4	0.466	5,375	0.097	0.299	531	0.010	0.500	2,710	0.049
5 or More	0.428	8,227	0.148	0.296	125	0.002	0.454	3,631	0.065
N		55,676			55,676			55,676	

SRRI = Successful Recidivism-Reduction Intervention

URRI = Unproven Recidivism-Reduction Intervention

When we look at participation in the 12 recidivism-reduction interventions, the SRRI column, we see that 49 percent of the offenders were involved in at least one of these programs. Notably, however, only 18 percent of offenders participated in two or more effective interventions. Again, we see recidivism rates decrease as involvement in SRRI's increase. The three-year rate for offenders who were involved in five or more SRRI's (30 percent) was less than half the rate for the offenders who did not participate in a single SRRI (63 percent).

released between 2003 and 2011. As we show later on, warehoused offenders are more likely to have shorter lengths of stay in prison, which results in a higher warehousing rate for a cohort of released prisoners than it would be for a one-day snapshot of the prison population.

Sixty percent of the offenders participated in the interventions that have yet to be evaluated or have not reduced recidivism.⁸ Moreover, nearly 40 percent of the offenders were involved in two or more of these interventions. As with the any intervention and SRRRI columns, the recidivism rate decreases as participation in the URRI's increases.

Propensity Score Matching

In addressing a number of questions relating to program participation and recidivism, we rely on propensity score matching (PSM) to develop counterfactual estimates of what would have likely happened to offenders in the various intervention groups we examined had they not participated in the intervention. PSM estimates the conditional probability of selection to a particular group given a vector of observed covariates (Rosenbaum & Rubin, 1985). The predicted probability of selection, or propensity score, is often generated by estimating a logistic regression model in which selection (0 = no selection; 1 = selection) is the dependent variable while the predictor variables consist of those that theoretically have an impact on the selection process. Once estimated, the propensity scores are then used to match individuals who participated in an intervention with those who did not. In matching offenders who entered an intervention with those who did not on the conditional probability of selection into the intervention, the main advantage with using PSM is that it can simultaneously “balance” multiple covariates on the basis of a single composite score.

Despite its growing popularity, PSM has several limitations that are worth mentioning. First, and foremost, because propensity scores are based on observed covariates, PSM cannot control for “hidden bias” from unmeasured variables that are

⁸ The 60 percent of offenders who participated in any URRI includes those who participated in SRRIs as well as those who did not.

associated with both the assignment to the intervention and the outcome variable (recidivism). Just as Bushway and Apel (2012) argued that participation in employment training is a “signal” that offenders are ready to desist from crime, participation in any prison-based program could be a signal that offenders are motivated to change. If unmeasured, this motivation cannot be captured using PSM. Second, in order for PSM to be effective, the treatment and comparison groups must have substantial overlap among propensity scores (Shadish, Cook & Campbell, 2002). If the overlap is insufficient, the matching process will yield incomplete or inexact matches. Finally, PSM is generally more effective with larger samples (Rubin, 1997).

The sample we used was quite large ($N = 55,656$), and we addressed the “hidden bias” limitation, to the extent we could, by including a lengthy list of theoretically-relevant covariates in our statistical models. Moreover, as shown later, we accounted for volunteerism, a proxy for motivation, by comparing recidivism outcomes between interventions in which participation was voluntary or mandatory/coercive. As discussed below, however, we encountered difficulties in achieving complete and exact matches for all of the 16 comparisons we examined.

For each of the 16 warehousing and program participation comparisons, we obtained propensity scores by estimating a logistic regression model in which the dependent variable was warehousing or participation in programming. The variables included in a propensity score estimation model should consist of those related to the outcome—even if it is a weak association—that affect treatment selection and are not caused by the treatment (Shadish et al., 2002). As such, we included all of the control variables in the propensity score models except for the covariates that would follow,

rather than precede, involvement in programming—release year and post-release supervision (e.g., intensive supervised release and discharge). For the five comparisons examining the effects of SRRI's on recidivism, we included a variable that measured the number of URRI's in which offenders had been involved. Conversely, for the five URRI comparisons, we included a variable in the propensity score models that measured the number of SRRI's in which offenders had participated.

Although we estimated propensity score models for each of the 16 comparisons, we focus on the results from the propensity score model analyzing warehousing selection in Table 4. Here, the findings indicate a number of factors significantly predicted which Minnesota prisoners were more, or less, likely to be warehoused. The odds of getting warehoused were significantly lower for offenders who had more felonies, were married, were committed from the Twin Cities metro area, were incarcerated for drug, DWI and “other” offenses, had a history of suicidal tendencies, and had greater STG (i.e., gang) involvement. Conversely, offenders were significantly more likely to get warehoused when they were male, American Indian, Asian, older, had more supervision failures, and had a greater specialization in property offenses. Probation or parole violator admissions to prison, which accounted for 62 percent of all prison admissions, significantly increased the odds of getting warehoused. Likewise, shorter confinement periods in prison were associated with much greater odds of being warehoused. Put differently, a one-month increase in confinement time reduced the odds of being warehoused by 27 percent.

To further illustrate the strong relationship between warehousing and brief confinement periods, the warehousing rate for offenders with a length of stay (LOS) of six months or less—who made up 47 percent of the total sample—was 59 percent. When

Table 4. Logistic Regression Model: Predicting Who Gets Warehoused

<i>Predictors</i>	<i>SE</i>	<i>Odds Ratio</i>
Male Offenders	0.039	1.620**
Race/Ethnicity		
African-American	0.029	1.045
American Indian	0.041	1.283**
Hispanic	0.066	1.084
Asian	0.100	1.329**
Age at Intake (years)	0.001	1.009**
Supervision Failures	0.009	1.051**
Total Convictions	0.003	1.000
Felony Convictions	0.007	0.979**
Felony Specialization/Diversity	0.069	1.046
Violent Convictions	0.008	1.002
Violent Specialization/Diversity	0.088	1.038
Drug Offense Convictions	0.012	1.011
Drug Specialization/Diversity	0.115	0.924
Property Convictions	0.005	1.005
Property Specialization/Diversity	0.089	0.736**
Married	0.045	0.518**
Metro Commit	0.025	0.800**
Admission Type		
Probation Violator	0.035	1.316**
Release Violator	0.037	1.272**
Offense Type		
Drugs	0.038	0.912*
Property	0.035	0.994
Felony DWI	0.079	0.589**
Other	0.039	0.897**
Length of Stay (LOS)	0.004	0.733**
Suicidal History	0.034	0.641**
Security Threat Group (STG)	0.008	0.978**
Prison misconduct	0.004	0.997
Constant	0.182	2.136**
-2 log likelihood	46139.896	
Nagelkerke R ²	0.469	
AUC	0.880	
N	55,656	

** $p < .01$

* $p < .05$

SE = standard error

AUC = area under the curve

we focus on those with a LOS of three months or less, which accounted for 21 percent of the sample, the warehousing rate was 73 percent. On the other hand, the warehousing rate was only 6 percent for offenders with a LOS greater than six months (53 percent of the

total sample) and 2 percent for those with a LOS of at least one year (33 percent of the sample).

After obtaining propensity scores for the 16 sets of comparisons, we matched offenders from the intervention and comparison groups using a without replacement method. To assess whether PSM was effective in reducing observable selection bias for each comparison, we used a metric (“Bias”) developed by Rosenbaum and Rubin (1985) that measures the amount of bias between the treatment and comparison samples (i.e., standardized mean difference between samples). If the bias value exceeds 20, the covariate is considered to be unbalanced (Rosenbaum & Rubin, 1985).

For each comparison, we attempted to match offenders from the intervention and comparison groups who had the closest propensity score (i.e., “nearest neighbor”) within a specified caliper (i.e., range of propensity scores). We used the following four calipers to match offenders for all 16 comparisons: .01, .05, .10, and .20. When we used the .01 caliper, none of the covariates had bias values greater than 20, but match rates for the 16 comparisons ranged from a low of 48 percent to a high of 92 percent. As we broadened the size of the caliper from .05 to .20, the match rate increased but so, too, did the number of unbalanced covariates. Even with a relatively broad caliper of .20, the warehousing comparison was the only one where we were able to obtain matches that were relatively complete and exact.

To avoid bias due to incomplete matching, we used nearest neighbor matching for the 15 remaining comparisons. In doing so, we obtained matches that, although nearly complete, were inexact due to a lack of covariate balance. As discussed below, we used both multiple logistic regression and Cox regression to assess the impact of warehousing

and programming participation on recidivism. In these statistical models, we included the variables that had been excluded from the propensity score models—release year, ISR, and discharge. However, to address the lack of covariate balance in the 15 comparisons, we also included the propensity score, which can be thought of as a single covariate that approximates adjusting for all of the covariates in the propensity score estimation models because it captures the distribution of these covariates (Austin, 2014).

Analytical Strategy

We used multiple logistic regression to evaluate the effects of warehousing and programming participation on recidivism. Consistent with existing research on recidivism (Durose, Cooper and Snyder, 2014; Langan and Levin, 2002), we used a fixed, three-year follow-up period. To provide a more robust assessment, however, we also used Cox regression, a multivariate survival analysis technique, because survival analysis models are designed to handle censored observations and, thus, can accommodate follow-up periods that vary in length. The follow-up period for our Cox regression analyses ranged from 3.5 to 12.5 years. Cox regression relies on time-dependent data, which are important in determining not only whether offenders recidivate but also when they recidivate. Cox regression uses both “time” and “status” variables in estimating the impact of the independent variables on recidivism. The “time” variable measures the amount of time (in days) from the date of release until the date of first reconviction or June 30, 2015, for those who did not recidivate. The “status” variable, meanwhile, measures whether an offender was reconvicted during the period in which he or she was at risk to recidivate.

To accurately measure the total amount of time offenders were actually at risk to reoffend (i.e., “street time”) in the Cox regression models, we accounted for supervised

release (i.e., parole) revocations in the recidivism analyses. Failure to deduct time spent in prison as a supervised release violator would artificially increase the length of the at-risk periods for these offenders. Therefore, to achieve a more accurate measurement of “street time”, the time an offender spent in prison as a supervised release violator was subtracted from his or her follow-up period, but only if it preceded a reoffense or if the offender did not recidivate prior to July 1, 2015.

Results

In Table 5, we present the results from the logistic and Cox regression models for the 16 comparisons. Due to the number of comparisons that were analyzed, we present only the odds and hazard ratios for the warehousing and correctional intervention measures. For each comparison, we also show the total sample size and the match rate, which ranged from a low of 96 percent to a high of 100 percent.

Insert Table 5 About Here

The results in Table 5 show that warehousing offenders significantly increased recidivism. In the logistic regression model, warehousing offenders increased the odds of reconviction within three years by 13 percent. Stated differently, the odds of reconviction were 11.5 percent lower for offenders who participated in any intervention in prison. In the Cox regression model, the reconviction hazard was 9.8 percent greater for offenders who did not participate in any interventions. Alternatively, the hazard was 8.9 percent lower for the offenders who were involved in at least one intervention.

The results further indicate that the impact of any intervention on recidivism was largely attributable to offenders who participated in multiple interventions, especially the SRRI's. For example, when we focus on any intervention, we see that participation in

either one or two interventions had no impact on reconviction. Although participating in three interventions did not significantly lower recidivism in the logistic regression model, it significantly reduced the hazard of reconviction in the Cox regression model.

Meanwhile, the results from both types of regression models indicate recidivism was significantly lower for offenders who participated in four interventions or five or more.

Table 5. The Effects of Warehousing and Correctional Interventions on Recidivism

<i>Interventions</i>	<i>Any Intervention</i>		<i>SRRI</i>		<i>URRI</i>	
	Logit <u>OR</u>	Cox <u>HR</u>	Logit <u>OR</u>	Cox <u>HR</u>	Logit <u>OR</u>	Cox <u>HR</u>
Warehousing	1.130**	1.098**				
N (Match Rate)	34,100 (0.998)					
One Intervention	1.005	1.048	0.882**	0.910**	0.994	0.984
N (Match Rate)	18,638 (1.000)		34,024 (0.999)		24,310 (1.000)	
Two Interventions	1.001	0.991	0.736**	0.830**	0.972	0.975
N (Match Rate)	16,730 (1.000)		12,218 (0.999)		18,792 (0.996)	
Three Interventions	0.939	0.942*	0.701**	0.819**	0.940	0.887
N (Match Rate)	14,612 (1.000)		6,536 (0.998)		10,880 (0.995)	
Four Interventions	0.883**	0.935**	0.694**	0.834*	0.918	0.958
N (Match Rate)	10,750 (1.000)		1,034 (0.974)		5,394 (0.995)	
Five or More Interventions	0.850**	0.899**	0.612	0.614*	0.938	0.946
N (Match Rate)	16,454 (1.000)		240 (0.960)		7,184 (0.989)	

SRRI = Successful Recidivism-Reduction Intervention

URRI = Unproven Recidivism-Reduction Intervention

OR = Odds Ratio

HR = Hazard Ratio

The results reveal a sharp difference between the SRRI's and URRI's. The URRI's had no impact on recidivism, and greater involvement in these interventions did not lead to a significant reduction in reoffending. On the other hand, we see that participation in one SRRI significantly lowered the odds of reconviction by 11.8 percent and the hazard by 9.0 percent. Moreover, involvement in two SRRI's significantly reduced the odds of recidivism by 26.4 percent and the hazard by 17.0 percent. Although participation in either three or four SRRI's significantly reduced recidivism in both the logistic and Cox

models, the magnitude of the reduction was not much different than that for the two intervention models. In the five or more SRRIs models, the odds ratio was 0.612 but it did not achieve significance at the .05 level ($p = .093$). The hazard ratio in the Cox model, however, was statistically significant, indicating the risk of time to reconviction was 38.6 percent lower for offenders who participated in five or more SRRIs.⁹

Among the 23 interventions we examined, participation was voluntary for 14 of the programs. Are the findings presented in Table 5, particularly the positive results for SRRIs, an artifact of the impact that volunteerism and, by extension, a motivation to change has on recidivism? To investigate this possibility, we created eight additional measures that further distinguished the SRRIs and URRIs on the basis of whether participation in the interventions was voluntary or mandatory/coercive. After estimating propensity score models for each of the eight comparisons, we used nearest-neighbor matching to match offenders in the comparison and intervention groups.

As shown in Table 6, which presents the results from the logit and Cox regression models, the findings are similar for both types of program participation.¹⁰ Just as participation in either one or two or more voluntary SRRIs significantly reduced recidivism, the same was true for the mandatory/coercive SRRIs. Likewise, neither the voluntary nor the mandatory/coercive URRIs had a significant effect on reoffending in

⁹ We assessed the robustness of the reconviction findings by estimating Cox and logistic regression models on the 16 comparisons using rearrest as the recidivism measure. Among the 32 models we estimated, the results were slightly different in only two of the models. Whereas the effect for SRRIs was statistically significant in the four intervention logit model for reconviction, it was not significant for rearrest ($p = .08$). On the other hand, although the effect for SRRIs was not statistically significant in the five or more intervention logit model for reconviction, it was statistically significant for rearrest. Other than these two differences, however, the results for rearrest and reconviction were virtually indistinguishable from each other.

¹⁰ As the data in Table 6 suggest, offenders who participated in only one intervention or two or more interventions were more likely to be involved in voluntary programming.

Table 6. The Effects of Type of Program Participation on Recidivism

<i>Interventions</i>	<i>Mandatory/Coercive</i>		<i>Voluntary</i>	
	Logit <u>OR</u>	Cox <u>HR</u>	Logit <u>OR</u>	Cox <u>HR</u>
<u>SRR</u>				
One Intervention	0.802**	0.871**	0.869**	0.897**
N (Match Rate)		15,794 (1.000)		37,226 (0.946)
Two or More Interventions	0.797**	0.818*	0.672**	0.738**
N (Match Rate)		1,738 (1.000)		10,038 (0.843)
<u>URR</u>				
One Intervention	0.995	0.990	0.996	0.974
N (Match Rate)		42,638 (0.999)		23,906 (0.991)
Two or More Interventions	0.760	0.865	0.993	0.964
N (Match Rate)		648 (1.000)		29,152 (0.979)

SRR = Successful Recidivism-Reduction Intervention

URR = Unproven Recidivism-Reduction Intervention

OR = Odds Ratio

HR = Hazard Ratio

either the one intervention or two or more intervention models. Although much is often made about the impact of program volunteerism on recidivism outcomes, our results suggest that voluntary programs were no more effective (or ineffective) than those which were mandatory or coercive. These findings are consistent, therefore, with evidence from the substance abuse and sex offender treatment literatures, which has shown that mandatory interventions can be just as effective as voluntary programming (Anglin, Brecht, and Maddahian, 1989; Grady, Edwards, Pettus-Davis, and Abramson, 2012; Knight, Hiller, Broome, and Simpson, 2000; McSweeney, Stevens, Hunt, and Turnbull, 2007; Mitchell, Wilson, and MacKenzie, 2007).

The Math of System-Wide Recidivism Reduction

The results suggest that warehousing prisoners increases recidivism, while providing them with access to multiple interventions, especially those with a track record of success, can significantly reduce it. In addition to being largely consistent with the “what works” literature, these findings appear promising. After all, the results suggest that prison systems may be able to reduce recidivism rates by offering more

programming—namely, recidivism-reduction interventions—to offenders. If prison systems were able to increase their programming capacity, to what extent would it affect the overall recidivism rate?

Recent MnDOC data indicate there are, on average, nearly 8,000 releases from prison each year (Minnesota Department of Corrections, 2016). Let us assume that, consistent with the results presented here, 56 percent (N = 4,480) of these offenders would be reconvicted within three years and that 49 percent (N = 3,920) participated in at least one effective intervention. Among the 4,080 not involved in SRRI's, a 56 percent reconviction rate would result in 2,285 recidivists. If participation in one SRRI reduces the odds of reconviction by 11.8 percent, then providing these offenders with access to one SRRI would result in 270 fewer recidivists. Therefore, among all 8,000 releases, there would be 4,210 recidivists rather than 4,480. This would yield a reconviction rate of 52.6 percent, which amounts to a drop of 3.4 percentage points and a reduction of 6.1 percent. Likewise, providing these offenders with access to two SRRIs, which lowers the odds of recidivism by 26.4 percent, would drop the estimated overall rate to 48.5 percent, a 13.5 percent reduction.

Providing at least one SRRI to every offender prior to release to achieve a 3.4 percentage point reduction may strike some as underwhelming, which prompts us to offer two general observations. First, although the presence or absence of institutional programming can affect recidivism, its influence on aggregate levels of reoffending may be relatively modest. Perhaps it is worth remembering that the strongest predictor of recidivism is an offender's criminal history (Caudy, Durso, and Taxman, 2013; Durose, Cooper and Snyder, 2014; Wang, Hay, Todak, and Bales, 2014). Prior to arriving in

prison, an inmate's criminal history is affected not only by individual-level characteristics (e.g., gender, race/ethnicity, age, etc.), but also by community-level factors. The neighborhoods from which prisoners come (and to which they typically return following their release from prison) are often marked by a lack of collective efficacy, diminished access to powerful social, economic and political institutional resources, and concentrated disadvantage (Clear, 2007; Massoglia, Firebaugh, and Warner, 2013; Rose and Clear, 1998; Visher, La Vigne, and Travis, 2004). In addition to having lower rates of educational attainment and higher rates of poverty and unemployment, disadvantaged communities are typically afflicted by higher rates of reported crime (Peterson, Krivo, and Harris, 2000; Sampson, Raudenbush, and Earls, 1997), which can, in turn, trigger more aggressive policing strategies (Kane, 2005; Terrill and Reisig, 2003).

None of this is to say that prisons are inconsequential when it comes to having an impact on offender post-release behavior. Still, because prison is but one part of the criminal justice system or, even more broadly, society in general, it is possible that its influence on recidivism is neither as criminogenic nor as beneficial as some have claimed, which brings us to our second observation. Achieving a relatively large recidivism reduction on a system-wide basis (e.g., a state reducing its rate from, say, 50 percent to 40 percent) is, we argue, likely more difficult than what may be commonly believed. As state-level prisoner recidivism has attracted more attention over the last decade, various reports have highlighted the efforts by states to reduce their prisoner recidivism rates (see, for example, the Pew Center on the States, 2011; or Lerer and Stahly-Butts, 2013). Despite not directly examining why rates appear to have decreased

in some states, reports such as these suggest state-level reductions have been linked to broad reform strategies aimed mostly at improving correctional policy and practice.¹¹

While a greater emphasis on the implementation of evidence-based practices such as the use of validated risk and needs assessments, prioritizing high-risk offenders for programming, or the use of case planning is clearly important, their usefulness ultimately hinges on being able to provide offenders with programming. But what is often missing from these broad, policy-level discussions about state-level reductions in recidivism is a focus on the degree to which offenders are participating in programming. That is, the extent to which prisoners are warehoused is seldom, if ever, mentioned. More to the point, there has been very little, if any, discussion about expanding the availability of programming and how much of an expansion would be needed to drive down the recidivism rate. In short, program quality matters, but so does the quantity of programming provided.

In the absence of an increase in programming resources, our findings suggest a sharp reduction in the size of the prison population would be needed to eliminate the warehousing of prisoners. Alternatively, the results further suggest if more resources were available, then programming capacity would need to increase considerably in order

¹¹ In addition to providing what is arguably an overly optimistic perspective on the viability of significantly changing system-wide recidivism rates, the Pew Center on the States (2011) report contains inaccurate recidivism data, at least for Minnesota. For example, the report indicates 61 percent of Minnesota prisoners released in 2004 returned to prison within three years. Using our dataset, which includes all offenders released from Minnesota prisons in 2004, we see that 52 percent returned to prison within three years. The Pew report states that 36 percent of Minnesota prisoners released in 2004 returned to prison within three years for a new crime and that another 26 percent returned for a technical violation. The MnDOC data show, however, that 25 percent returned to prison for a new felony and 38 percent returned for a technical violation. Because 11 percent came back to prison more than once during the three-year follow-up period for both a new felony and a technical violation, the overall return to prison rate was 52 percent. It is unclear whether the errors in the Pew (2011) report apply only to Minnesota or whether the rate data for other states are inaccurate, too.

to move the needle much in reducing recidivism on a system-wide basis. To be sure, the needle would move even more if a greater number of offenders participated in multiple effective interventions. However, it is worth emphasizing that many of the offenders who did not participate in effective programs, particularly those who were warehoused, would likely not have enough time in prison to participate in multiple interventions.¹² Because 85 percent of the warehoused offenders were either probation or parole violators, their average stay in prison was a little more than four months. Still, the average length of stay for the 31 percent who were involved in only one effective intervention was nearly 16 months, which would allow sufficient time for participation in multiple effective interventions.

Conclusion

Aside from not being able to determine whether prison is criminogenic, the primary limitation with this study is that our sample was confined to prisoners from one state, which may temper the generalizability of the findings. Minnesota has long had a lower imprisonment rate than most states, as evidenced, most recently, by 2014 data showing the state had the fourth-lowest rate (Carson, 2015). With one of the lower imprisonment rates in the country, Minnesota may be able to provide programming to a higher percentage of its prisoners than most other states, resulting in a relatively low warehousing rate. Whether this is actually true, however, is debatable due to the virtual absence of prior research or recently published data from other states on the extent to

¹² Along with limited funding and brief stays in prison, the availability of physical space within correctional facilities would likely be another constraint to providing effective interventions to all offenders. While the physical space needs tend to vary by the type of program, most programs need space for classrooms (for the delivery of program services) and offices (for staff). The lack of available programming space may be due, in part, to correctional facilities that were designed and constructed, often decades ago, to meet the needs of punishment and security rather than rehabilitation. But part of it may also be due to facilities that are operating at, or above, their bed space capacities.

which programming is provided and prisoners are warehoused.¹³ In addition, we did not account for the potential impact of post-prison factors such as community-based programming, employment and housing on recidivism, and we used a somewhat simplistic measure of program participation (i.e., number of programs in which offenders participated) that did not quantify the quality of the programming or the total number of hours in which offenders were involved in programming.

Even with these limitations, we believe the findings from this study hold several broad implications for correctional research, policy and practice. By looking inside the “black box” of prison, the results may help explain why some previous research has found prisons to be criminogenic. Warehousing prisoners increases recidivism risk, and many prisoners in the U.S. are warehoused. While offenders are imprisoned, they can engage in behavior that either decreases or increases their recidivism risk. Participation in SRRI’s mitigates recidivism risk, as we have seen here, and the available evidence suggests involvement in programming may be associated with reduced prison misconduct (French and Gendreau, 2006). On the other hand, idle offenders are typically placed in living units with other idle offenders, at least within Minnesota’s prison system. Rather than creating a therapeutic community commonly associated with various correctional interventions, the concentration of idle offenders may foster a criminogenic community. Moreover, disciplinary infractions have been found, both here and elsewhere (Duwe,

¹³ In addition to temporal differences, any comparison made between our findings and the estimates reported earlier (Austin, 2001; Lynch and Sabol, 2001) is confounded by variations in how programming is being defined and the type of prison population being studied. Rather than focusing on prison labor and vocational and educational programming, we used a relatively broad definition of institutional programming. Moreover, in contrast to prior estimates, which have been based on one-day snapshot populations, we looked at a sample of released prisoners. Given the findings presented here, we anticipate the warehousing rate would be higher for a sample of released prisoners compared to a snapshot of the prison population due to the increased “churn” observed for shorter-stay offenders such as probation and release violators.

2014c), to exacerbate recidivism risk. If idleness promotes more opportunities for prison misconduct as well as other recidivism-risk escalation behavior, such as STG (i.e., gang) involvement or increased contact with heavily anti-social peers, the finding that warehousing increases recidivism should come as little surprise.

The evidence suggests that prison can potentially reduce crime, either through an incapacitation effect or by lowering recidivism through the delivery of effective programming. Yet, consistent with research suggesting that one of the effects of mass incarceration may be an increase in crime (Rose and Clear, 1998), primarily within disadvantaged communities, these potential crime-reduction benefits may have been stymied by the meteoric rise in prison populations over the last several decades. As prison populations expand, not only are less serious offenders more likely to be imprisoned—which leads to progressively smaller crime-reduction benefits (Spelman, 2009; Sweeten and Apel, 2007)—but prisoners may also be more likely to get warehoused. The available data suggest that, during the zenith of the mass incarceration era, the availability of programming resources may not have kept pace with the growth of prison populations (Lynch and Sabol, 2001; Mumola, 1999). Given that many states have grappled with tight budgets and limited bed space capacity, expanding the delivery of programming to a growing number of prisoners has seldom been seen as a viable option. Rather, the most urgent priority for many corrections agencies has simply been to find beds for the influx of offenders (re)entering their prison systems.

The recidivism rates reported in several large studies—most notably, those by the Bureau of Justice Statistics (BJS) (Durose, Cooper and Snyder, 2014; Langan and Levin, 2002)—have frequently been adduced as evidence that prison systems have failed and are

clearly broken (Altman, 2015; Gingrich and Jones, 2014; Larson, 2013). But if rehabilitation or, more narrowly, recidivism reduction is one of the preeminent goals of state and federal prison systems, we suggest it may be necessary to rethink how prisons are used in the U.S. Rather than being designed to prevent recidivism, sentencing and correctional systems in the U.S. are generally set up to punish offenders. The goals of punishment and rehabilitation may not be completely incompatible, but the heavy emphasis placed on punishment—often at the expense of rehabilitation—may hinder efforts to lower recidivism.

Historically, punitive approaches within corrections, which run the gamut from the Auburn system in the nineteenth century to Scared Straight and shock incarceration in the twentieth century, have seldom achieved favorable outcomes. We see that here, too, with the finding that not only does warehousing increase recidivism, but that warehoused prisoners are typically serving a brief stint in prison for a probation or parole revocation. Having violated their conditions of supervision, these offenders are often revoked in the interest of public safety. Any public safety benefits resulting from the revocation of these offenders, however, would stem only from an incapacitation effect. Given that few participate in any programming during their time in prison, the revocation of probation and parole violators generally serves just one goal—punishment.

Implications for Correctional Policy and Practice

To mitigate the potential criminogenic effects of prison, we propose that prison systems should make efforts to reduce, if not eliminate, the warehousing of prisoners. Our results call into question policies about revoking offenders on probation and parole

and then sending them to prison for short periods of time to be warehoused.¹⁴ Of the offenders in our sample who were warehoused, 85 percent were probation or parole violators. Moreover, 90 percent of these offenders had a confinement period less than six months. When we consider parole violators, who made up half of the warehoused offenders, relatively few participated in interventions outside of prison visitation and, to a lesser extent, educational programming. Even with prison visitation, however, we see that 72 percent of the parole violators were not visited, which is higher than the 52 percent rate observed for the rest of the sample.

We anticipate that most correctional systems have room for improvement when it comes to delivering programming to shorter-term offenders. Still, it should be noted there are logistical challenges involved with providing effective programming, which generally lasts at least three months (e.g., Latessa, Lovins, and Smith, 2010; Lowenkamp, 2004), to offenders who are confined for periods of time not much longer that. To be sure, there are offenders who, due to the severity of their supervision violation(s) and/or their prior history under supervision, should be revoked in the interest of public safety. For these more serious “technical violators”, we propose the confinement time in prison should be sufficient to enable participation in recidivism-reduction programming.¹⁵

¹⁴ As noted earlier, 62 percent of the 55,656 releases from prison in our study had been admitted to prison most recently as a probation or parole violator. This rate is consistent not only with older data on the percentage of probation and parole violators among all prison admissions for states like Ohio, Oregon and California (Parent, Wentworth, Burke, and Ney, 1994), but also with more recent data from states such as Utah (Office of the Utah Legislative Auditor General, 2013) and Missouri (Missouri Working Group on Sentencing and Corrections, 2011).

¹⁵ One might be tempted to conclude that because longer confinement periods are associated with greater involvement in programming, which is, in turn, linked with reduced recidivism, we are recommending an across-the-board increase in lengths of imprisonment. On the contrary, if U.S. sentencing and correctional policies were rooted more in rehabilitation than in just deserts, we suspect that imprisonment periods would be longer for the short-stay offenders and shorter for those with lengthy sentences. For example, let us assume we have an offender with a 10-year imprisonment period. Given that it would likely take, at most, several years for this offender to participate in multiple effective interventions in prison, the balance of this prisoner’s confinement time would only be serving the goals of punishment and perhaps incapacitation.

Yet, for those revoked for shorter durations due to less serious violations and/or supervision histories, we suggest it may be more prudent for these offenders to remain in the community wherein they would be subject to more graduated local sanctions. After all, as our results suggest, warehousing the short-stay probation and parole violators increases, rather than decreases, their likelihood of recidivism. Raising the bar for revocations would limit the number of probation and parole violator admissions to prison, which would, in turn, lower reimprisonment rates (due to fewer parole revocations) and help curb prison population growth. If more probation and parole violators were to remain in the community, however, then more community-based programming resources would likely be needed to maximize the effectiveness of this decarceration strategy.

Reducing the warehousing rate has implications for improving recidivism outcomes for prisoners but, as our results suggest, it is not just about increasing access to programming. Rather, what is truly important for recidivism outcomes is providing prisoners with access to effective programming. Indeed, from a recidivism reduction perspective, participating in a single SRRI is better than participating in multiple URRIs. Still, a little less than half (49 percent) of the offenders participated in any SRRI. When prison visitation is excluded, however, the rate dropped to 23 percent. Participation in multiple SRRI's yielded the best recidivism outcomes, but we found that only 18 percent of the offenders were involved in two or more SRRIs, including prison visitation.

Despite the emphasis that should be placed on SRRIs, we are not arguing that URRIs are devoid of value. On the contrary, there are interventions that can achieve

Therefore, we anticipate that even relatively modest decreases in the confinement periods of prisoners with longer sentences would not unduly limit participation in programming and, thus, would likely have a negligible impact on public safety. Just as important, trimming the confinement periods for prisoners with longer sentences would help reduce the size of the prison population and, by extension, correctional costs.

positive results for other outcomes, such as prison misconduct, post-release employment or cost avoidance. Take, for example, earning a secondary degree in prison. Contrary to what other research has generally found (Davis, Bozick, Steele, Saunders, and Miles, 2013), results from a prior study (Duwe and Clark, 2014), as well as this one, indicate that obtaining a secondary degree in prison does not reduce reoffending for Minnesota prisoners. Even so, a secondary degree improves the odds of landing a job following release from prison (Duwe and Clark, 2014), has generated promising cost avoidance outcomes (Duwe, 2013b), and is a prerequisite for holding a job in prison and advancing to post-secondary educational training, which is associated with better recidivism outcomes for Minnesota prisoners (Duwe and Clark, 2014).

The evidence from the “what works” literature suggests, on the whole, that providing prisoners with correctional programming can yield better outcomes relating to prison misconduct, post-prison employment, recidivism and cost avoidance.

Warehousing prisoners, on the other hand, exacerbates public safety by increasing recidivism. Moreover, it may not only compromise the safety of correctional institutions by increasing misconduct, but it may also result in more unemployment for prisoners after their release from prison (Duwe and Clark, forthcoming). Although warehousing may appear to be a more frugal approach, it may be more costly in the long run.

Implications for Correctional Research

Although URRI’s can produce positive results for other outcomes beside recidivism, it is nevertheless important for prison systems to know whether the interventions they provide to offenders are successful in reducing recidivism. Meta-analyses can be helpful in determining whether to implement a promising intervention or

deciding what type of, say, cognitive-behavioral intervention to use (see, for example, Aos and Drake, 2013). But simply implementing an “evidence-based” intervention does not mean a prison system has, ipso facto, reduced recidivism. As the literature indicates, program integrity is also critical (Lowenkamp, Latessa, and Smith, 2006; Nesovic, 2003), and we see this among Minnesota prisoners with the cognitive-behavioral interventions provided to male (Thinking for a Change) and female (Moving On) offenders (Duwe and Clark, 2015). Program quality assessments, such as the Correctional Program Checklist (CPC) or the Correctional Program Assessment Inventory (CPAI), are useful in helping determine whether interventions have been implemented with fidelity. Nevertheless, when prison systems determine whether the interventions they offer are truly effective, neither meta-analyses nor program quality assessments are adequate substitutes for rigorous outcome evaluations.

In calling for more program evaluation research, particularly on a system-wide basis, we suspect this may be akin to putting the cart before the horse. If the Minnesota experience is generalizable to any degree, then the greatest obstacle to overcome may simply be to record and maintain data in a centralized location on all programming provided to offenders. Recall, for example, that data on nearly half of the interventions we analyzed were maintained in a variety of different locations, which complicated our data collection efforts. Therefore, prior to conducting system-wide program evaluation research, correctional agencies must first track all of the programming they provide, preferably in a centralized database.

While upgrading the data reporting capabilities for institutional programming may entail some cost (in terms of both time and money) for correctional agencies, we

anticipate it would be far outweighed by the benefits that can accrue from an aggregate, system-wide analysis of prison programming. Currently, many prison systems assess their performance through metrics such as the annual number of prisoner escapes, staff training hours, recidivism or, more recently, use of solitary confinement. The warehousing rate among released prisoners should, we argue, also be used to assess performance. Moreover, given the results presented here, we suggest prison systems should consider additional performance metrics such as the proportion of programming offered that successfully reduces recidivism, the percentage of offenders that receive SRRI's, and the aggregate effect of interventions on reoffending.

Amid the growing consensus from the “what works” literature that there are effective correctional programs, a more specific question has arisen—what works best for whom and under what circumstances? We suggest that broader, aggregate-level research on correctional programming can help address this question. While part of our analyses focused on the number of interventions in which offenders participated, which may be a rough proxy for treatment dosage, future research should continue to look more closely at the relationship between programming dosage and recidivism outcomes. Moreover, future studies should examine whether the timing of program delivery affects recidivism outcomes. Does providing prisoners with programming closer to their release yield better outcomes than interventions delivered earlier during an offender's confinement period? Likewise, for those who participate in multiple interventions, do certain combinations of interventions yield better recidivism outcomes? Future research should therefore analyze the relationship between recidivism and the sequencing of programming provided to offenders.

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