February 2012

Prisoner Reentry Services: What Worked for SVORI Evaluation Participants?

Final Report

Prepared for

National Institute of Justice
810 7th Street NW
Washington, DC 20531

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NIJ Grant Number 2009-IJ-CX-0010
RTI Project Number 0212318

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ACKNOWLEDGMENTS

"Prisoner Reentry Services: What Worked for SVORI Evaluation Participants" was supported by grant number 2009-IJ-CX-0010 from the National Institute of Justice (U.S. Department of Justice) and was conducted by RTI International. Points of view are those of the authors and do not necessarily represent those of the U.S. Department of Justice.

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We also acknowledge the contributions of RTI and the Urban Institute staff, who contributed to the original Multi-site Evaluation of the Serious and Violent Offender Reentry Initiative (SVORI; NIJ Grant Number 2004-RE-CX-002) by documenting implementation and programming across the sites, facilitating data collection for the impact study, and collecting the data for the original evaluation. Continued appreciation is also extended to the SVORI program directors, other program and research staff at the SVORI sites, staff at the facilities where interviews were conducted during the original data collection, and the evaluation participants who completed interviews. The support and advice of the National Institute of Justice and our NIJ grant managers for the original SVORI grants and the current grant are also gratefully acknowledged.

ABSTRACT

STATEMENT OF PURPOSE

This report presents the results from a secondary analysis of data collected for a large multi-site evaluation of state and local reentry initiatives, the Serious and Violent Offender Reentry Initiative (SVORI; see, e.g., Lattimore & Visher, 2009). These data include administrative recidivism data, as well as extensive, detailed information on background characteristics, including criminal and employment history and substance use; treatment and service needs; services and program receipt; and outcomes across multiple domains, including criminal justice, employment, health (including substance use and mental health), and housing. The original data were augmented with updates from administrative records for arrests and incarcerations and used to examine the questions of "what works, for whom, and for how long?" in prisoner reentry programs. In addition, a search of death records identified 55 individuals who participated in the original evaluation who had died as of spring 2011.

RESEARCH SUBJECTS

This report presents findings for more than 2,300 adult males, adult females, and juvenile males in multiple states who either participated in SVORI programs or were members of control or comparison groups between 2004 and 2007. The study participants had extensive criminal and substance use histories, low levels of education and employment skills, and high levels of need across a range of services (e.g., education, driver's license, substance abuse treatment, and job training). Participants in SVORI programs received more services, on average, than comparison subjects.

STUDY METHODS

The original data were collected during interviews 30 days before and 3, 9, and 15 months after release. Data from state agencies and the National Crime Information Center documented post-release recidivism; the original data were augmented with additional years of post-release arrest and reincarceration data for adult subjects. Propensity score techniques were used to improve the comparability between the SVORI and non-SVORI groups. Weighted analyses examined the treatment effects of the receipt of specific services, as well as SVORI program participation. Costs analyses examined the costs savings for arrest and incarceration related expenses associated with services and reentry program participation.

MAJOR FINDINGS

The results suggest:

- Participation in SVORI programs was associated with longer times to arrest and fewer arrests after release for all three demographic groups during a minimum follow-up period of 56 months for the adults and 22 months for the juvenile males.
- For the adult males, SVORI program participation was associated with a longer time to reincarceration and also fewer reincarcerations, although the later result was not statistically significant ($p = 0.18$). For the adult females, the results were mixed and not significant. For the juvenile males, the results for reincarceration were in the right direction (i.e., less likelihood of reincarceration) but were not statistically significant.

- Individual change services were more likely to be beneficial and practical services detrimental with respect to the time to first arrest for the adult and juvenile male samples. Few effects were significant for the adult females.
- Once we controlled for 12 different types of services, there was a strong remaining effect of SVORI program participation on rearrest that was not identified in the previous work that had focused on a shorter follow-up period.
- SVORI program participation was associated with a $3,567 reduction in arrest-related costs over the fixed follow-up period for the adult males.
- Services oriented towards practical needs including reentry preparation, life skills programs, and employment services did not improve post-release non-recidivism outcomes for men, including housing, employment, and drug use outcomes. In some cases, these services appeared to be detrimental to successful reintegration.
- Services oriented toward individual change including substance abuse treatment, cognitive-focused programs, and education (e.g., general equivalency diploma [GED] classes) may have modest beneficial effects on non-recidivism outcomes. Educational services were most consistently associated with positive outcomes for the adult males.
- SVORI reentry program participation was associated with positive non-recidivism outcomes in some cases, over and beyond the effects of individual service items, particularly for the adult male sample.

CONCLUSIONS

Many of the specific services had no effect on housing, employment, substance use, or recidivism outcomes and in some cases the effect was actually deleterious rather than beneficial. There were significant effects of SVORI program participation on arrests following release, with SVORI program participation associated with a 14% reduction in arrests for the adult men, 48% reduction for the adult females, and 25% reduction for the juvenile males over the fixed follow-up periods. The results suggest the need for additional research into the sequencing and effects of specific and combinations of reentry services, with an understanding that some programs may be harmful if delivered at the wrong time or in the wrong way. The results also suggest that follow-up periods longer than 2 years may be necessary to observe positive effects on criminal behavior and criminal justice system interaction, as the strong effects observed at 56 months were not observed at 24 months after release when non-significant positive effects were observed. Observation for the longer follow-up periods may be particularly important for high-risk populations such as the populations studied here who had substantial criminal histories and who may have greater difficulty disengaging from past behaviors at release.

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EXECUTIVE SUMMARY

Identifying programs and services that improve the criminal justice outcomes of released prisoners is an important objective if the United States is to reduce the $40 billion annually devoted by state governments to corrections without compromising public safety. This report presents the results from a secondary analysis of data collected for a large multi-site evaluation of state and local reentry initiatives, the Serious and Violent Offender Reentry Initiative (SVORI; see, e.g., Lattimore & Visher, 2009; Lattimore, Visher, Winterfield, Lindquist, & Brumbaugh, 2005; Lattimore, Steffey, & Visher, 2010; Lattimore, Visher, & Steffey, 2011). These data include extensive, detailed information on background characteristics, including criminal and employment history and substance use; treatment and service needs; services and program receipt; and outcomes across multiple domains, including criminal justice, employment, health (including substance use and mental health), and housing. These interview data were augmented by administrative records for arrests and incarcerations that were updated for the current study and provide a minimum of 56 months of post-release recidivism information. The data were analyzed to examine the questions of "what works, for whom, for how long, and at what cost?" in prisoner reentry programs. In addition, a search of death records identified 55 individuals who participated in the original evaluation who had died as of spring 2011.

STATEMENT OF THE PROBLEM

Identifying programs and services that improve the criminal justice outcomes of released prisoners is an important objective if the United States is to reduce the $40 billion annually devoted by state governments to corrections without compromising public safety.

RESEARCH DESIGN

The analysis samples included 1,618 adult males, 348 adult females, and 337 juvenile males from 11 adult and 4 juvenile sites included in the original Multi-site Evaluation of SVORI. (79 adult males and 9 adult females from one of the original sites are omitted from the current analyses because the research agreement with this site precluded obtaining additional recidivism data for these subjects.) These evaluation participants included individuals selected for participation in local SVORI programs and comparison subjects who did not participate in SVORI programs but who had characteristics similar to those of program participants (e.g., offense type, time served). The study participants had extensive criminal and substance use histories, low levels of education and employment skills, and high levels of need across a range of services (e.g., education, driver's license, substance abuse treatment, and job training).

The original data included data collected during interviews 30 days before release and 3, 9, and 15 months after release. Data from state agencies and the National Crime Information Center (NCIC) documented post-release recidivism. These original data were augmented with additional years of post-release NCIC arrest and reincarceration data for adult subjects.

The approach to the current analyses was to estimate multivariate models that included indicators of self-reported receipt of 12 pre-release services, as well as participation in a SVORI reentry program. We focused on 12 pre-release services that have been identified in the literature as important either for a reentry program or for success after release:

1. ***CaseMgr***: Did individuals meet with a specific person who talked with them about issues or needs they had, tried to get them into services or programs, helped them get benefits or assistance, and monitored their progress?
2. ***Needs***: Did the individual have a needs assessment *or* a needs assessment specifically to help prepare for release?
3. ***RPlan***: Did the individual have a reentry plan *or* work with anyone to prepare for release?
4. ***RPrgm***: Did the individual participate in any programs *or* classes designed to help prepare for release?
5. ***LifeSk***: Did the individual receive assistance with any life skills?
6. ***EmplSer***: Did the individual receive any pre-release employment services or assistance directed at helping him/her find a job following release?
7. ***MHtx***: Did the individual receive mental health treatment or health care for emotional problems?
8. ***AODtx***: Did the individual receive any drug or alcohol treatment, including Alcoholics Anonymous or Narcotics Anonymous groups and drug education classes?
9. ***PersRel***: Did the individual receive assistance with working on personal relationships?
10. ***CrimAtt***: Did the individual receive training on how to change attitudes related to criminal behavior?
11. ***AngrMgt***: Did the individual participate in any anger management programs?
12. ***Educ***: Did the individual receive any educational services, such as general equivalency diploma (GED) or basic education classes?

We also combined these items into two service bundle scores—the practical services bundle (**PSB**), comprising ***CaseMgr***, ***Needs***, ***RPlan***, ***RPrgm***, ***LifeSk***, and ***EmplSrv***, and the individual change service bundle (**ICSB**), comprising ***MHtx***, ***AODtx***, ***PersRel***, ***CrimAtt***, ***AngrMgt***, and ***Educ***, so that we could examine whether receipt of more items within these bundles was associated with better outcomes. The bundle scores were constructed by summing the number of service items in each bundle received by each individual. We also included a **SVORI** program participation indicator in the models to capture any residual effects of SVORI program participation.

The multivariate models included weights developed from propensity score models that estimated the likelihood of SVORI program participation as a function of individual characteristics to control for observed differences between SVORI and non-SVORI comparison groups. In addition, the multivariate models included a rich set of individual characteristics (demographics, criminal history, employment history, substance use and mental health) and site indicators as control variables. Logistic regression was used to model binary outcomes; survival models and count models were used to model time to arrest and incarceration and numbers of arrests and incarcerations after release. Separate models were estimated for adult males, adult females, and juvenile males. Weighted analyses examined the treatment effects of the receipt of specific services, as well as SVORI program participation. Costs analyses examined the costs savings for arrest- and incarceration-related expenses associated with services and reentry program participation.

FINDINGS

Exhibit ES-1 shows the outcomes from the interview data that were investigated in this study. As can be seen, most of the adults were "housing independent" at each interview wave, and less than 30% of each group reported housing challenges (the percentages were less for the adult and juvenile males than the adult females). The adult males were more likely than the adult females, who were more likely than the juvenile males, to report supporting themselves with a job before the interview. Among those working, few had worked each month in the prior period, most were working for formal pay, and less than half were working at a job that provided either health insurance or paid leave. Overall, victimization increased over time for all three groups. Compliance with conditions of supervision declined over time, as more individuals reported that they had failed to comply with at least one

condition of supervision. The percentage reporting committing any crimes before the interview increased from about 25% or less at the 3-month interview to about 40% for the adult and juvenile males and about 30% for the adult females at the 9-month interview. These percentages stayed about the same for the adult males at the 15-month interview, but increased slightly, to about 33%, for the adult females. Finally, drug use (a combined measure of any self report, any positive urinalysis test, or refusal to consent to a test) was quite high, ranging from 40% to 50% depending upon demographic group at 3 months after release to about 60% at 15 months after release.

Exhibit ES-1. Outcomes from survey data for adult males, adult females, and juvenile males

Outcome	Description	Adult Males			Adult Females			Juvenile Males		
		N	Mean	SE	N	Mean	SE	N	Mean	SE
Housing										
HouInd3	Housing independence at 3-month interview in 3 months since release (1 = independent, 0 = dependent)	984	0.708	0.015	244	0.671	0.032	236	0.271	0.030
HouInd9	Housing independence since last interview (last 6 months) (1 = independent, 0 = dependent)	1035	0.792	0.013	253	0.747	0.029	239	0.396	0.034
HouInd15	Housing independence since last interview (last 6 months) (1 = independent, 0 = dependent)	1113	0.712	0.014	276	0.716	0.029	248	0.409	0.034
HouChal3	Housing challenges at 3-month interview in 3 months since release (1 = challenges, 0 = no challenges)	984	0.173	0.012	244	0.205	0.027	236	0.101	0.021
HouChal9	Housing challenges since last interview (last 6 months) (1 = challenges, 0 = no challenges)	999	0.176	0.012	249	0.285	0.030	230	0.089	0.020
HouChal15	Housing challenges since last interview (last 6 months) (1 = challenges, 0 = no challenges)	971	0.219	0.014	254	0.235	0.028	230	0.100	0.023
Employment										
EMP3	Currently supports self with job at 3-month interview (1 = Yes, 0 = No)	980	0.619	0.016	244	0.511	0.034	236	0.360	0.034
EMP9	Currently supports self with job at 9-month interview (1 = Yes, 0 = No)	981	0.682	0.015	242	0.586	0.034	230	0.352	0.034
EMP15	Currently supports self with job at 15-month interview (1 = Yes, 0 = No)	921	0.660	0.016	247	0.567	0.033	227	0.480	0.037
StblEmp3	Worked at least 1 day each month in 3 months since release (1 = Yes, 0 = No)	733	0.382	0.018	151	0.280	0.039	123	0.203	0.039
StblEmp9	Worked at least 1 day each month since the 3-month interview (1 = Yes, 0 = No)	797	0.438	0.018	179	0.434	0.039	144	0.231	0.036
StblEmp15	Worked at least 1 day each month since the 9-month interview (1 = Yes, 0 = No)	714	0.430	0.019	175	0.432	0.040	153	0.274	0.038
FormalPay3	Receives/d formal pay for current/most recent job at 3-month interview (1 = Yes, 0 = No)	733	0.797	0.015	151	0.822	0.031	123	0.672	0.046
FormalPay9	Receives/d formal pay for current/most recent job at 9-month interview (1 = Yes, 0 = No)	797	0.784	0.015	179	0.826	0.028	144	0.744	0.040
FormalPay15	Receives/d formal pay for current/most recent job at 15-month interview (1 = Yes, 0 = No)	714	0.763	0.016	175	0.831	0.030	153	0.736	0.039
Benefits3	Current/last job at 3-month interview has benefits (1 = Yes, 0 = No)	727	0.434	0.019	149	0.341	0.041	123	0.318	0.044
Benefits9	Current/last job at 9-month interview has benefits (1 = Yes, 0 = No)	794	0.479	0.018	179	0.373	0.038	142	0.430	0.046
Benefits15	Current/last job at 15-month interview has benefits (1 = Yes, 0 = No)	710	0.486	0.019	174	0.401	0.039	152	0.494	0.044

(continued)

Exhibit ES-1. Outcomes from survey data for adult males, adult females, and juvenile males (continued)

Outcome	Description	Adult Males			Adult Females			Juvenile Males		
		N	Mean	SE	N	Mean	SE	N	Mean	SE
Victimization										
Victim3	Any victimization since release (1 = Yes, 0 = No)	983	0.258	0.014	244	0.188	0.026	236	0.348	0.035
Victim9	Any victimization since 3-month interview (1 = Yes, 0 = No)	984	0.379	0.016	244	0.340	0.033	229	0.532	0.036
Victim15	Any victimization since 9-month interview or last 6 months if no 9-month interview (1 = Yes, 0 = No)	919	0.391	0.016	247	0.374	0.033	227	0.480	0.037
Criminal Justice										
SupCon3	Failed to comply with conditions of supervision since release (1 = Yes, 0 = No)	816	0.218	0.015	194	0.197	0.030	203	0.171	0.028
SupCon9	Failed to comply with conditions of supervision since 3-month interview or in last 6 months if no 9-month interview(1 = Yes, 0 = No)	692	0.305	0.018	165	0.342	0.039	106	0.273	0.046
SupCon15	Failed to comply with conditions of supervision since 9-month interview or last 6 months if no 9-month interview (1 = Yes, 0 = No)	580	0.380	0.021	127	0.350	0.045	77	0.292	0.069
AnyCrime3	Self report at 3-month interview of committing any crime since release but before any reincarceration	984	0.239	0.014	244	0.199	0.028	236	0.246	0.030
AnyCrime9	Self report of committing any crime since the 3-month interview or in the previous 6 months if no 3-month interview, but before any reincarceration	1035	0.388	0.015	253	0.282	0.031	239	0.442	0.036
AnyCrime15	Self report of committing any crime since the 9-month interview or in the previous 6 months if no 9-month interview, but before any reincarceration	1113	0.363	0.015	276	0.329	0.030	248	0.408	0.034
Substance Use										
AnyDrug3	Any self-reported drug use at 3-month interview since release or tested positive on urine test or refused urine test (see Notes)	984	0.498	0.016	243	0.416	0.033	236	0.480	0.036
AnyDrug15	Any self-reported drug use at 15-month interview since the 9-month interview or past 6 months if no 9-month interview or tested positive on urine test or refused urine test (see Notes)	921	0.621	0.016	247	0.575	0.033	227	0.605	0.037
AnyDrug3_30	Any self-reported drug use at 3-month interview in the past 30 days or tested positive on urine test or refused urine test (see Notes)	984	0.468	0.016	243	0.374	0.033	236	0.448	0.035
AnyDrug15_30	Any self-reported drug use in the past 30 days at 15-month interview or tested positive on urine test or refused urine test (see Notes)	921	0.555	0.017	247	0.514	0.034	227	0.560	0.037

Notes: 3, 9, and 15 appended to outcome names indicate measures at the 3-, 9-, and 15-month interviews. Housing independence (HouInd) is defined as living in one's own house or apartment, contributing to the costs of housing, or having one's name on the lease or mortgage (measured before current incarceration if incarcerated at the time of the interview; missing if incarcerated the entire period since last interview). Housing challenges (HouChal) is defined as being homeless, having trouble finding a place to live, or having a current living situation not as good as the last one; missing if incarcerated the entire period since last interview. EMP3, 9, and 15 measure "currently supports self with job" and is as asked; is measured before current incarceration if incarcerated at the time of the interview (missing if incarcerated the entire period since last interview). StblEmp9 and 15 are missing if incarcerated the entire period since last interview. FormalPay9 and 15 are missing if did not work in entire period since last interview. Benefits3, 9, and 15 are defined as job that provides health insurance or paid leave; is measured before current incarceration if incarcerated at the time of the interview (missing if incarcerated the entire period since last interview or if no employment). AnyDrug3 and 15 reflect self-report of any drug use since release (3-month interview) or

since last interview (15-month interview), positive for any drug on urine screen, or refusal to agree to a urine test; drug tests were given only at 3 and 15 months; incarcerated individuals were not tested and values reflect only whether they reported the use of any drugs before their current incarceration; for the 15-month measures, data were missing for individuals incarcerated during the entire period since last interview.

Exhibit ES-2 provides summary statistics from the administrative recidivism data. We have data for the adult males for a minimum of 56 months, for the adult females for a minimum of 56 months, and for the juvenile males for a minimum of 22 months. As can be seen, 82.5% of the adult males, 72.7% of the adult females, and 76.9% of the juvenile males were rearrested within the fixed time periods. Reincarceration rates were also high with 54.9%, 44.3%, and 21.7% of the adult male, adult female, and juvenile male samples, respectively, reincarcerated within the fixed time periods.

Exhibit ES-2. Recidivism of adult male, adult female, and juvenile male study participants

Recidivism Measures	Adult Males		Adult Females		Juvenile Male Sample
	Full Sample	Reinc Subsample	Full Sample	Reinc Subsample	
Rearrest					
N	1,618	1,181	348	255	337
Fixed follow-up period (days)	1,694	1,745	1,744	1,752	676
N (%) arrested within fixed follow-up period	1,335 (82.5%)	1,015 (85.9%)	253 (72.7%)	190 (74.5%)	259 (76.9%)
Variable follow-up period (days)	2,290	2,290	2,302	2,282	1,207
N (%) arrested variable follow-up	1,368 (84.6%)	1,036 (87.7%)	259 (74.4%)	194 (76.1%)	283 (84.0%)
Mean time to arrest (if arrested, days)	408	394	465	413	258
Reincarceration					
N		1,181		255	337
Fixed follow-up period (days)		1,745		1,752	676
N (%) reincarcerated within fixed follow-up period		648 (54.9%)		113 (44.3%)	73 (21.7%)
Variable follow-up period (days)		2,290		2,282	1,207
N (%) reincarcerated in variable follow-up		678 (57.4%)		115 (45.1%)	95 (28.2%)
Mean time to incarceration (if incarcerated, days)		612		611	323

Notes: Full sample = Adults from 11 of the original 12 SVORI evaluation sites; Reinc subsample = Adults from 7 of the 11 sites for which National Crime Information Center records included incarcerations.

RECIDIVISM

Results were encouraging for the effect of **SVORI** program participation on arrest and, to a lesser extent, incarceration outcomes. The effect of **SVORI** program participation was beneficial and statistically significant for all three demographic groups—associated with longer times to arrest and with fewer arrests during the fixed follow-up periods. Results were weaker for the effects of SVORI on post-release reincarceration. For the adult males, **SVORI** program participation was associated with a longer time to reincarceration and also fewer reincarcerations, although the latter result wasn't statistically significant (p = 0.18). For the adult females, the results were mixed and not significant. For the juvenile males, the results with respect to timing and frequency for reincarceration were in the right direction (i.e., less likelihood of reincarceration) but were not statistically significant.

Participation in SVORI programs was associated with longer times to arrest and fewer arrests after release for all three demographic groups.

The effects of **SVORI** on the administrative recidivism outcomes stand in contrast to the mixed effects observed for specific service items on arrest and reincarceration. Focusing on the time to first rearrest, we see for the adult men

that four services were associated with a statistically significant longer time to arrest and four were associated with a shorter time to arrest. Beneficial effects were seen for three **ICSB** services (**PersRel**, **CrimAtt**, and **AngrMgt**) and one **PSB** service (**RPlan**). Three of the four with deleterious effects were **PSB** services (**RPrgm**, **LifeSk**, and **EmplSrv**), and the fourth was the **ICSB** service **MHtx**. These findings are consistent with other research that has suggested that services and programming that promote individual change may be more effective than those that provide practical support.

However, the effects of specific services on time to arrest for the adult females differed from the findings for the adult males. **LifeSk** and **CaseMgr** were associated with significantly longer time to arrest, and **PersRel** was associated with a shorter time to arrest. Fewer of the effects were statistically significant, perhaps because of the much smaller sample of females (348 women compared with 1,618 men); but, if we examine the signs of the coefficient estimates, we see that five of the six **PSB** services had positive estimates (longer time to arrest), including **CaseMrg** and **LifeSk**, and five of the **ICSB** services had negative estimates (shorter time to arrest), including **PersRel**. These findings contrast with the adult male results, which showed that four of six **PSB** items were negative and only one of the six **ICSB** services was negative.

ICSB services were more likely to be beneficial and PSB services detrimental with respect to the time to first arrest for the adult and juvenile male samples. Few effects were significant for the adult females, but five of six PSB services had positive coefficient estimates and five of the six ICSB services had negative estimates.

Results for the juvenile males were similar to those for the adult males. Overall, **PSB** services were associated with a shorter time to first arrest, and **ICSB** service items were associated with longer time to first arrest. Four of the 12 service item coefficient estimates were statistically significant. (Again, the juvenile male sample of 337 was much smaller than the adult male sample.) Five of the six **PSB** items were negative, including two that were statistically significant (**LifeSk** and **EmplSrv**). Four of the six **ICSB** items were positive, including **MHtx**, but **PersRel** was negative and significant.

Results for the effects of services on numbers of arrests after release were mixed. In two cases (**LifeSk** for the juvenile males and **PersRel** for the adult females), the statistically significant estimates suggested that a service was associated with more arrests following release. For the remainder of the statistically significant findings, the services were associated with fewer arrests following release. Specifically, having a case manager (**CaseMgr**) was beneficial for the adults and both mental health treatment (**MHtx**) and substance abuse treatment (**AODtx**) were beneficial for the adult females. Anger management (**AngrMgt**) was associated with fewer arrests for both the adult and the juvenile males, whereas educational services (**Educ**) were associated with fewer arrests only for the adult males. Overall, however, four of the **PSB** services (**Needs**, **RPlan**, **RPrgm**, and **EmplSrv**) and one **ICSB** service (**CrimAtt**) had no effect on the numbers of new arrests for any of the three groups.

Services appear to have had less beneficial effect on the time to reincarceration than rearrest. For the adult males, four of the six **PSB** items were associated with *shorter* times to reincarceration, and two of these (**CaseMgr** and **LifeSk**) were statistically significant; five of the six **ICSB** items were associated with longer times to reincarceration, but only **AngrMgt** was statistically significant. For the juvenile males, having a reentry plan (**RPlan**) and receiving assistance with personal relationships (**PersRel**) were associated with longer times to first reincarceration. The only statistically significant difference for the adult females was the effect of **LifeSk. Women** who reported receiving life skills training had a longer average time to reincarceration. In addition, **CrimAtt** was associated with a shorter time to reincarceration following release ($p = 0.08$).

Returning once again to the effect of SVORI program participation on numbers of arrests following release, ***Exhibit ES-3*** shows the actual and predicted numbers of arrests for the three demographic groups. SVORI program participation was associated with about 14% fewer arrests for the adult men, 48% fewer arrests for the adult females, and 25% fewer arrests for the juvenile males over the fixed follow-up periods.

Exhibit ES-3. Actual and predicted numbers of post-release arrests, by demographic group and SVORI program participation status

Group	Adult Males			Adult Females			Juvenile Males		
	N	Actual	Predicted	N	Actual	Predicted	N	Actual	Predicted
All	1,483	3.49		300	3.18		337	2.26	
SVORI	763	3.22	3.25	127	2.06	1.82	152	1.91	1.86
Non-SVORI	720	3.76	3.82	173	4.00	4.12	185	2.55	2.79

Note: Fixed follow-up period for the adult males was 56 months (1,694 days), for the adult females was 58 months (1,744 days), and for the juvenile males 676 days (22 months); see Exhibit ES-2.

Finally, however, these findings must be tempered by the realization of the high level of recidivism that was observed for these three groups of subjects. SVORI was to target high-risk offenders, and these programs appear to have done so. On our constructed risk measure, **HiRisk**, 44% of the adult males, 27% of the adult females, and 48% of the juvenile males were "high risk." Most remaining cases were "medium risk," with few low-risk cases. On average, all three groups—including the juvenile males—had extensive criminal histories, multiple prior incarcerations, juvenile detentions, and early age at first arrest (particularly for the males). These indicators would portend a very high likelihood of renewed engagement in criminal activity and the criminal justice system. What was observed was a high return to criminal activity and criminal justice system interaction. However, those who participated in SVORI programs had lower levels of arrest than those who had not; **SVORI** was statistically significant in models that controlled not only for pre-release service receipt, but also for a large number of individual characteristics historically linked to recidivism.

SVORI program participation was associated with a $3,567 reduction in arrest-related costs over the fixed follow-up period for the adult males.

The benefits of the reduction in numbers of post-release arrests were evident in the economic analysis for the adult men. **SVORI** program participation was associated with a $3,567 reduction in arrest-related costs over the fixed follow-up period (***Exhibit 121***). This cost savings was net of savings (or additional costs) associated with the provision of specific services. The largest effects for specific services were −$2,932 for **AngrMgt** ($p$ = 0.07), −$2,456 for **CrimAtt** ($p$ = 0.14), +$1,937 for **CaseMgr** ($p$ = 0.24), and −$1,319 for **Educ** ($p$ = 0.34), although, as noted in the text, large standard errors meant that these estimates were imprecisely estimated.

OTHER OUTCOMES

The SVORI conceptual model posited a three-step effect process: (1) Identify and provide services to meet needs associated with deficiencies (e.g., low education or skills, substance abuse); (2) these services would result in improvements (e.g., more education, new job skills, reduced substance use) that would (3) lead to a reduction in criminal activity and involvement with the criminal justice system. We examined the effects of services and SVORI on other outcomes that were the target of the SVORI—housing, employment, and health (in particular, substance use).

Services oriented toward practical needs—including reentry preparation, life skills programs, and employment services—did not improve post-release outcomes for men, including housing, employment, and drug use outcomes. In some cases, these services appeared to be detrimental to successful reintegration.

We first discuss the effect of services oriented towards practical needs—the **PSB** services—on non-recidivism outcomes. Subsequently, we look at the effect of the **ICSB** services, the effects of the bundle scores, and the effects of **SVORI** program participation.

We examined two housing indicators—housing independence and housing challenges. Services addressing reentry preparation had no significant effect on housing outcomes for the adult men. **RPlan**, **RPrgm**, **LifeSk**, and **EmplSrv** were not significantly related to housing independence or housing challenges immediately after release, and **EmplSrv** was significantly associated with greater housing challenges at the 15-month interview. The summative effects of the practical services, as measured by the **PSB**, showed no effects on housing independence and significant detrimental effects on housing challenges at 15 months. There were no statistically significant service effects on housing independence for the adult females, although at 3 months four of the six **PSB** service items had positive coefficients. **EmplSrv** were associated with significantly fewer housing challenges at 15 months.

We examined four measures of employment: currently supporting self with job, working each month since release or previous interview, receiving formal pay, and having benefits (health insurance or paid leave). Again, there were mixed effects for the **PSB** items. For the adult men, a greater likelihood of reporting supporting self with a job was associated with participating in a pre-release reentry class or program (**RPrgm**) at 9 and 15 months and with **LifeSk** at 3 months post release. **EmplSrv** were not significantly associated with either supporting self with job or with working each month. For the men, there were only two significant effects of PSB services on receipt of formal pay or benefits—pre-release needs assessment was associated with a *lower* likelihood of formal pay at 15 months and **LifeSk** was associated with a *lower* likelihood of formal pay at 3 months. For the adult females, results differed somewhat. Having a reentry plan 30 days before release (**RPlan**) and receiving employment services (**EmplSrv**) while incarcerated were both associated with a higher likelihood of supporting oneself with a job at 15 months, although results at 3 and 9 months suggested no effects. The model for formal pay for the adult females did not converge, and results at 9 and 15 months primarily suggested no effects of the **PSB** items; similarly, results were insignificant for the effects of these services on having a job with benefits. Because there were relatively few juvenile males in the sample and less than half of the juvenile males reported working in any of the periods following release, the models estimating effects only for those who worked (formal pay and benefits) had a small number of observations and yielded imprecise coefficient estimates that are not likely reliable.

We had measures of drug use at 3 and 15 months that included self-reported use and urine test results (or refusal, if in the community). Most of the odds ratios for the items in the **PSB** are greater than 1 (greater likelihood of use associated with the service) for the adult males for two outcomes measured at 3 and 15 months after release: any drug use in the past 30 days and any drug use since release or last interview. Only one service is beneficial and statistically significant—having an **RPlan** is associated with less drug use in the past 30 days. On the other hand, **EmplSrv** were associated with *greater* drug use. Two of the six **PSB** items were significantly related to drug use for the adult female sample—both **LifeSk** and **EmplSrv** were associated with a *greater* likelihood of drug use. For the juvenile males, **EmplSrv** was significantly associated with a lower likelihood of drug use since release and in the past 30 days at 3 months after release.

Services oriented toward individual change, including substance abuse treatment, cognitive-focused programs, and education (e.g., GED classes), may have modest beneficial effects on post-release outcomes. Educational services were most consistently associated with positive outcomes for the adult males.

We also examined the effect of six individual change service items. These services appear to be somewhat more likely to exert positive effects on the outcomes that were examined, particularly for the adult males. The most substantial exception is the effect of mental health treatment (**MHtx**). We attempted to control for needs for treatment by including indicators of mental health functioning and symptoms in the models; however, **MHtx** before release was often associated with negative outcomes following release. For the adult males, **AODtx** was associated with a greater likelihood of housing independence and a reduced likelihood of housing challenges immediately after release. **CrimAtt** and **Educ** were also associated with a greater likelihood of housing independence, although an enhanced likelihood of challenges. There were no effects for help with personal relationships (**PersRel**), and **AngrMgt** was associated with less housing independence, significantly so at 3 months. For the adult females, we had a smaller sample and the results were less stable from time period to time period. **AODtx** was associated with fewer housing challenges at 3 and 9 months, and **AngrMgt** was associated with fewer challenges at 9 months. Negative effects were observed for **AODtx** at 9 months after release and **Educ** was associated with greater housing challenges, significantly so at 9 months. For the juvenile males, who were less likely to report housing independence presumably because they were released to family or relatives, no service was significantly associated with housing outcomes at more than one time period.

The results of the **ICSB** services on "support self with job" and "worked each month" were mixed. **AODtx** and **Educ** were associated with positive effects on these two outcomes, although these effects were not always statistically significant. The odds ratios for **CrimAtt** were less than 1 for all three periods for both "support self with job" and "worked each month," with the odds ratio significant at 9 months, suggesting that the likelihood of working each month was less than about half for those who reported **CrimAtt** training. Results were mixed for "formal pay" and "benefits." Results overall were mixed and insignificant for both the adult females and the juvenile boys.

For the adult men, **Educ** was associated with less drug use, significantly so at 3 months post release. Overall, with the exception of **MHtx**, the **ICSB** items were associated with less use, although the findings were seldom significant—including the effects of **AODtx**. Most of the coefficients on the ICSB service items were negative (odds ratio less than 1 signifying less use) for the adult females, but only **PersRel** at 3 months was statistically significant. **Educ** was associated ($p \leq 0.1$) with less use at 3 months after release for the juvenile males. Other findings for the juvenile males were insignificant.

Thus, overall, the service item most often associated with beneficial outcomes appears to be educational services, including GED classes. Somewhat surprisingly, given findings in the literature, neither **AODtx** nor **CrimAtt** yielded consistent statistically significant findings, although we did find some effects for subgroups in the stratified analyses of the men's sample.

SVORI reentry program participation was associated with positive outcomes in some cases, over and beyond the effects of individual service items, particularly for the adult male sample.

Exhibit ES-4 summarizes the effects of SVORI program participation on 9 interview-based outcomes and rearrest, with table entries indicating whether SVORI program participation was beneficial ("B") or deleterious ("D"). (Results are from the models including all service items, although generally these results are consistent with the results from the models containing the bundle scores instead of the individual items.) As can be seen, there are only a few statistically significant effects, but most of the associations are in the right direction. For the adult males, SVORI program participation is associated with formal pay (3 months), benefits (3 and 9 months), and a lower likelihood of self-reported criminal activities (3 and 9 months). SVORI program participation is associated with formal pay at 9 months for the adult females ($p \leq 0.1$). For the juvenile males, SVORI program participation is associated with lower likelihoods of drug use at 3 months ($p \leq 0.1$) and housing challenges at 9 months ($p \leq 0.1$).

Exhibit ES-4. Summary of effects of SVORI program participation on outcomes for adult males, adult females, and juvenile males

Outcome	Adult Males			Adult Females			Juvenile Males		
Month of Interview	**3**	**9**	**15**	**3**	**9**	**15**	**3**	**9**	**15**
Housing independence	B	B	B	B	D	D	D	D	D*
Housing challenges	B	B	D	B	B	B	B	B*	B
Support self with job	D	D	B	D*	D	B	D	D*	D
Stable employment	D	D	B	B	D*	D	N/A	N/A	N/A
Formal pay	B*	B	B	N/A	B†	B	B	B	B
Benefits	B†	B*	B	B	B	D	D	B	B
Committed any crime	B†	B†	B	B	D	B	B	B	B
Drug use past 30 days	B		B	B		B	B		B
Drug use since release or last interview	B		B	B		B	B†		B
Rearrest	B	B	B	D	D	B	B	B	B

Note: Multiple cells in each column indicate the 3-, 9-, and 15-month interview results. B = effect is beneficial, "in the right direction" but not significant; D = effect is deleterious, "in the wrong direction" but not significant. B = effect is beneficial and significant at $p < 0.05$; B† = effect is beneficial and significant at $p \leq 0.1$; D* = effect is deleterious and significant at $p < 0.05$; D† = effect is deleterious and significant at $p \leq 0.1$; N/A = not applicable.*

CONCLUSIONS AND IMPLICATIONS FOR POLICY AND PRACTICE

One question the findings raise is, "What is the mechanism for the effects of SVORI program participation on recidivism?" The reentry program model (e.g., the SVORI program model) is premised on the fact that most prisoners have a variety of problems and deficiencies and that rehabilitation leading to successful reintegration rests on the provision of services to address individually identified needs, particularly for high-risk populations. The SVORI was a federal initiative funded nearly a decade ago to test this model through a "one-shot" provision of grant funds to state agencies to develop and implement programs based on case management, needs assessment, reentry planning, and services individually tailored to meet the needs of the target population.

Previous analyses showed that SVORI program participation was associated with more service receipt (Lattimore & Visher, 2009), weak effects on intermediate outcomes, and no significant effects on arrest and reincarceration. The current findings show

- limited effects of services on intermediate outcomes,
- few direct effects of services on recidivism outcomes,

- limited effects of SVORI program participation on intermediate outcomes, and
- significant effects of SVORI program participation on recidivism, particularly rearrest.

The models controlled (indeed were actually testing) for the effects of specific services that were included in reentry programs but also were provided to some individuals who were not in SVORI programs as part of "treatment as usual." However, we found that in some cases, particularly for "practical" services, the effects of these services appear actually to have been harmful—associated, for example, with quicker arrest or more arrests. Once we controlled for these 12 different types of services, there was a strong remaining effect of SVORI program participation that was not identified in the previous work, which had focused on a shorter follow-up period and which had identified a small but not statistically significant difference in the likelihood of rearrest during the first 21 months after release. Following these subjects for a longer amount of time (at least 56 months after release for the adults) and taking a different statistical approach to the analyses of these data (survival and count model analyses as opposed to logistic regression) showed participation in SVORI programs associated with better recidivism and particularly better arrest outcomes. We hypothesize that these effects could be due to the following.

- The models included 12 of about 24 different services for which we had self-report service receipt data. These services were selected because they either have been considered critical components of reentry programs (**CaseMgr**, **Needs**, **RPlan**, **RPrgm**) or were programs that address needs known to be pervasive among prison populations (**LifeSk**, **EmplSrv**, **MHtx**, **AODtx**, **PersRel**, **CrimAtt**, **AngrMgt**, and **Educ**). We dropped from consideration a number of items that had been included in our earlier work, such as help finding housing, help getting documents, or medical treatment. As our earlier work showed, SVORI program participants were more likely to receive these services (although oftentimes at low levels) than those who did not participate in SVORI programs. (The exceptions were medical and dental services, which were received at equal levels by both groups—as should have been expected given requirements to provide such services to prisoners.) *Thus, SVORI could be serving as a proxy for the enhanced likelihood of receiving these other (mostly) transitional services.*
- The models included only measures of pre-release service receipt. We excluded post-release services to maximize the number of observations we could retain in our analysis. *SVORI could be serving as a proxy for the enhanced likelihood of receiving post-release services*, as SVORI program participants did receive more services post release (although post-release service receipt was low for both SVORI and non-SVORI groups). To test this hypothesis, we estimated some random effects outcome models that included measures of post-release service receipt and found little support for the effectiveness of receipt of individual post-release services.
- *Services received by SVORI program participants may have been qualitatively better than those received by those in the comparison group—resulting in better recidivism outcomes.* This is certainly possible if programs developed new services for SVORI program participants, although program director reports suggested that in many cases their SVORI funds were used to expand existing services (Lattimore et al., 2004).
- *SVORI program participants may have been the beneficiaries of unmeasured services—wraparound services, for example—that resulted in better recidivism outcomes.*
- *SVORI program participants may have been treated differently after release simply because of their program participation status.* This hypothesis would suggest that parole officers and law enforcement knew an individual was in a SVORI program and thus refrained from arresting the individual because of that status. We have no way to refute this hypothesis, except to note that in several sites we know that probation and parole services were never engaged in the reentry program. Furthermore, it is somewhat

difficult to imagine knowledge of SVORI program participation extending to local law enforcement, particularly in states where program participants were released statewide.

- *SVORI program participation may have been associated with a "Hawthorne effect."* People who participated in SVORI programs were somewhat less likely to be arrested simply because their behavior improved simply as a function of the extra attention they received as a result of being a SVORI program participant.

Overall, our findings of few significant, beneficial effects of services (and some detrimental effects) coupled with the beneficial effect of SVORI participation suggest caution.

Why would reentry preparation services appear in some cases to be harmful?

The core of reentry programming (as defined by the SVORI in the early years of the 21st century) is case management, needs assessment, and reentry planning. Improving life skills and employment-related services to enhance post-release job prospects have also been targets of reintegration efforts. These services, as offered to the participants in this evaluation, appear to have done little good and, in the case particularly of life skills, to be associated with deleterious effects. We conducted extensive analyses trying to identify a plausible explanation for the LifeSk effect (e.g., those taking life skills were self-selecting into life skills in lieu of a more useful service or program) and came up empty.

What is the proper sequencing of services and the impact of "readiness for change"?

It is possible that reentry planning was not useful with respect to immediate post-release outcomes either because (1) promised services did not accompany the planning, or (2) promised outcomes did not accompany the delivery of services, or (3) the individual received services but was not "ready" to take advantage of them. If (3) is true, then it could provide a possible explanation for the longer-term positive effects of SVORI program participation on recidivism outcomes.

More services are not necessarily better.

Our initial goal for these analyses was to look at the relationship between numbers of services received and outcomes by constructing a continuous propensity score model and proceeding with outcome analyses from that platform. The continuous measure we used was the service "super bundle score" that was constructed during the original Multi-site Evaluation of SVORI. This score at the individual level represented the percentage of available services across multiple domains that the individual reported receiving. Multiple efforts at constructing this bundle and of examining the effects of the resulting "service" bundle (or bundles) on outcomes basically yielded no results—there was no effect of larger numbers of services on outcomes.

Part of the explanation for this was revealed once we restructured the analyses to adapt the approach whose findings are presented here. Looking at the effect of specific items, we found that some were negative. Looking at the effect of specific types of items (i.e., **PSB** for the adult males), we found that the coefficients were usually negative. Simply counting services when some have positive effects and some have negative effects will not yield a very useful scale. Although this seems obvious now, initially we did not consider that some of the services we were examining actually could have deleterious effects on outcomes. Thus, there were two problems with our simple counting approach. The first, which we had been aware of since the beginning, was that all services counted equally—receiving educational services was the same as receiving employment services (or alcohol and other drug treatment or, in our earlier analyses, getting help with transportation). This uniformity assumption meant that we were introducing error into the measure that was linked to the (unknown) differences in importance of the various

services. More importantly now, we see the second problem: some services were associated with deleterious effects. With this problem, the bundle score needed to take into account not only how many but which items were received by an individual. We addressed this issue partly in the current analyses by the adaption of the two bundles, which also conform to current discussion in the literature about the relative effectiveness of "practical services" compared with "individual change" services. Nonetheless, our findings reveal considerable heterogeneity in the impact of individual services within these two types of service bundles.

The implementation and possible impact of reentry-focused services in improving post-release outcomes is likely to be highly variable across sites.

We know from our earlier work (e.g., see Lattimore & Visher, 2009) that the delivery of reentry-focused services varied across the SVORI program sites. (We also know that the delivery of services under the treatment-as-usual approach differed across sites, such that treatment as usual in one site may have exceeded SVORI services in another.) We collected extensive information before selecting the sites that were included in the impact evaluation. These sites were ones that appeared*, a priori*, to have the best chance of successfully implementing the reentry programs they had proposed. From this perspective, it seems unlikely that the services delivered by these programs could have been *worse* than similar programs implemented in prisons and juvenile detention facilities from 2003 to 2005. Thus, although we have no concrete measures of implementation fidelity, we believe that our findings should have external validity.

We included site measures in the multivariate models to control for site-level differences. These differences would be multifold, representing the culture of the implementing organizations, state laws and policies, and the economic and cultural environment to which released prisoners were returning. In many cases, these indicator variables were statistically significant, although we do not discuss the implications here because the findings with respect to the key variables of interest here—service items and SVORI program participation—were largely the same in models estimated with and without the site-level indicators.

There is a need for ongoing evaluation and research.

Departments of correction who are developing reentry programs with a component involving delivery of services before release are urged to collaborate with local researchers who can systematically evaluate the impact of reentry services as they are delivered in the particular site. In particular, although understanding of reentry programming has advanced in the past decade, additional work is needed. In particular, the emerging discussion of whether practical services are useful or individual change services are most beneficial is particularly important, and we believe our analyses and findings contribute to this discussion.

What is the appropriate length of follow-up?

Two years is considered something of a gold standard for studies of post-program recidivism. These new analyses, which included additional recidivism data, allowed us to look beyond the initial period following release to determine whether there were long-term effects of SVORI program participation. Prison release may be accompanied by circumstances that assure a high likelihood of failure after release—supervision conditions, for example. Release may also be followed by relapsing behavior, including drug use, which results in a high likelihood of failure, particularly for high-risk former prisoners. Under these circumstances, a longer follow-up period may be necessary to observe short-term failure followed by long-term success. Because we had only the original 15-month post-release interview data, we could make no assessments of the impact of services and SVORI on the employment and other outcomes of interest to this Initiative.

LIMITATIONS

The present analyses reflect considerable data, analytical exploration, and attention to control for those things that can be controlled. As with most studies, limitations remain.

- Subjects were randomly assigned to SVORI and non-SVORI conditions in only two of the adult sites. Careful attention was paid in the design of the original multi-site evaluation to identify comparison populations similar to those targeted for the SVORI initiative. Propensity score methods were used and appear to have been successful in controlling for observed differences between the treatment and comparison groups.
- As with most longitudinal studies, there was attrition at the three follow-up waves. Interviews were pursued at each wave, regardless of whether previous interviews were completed successfully. This resulted in at least one follow-up interview with more than 80% of each demographic group. Analyses conducted during the earlier multi-site evaluation suggested that, once group assignment was controlled for (as it was with the propensity score weights), there were no residual differences due to attrition and no additional controls were imposed on the models.
- Despite efforts during the original data collection (including, e.g., extending the study enrollment period by three months), the numbers of subjects in the adult female and juvenile male samples were smaller than we would have liked—particularly when we examined post-release interview outcomes. In many cases, we had fewer than 200 observations and as few as 100 or so when looking at conditional outcomes such as formal pay or benefits associated with employment. We recognize that many of these multivariate outcome models included too many independent variables; however, more parsimonious models that included, for example, only service items yielded similar results, so we present the results of the full models. With limited numbers of observations, however, parameter estimates were imprecise and statistical significance was elusive.
- We do not have detailed information on the nature and implementation of the SVORI programs and the specific services, classes, and programs provided as part of the SVORI programs and the treatment as usual. The original evaluation was explicitly not a process evaluation, but we took pains to gather basic information on what the program directors planned and the study participants believed they received. These latter measures of service receipt, which were relied upon here, are admittedly flawed. They contain error associated with individuals misreporting because they forgot that they received specific services, believed that they had received services they did not receive, did not understand that they had in fact received a service, or simply lied. These measures provide no measure of dosage—one substance abuse education class would count the same as residential treatment (or one session would count the same as 100 sessions). Additionally, the measures provide no measure of quality. We attempted to address these last two issues in preliminary analyses by examining how helpful respondents felt a service was, assuming that poor quality or insufficient dosage of a service would be deemed not helpful by respondents. Measures taking into account how helpful a service was were correlated greater than 0.9 with the simple measures indicating service receipt and, thus, we report the results using the simpler measures here.

INTRODUCTION

Identifying programs and services that improve the criminal justice outcomes of released prisoners is an important objective if the United States is to reduce the $40 billion annually devoted by state governments to corrections without compromising public safety. This report presents the results from a secondary analysis of data collected for a large multi-site evaluation of state and local reentry initiatives, the Serious and Violent Offender Reentry Initiative (SVORI; see Cowell, Roman, & Lattimore, 2009; Hawkins, Dawes, Lattimore, & Visher, 2009; Lattimore & Visher, 2009; Lattimore, Steffey, & Visher, 2009, 2010; Lattimore et al., 2005; Lattimore, Visher, & Steffey, 2008, 2011; Lindquist, Barrick, Lattimore, & Visher, 2009). These data include extensive, detailed information on background characteristics, including criminal and employment history; substance use and psychosocial measures; treatment and service needs; services and program receipt; and outcomes across multiple domains, including criminal justice, employment, health (including substance use and mental health), and housing. These interview data were augmented by data from administrative records for arrests and incarcerations; the original data were updated for a subset of the original SVORI sample and used to examine the questions of "what works, for whom, for how long, and at what costs?" in prisoner reentry programs. In addition, a search of death records identified 55 individuals who participated in the original evaluation who had died as of spring 2011.

> *This study continues the examination of the effect of prisoner reentry services on post-release outcomes for individuals who participated in reentry programs and for comparison subjects who received some services as "treatment as usual." Study participants were released from prison or juvenile detention in 2004 and 2005.*

The original data were collected as part of the evaluation of SVORI, a federal initiative which provided funding for juvenile and adult reentry programs throughout the United States. The locally designed SVORI programs focused on coordination between correctional agencies and other state agencies and community organizations and were intended to provide comprehensive services to address individual needs. The existing data were collected to evaluate 16 (12 adult and 4 juvenile) SVORI programs in 14 states. The data include four waves of interview data (about 1 month before release and 3, 9, and 15 months after release) for 1,697 adult men, 357 adult women, and 337 juvenile boys, who were released from prison or juvenile detention in 2004 and 2005. The evaluation study subjects were individuals enrolled in SVORI programs or comparison subjects who were identified as individuals with characteristics similar to SVORI program participants who were not enrolled in the local SVORI programs. Criminal history and recidivism data were abstracted from databases provided by departments of correction, juvenile justice, and probation and parole, as well as arrest records from the National Crime Information Center (NCIC).

Previous analyses focused on the impact of SVORI program participation by comparing the outcomes of SVORI participants with those of comparable individuals who did not participate in SVORI programs. These analyses found that participation in enhanced reentry programs was associated with positive, albeit in most cases modest, treatment effects across criminal justice, employment, health, and housing outcome domain areas (see, for example, Lattimore & Visher, 2009; information is also available at the SVORI Web site [*Evaluation of the Serious and Violent Offender Reentry Initiative*, 2011]). Supplemental implementation analyses, moreover, revealed substantial differences within sites and programs in the nature and extent of services provided to offenders reentering society (Lattimore et al., 2004; Lattimore et al., 2005; Winterfield, Lattimore, Steffey, Lindquist, & Brumbaugh, 2006). This variation in programming across the sites provides an opportunity to examine the relationships among outcomes, individual characteristics, and programming.

The current study exploits the variation in program content observed in the existing evaluation data to move beyond "Did enhanced reentry work?" to examine "What worked for whom and for how long?" We also examine the economic implications of services. These analyses used propensity scoring methods to control for group differences and examined the relationship among service and program receipt and outcomes. In particular, the analyses focus on housing, employment, substance use, and recidivism (post-release arrest and incarceration) outcomes from the original data collection and an update of the administrative recidivism data to a minimum of 56 months after release for a large subset of the original sample.

The following section provides a very brief summary on previous research on prisoner reentry. Numerous books are available addressing this topic and we do not attempt to contribute to this literature here. Interested individuals are referred to, e.g., Travis & Visher (2005) and Petersilia (2003). We subsequently provide a brief summary of the original SVORI evaluation, providing information on the logic model, research design, and key findings.

PREVIOUS RESEARCH ON REENTERING PRISONERS

Over the past decade, the United States has experienced an unprecedented increase in the number of offenders leaving prison. More than 700,000 inmates were released from prisons in the United States in 2006 alone, and similar numbers were released over each of the next several years (Sabol & Couture, 2008; West, Sabol, & Greenman, 2010). Research suggests that as many as half of released prisoners will be reincarcerated within 3 years (Langan & Levin, 2002). As the number of individuals returning to the community from prison continues to rise, policymakers and criminal justice practitioners are searching for ways to help reintegrate offenders into the community and reduce the likelihood that they will return to criminal activity.

It is well known that returning prisoners face myriad obstacles to successful reentry, such as limited occupational and educational experience and training to prepare them for employment, drug and alcohol addictions, mental and physical health problems, strained family relations, and limited opportunities due to the stigma of a criminal record (Broner, Lattimore, & Steffey, 2010; Petersilia, 2003; Travis & Visher, 2005). Returning prisoners also face higher mortality rates, often from drug overdose, cardiovascular disease, homicide, or suicide (Binswanger et al., 2007). Not surprisingly, returning prisoners express high levels of need for a wide variety of services, particularly those associated with basic transitional needs, such as housing, transportation, and employment (Lattimore et al., 2008; Petersilia, 2003). Reentry programming and services are designed to facilitate offenders' transition from prison and, ultimately, reduce recidivism.

Reviews of the "what works" literature for adult and juvenile offenders, as well as several meta-analyses of studies on institutional- and community-based interventions and treatment programs for these populations, have presented strong and consistent evidence that rehabilitative programs are more effective at reducing the likelihood of recidivism than control or deterrent approaches such as surveillance and contact-driven supervision (Cullen & Gendreau, 2000; Fonagy & Kurtz, 2002; Lipsey & Cullen, 2007; MacKenzie, 2006). For example, intensive supervision probation/parole (ISP) by itself does not reduce recidivism (MacKenzie, 2006), but there is evidence that ISP that includes a strong treatment component can reduce recidivism (Aos, Miller, & Drake, 2006; Petersilia & Turner, 1993). A meta-analysis by Lipsey (1999) of more than 200 studies of institutional- and community-based juvenile treatment programs found that the impact of treatment on recidivism varied by type of treatment. In particular, cognitive and behavioral programs that included multiple services had the greatest effect on recidivism. Indeed, there is evidence to suggest that cognitive-behavioral approaches and programs that target criminogenic factors and individual needs and that focus on individual-level change may be most effective at reducing recidivism among adults and juveniles (Andrews & Bonta, 2003; Andrews et al., 1990; Aos et al., 2006; Fonagy & Kurtz, 2002;

Lipsey, 1995; Lipsey & Cullen, 2007; MacKenzie, 2006). Some research has suggested that programs that use a multimodal approach or include multiple different services are more effective than single-service programs or programs that use one mode of treatment (Fonagy & Kurtz, 2002; Lipsey, 1999).

Individual characteristics, such as sex, age, marital status, criminal history, mental health, drug use, and treatment needs, may moderate the effects of programs and services on different outcomes. For example, research indicates that employment and education programs can reduce recidivism or improve employment outcomes for certain subgroups of offenders. Saylor and Gaes's (1997) evaluation of the Post Release Employment Program, which provided prison-industry jobs, vocational training, and apprenticeship training services to federal inmates, found that male program participants had significantly lower rates of recidivism; however, no differences in recidivism were found for female offenders. In one of the most methodologically rigorous studies of the effect of employment programming on recidivism, Uggen (2000) found that the National Supported Work Demonstration Project, which randomly assigned offenders to a treatment program that included in-prison vocational training and post-release job placement, successfully prevented crime, but only among offenders who were 27 or older. Consistent with a life course perspective of crime, Uggen and Staff (2001) reported that older offenders are more likely to benefit from work programs because they are more likely than younger offenders to be attached to the labor market.

The impact of services may depend on other personal characteristics of the offender, such as motivation. According to a qualitative study in Australia of offenders and service providers, a successful transition to a positive, drug- and crime-free lifestyle is dependent on several domains (Graffam, Shinkfield, Lavelle, & McPherson, 2005). One crucial component of successful reintegration is a hard-to-define and elusive state of "readiness to change," which is often typified by a fragile confidence and the strength to resist long-ingrained habitual behavior. In addition, important within this paradigm is the availability of necessary support structures when the individual is "ready" to make use of available services.

As another example, one of the principles of effective intervention identified in the last decade is that treatment programs are likely to be more effective with higher-risk offenders (Andrews & Bonta, 2006). This principle has been examined through meta-analysis and results support the principle, although Smith, Gendreau, and Swartz (2009) acknowledge that the studies conducted on this topic are not extensive and the range of mean effect sizes is large. This range is largely due to the wide variation in definitions of risk scores across studies.

Despite recent efforts to identify "what works" for offender populations, most studies of in-prison and community-based programs have examined a specific type of service or program rather than assessing the effects of different combinations of services, even though most individual offenders require more than a single program or intervention. In addition, most studies have focused on in-prison *or* community-based programs; few studies have evaluated the effectiveness of reentry programming that begins before release and continues in the community. In examining "what works," many studies have used weak research designs and have failed to include comparison groups or to perform statistical adjustments to correct for lack of random assignment. Another limitation is that many reentry evaluations focus on a single program in one community rather than including multiple sites. In addition, although there is strong evidence that individual characteristics condition program effects, no studies have examined different combinations of services for individuals while taking into account the complexity of individual characteristics, treatment needs, and disadvantages confronting prisoners as they attempt to reenter society. Furthermore, much evaluation work has focused on programs that target less-serious or lower-risk prisoners and exclude those convicted of violent offenses (e.g., the Residential Substance Abuse Treatment program). Research is lacking on the average duration of treatment effects and whether the duration varies for different treatment mixes or for different types of offenders. In sum, much remains unknown about what works

for prisoners reentering society, particularly our understanding of what combinations of programming and services work best for offenders with specific characteristics and treatment needs and for how long.

Finally, some scholars disagree on the effectiveness of rehabilitative programs, especially those that occur in prisons (Austin, 2009; Farabee, 2005). In their view, recent reforms such as using risk assessment instruments, increasing the number of programs and services, and training staff better produce very limited effects and have failed to reduce recidivism and prison populations. Austin (2009) argues that scholars and policymakers have been misled about the potential effects of these reforms by meta-analyses such as those by the Washington State Institute for Public Policy that combine studies of different methodological rigor and design. Farabee (2005) concludes that the correctional system is ill equipped to deliver effective treatment programs, that the evidence of their effectiveness is weak, and that reliance on such efforts will have no effect on crime and may well increase it (see Cullen, Smith, Lowenkamp, & Latessa, 2009, for a rebuttal of Farabee's arguments).

Most of the reentry research has focused on recidivism as the primary outcome of interest (Petersilia, 2004), although some studies have also examined the effect of reentry programs on outcomes such as employment or substance use (see Seiter & Kadela, 2003). Moreover, very little is known about the effects of reentry programming and services on mortality outcomes. However, one study of former inmates in Washington (Binswanger et al., 2007) estimated the adjusted risk of death of returning prisoners during a 1.9-year follow-up period to be as much as 3.5 times higher than that of other state residents. The highest risk of death for returning prisoners was during the first 2 weeks after release from incarceration, when their adjusted risk of death was 12.7 times that for state residents not recently released from prison. Research is needed to explore whether reentry programming and services can significantly reduce mortality among this population.

Thus, it is in the context of our rather elementary understanding of "what works and for whom" as it pertains to reentry programming and for outcomes other than recidivism that SVORI was funded and evaluated.

PREVIOUS FINDINGS FROM THE MULTI-SITE EVALUATION OF SVORI

The following information on the previous SVORI evaluation is reproduced or adapted from the *Multi-site Evaluation of SVORI: Summary and Synthesis* (Lattimore & Visher, 2009).

In 2003 the U.S. Departments of Justice, Labor, Education, Housing and Urban Development, and Health and Human Services provided more than $100 million in grant funds to states to develop, enhance, or expand programs to facilitate the reentry of adult and juvenile offenders to communities from prisons or juvenile detention facilities. SVORI funded agencies to develop programs to improve criminal justice, employment, education, health, and housing outcomes for released prisoners. Sixty-nine agencies received federal funds ($500,000 to $2 million over 3 years) to develop 89 programs.

The initiative responded to emerging research findings that suggested that providing individuals with comprehensive, coordinated services based on needs and risk assessments can result in improved post-release outcomes. Grantees were to use their SVORI funding to create a three-phase continuum of services for returning serious or violent prisoners that began during the period of incarceration, intensified just before release and during the early months post-release, and continued for several years after release as former inmates took on more productive and independent roles in the community.

The SVORI logic model identifies SVORI funding, technical assistance, and requirements as inputs that, in combination with local resources in the sites (throughputs), yield a set of services and programming (outputs) expected to improve the intermediate and recidivism outcomes for SVORI participants, as well as improve the

state and local systems that provide the services and programs (***Exhibit 1***). Community and individual participant characteristics influence these throughputs, outputs, and outcomes. The model shows that SVORI was an outcome- or goal-oriented initiative that specified outcomes, or goals, that should be achieved by programs developed locally. Criteria specified by the federal partners for the local programs were the following:[1]

- Programs were to improve criminal justice, employment, education, health (including substance use and mental health), and housing outcomes.
- Programs were to include collaborative partnerships between correctional agencies, supervision agencies, other state and local agencies, and community and faith-based organizations.
- Program participants were to be serious or violent offenders.
- Program participants were to be 35 years of age or younger.
- Programs were to encompass three stages of reentry—in prison, post-release on supervision, and post-supervision.
- Needs and risk assessments were to guide the provision of services and programs to participants.

The SVORI programs attempted to address the initiative's goals and provide a wide range of coordinated services to returning prisoners. Although SVORI programs shared the common goals of improving outcomes across various dimensions and improving service coordination and systems collaboration, programs differed in their approaches and implementations (Lindquist, 2005; Winterfield & Brumbaugh, 2005; Winterfield et al., 2006; Winterfield & Lindquist, 2005). These differences were reflective of the guidance provided to sites, namely that they were to develop programs responsive to local needs and resources. As such, therefore, the multi-site SVORI evaluation was an evaluation of the SVORI funding stream instead of a specific reentry program model. However, general guidance required that the SVORI programs include needs and risk assessment, services responsive to identified needs and risks, and reentry planning. Further, given that most prisoners have deficiencies in education and employment skills and many have substance abuse problems and some have mental health problems, the services needed were consistent across the sites. Thus, the observed variation was more with respect to the extent to which services were actually provided in response to needs (see Lattimore et al., 2011), with some sites proving more successful than others in, for example, developing reentry plans for all SVORI program participants.

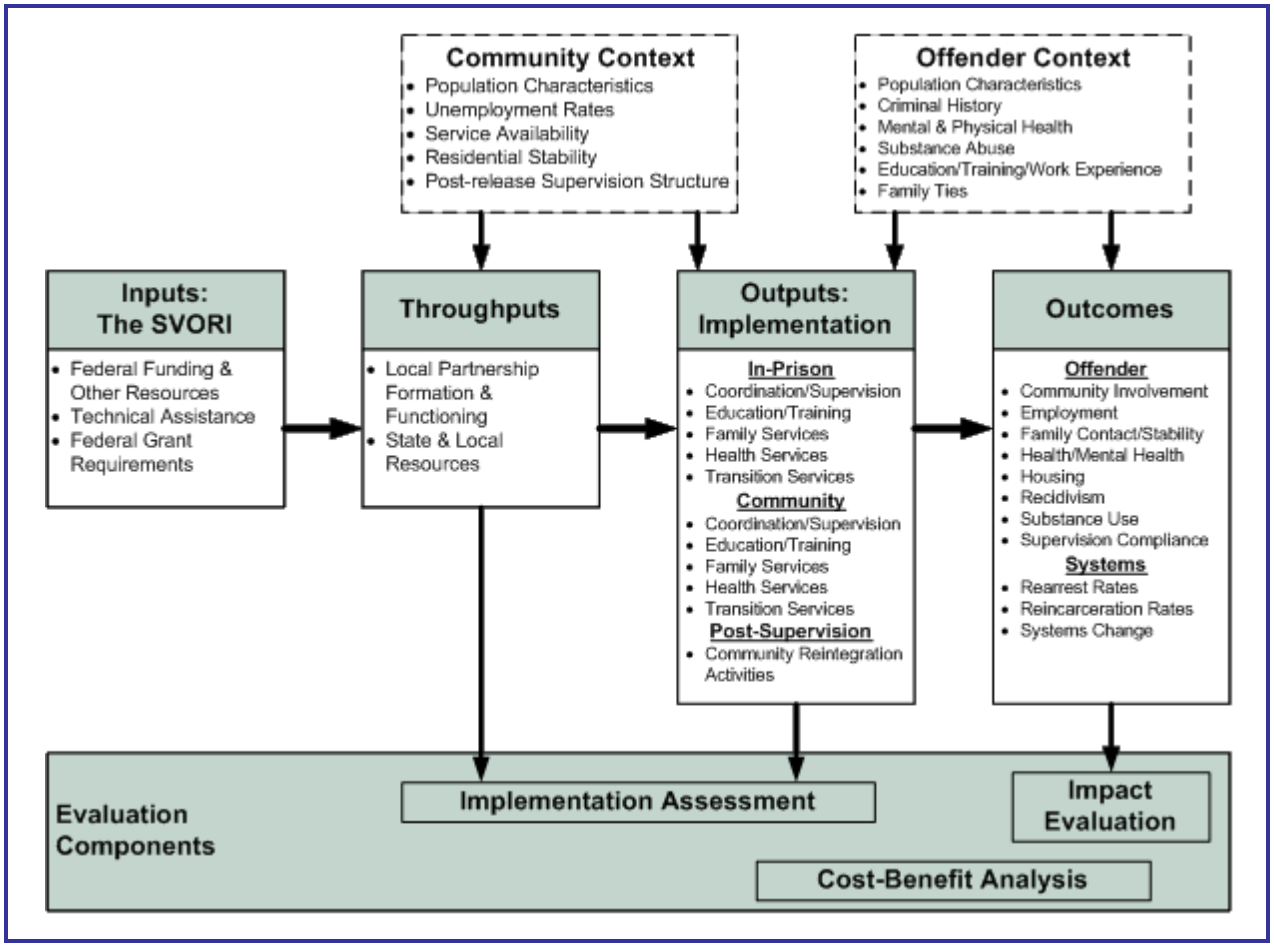
In spring 2003, the National Institute of Justice awarded RTI International, a nonprofit research organization, a grant to evaluate programs funded by SVORI. The Urban Institute, a nonpartisan economic and social policy research organization, collaborated on the project. With data collected from grantee staff, partnering agencies, and returning prisoners, the 6-year evaluation involved an implementation evaluation of all 89 SVORI programs, an intensive impact evaluation of 12 adult and 4 juvenile programs, and an economic analysis of a subset of the impact sites (see Lattimore et al., 2005). The goal of the SVORI evaluation was to document the implementation of SVORI programs and determine whether they accomplished SVORI's overall goal of increasing public safety by reducing recidivism among the populations served. The SVORI evaluation was designed to answer the following research questions:

- To what extent did SVORI lead to more coordinated and integrated services among partner agencies?
- To what extent did SVORI participants receive more individualized and comprehensive services than comparable, non-SVORI offenders?

[1] In some cases, grantees asked for and received exceptions to these criteria. For example, some programs were primarily post-release programs, and age restrictions were sometimes lifted (e.g., for programs targeting sex offenders).

- To what extent did reentry participants demonstrate better recidivism, employment, health, and personal functioning outcomes than comparable, non-SVORI offenders?
- To what extent did the benefits derived from SVORI programming exceed the costs?

Exhibit 1. SVORI program logic model and evaluation framework



As noted previously, the local nature of the SVORI programs and the expectation that programs would tailor services to meet individual needs meant that the intervention to be evaluated was not a "program" in the typical conceptualization of the term (e.g., a residential drug treatment program or a cognitive behavior program). Instead, SVORI was a funding stream that agencies used to expand and enhance existing programs or to develop and implement new programs. Furthermore, individuals not in SVORI programs also generally received some services. *Thus, although the components of the individual programs were identified and the extent of service receipt was measured, the Multi-site Evaluation of SVORI was designed to determine whether individuals who participated in enhanced reentry programming, as measured by their enrollment in SVORI programs, had improved post-release outcomes.*

RESEARCH DESIGN

The Multi-site Evaluation of SVORI included an implementation assessment (to document the programming delivered across the SVORI programs) and an impact evaluation (to determine the effectiveness of programming). An economic analysis was also conducted in five of the impact sites to assess the extent to which program benefits exceeded costs; findings from this study are reported separately (see Cowell et al., 2009).

Twelve adult programs and 4 juvenile programs located in 14 states were included in the impact evaluation (adult only unless specified): Colorado (juveniles only), Florida (juveniles only), Indiana, Iowa, Kansas (adults and juveniles), Maine, Maryland, Missouri, Nevada, Ohio, Oklahoma, Pennsylvania, South Carolina (adults and juveniles), and Washington. These 16 programs were selected from the programs proposed by the 69 SVORI program grantees after a thorough selection process that included survey and telephone data collection from all programs and site visits to those programs deemed most promising as impact candidates. The impact sites represented a set of programs diverse in approach and geographically distributed. Although the resulting programs were not randomly selected, the adult programs were in states that, at year's end 2003, incarcerated about 20% of all adult state prisoners and supervised about 23% of all adult state parolees in the United States.[2] The impact sites were representative of all sites along many dimensions, although they were purposively selected. As expected, the impact sites did vary from the non–impact sites with regard to the criteria used in the selection process. In particular, the impact sites planned, generally, to have larger enrollments. Program directors for the impact sites also were more likely than program directors in non–impact sites to report being closer to full implementation. Overall, there were relatively few differences between impact sites and other sites with regard to program director turnover, basic program characteristics, targeted outcomes, pre-release and post-release service provision, agency involvement and contributions, stakeholder support and resistance, and pre-release and post-release geographic targeting. There were differences in expected pre-release and post-release service enhancements, which may have been associated with anticipated strength of implementation. (Readers interested in additional details are referred to Lattimore & Steffey, 2009; a comparison of impact and non-impact sites is included in the tables in Appendix C of that volume.)

The impact evaluation included pre-release interviews (conducted approximately 30 days before release from prison) and a series of follow-up interviews (conducted at 3, 9, and 15 months after release). In addition, oral swab drug tests were conducted following the 3- and 15-month interviews for respondents who were interviewed in a community setting. All interviews were conducted by experienced, trained field interviewers who conducted the interviews in private areas using computer-assisted personal interviewing (CAPI) technology. Recidivism data were obtained from the Federal Bureau of Investigation (FBI) NCIC and from state correctional and juvenile justice agencies. Nearly 2,400 prisoners returning to society—some of whom received SVORI programming and some of whom received "treatment as usual" in their respective states—were included in the impact evaluation.

Two of the adult sites randomly assigned individuals to their SVORI programs. In the other adult sites and the four juvenile sites, extensive effort was expended to identify comparison populations similar to those from which SVORI program participants were chosen. The evaluation team members worked with local personnel to identify the site-specific SVORI eligibility criteria and to establish procedures for selecting a comparison group. In most cases, the

[2] Estimates are based on data from the U.S. Bureau of Justice Statistics' *Adults on Parole in the United States* (Glaze & Palla, 2005) and *Prisoners under the Jurisdiction of State or Federal Correctional Authorities* (Harrison & Beck, 2005). The 12 states had an estimated prison population of 259,971 midyear 2004 (19.8% of all state prisoners) and 154,532 individuals on parole at year's end 2004 (22.9% of all individuals under state parole supervision).

comparison respondents were offenders who would have been eligible for (i.e., offered) SVORI if they had been in a facility that offered the SVORI program or if they had planned to return to a community that was targeted for a post-release SVORI program. The SVORI Multi-site Evaluation took an "intent-to-treat" approach with respect to the classification of respondents as *SVORI participants* or *non-SVORI comparison respondents.* Practically, this meant that an individual was classified as SVORI or non-SVORI, depending upon whether he or she was enrolled in a SVORI program at any time during the period between the receipt of the case from the site and the date the case was sent to the field to be scheduled for an interview.

Propensity score techniques (Rubin, 2006) were used to control for observed differences between the SVORI and non-SVORI groups.[3] The success of the propensity score model estimation is judged by the effectiveness of the strata or weights to reduce differences between the treatment and comparison groups on observed characteristics or, in the common terminology, "to achieve balance" between the two groups. Two ways of checking for balance are (1) to examine t-statistics comparing group means or (2) to examine standardized differences between the two groups (see, e.g., Rosenbaum & Rubin, 1985). Both approaches were used and indicated that the propensity score weights generated good balance for the data, across all four waves. The propensity score approach is useful only if it produces adequate overlap in the estimated probability distributions between groups. The propensity score models produced distributions with considerable overlap between SVORI and non-SVORI respondents for all three demographic groups. Item missingness was rare in the data, but imputation procedures were employed so that no observations would have to be excluded from the outcome analyses because of item missingness. Logit models to generate the probability of assignment to SVORI [p(SVORI), or p(S)] were estimated within the framework of SAS 9.1.3 PROC MI and PROC MIANALYZE for each of the three demographic groups (adult males, adult females, and juvenile males).[4] The independent variables for the propensity score models included only variables that reflected the values of measures before program assignment (effectively, pre-incarceration; see footnote 4).

Population average treatment effect weights were generated from the propensity scores and applied to the observations for analyses. SAS 9.1.3 Proc Survey Means was used to generate weighted means; Proc Survey Logistic and Proc Survey Regression were used to generate tests of significance (see Lattimore & Steffey, 2009). These weighted analyses were used to examine the treatment effects of SVORI program participation with respect

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[3] Propensity scoring methods are not without limitations. For example, use of propensity scores can only adjust for included covariates (Glynn, Schneeweiss, & Sturmer, 2006; Rosenbaum & Rubin, 1983). Unlike randomization, which tends to balance treatment and control groups on observed and unobserved covariates, use of propensity scores balances only on observed confounding covariates. The failure to include unobserved covariates can lead to biased estimates of treatment effects. However, if many of the covariates believed to be related to treatment assignment are measured, propensity score approaches (i.e., matching, stratification, regression adjustment) should yield consistent and approximately unbiased estimates of treatment effects (D'Agostino, 1998; Rosenbaum & Rubin, 1983). A second limitation is that propensity score approaches work better in larger samples; in studies with small samples, substantial imbalances of covariates may be unavoidable (Rubin, 1997). However, this is also true of randomized experiments and is not limited to propensity score methods. A third possible limitation is that included covariates that are strongly related to treatment assignment and only weakly correlated with the outcome are treated the same as covariates that are strongly related to both treatment assignment and outcome (Rubin, 1997). This might be considered a limitation because including irrelevant covariates can reduce efficiency. Rubin (1997) notes, however, that the potential biasing effects of failing to control for weakly correlated covariates are worse than the potential loss of efficiency from including them.

[4] The models included the following variables: age at incarceration, race [white and other indicators, with black as reference category], homeless prior to incarceration, employed prior to incarceration, married or in a steady relationship prior to incarceration, had alcohol or other drug treatment prior to incarceration, had mental health treatment prior to incarceration, victimization prior to incarceration, perpetrated violence prior to incarceration, substance use in 30 days prior to incarceration [alcohol, marijuana, other drugs], type(s) of instant offense(s) [person, property, drug, public order/other], age at first arrest, arrest rate, conviction rate, any juvenile detention, and incarceration rate.

to outcomes in housing; employment; family, peer, and community involvement; substance use; physical and mental health; and criminal behavior and recidivism. A thorough description of the study methodology is available in Lattimore & Steffey, 2009.

Although the response rates were reasonable, the possibility remains that respondents who dropped out of subsequent waves of interviews differed from those who completed the follow-up interviews. As preliminary evidence that the attrition was random or affected the SVORI and non-SVORI groups similarly, the SVORI and comparison groups were compared and were found to be similar at each wave on a range of characteristics. Further, results from models that examined for differences between groups with respect to response also suggested that SVORI program participation was not related to whether a participant responded. (At least one follow-up interview was obtained for 80% of the subjects; see Lattimore & Steffey, 2009, for details.)Key Findings

RESEARCH SUBJECT CHARACTERISTICS. The study participants were high-risk offenders who had extensive criminal and substance use histories, low levels of education and employment skills, and families and peers who were substance and criminal justice system involved. Nearly all of the respondents reported having used alcohol and drugs during their lifetimes. Most reported having used one or more illicit drugs during the 30 days before their current incarceration.

SVORI and non-SVORI respondents reported considerable involvement with the criminal justice system before their current incarceration. On average, the adult male respondents were 16 years old at the time of their first arrest and had been arrested more than 12 times.[5] The average adult female respondent was 19 years old at the time of her first arrest and had been arrested more than 10 times. The average juvenile male respondent was 13 at the time of his first arrest and had been arrested more than 6 times. In addition to their current terms of incarceration, most adult respondents had served a previous prison term, and most of the juvenile males reported multiple detentions.

NEEDS. The findings are consistent with previous research that offenders returning to their communities after serving time in prison (or juvenile detention) comprise a population with extremely high needs. For example, about 1 month before release, more than 90% of all respondents indicated that they needed more education and 80% or more said they needed job training. Nearly two-thirds of the women, 40% of the men, and one-third of the boys said that they needed substance use treatment. The data suggested high and relatively sustained expressed need for a variety of services, particularly in the employment, education, skills and transition services areas. The expressed needs remained high (if somewhat diminished from pre-release) up to 15 months after release from prison. Overall, there was little difference in reported needs between the SVORI and non-SVORI groups.

SERVICES. The report provides evidence that adults participating in SVORI programs received more services and programming, including programs to prepare for release, meeting with a case manager, and receiving a needs assessment, than did those who were not in a program. However, levels of provision for most services fell far short of 100%, were substantially below expressed needs for services, and declined substantially after release. Although juvenile subjects received higher levels of services than the adults, on average, there were few differences

[5] This measure of prior arrest recoded extreme values to the 95th percentile of reported arrests.

between SVORI and non-SVORI groups. Service receipt for both SVORI and non-SVORI respondents was highest during confinement for all three demographic groups.

POST-RELEASE OUTCOMES. For the adults, the significant—albeit less-than-universal—increase in service receipt associated with participation in SVORI programs was associated with moderately better outcomes with respect to housing, employment, substance use, and self-reported criminal behavior, although these improvements were not associated with statistically significant reductions in official measures of recidivism. As many of the previous evaluations of reentry programs have focused primarily on recidivism and substance use, this evaluation provided an opportunity to examine the impacts of reentry programming on an array of other important indicators of successful reintegration, including housing and employment.

The SVORI and non-SVORI groups of juvenile males showed few differences in outcomes. SVORI respondents were significantly more likely than non-SVORI respondents to be in school 3 months after release from confinement. Fifteen months after release, SVORI respondents were much more likely to have a job with benefits. No significant differences were found between SVORI and non-SVORI respondents in substance use, physical health, mental health, or recidivism outcomes.

CONCLUSIONS

Adult SVORI programs were successful in increasing the types and amounts of needs-related services provided to participants before and after release from prison; however, the proportion of individuals who reported having received services was smaller than the proportion that reported needs and, generally, was smaller than the proportion that the SVORI program directors reported that they expected to have received services. This finding is consistent with the fact that SVORI programs were still developing and implementing their programs and serves as a reminder that starting complex programs may require sustained effort over several years to achieve full implementation.

Service delivery declined substantially after release; therefore, overall, the programs were unable to sustain support of individuals during the critical, high-risk period immediately after release. This decline may be due to the programs' difficulty identifying and coordinating services for individuals released across wide geographic areas and, again, suggests the need for sustained effort to achieve full implementation. For programs releasing subjects to more limited geographic areas, the decline may reflect the difficulty in coordinating service delivery among multiple state (and in some cases private) organizations.

SVORI program participation resulted in modest improvements in intermediate outcomes for adults at levels consistent with findings from meta-analyses of single-program efforts (about 10%–20%), as discussed earlier. If the underlying conceptual model that links services to improved intermediate outcomes that in turn improve recidivism is correctly specified, the modest level of improvement in these intermediate outcomes may have been insufficient to result in observable reductions in recidivism (Lattimore et al., 2010).

Results from the evaluation of the four programs for juvenile males showed fewer differences in services provided than the adults did between the SVORI program participants and treatment as usual. However, SVORI program participants were significantly more likely than non-SVORI respondents to report having received employment-related services before release and in the first 3 months after release. As with the adults, the needs expressed by the juvenile males were higher—sometimes substantially higher—than reported receipt of services and programming. The findings suggest that programs should apply additional effort in evaluating the levels of services adequate to meet the expressed needs of these young serious offenders.

CURRENT STUDY: DATA AND METHODS

The current study extends previous work by examining not only the effect of SVORI program participation on outcomes but also the effects of specific types of services on outcomes. In addition, the new work extends the previous work into a multivariate framework, where individual characteristics and site are explicitly controlled. Finally, the current study extends the length of recidivism follow-up from 24 months to a minimum of 56 months for the adults and additional analytic models are employed to examine the timing and frequency of rearrest and reincarceration. Specifically, the purpose of the current study is to determine the effect of services on outcomes, while controlling for individual characteristics and the likelihood of being a SVORI program participant. The outcomes are in the housing, employment, substance use, and recidivism domains that were the focus of the reentry programming model that was the basis for the SVORI programs. Additionally, we examine the mortality of subjects in the initial years after release.

> *The current study moves beyond the earlier work, which examined only the impact of SVORI program participation on outcomes to examine the effects of specific service items on post-release outcomes. Multivariate models are estimated for 11 outcomes derived from the original interview data, as well as for rearrest and reincarceration outcomes measured up to 56 months after release.*

Key issues related to the original design and data collection include the following (see Lattimore & Steffey, 2009):

- Programs were selected for inclusion in the original impact evaluation after a thorough review of documents and program director data, visits to potential sites, consolidation of findings, and consultation with the National Institute of Justice. The goal of these deliberations was to identify a set of sites most likely to successfully implement their SVORI programs and to provide the program services to sufficient numbers of program participants to warrant inclusion in the evaluation. The adult sites, which were geographically distributed and represented a variety of program types, had about 20% of the nation's state prison population in 2003.
- In two of the adult sites, individuals were randomly assigned to the SVORI programs. For the other sites, considerable attention was expended to identify appropriate comparison population pools. Unweighted comparisons of the SVORI program participants and comparisons suggest that this attention was rewarded with groups that were similar on multiple dimensions.
- Remaining differences between treatment and comparison groups were addressed using propensity score methods (e.g., see Rubin, 2006). Logistic regression was used to estimate the likelihood of being assigned to SVORI for each demographic group. Balance checks on propensity-weighted variables showed no statistically significant differences between the groups for each wave of data for each demographic group, suggesting that the groups remained comparable for the successive waves.
- Although balance checks on each wave of data showed no differences between SVORI and non-SVORI groups, additional statistical tests suggested that once participation in SVORI was controlled, there was no residual differential attrition between the SVORI and non-SVORI groups. Therefore, no additional measures (beyond the propensity methods mentioned earlier) were implemented to control for nonresponse.

DATA

The data for these analyses include four waves of interview data and administrative data collected from departments of corrections and juvenile justice and the NCIC data obtained during the original Multi-site Evaluation of SVORI, supplemented with additional recidivism data obtained from the NCIC and mortality data.[6] The interview data were collected from SVORI program participants and comparison individuals from July 2004 through May 2007. Interviews were conducted about 30 days before release from prison and at 3, 9, and 15 months following release. The numbers of completed interviews by SVORI status and demographic group are shown in ***Exhibit 2***. Interview questions that were used to construct measures used in the analyses reported here are included in ***Appendix A***.

Exhibit 2. Completed interviews by wave, SVORI status, and demographic group

Group	Wave 1		Wave 2		Wave 3		Wave 4	
	SVORI	Non-SVORI	SVORI	Non-SVORI	SVORI	Non-SVORI	SVORI	Non-SVORI
Adult males	863	834	529	455	565	470	582	531
Adult females	153	204	110	134	119	134	124	152
Juvenile males	152	185	105	131	108	131	107	141
Total	1,168	1,223	744	720	792	735	813	824

Note: Wave 1 = 30 days pre-release; Wave 2 = 3 months post-release; Wave 3 = 9 months post-release; Wave 4 = 15 months post-release.

We used the evaluation participants' reports of service receipt as indicators of what was provided to these individuals during and after their incarceration. These measures do not address either the quality of the service (e.g., was it an evidence-based substance abuse treatment program delivered with fidelity?) or the dosage (e.g., how many sessions did the individual attend?).[7] These self-report measures were used because not all sites had complete and accurate service and program participation data. Even in sites where the SVORI programs were tracking the services provided to SVORI program participants, analogous data were often not available for the comparison subjects. Secondly, the only source of post-release service information for those not on probation or parole was the participant; even for those on supervision, accurate and complete information was not readily available for many sites. Thus, to have comparable data that could be applied across all sites, we used the participants' reports.

In the original analyses, we examined the receipt of a wide range of pre- and post-release services. For the current analyses, we focused on 12 services that have been identified in the literature as important either for a reentry program or for success after release:

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[6] These original data and all documentation from the Multi-site Evaluation of SVORI are available (with some restrictions) upon application to the National Archive of Criminal Justice Data, Inter-University Consortium of Political and Social Research, University of Michigan (http://www.icpsr.umich.edu/icpsrweb/NACJD/studies/27101). The 5-volume final report is available at http://www.nij.gov/nij/topics/corrections/reentry/evaluation-svori.htm.

[7] Although the receipt indicators show only that the individual thought he had received specific services, we also asked how helpful many of the services were. The response set was "very helpful," "somewhat helpful," "a little helpful," and "not at all helpful." In some preliminary analyses, we weighted service receipt by these measures and calculated weighted service bundle scores, anticipating that the weights would provide some measure of both quality and dosage. Specifically, we reasoned that someone who received only poor-quality services or only a limited amount of services would be more likely to say that the services were not helpful. In fact, most individuals who received services indicated that the services were either very or somewhat helpful. The correlation between the unweighted scores and the weighted scores exceeded 0.90.

1. ***CaseMgr***: Did individuals meet with a specific person who talked with them about issues or needs they had, tried to get them into services or programs, helped them get benefits or assistance, and monitored their progress?
2. ***Needs***: Did the individual have a needs assessment *or* a needs assessment specifically to help prepare for release?
3. ***RPlan***: Did the individual have a reentry plan *or* work with anyone to prepare for release?
4. ***RPrgm***: Did the individual participate in any programs *or* classes designed to help prepare for release?
5. ***LifeSk***: Did the individual receive assistance with any life skills?
6. ***EmplSer***: Did the individual receive any pre-release employment services or assistance directed at helping him/her find a job following release?
7. ***MHtx***: Did the individual receive mental health treatment or health care for emotional problems?
8. ***AODtx***: Did the individual receive any drug or alcohol treatment, including Alcoholics Anonymous or Narcotics Anonymous groups and drug education classes?
9. ***PersRel***: Did the individual receive assistance with working on personal relationships?
10. ***CrimAtt***: Did the individual receive training on how to change attitudes related to criminal behavior?
11. ***AngrMgt***: Did the individual participate in any anger management programs?
12. ***Educ***: Did the individual receive any educational services, such as general equivalency diploma (GED) or basic education classes?

We also combined these items into two service bundle scores—the practical services bundle (**PSB**), comprising ***CaseMgr***, ***Needs***, ***RPlan***, ***RPrgm***, ***LifeSk***, and ***EmplSrv***, and the individual change service bundle (**ICSB**), comprising ***MHtx***, ***AODtx***, ***PersRel***, ***CrimAtt***, ***AngrMgt***, and ***Educ***, so that we could examine whether receipt of more items within these bundles was associated with better outcomes.[8] The bundle scores were constructed by summing the number of service items in each bundle that was received by each individual.

Although we cannot address the quality of services that were provided between 2003 and 2007, there is no reason to believe that the quality would be any less than the average quality of these types of services being provided in institutions at that time.[9] Indeed, because of the care that we took in the original study to identify the impact sites, we would expect that these sites would have been *more* likely to provide good services. In particular, in selecting

[8] Initially, we focused on looking at how well the overall number of services received was associated with outcomes (for the adult male sample). We used continuous propensity score methods to develop models of number of services received and applied these weights to determine whether greater numbers of services received were associated with better outcomes conditioned on the expected numbers of services an individual received. These analyses revealed no useful associations between the numbers of services and outcomes. The initial analyses used the 22 service items included in the pre-release super bundle score described in Lattimore et al., 2009, although we subsequently reduced the items to the 12 shown above, dropping items like help obtaining housing, getting ID, etc. The motivation behind these analyses was the hypothesis that individuals receiving more services would do better than those who received fewer, other things equal. The failure to identify such an effect may be because of the confounding factor of need—individuals who don't need a service aren't going to be helped by receiving it, and the group of individuals receiving few services could include these individuals. The substance use, employment, and education histories of these individuals suggest, however, that most could have benefited from most of these 12 services (the exception, perhaps, being **MHtx**). This conclusion is reinforced by the high proportion of individuals who indicated that they needed these services at the initial interview that occurred shortly before their release. An alternative explanation is that our original hypothesis may be reasonable only if services are provided in the order of importance to the individual and not based on availability of the service at the institution. We know relatively little about the order in which services should be provided and whether services provide any value if individuals are not ready for them.

[9] The original evaluation did not include the resources to assess the quality of services. These programs were established in multiple prisons, including all prisons in some states. Dozens of programs and services were provided to the SVORI program participants and to the comparison subjects who were receiving services and programs under a treatment-as-usual model.

the sites for inclusion in the impact study we collected data and reviewed documents on all programs developed by the 69 SVORI grantees; site visits were conducted with programs that potentially met the predetermined impact site selection criteria. These criteria included an assessment that the program had clearly articulated elements and goals and that implementation had occurred or was very likely to occur. (Interested readers are referred to the original descriptions of the programs in Lattimore et al., 2004, and the full description of the study methods in Lattimore & Steffey, 2009.)

The data collected for the Multi-site Evaluation of SVORI was supplemented with additional recidivism data and mortality data for the adult evaluation participants from 11 of the 12 original SVORI sites and for the juvenile males from one of the four juvenile sites. These additional data provided a minimum of 56 months of follow-up recidivism data. Additional data were not obtained for the remainder of the evaluation participants because the original research agreements with the sites did not allow us to release identifiers to obtain additional data. In all, new arrest and mortality data were sought from the NCIC for 1,618 of the 1,697 adult males, 348 of the 357 adult females, and 79 of the 337 juvenile males who participated in the original evaluation.[10] NCIC data were obtained for 1,603 adult males, 343 of 348 adult females, and 74 of 79 juvenile males, producing a match rate of 98.8%. New incarceration data were obtained from the NCIC records for 1,181 adult male and 255 adult female participants from 7 of the original 12 sites, as well as for 73 of the juvenile males.[11] *As we were able to obtain additional data on only a small fraction of the original juvenile sample, we chose to focus on conducting multivariate analyses on the original juvenile data, which included all four participating juvenile sites and do not report results of models estimated on this smaller juvenile sample.*

The supplemental criminal history information obtained from the NCIC allowed for the investigation of recidivism outcomes beyond the 24-month follow-up period of the previous evaluation. Although the NCIC data have inherent limitations related to the comprehensiveness of data reported by each jurisdiction (e.g., some states report arrests only for felony offenses), the benefit of using the NCIC data is that they capture arrest records from across all U.S. jurisdictions, whereas state-level criminal history repositories capture only in-state arrest records. (See footnote 10.) Given our extensive experience working with the NCIC data, we feel it provides the most complete picture of criminal history and recidivism measured as new arrest.

We submitted to the NCIC personally identifying information, including name, date of birth, Social Security Number, and FBI number, for 2,045 subjects. (All research in the original Multi-site Evaluation and the present

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[10] One reviewer suggested that "NCIC data is notoriously inaccurate in providing a comprehensive account of recidivistic activity as not all local police departments report arrest and conviction data to the NCIC." S/he then suggested that we should have supplemented the NCIC data with state records. The NCIC has been transitioning from a system in which it maintained criminal history records submitted by the states or local law enforcement to a National Fingerprint File (NFF) system "which when fully implemented, would establish a totally decentralized system for the interstate exchange of criminal history records." (http://www.bjs.gov/index.cfm?ty=tdtp&tid=4). States participating as NFF states are linked through NCIC's Interstate Identification Index and are queried directly with respect to criminal history records. Five of our 14 states are among the 15 current NFF states (CO, FL, KS, MD, and OK), and, thus, records for these five states came directly from the state agencies. Further, we received numerous rap sheets on our SC subjects from NC and GA which are also NFF states. Overall, we obtained successful matches for 2,016 of 2,045 identifiers for a 98.6% "hit" rate. The original NCIC data and the additional data showed extensive criminal arrest histories for many of the subjects and very active post-release arrest records, again for many of the subjects. Although it is a certainty that these data do not include all arrests experienced by our subjects, we are confident that the data do include all arrests reported by law enforcement agencies to the state repositories. Further, using NCIC records allowed us to obtain data from all states where our subjects were arrested which we would not have been able to obtain if we had worked strictly with the states included as impact sites.

[11] Incarceration data were determined to be complete in the obtained NCIC data for these seven states, whereas data were not complete for the other states.

analyses was conducted with the oversight of an RTI Institutional Review Board, Office of Human Research Protection Federalwide Assurance #3331.) The initial match between identifiers and the NCIC databases was conducted in November 2010 and provided arrest records for 1,965 individuals or 96.1%. We resubmitted information on 80 subjects without initial matches or for whom we received only partial criminal history records. A second match was conducted in December 2010 and yielded data on 51 of these. Overall, we obtained a successful match on 2,016 (98%) subjects. Complete reincarceration data were available from the NCIC for 7 of the 12 states that enrolled adult subjects (IA, IN, MD, SC, OH, OK, and WA). The reduced incarceration sample included 73% of the original sample (1,436 subjects, including 1,181 male subjects and 255 female subjects), for which 1,423 (99%) were successfully matched into the NCIC data.

The NCIC arrest data for the full study sample and incarceration data for the reduced incarceration sample were processed using the four-step procedure developed during the previous evaluation (see Lattimore & Steffey, 2009). According to NCIC procedure, the requested criminal history information arrived in two formats: (1) Portable Document Format (PDF) files that contain criminal history records and (2) hardcopy criminal records for study subjects with arrest records in states participating in the National Fingerprint File (NFF) program. As a first step, the criminal history records contained in the PDF files were converted to text files and the information of interest (e.g., arrest date, charge) was parsed for analysis purposes. This task required a considerable amount of quality checking, because criminal history records vary in structure and format across jurisdictions, which can disrupt the parsing routine and cause errors. The second step, processing of hardcopy criminal records, required manual abstraction of the information of interest into a database. Once in electronic format, these records were combined with the parsed criminal history records to create one electronic file containing complete criminal histories for study subjects. In the third step, the arrest text literals were coded into distinct offense categories to standardize offense information across jurisdictions. Given the large number of arrest literals (approximately 33,000) associated with study subjects, the evaluation team developed a semi-automated process to categorize the text literals into (1) intermediate-level offense categories (e.g., National Corrections Reporting Program offense categories) and (2) higher-level offense categories of person, property, drug, and public order or "other." The last step involved performing an extensive quality check before creating a useable dataset, which was particularly important given the varying structure, format, and content of the criminal history records provided by NCIC and the dual methods for processing PDF and National Fingerprint File hardcopy records.

To obtain mortality data, we submitted to a death records audit company personally identifying information, including name, date of birth, and Social Security Number, for 2,045 subjects. The match was conducted in May 2011 and yielded information on the date of death for 54 subjects, including 44 (2.8%) male subjects and 10 (2.9%) female subjects. No death records were returned for any of the subjects in the reduced sample of juvenile males.

As noted earlier, we were able to obtain mortality and additional recidivism data for only a small portion of the juvenile male sample. Given this limitation, we decided to only use the full juvenile male sample available from the original study to explore outcomes, including recidivism outcomes based on official administrative records, during the shorter follow-up period of the previous evaluation.

METHODS

The purpose of the analyses conducted for the current study is to determine the effect of pre-release services on post-release outcomes, while controlling for individual characteristics and the likelihood of being a reentry program participant. The outcomes are in the housing, employment, substance use, and recidivism domains that were the focus of the reentry model that was the conceptual basis for the SVORI program.

PROPENSITY SCORE METHODS

Weights developed in the original evaluation were used (see Lattimore & Steffey, 2009). These weights were based on propensity scores of the likelihood that individuals with specified characteristics would be assigned to a SVORI program. The propensity score models included 24 variables drawn from the Wave 1 interviews as shown in footnote 4. (The model estimated for the juvenile males included 23 variables.) Item missingness was relatively rare in the data, but imputation procedures were employed so that no observations had to be dropped from the outcome analyses because of missing propensity scores. Logit models to generate the probability of assignment to SVORI [p(SVORI) or p(S)] were estimated within the framework of SAS 9.1.3 PROC MI and PROC MIANALYZE for each of the three demographic groups (adult males, adult females, and juvenile males). These SAS procedures accommodated item missingness by imputing values for missing data. A two-step imputation procedure was used within PROC MI, in which (1) a Monte Carlo procedure (MCMC) was employed to impute values until the data set reached a pattern of monotone missingness and then (2) regression was employed to impute the remaining values (see Allison, 2001; SAS Institute, 2004). The resulting models were then used to calculate propensity scores for each of our subjects.

The propensity scores then were used to develop weights to examine the *population average treatment effect* (PATE) for the outcome models. The PATE is the average treatment effect one would expect if the population were treated. The PATE weights were calculated as follows:

If subject *i* was a SVORI participant,

$$w_i = \frac{1}{\hat{p}_i}$$

or else

$$w_i = \frac{1}{1 - \hat{p}_i}.$$

Balance checks confirmed that adjustments with the propensity score weights eliminated any unweighted differences between the treatment and comparison groups. As noted earlier, weights based on propensity scores resulted in balance across all four waves of data, suggesting no differential attrition between treatment and comparison subjects. A subsequent attrition analysis confirmed that, once the likelihood of enrollment in a reentry program was controlled for, no additional correction was needed. A full description of these methods is available in Lattimore and Steffey (2009).

For the propensity scoring approach, we initially explored many alternatives to using the SVORI indicator as the measure on which to balance. The initial intent had been to estimate continuous propensity scores based on number of services received. These models were not predictive of any outcomes. Subsequently, we explored other alternatives. For example, instead of balancing on SVORI, we used “high” and “low” receipt of bundles of services. However, these alternatives did not provide reliable estimates that were consistent with previous findings (see footnote 8).

ANALYTIC APPROACH

The general approach to the outcome models was to include all control variables (individual characteristics shown later in ***Exhibit 14*** including site indicators and SVORI indicator) plus either (1) the 12 service items OR (2) the two service bundles, **PSB** and **ICSB**.

LOGISTIC REGRESSION

Logistic regression models were estimated on dichotomous outcomes using Proc SurveyLogistic in SAS 9.2. Propensity score weights were included in these models as described above.

To address the issue of for whom services were effective, we stratified the *adult male population* on several key variables. (Sample sizes were insufficient for these analyses for the adult female and juvenile male samples.) In particular, we stratified on risk (based on **HiRisk**), age at release, whether the individual had been employed during the 6 months before the instant incarceration, and whether he reported needing to change his attitude toward criminal behavior "a lot" during the pre-release interview. The resulting strata were split as follows:

- Age: 835 adult males were 27 years or younger and 862 were older than 27 years
- Employed: 1,120 were employed in the 6 months before incarceration; 576 were not
- Change attitude: 609 said they needed to change their attitudes toward criminal behavior "a lot"; 1,084 said "a little" or "not at all"
- Risk: 734 were scored high risk; 963 were scored low or medium (mostly medium) risk

SURVIVAL ANALYSES

Gap analysis (Cook & Lawless, 2007) was used to examine the time to rearrest for multiple arrest events. Successive exponential survival models were estimated in R (R Development Core Team, 2011) using the "survival" package (Therneau & original Splus->R port by T. Lumley, 2011) on the time between arrest events. For example,

- Gap1 = days between release and first new arrest
- Gap2 = days between first arrest and second arrest, conditioned on having a first arrest
- Gap3 = days between second and third arrests, conditioned on having a second arrest
- Gap4 = days between third and fourth arrests, conditioned on having a third arrest

For the adult males, we had sufficient events to model the first four episodes; for the adult females and juvenile males, we were able to model only the first two episodes.

Several other functional forms were tried (e.g., lognormal and Weibull), and the exponential provided the best fit to the arrest data using the Akaike Information Criterion (AIC; Akaike, 1974) and the Bayesian Information Criterion (BIC, Schwarz, 1978). The model at each gap time included all previous gap times as covariates to control for within-person autocorrelation of gap times. A respondent who had no arrests was not at risk for a second arrest and had missing data in the gap 2 model. A respondent who had a first but not a second arrest was censored in the gap2 model, and so on.

In addition, respondents who were incarcerated between their g and g+1 arrests were considered censored in the g+1 gap model, and their incarceration time was used as the censoring time. This was done because, although it is possible to be arrested while in prison, the in-prison opportunity to engage in criminal activity and the risk of arrest

differ from the opportunity and risk in the community. Unfortunately, release date was often missing, so we could not define the period of incarceration and exclude the period from the gap analysis (hence, there was some measurement error). Also note that most participants were followed beyond the fixed follow-up period of 1,694 days. To fully use all available data, we obtained survival and censoring times from the latest available follow-up rather than from the fixed follow-up period. Model estimation included the PATE weights described above.

Lognormal survival models were estimated on the time to first incarceration for the samples. These models were estimated using R (R Development Core Team, 2011). Using a similar approach as the gap analyses, we found that the AIC and BIC suggested the lognormal survival model fit the reincarceration data better than the exponential survival model. The exponential gap arrest models and lognormal reincarceration models were estimated using the set of controls and service indicators described previously.

NEGATIVE BINOMIAL MODELS

Over the length of the extended follow-up period, many individuals accumulated multiple arrests. Negative binomial count models were estimated in R (R Development Core Team, 2011) using the "pscl" package (Jackman, 2011). The same variable sets included in the logistic regressions and survival models were included in these models. Vuong's non-nested hypothesis test indicated that the zero-inflated negative binomial modeling was not needed for the data (Vuong, 1989; Zeileis, Kleiber, & Jackman, 2008). The standard negative binomial model requires that all cases be followed for the same period of time so that the coefficients can be interpreted on a single time scale. Hence, counts up to the fixed time period of 1,573 days for the adults and 676 days for the juvenile males were used.

In the following sections, we describe subject characteristics. We then present outcomes for the analyses for the adult male sample, the adult female sample, and the juvenile male sample. We end with a discussion of the policy implications of the findings.

SUBJECT CHARACTERISTICS

The original study sample included 1,697 adult males, 357 adult females, and 337 juvenile males. The number of subjects completing each wave of interview data collection was shown previously in ***Exhibit 2***. For the recidivism studies using arrests from the NCIC data, the sample excludes adults from Maine for whom we did not have permission to release identifiers providing a sample of 1,618 adult males and 348 adult females. Arrest data for the juvenile males were restricted to the data collected for the original study and include all 337 juvenile males. For the recidivism studies using reincarceration from the NCIC data, the sample includes only adults from the seven states (IA, IN, MD, OH, OK, SC, and WA) for whom the reincarceration data were complete, for a total of 1,181 adult males and 255 adult females.

OUTCOMES

We focus on eleven outcome variables from the follow-up interviews; nine are measured at 3, 9, and 15 months after release. The remaining two variables, which combine self-report and drug test results, are measured only at 3 and 15 months after release. These interview-based outcome measures with the weighted mean values (see Methods section) and standard errors for the three demographic groups are shown in ***Exhibit 3***.

Exhibit 3. Outcomes from survey data for adult males, adult females, and juvenile males

Outcome	Description	Adult Males			Adult Females			Juvenile Males		
		N	Mean	SE	N	Mean	SE	N	Mean	SE
Housing										
HouInd3	Housing independence at 3-month interview in 3 months since release (1 = independent, 0 = dependent)	984	0.708	0.015	244	0.671	0.032	236	0.271	0.030
HouInd9	Housing independence since last interview (last 6 months) (1 = independent, 0 = dependent)	1035	0.792	0.013	253	0.747	0.029	239	0.396	0.034
HouInd15	Housing independence since last interview (last 6 months) (1 = independent, 0 = dependent)	1113	0.712	0.014	276	0.716	0.029	248	0.409	0.034
HouChal3	Housing challenges at 3-month interview in 3 months since release (1 = challenges, 0 = no challenges)	984	0.173	0.012	244	0.205	0.027	236	0.101	0.021
HouChal9	Housing challenges since last interview (last 6 months) (1 = challenges, 0 = no challenges)	999	0.176	0.012	249	0.285	0.030	230	0.089	0.020
HouChal15	Housing challenges since last interview (last 6 months) (1 = challenges, 0 = no challenges)	971	0.219	0.014	254	0.235	0.028	230	0.100	0.023
Employment										
EMP3	Currently supports self with job at 3-month interview (1 = Yes, 0 = No)	980	0.619	0.016	244	0.511	0.034	236	0.360	0.034
EMP9	Currently supports self with job at 9-month interview (1 = Yes, 0 = No)	981	0.682	0.015	242	0.586	0.034	230	0.352	0.034
EMP15	Currently supports self with job at 15-month interview (1 = Yes, 0 = No)	921	0.660	0.016	247	0.567	0.033	227	0.480	0.037
StblEmp3	Worked at least 1 day each month in 3 months since release (1 = Yes, 0 = No)	733	0.382	0.018	151	0.280	0.039	123	0.203	0.039
StblEmp9	Worked at least 1 day each month since the 3-month interview (1 = Yes, 0 = No)	797	0.438	0.018	179	0.434	0.039	144	0.231	0.036

(continued)

Exhibit 3. Outcomes from survey data for adult males, adult females, and juvenile males (continued)

Outcome	Description	Adult Males			Adult Females			Juvenile Males		
		N	Mean	SE	N	Mean	SE	N	Mean	SE
StblEmp15	Worked at least 1 day each month since the 9-month interview (1 = Yes, 0 = No)	714	0.430	0.019	175	0.432	0.040	153	0.274	0.038
FormalPay3	Receives/d formal pay for current/most recent job at 3-month interview (1 = Yes, 0 = No)	733	0.797	0.015	151	0.822	0.031	123	0.672	0.046
FormalPay9	Receives/d formal pay for current/most recent job at 9-month interview (1 = Yes, 0 = No)	797	0.784	0.015	179	0.826	0.028	144	0.744	0.040
FormalPay15	Receives/d formal pay for current/most recent job at 15-month interview (1 = Yes, 0 = No)	714	0.763	0.016	175	0.831	0.030	153	0.736	0.039
Benefits3	Current/last job at 3-month interview has benefits (1 = Yes, 0 = No)	727	0.434	0.019	149	0.341	0.041	123	0.318	0.044
Benefits9	Current/last job at 9-month interview has benefits (1 = Yes, 0 = No)	794	0.479	0.018	179	0.373	0.038	142	0.430	0.046
Benefits15	Current/last job at 15-month interview has benefits (1 = Yes, 0 = No)	710	0.486	0.019	174	0.401	0.039	152	0.494	0.044
Victimization										
Victim3	Any victimization since release (1 = Yes, 0 = No)	983	0.258	0.014	244	0.188	0.026	236	0.348	0.035
Victim9	Any victimization since 3-month interview (1 = Yes, 0 = No)	984	0.379	0.016	244	0.340	0.033	229	0.532	0.036
Victim15	Any victimization since 9-month interview or last 6 months if no 9-month interview (1 = Yes, 0 = No)	919	0.391	0.016	247	0.374	0.033	227	0.480	0.037
Criminal Justice										
SupCon3	Failed to comply with conditions of supervision since release (1 = Yes, 0 = No)	816	0.218	0.015	194	0.197	0.030	203	0.171	0.028
SupCon9	Failed to comply with conditions of supervision since 3-month interview or in last 6 months if no 9-month interview(1 = Yes, 0 = No)	692	0.305	0.018	165	0.342	0.039	106	0.273	0.046
SupCon15	Failed to comply with conditions of supervision since 9-month interview or last 6 months if no 9-month interview (1 = Yes, 0 = No)	580	0.380	0.021	127	0.350	0.045	77	0.292	0.069
AnyCrime3	Self report at 3-month interview of committing any crime since release but before any reincarceration	984	0.239	0.014	244	0.199	0.028	236	0.246	0.030
AnyCrime9	Self report of committing any crime since the 3-month interview or in the previous 6 months if no 3-month interview, but before any reincarceration	1035	0.388	0.015	253	0.282	0.031	239	0.442	0.036
AnyCrime15	Self report of committing any crime since the 9-month interview or in the previous 6 months if no 9-month interview, but before any reincarceration	1113	0.363	0.015	276	0.329	0.030	248	0.408	0.034

(continued)

Exhibit 3. Outcomes from survey data for adult males, adult females, and juvenile males (continued)

Outcome	Description	Adult Males			Adult Females			Juvenile Males		
		N	Mean	SE	N	Mean	SE	N	Mean	SE
Substance Use										
AnyDrug3	Any self-reported drug use at 3-month interview since release or tested positive on urine test or refused urine test (see Notes)	984	0.498	0.016	243	0.416	0.033	236	0.480	0.036
AnyDrug15	Any self-reported drug use at 15-month interview since the 9-month interview or past 6 months if no 9-month interview or tested positive on urine test or refused urine test (see Notes)	921	0.621	0.016	247	0.575	0.033	227	0.605	0.037
AnyDrug3_30	Any self-reported drug use at 3-month interview in the past 30 days or tested positive on urine test or refused urine test (see Notes)	984	0.468	0.016	243	0.374	0.033	236	0.448	0.035
AnyDrug15_30	Any self-reported drug use in the past 30 days at 15-month interview or tested positive on urine test or refused urine test (see Notes)	921	0.555	0.017	247	0.514	0.034	227	0.560	0.037

Notes: SE = standard error of mean. 3, 9, and 15 appended to outcome names indicate measures at the 3-, 9-, and 15-month interview. Housing independence (HouInd) is defined as living in their own house or apartment, contributing to the costs of housing, or having name on lease or mortgage (measured before current incarceration if incarcerated at the time of the interview; missing if incarcerated the entire period since last interview). Housing challenges (HouChal) is defined as homeless, having trouble finding a place to live, or current living situation not as good as last; missing if incarcerated the entire period since last interview. EMP3, 9, and 15 measure "currently supports self with job" and is as asked; is measured before current incarceration if incarcerated at the time of the interview (missing if incarcerated the entire period since last interview). StblEmp9 and 15 are missing if incarcerated the entire period since last interview. FormalPay9 and 15 are missing if did not work in entire period since last interview. Benefits3, 9, and 15 are defined as job that provides health insurance or paid leave; is measured before current incarceration if incarcerated at the time of the interview (missing if incarcerated the entire period since last interview or if no employment). AnyDrug3 and 15 reflect self report of any drug use since release (3-month interview) or since last interview (15-month interview), positive for any drug on urine screen, or refusal to agree to a urine test; drug tests were given only at 3 and 15 months; incarcerated individuals were not tested and values reflect only whether they reported the use of any drugs before their current incarceration; for the 15-month measures, data were missing for individuals incarcerated during the entire period since last interview.

We have administrative measures of rearrest and reincarceration from the NCIC. The length of the follow-up period varies across individuals (i.e., data are available for a longer period for respondents who were released early in the study period). Given this variation, we examine these measures in two ways: (1) the time period for which data are available for all respondents (hereafter referred to as "fixed follow-up period") and (2) the maximum time period for which data are available on at least one respondent (hereafter referred to as "variable follow-up period"). The fixed follow-up period was approximately 56 months for the adults and 24 months for the juveniles. ***Exhibit 4*** provides recidivism statistics for both the fixed and variable follow-up periods. The "Reinc Subsample" is adults for whom additional reincarceration data were obtained from the NCIC records.

Exhibit 5 shows the cumulative failure distributions for time to first arrest and incarceration for the three demographic groups after release. As can be seen, most subjects were rearrested during the follow-up period, and a substantial proportion was reincarcerated.

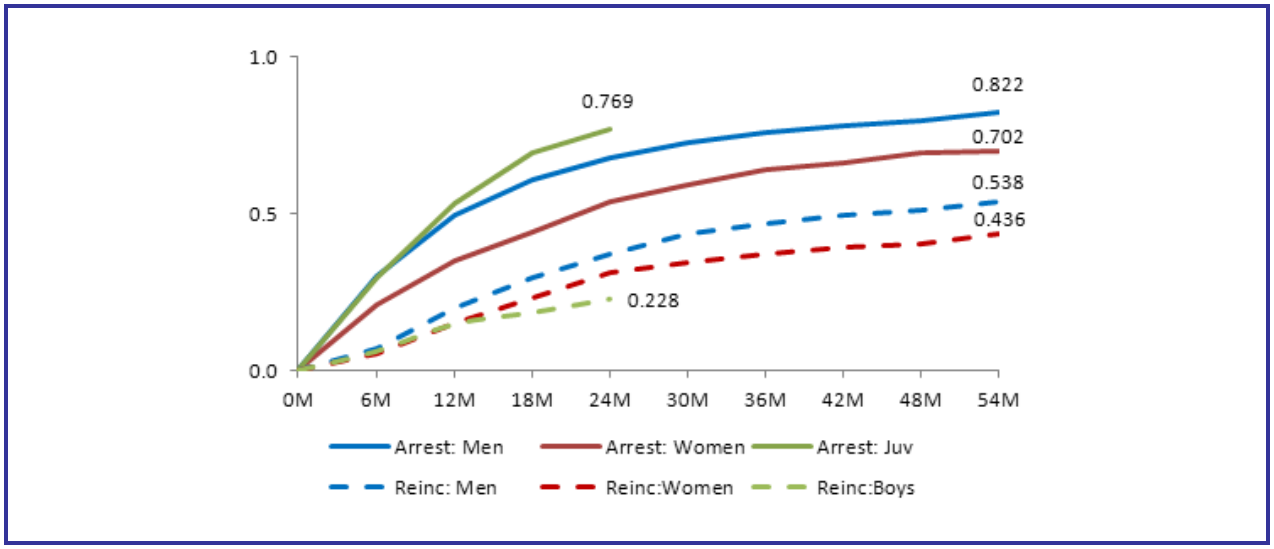
Exhibit 6 shows the count of post-release arrests and reincarcerations in the fixed follow-up period. As can be seen both distributions are highly skewed, as would be expected. Most subjects had at least one arrest, with substantial numbers having 2 or more.

Exhibit 4. Recidivism of adult male, adult female, and juvenile male study participants

Recidivism Measures	Adult Males		Adult Females		Juvenile Male Sample
	Full Sample	Reinc Subsample	Full Sample	Reinc Subsample	
Rearrest					
N	1,618	1,181	348	255	337
Fixed follow-up period (days)	1,694	1,745	1,744	1,752	676
N (%) arrested within fixed follow-up period	1,335 (82.5%)	1,015 (85.9%)	253 (72.7%)	190 (74.5%)	259 (76.9%)
Variable follow-up period (days)	2,290	2,290	2,302	2,282	1,207
N (%) arrested variable follow-up	1,368 (84.6%)	1,036 (87.7%)	259 (74.4%)	194 (76.1%)	283 (84.0%)
Mean time to arrest (if arrested, days)	408	394	465	413	258
Reincarceration					
N		1,181		255	337
Fixed follow-up period (days)		1,745		1,752	676
N (%) reincarcerated within fixed follow-up period		648 (54.9%)		113 (44.3%)	73 (21.7%)
Variable follow-up period (days)		2,290		2,282	1,207
N (%) reincarcerated in variable follow-up		678 (57.4%)		115 (45.1%)	95 (28.2%)
Mean time to incarceration (if incarcerated, days)		612		611	323

Notes: Full sample = Adults from 11 of the original 12 SVORI evaluation sites; Reinc subsample = Adults from 7 of the 11 sites for which NCIC records included incarcerations.

Exhibit 5. Cumulative failure distributions for rearrest and reincarceration for adult male, adult female, and juvenile male evaluation participants



Notes: Arrest is time to first arrest after release; Reinc is time to first reincarceration after release. Data were available only through 24 months for the juvenile male sample.

Exhibit 6. Count of post-release arrest and incarceration events in fixed follow-up period

	Arrests			Incarcerations		
Events*	Adult Males	Adult Females	Juvenile Boys	Adult Males	Adult Females	Juvenile Boys
0	283	95	78	503	140	264
1	260	69	87	411	88	60
2	256	49	45	203	15	11
3	205	32	44	43	8	2
4	161	21	39	16	4	0
5	111	22	13	2	0	0
6	85	13	10	2	0	0
7	65	6	10	0	0	0
8	54	8	5	1	0	0
9	41	4	4	0	0	0
10	22	7	1	0	0	0
11	22	2	0	0	0	0
12	11	5	0	0	0	0
13	10	3	0	0	0	0
14	8	1	0	0	0	0
15	6	2	1	0	0	0
16	7	2	0	0	0	0
17	3	0	0	0	0	0
18	2	2	0	0	0	0
19	0	0	0	0	0	0
20	1	1	0	0	0	0
21	1	0	0	0	0	0
22	0	0	0	0	0	0
23	0	0	0	0	0	0
24	0	1	0	0	0	0
25	1	1	0	0	0	0
26	2	1	0	0	0	0
34	0	1	0	0	0	0
45	1	0	0	0	0	0

**Number of events after release in a fixed time period of 1,694 days for adults and 676 days for juvenile males.*

SERVICE MEASURE VARIABLES

We are interested in determining the effects of 12 individual pre-release service items both separately and combined into two pre-release service bundles.[12] We focus on pre-release service delivery for several reasons.

[12] We reduced the number of items from our earlier work to include only items that were potentially more substantive. In earlier work (e.g., Lattimore & Visher, 2009; Winterfield et al., 2006) looking at self report of service receipt, we considered four bundles of services: Coordination Bundle that included needs assessment, meeting with case manager, needs assessment specifically for release, reentry plan developed, and worked with anyone to plan for release; Employment/Education/Skills Bundle that included any employment services, any educational services, money management training, life skills, help with personal relationships, and training to change attitudes towards criminal behavior; Transitional Services Bundle that included programs to prepare for release, classes for release, legal assistance, financial assistance, public health care insurance, mentor, documents for employment, help finding a place to live, transportation assistance, drivers license, and information on clothing/food banks; and Health Services Bundle that included medical treatment, dental treatment, mental health treatment, substance use treatment, group for abuse victims, and anger management. For the current work, we eliminated some of these services from consideration (money management training, legal assistance, financial assistance, public health care insurance, documents for employment, help finding a place to live, transportation assistance, drivers license, clothing/food banks, medical treatment, dental treatment, and group for abuse victims) and

First, because we rely on self-report service receipt data, we can maximize our sample by using only Wave 1 data. Second, on average, service receipt was substantially higher before release than after. For example, in the original multi-site evaluation, we constructed service receipt super bundle scores that included 20–25 service items, depending on interview wave and whether reports were from adult or juvenile respondents. These scores were calculated by adding the number of services reported, dividing by the total number of services, and multiplying by 100, generating scores that ranged from 0 to 100. For the adult men, the super bundle scores were 34, 18, 13, and 9 for Waves 1, 2, 3, and 4. For the adult women, the super bundle scores were 45, 28, 21, and 16. For the juvenile males, the scores were 38, 19, 12, and 9. (See Lattimore & Visher, 2009.) Thus, on average, respondents received relatively few services after release. Finally, we did estimate random-effects models that included measures of service receipt from each wave, along with other time-varying covariates. Results did not differ substantively from the more straightforward analyses presented here and thus are not discussed further.

These measures and their means and standard errors (propensity score weighted; see Methods section) are shown in ***Exhibit 7***. These service items include those that provide individuals with practical assistance as well as those that are postulated to yield individual change. The practical services also comprise a set of services and programs that would constitute a minimum set of employment-oriented reentry services: meeting with a case manager, receiving a needs assessment (to match services with needs), developing a reentry plan or participating in reentry planning, taking programs or classes to prepare for release, receiving life skills assistance, and receiving any employment-related services (MacKenzie, 2006). The **PSB**, the sum of the number of these practical services received, was also calculated for each participant. The individual change services include receipt of mental health treatment, substance abuse treatment, assistance with personal relationships, training to change criminal attitudes or behaviors, anger management classes or treatment, and educational programs. An **ICSB** was calculated by summing the number of different individual services received. We also include an indicator of SVORI program participation to accommodate any effects of participation in a reentry program not specifically captured by the service items.

The bivariate correlations among these service items for the adult male subjects are shown in ***Exhibit 8***. Pearson correlations significantly different from zero at the 0.05 level are in bold; cells containing correlations larger than 0.3 are highlighted. As can be seen, the correlations are stronger among the **PSB** items than among the **ICSB** items or between the **PSB** and **ICSB** items. The correlation between each item and SVORI program participation was about 0.3 for only one item—having a reentry plan—for the adult males' data. Given that SVORI program participation was supposed to increase access to services, this matrix shows that, although service access was increased for SVORI participants (10 of 12 service item-SVORI correlations are significant), the differences were not large. Similar correlation matrices for the adult women and juvenile males are shown in ***Exhibits 9*** and ***10***. Unlike for the adult males for which the correlation between SVORI and each service item was greater than 0.3 for only one service item, for data from the adult females the correlations between SVORI and five service items were larger than 0.3. These items were four of the six **PSB** items (**CaseMgr**, **Needs**, **RPlan**, **LifeSk**) and one **ICSB** item (**CrimAtt**). The correlations for the data from the juvenile males showed relatively few large correlations. For example, having a reentry plan was correlated about 0.3 only with participation in a reentry program or class. The SVORI program indicator was not strongly correlated with any of the service items, and in four instances the correlations were actually negative (only two significant at the 0.05 level).

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combined some indicators into a single measure (two needs assessment measures, reentry plan or worked with anyone to plan for release, programs or classes for release). In addition, in preliminary work for this study we also added to the previously considered set of services "receipt of faith-based services." The faith-based services showed no effect, so in the interest of parsimony we did not include them in the final set of covariates.

Exhibits 11 through ***13*** show the correlations between the site indicators and the service items for the three demographic groups. The purpose of these analyses was to ensure that findings with respect to service receipt were not serving as proxies for site (e.g., if all or most people who received a service were from a single site). As can be seen in these three exhibits, this is not the case. Most of the correlations are small and insignificant. Adults appear to have been somewhat more likely to report service receipt in Iowa and somewhat less likely in Indiana and South Carolina, but, again, in most cases the correlations were small and insignificant. Similarly, juvenile males from Colorado were somewhat more likely to report receipt of services, but overall it appears that there was a reasonable distribution of service provision across the sites. Highlighted cells have $r \geq 0.30$; **bold** entries are significant at $p < 0.05$.

Exhibit 7. Pre-release service items for adult males, adult females, and juvenile males

Service	Description	Adult Males			Adult Females			Juvenile Males		
		N	Mean	SE	N	Mean	SE	N	Mean	SE
PSB Practical Services Bundle		1697	2.947	0.048	357	3.376	0.106	337	3.917	0.099
CaseMgr	Met with case manager (1 = Yes, 0 = No)	1694	0.535	0.012	355	0.513	0.028	336	0.884	0.019
Needs	Received a needs assessment (1 = Yes, 0 = No)	1688	0.606	0.012	353	0.707	0.026	327	0.837	0.022
RPlan	Had a reentry plan/did reentry planning (1 = Yes, 0 = No)	1679	0.551	0.012	354	0.583	0.028	332	0.768	0.027
RPrgm	Took program/class to prepare for release (1 = Yes, 0 = No)	1696	0.667	0.012	357	0.775	0.023	334	0.651	0.029
LifeSk	Received life skills assistance (1 = Yes, 0 = No)	1693	0.317	0.011	357	0.437	0.028	335	0.482	0.030
Employ	Received any employment-related services, program, or classes (1 = Yes, 0 = No)	1696	0.283	0.011	357	0.377	0.027	335	0.345	0.029
ICSB Individual Change Services Bundle		1697	2.021	0.040	357	2.432	0.098	337	3.478	0.086
MHTx	Received mental health treatment (1 = Yes, 0 = No)	1675	0.175	0.009	357	0.416	0.028	336	0.277	0.027
AODTx	Received AOD treatment (1 = Yes, 0 = No)	1696	0.430	0.012	357	0.445	0.028	337	0.599	0.030
PersRel	Received assistance working on personal relationships (1 = Yes, 0 = No)	1697	0.208	0.010	357	0.323	0.027	337	0.365	0.029
CrimAtt	Received training on how to change attitudes related to criminal behavior (1 = Yes, 0 = No)	1697	0.435	0.012	357	0.466	0.028	335	0.740	0.028
AngrMgt	Participated in anger management programs (1 = Yes, 0 = No)	1696	0.299	0.011	357	0.275	0.025	337	0.556	0.030
Educ	Received any educational services such as GED or basic education classes (1 = Yes, 0 = No)	1697	0.477	0.012	357	0.507	0.028	337	0.948	0.013
SVORI	SVORI program participant (1 = Yes, 0 = No)	1697	0.500	0.012	357	0.497	0.028	337	0.504	0.030

Notes: SE = standard error of the mean. CaseMgr = case manager; Needs = needs assessment; RPlan = reentry plan; RPrgm = reentry program/class; LifeSk = life skills; EmplSrv = employment services; MHtx = mental health treatment; AODtx = substance abuse treatment; PersRel = help with personal relationships; CrimAtt = training to change attitude towards criminal behavior; AngrMgt = anger management; Educ = educational services; GED = general equivalency diploma; SVORI = Serious and Violent Offenders Reentry Initiative.

Exhibit 8. Pearson correlation coefficients between pre-release service items for adult males

	CaseMgr	Needs	RPlan	RPrgm	LifeSk	EmplSrv	MHtx	AODtx	PersRel	CrimAtt	AngrMgt	Educ	PSB	ICSB	SVORI
CaseMgr	1.00	**0.49**	**0.36**	**0.28**	**0.30**	**0.26**	**0.11**	**0.24**	**0.21**	**0.28**	**0.19**	**0.09**	**0.67**	**0.32**	**0.26**
Needs	**0.49**	1.00	**0.40**	**0.38**	**0.33**	**0.31**	**0.12**	**0.28**	**0.24**	**0.37**	**0.24**	**0.15**	**0.72**	**0.40**	**0.19**
RPlan	**0.36**	**0.40**	1.00	**0.39**	**0.40**	**0.37**	**0.05**	**0.23**	**0.32**	**0.38**	**0.25**	**0.13**	**0.72**	**0.39**	**0.33**
RPrgm	**0.28**	**0.38**	**0.39**	1.00	**0.39**	**0.34**	0.01	**0.28**	**0.25**	**0.43**	**0.29**	**0.16**	**0.67**	**0.41**	**0.23**
LifeSk	**0.30**	**0.33**	**0.40**	**0.39**	1.00	0.39	**0.08**	0.29	**0.48**	**0.48**	**0.31**	**0.17**	**0.68**	**0.52**	**0.22**
EmplSrv	**0.26**	**0.31**	**0.37**	**0.34**	**0.39**	1.00	-0.01	**0.19**	**0.31**	**0.35**	**0.17**	**0.10**	**0.64**	**0.32**	**0.19**
MHtx	**0.11**	**0.12**	**0.05**	0.01	**0.08**	-0.01	1.00	**0.09**	0.04	**0.06**	**0.07**	0.03	**0.09**	**0.32**	-0.04
AODtx	**0.24**	**0.28**	**0.23**	**0.28**	**0.29**	**0.19**	**0.09**	1.00	**0.24**	**0.38**	**0.34**	**0.16**	**0.36**	**0.65**	**0.10**
PersRel	**0.21**	**0.24**	**0.32**	**0.25**	**0.48**	**0.31**	0.04	**0.24**	1.00	**0.45**	**0.29**	**0.13**	**0.44**	**0.60**	**0.10**
CrimAtt	**0.28**	**0.37**	**0.38**	**0.43**	**0.48**	**0.35**	**0.06**	**0.38**	**0.45**	1.00	**0.45**	**0.15**	**0.56**	**0.72**	**0.15**
AngrMgt	**0.19**	**0.24**	**0.25**	**0.29**	**0.31**	**0.17**	**0.07**	**0.34**	**0.29**	**0.45**	1.00	**0.22**	**0.35**	**0.68**	0.08
Educ	**0.09**	**0.15**	**0.13**	**0.16**	**0.17**	**0.10**	0.03	**0.16**	**0.13**	**0.15**	**0.22**	1.00	**0.19**	**0.51**	**0.07**
PSB	**0.67**	**0.72**	**0.72**	**0.67**	**0.68**	**0.64**	**0.09**	**0.36**	**0.44**	**0.56**	**0.35**	**0.19**	1.00	**0.57**	**0.35**
ICSB	**0.32**	**0.40**	**0.39**	**0.41**	**0.52**	**0.32**	**0.32**	**0.65**	**0.60**	**0.72**	**0.68**	**0.51**	**0.57**	1.00	**0.14**
SVORI	**0.26**	**0.19**	**0.33**	**0.23**	**0.22**	**0.19**	-0.04	**0.10**	**0.10**	**0.15**	**0.08**	**0.07**	**0.35**	**0.14**	1.00

Notes: CaseMgr = case manager; Needs = needs assessment; RPlan = reentry plan; RPrgm = reentry program/class; LifeSk = life skills; EmplSrv = employment services; MHtx = mental health treatment; AODtx = substance abuse treatment; PersRel = help with personal relationships; CrimAtt = training to change attitude towards criminal behavior; AngrMgt = anger management; Educ = educational services; PSB = practical services bundle; ICSB = individual change service bundle; SVORI = Serious and Violent Offenders Reentry Initiative e.

*Highlighted cells have r ≥ 0.30; **bold** entries are significant at p < 0.05.*

Exhibit 9. Pearson correlation coefficients between pre-release service items for adult females

	CaseMgr	Needs	RPlan	RPrgm	LifeSk	EmplSrv	MHtx	AODtx	PersRel	CrimAtt	AngrMgt	Educ	PSB	ICSB	SVORI
CaseMgr	1.00	**0.40**	**0.50**	**0.24**	**0.36**	**0.29**	**0.22**	**0.23**	**0.30**	**0.31**	**0.24**	**0.14**	**0.69**	**0.39**	**0.37**
Needs	**0.40**	1.00	**0.47**	**0.32**	**0.37**	**0.23**	**0.16**	**0.24**	**0.28**	**0.40**	**0.26**	**0.28**	**0.68**	**0.44**	**0.39**
RPlan	**0.50**	**0.47**	1.00	**0.47**	**0.49**	**0.29**	**0.26**	**0.29**	**0.44**	**0.48**	**0.29**	**0.21**	**0.79**	**0.54**	**0.57**
RPrgm	**0.24**	**0.32**	**0.47**	1.00	**0.40**	**0.26**	**0.10**	**0.21**	**0.31**	**0.32**	**0.26**	**0.17**	**0.64**	**0.37**	**0.29**
LifeSk	**0.36**	**0.37**	**0.49**	**0.40**	1.00	**0.26**	**0.19**	**0.31**	**0.55**	**0.58**	**0.36**	**0.23**	**0.70**	**0.61**	**0.38**
EmplSrv	**0.29**	**0.23**	**0.29**	**0.26**	**0.26**	1.00	0.00	**0.11**	**0.18**	**0.19**	**0.13**	**0.13**	**0.58**	**0.20**	**0.26**
MHtx	**0.22**	**0.16**	**0.26**	**0.10**	**0.19**	0.00	1.00	**0.13**	**0.14**	**0.15**	**0.19**	**0.11**	**0.22**	**0.48**	**0.15**
AODtx	**0.23**	**0.24**	**0.29**	**0.21**	**0.31**	**0.11**	**0.13**	1.00	**0.32**	**0.31**	**0.20**	**0.20**	**0.33**	**0.60**	**0.16**
PersRel	**0.30**	**0.28**	**0.44**	**0.31**	**0.55**	**0.18**	**0.14**	**0.32**	1.00	**0.56**	**0.41**	**0.11**	**0.51**	**0.69**	**0.28**
CrimAtt	**0.31**	**0.40**	**0.48**	**0.32**	**0.58**	**0.19**	**0.15**	**0.31**	**0.56**	1.00	**0.42**	**0.18**	**0.56**	**0.72**	**0.36**
AngrMgt	**0.24**	**0.26**	**0.29**	**0.26**	**0.36**	**0.13**	**0.19**	**0.20**	**0.41**	**0.42**	1.00	**0.23**	**0.37**	**0.66**	**0.21**
Educ	**0.14**	**0.28**	**0.21**	**0.17**	**0.23**	**0.13**	**0.11**	**0.20**	**0.11**	**0.18**	**0.23**	1.00	**0.28**	**0.51**	**0.21**
PSB	**0.69**	**0.68**	**0.79**	**0.64**	**0.70**	**0.58**	**0.22**	**0.33**	**0.51**	**0.56**	**0.37**	**0.28**	1.00	**0.62**	**0.55**
ICSB	**0.39**	**0.44**	**0.54**	**0.37**	**0.61**	**0.20**	**0.48**	**0.60**	**0.69**	**0.72**	**0.66**	**0.51**	**0.62**	1.00	**0.37**
SVORI	**0.37**	**0.39**	**0.57**	**0.29**	**0.38**	**0.26**	**0.15**	**0.16**	**0.28**	**0.36**	**0.21**	**0.21**	**0.55**	**0.37**	1.00

Notes: CaseMgr = case manager; Needs = needs assessment; RPlan = reentry plan; RPrgm = reentry program/class; LifeSk = life skills; EmplSrv = employment services; MHtx = mental health treatment; AODtx = substance abuse treatment; PersRel = help with personal relationships; CrimAtt = training to change attitude towards criminal behavior; AngrMgt = anger management; Educ = educational services; PSB = practical services bundle; ICSB = individual change service bundle; SVORI = Serious and Violent Offenders Reentry Initiative.

*Highlighted cells have r ≥ 0.30; **bold** entries are significant at p < 0.05.*

Exhibit 10. Pearson correlation coefficients between pre-release service items for juvenile males

	CaseMgr	Needs	RPlan	RPrgm	LifeSk	EmplSrv	MHtx	AODtx	PersRel	CrimAtt	AngrMgt	Educ	PSB	ICSB	SVORI
CaseMgr	1.00	**0.48**	**0.27**	**0.26**	**0.19**	**0.16**	**0.13**	**0.12**	**0.16**	**0.19**	0.06	0.06	**0.54**	**0.22**	0.03
Needs	**0.48**	1.00	**0.17**	**0.24**	**0.18**	**0.14**	0.07	**0.15**	**0.15**	**0.21**	**0.18**	0.08	**0.53**	**0.27**	0.01
RPlan	**0.27**	**0.17**	1.00	**0.44**	**0.26**	**0.29**	0.04	0.07	**0.16**	**0.19**	**0.15**	0.02	**0.65**	**0.20**	0.10
RPrgm	**0.26**	**0.24**	**0.44**	1.00	**0.33**	**0.37**	0.00	**0.20**	**0.22**	**0.20**	0.08	0.01	**0.73**	**0.24**	**0.12**
LifeSk	**0.19**	**0.18**	**0.26**	**0.33**	1.00	**0.28**	**0.16**	0.09	**0.41**	**0.32**	0.10	0.09	**0.64**	**0.36**	0.03
EmplSrv	**0.16**	**0.14**	**0.29**	**0.37**	**0.28**	1.00	0.07	**0.17**	**0.17**	**0.27**	**0.22**	**0.13**	**0.63**	**0.32**	**0.16**
MHtx	**0.13**	0.07	0.04	0.00	**0.16**	0.07	1.00	0.06	**0.25**	**0.22**	**0.29**	0.07	**0.13**	**0.59**	-0.06
AODtx	**0.12**	**0.15**	0.07	**0.20**	0.09	**0.17**	0.06	1.00	-0.01	0.09	**0.13**	0.03	**0.22**	**0.43**	0.00
PersRel	**0.16**	**0.15**	**0.16**	**0.22**	**0.41**	**0.17**	**0.25**	-0.01	1.00	**0.37**	**0.17**	0.06	**0.35**	**0.59**	0.03
CrimAtt	**0.19**	**0.21**	**0.19**	**0.20**	**0.32**	**0.27**	**0.22**	0.09	**0.37**	1.00	**0.35**	0.04	**0.38**	**0.65**	**-0.13**
AngrMgt	0.06	**0.18**	**0.15**	0.08	0.10	**0.22**	**0.29**	**0.13**	**0.17**	**0.35**	1.00	**0.15**	**0.22**	**0.66**	**-0.15**
Educ	0.06	0.08	0.02	0.01	0.09	**0.13**	0.07	0.03	0.06	0.04	**0.15**	1.00	0.09	**0.27**	-0.06
PSB	**0.54**	**0.53**	**0.65**	**0.73**	**0.64**	**0.63**	**0.13**	**0.22**	**0.35**	**0.38**	**0.22**	0.09	1.00	**0.45**	**0.13**
ICSB	**0.22**	**0.27**	**0.20**	**0.24**	**0.36**	**0.32**	**0.59**	**0.43**	**0.59**	**0.65**	**0.66**	**0.27**	**0.45**	1.00	**-0.11**
SVORI	0.03	0.01	0.10	**0.12**	0.03	**0.16**	-0.06	0.00	0.03	**-0.13**	**-0.15**	-0.06	**0.13**	**-0.11**	1.00

Notes: CaseMgr = case manager; Needs = needs assessment; RPlan = reentry plan; RPrgm = reentry program/class; LifeSk = life skills; EmplSrv = employment services; MHtx = mental health treatment; AODtx = substance abuse treatment; PersRel = help with personal relationships; CrimAtt = training to change attitude towards criminal behavior; AngrMgt = anger management; Educ = educational services; PSB = practical services bundle; ICSB = individual change service bundle; SVORI = Serious and Violent Offenders Reentry Initiative.

*Highlighted cells have r ≥ 0.30; **bold** entries are significant at p < 0.05.*

Exhibit 11. Pearson correlation coefficients among site and pre-release service items for adult males

State	CaseMgr	Needs	RPlan	RPrgm	LifeSk	EmplSrv	MHtx	AODtx	PersRel	CrimAtt	AngrMgt	Educ	PSB	ICSB	SVORI
IA	**0.16**	**0.21**	**0.22**	**0.19**	**0.31**	**0.25**	-0.02	**0.26**	**0.25**	**0.30**	**0.09**	-0.02	**0.32**	**0.25**	**0.11**
IN	**-0.19**	**-0.11**	**-0.10**	0.00	**-0.06**	-0.03	-0.01	**-0.09**	**-0.07**	**-0.08**	**-0.12**	**-0.08**	**-0.12**	**-0.13**	**-0.06**
KS	-0.05	0.04	0.01	-0.04	0.04	0.01	**0.11**	**-0.11**	0.01	-0.02	-0.02	-0.04	0.00	-0.03	**-0.07**
MD	**-0.08**	**-0.10**	**-0.14**	**-0.15**	**-0.18**	-0.05	**-0.09**	**-0.18**	**-0.10**	**-0.19**	**-0.18**	**-0.20**	**-0.17**	**-0.27**	-0.01
MO	-0.03	0.00	0.01	0.00	**0.07**	-0.01	0.00	**0.09**	0.03	**0.06**	**0.11**	**0.12**	0.01	**0.12**	-0.04
NV	0.04	-0.01	**0.13**	**0.10**	**0.16**	**0.13**	-0.01	**0.15**	**0.13**	**0.20**	**0.30**	**0.05**	**0.13**	**0.24**	**0.10**
OH	**0.10**	**0.07**	**0.06**	**0.07**	-0.01	0.02	0.01	0.02	0.01	-0.01	0.00	**0.13**	**0.08**	**0.05**	0.02
OK	0.05	**0.06**	-0.03	0.02	**0.12**	-0.03	**0.06**	0.01	-0.02	0.03	**0.05**	**0.05**	0.05	**0.05**	-0.02
PA	**0.15**	**0.14**	0.04	**0.14**	**-0.06**	**0.07**	-0.04	**0.22**	-0.02	**0.05**	**0.05**	-0.03	**0.12**	**0.07**	-0.01
WA	0.00	0.02	0.04	**-0.07**	-0.04	**-0.09**	**0.20**	0.02	0.03	0.01	0.04	**0.07**	-0.03	**0.10**	**-0.07**
SC	**-0.14**	**-0.20**	**-0.16**	**-0.09**	**-0.14**	**-0.18**	**-0.13**	**-0.25**	**-0.12**	**-0.15**	**-0.15**	0.03	**-0.22**	**-0.22**	0.01

Notes: CaseMgr = case manager; Needs = needs assessment; RPlan = reentry plan; RPrgm = reentry program/class; LifeSk = life skills; EmplSrv = employment services; MHtx = mental health treatment; AODtx = substance abuse treatment; PersRel = help with personal relationships; CrimAtt = training to change attitude towards criminal behavior; AngrMgt = anger management; Educ = educational services; PSB = practical services bundle; ICSB = individual change service bundle; SVORI = Serious and Violent Offenders Reentry Initiative.

*Highlighted cells have r ≥ 0.30; **bold** entries are significant at p < 0.05.*

Exhibit 12. Pearson correlation coefficients among site and pre-release service items for adult females

State	CaseMgr	Needs	RPlan	RPrgm	LifeSk	EmplSrv	MHtx	AODtx	PersRel	CrimAtt	AngrMgt	Educ	PSB	ICSB	SVORI
IA	**0.20**	**0.20**	**0.28**	**0.15**	**0.29**	**0.31**	-0.07	**0.12**	**0.11**	**0.28**	-0.03	0.09	**0.36**	**0.14**	**0.29**
IN	**-0.46**	**-0.24**	**-0.41**	**-0.13**	**-0.31**	**-0.15**	**-0.25**	**-0.31**	**-0.24**	**-0.23**	**-0.18**	**-0.21**	**-0.42**	**-0.39**	**-0.41**
KS	0.00	0.00	0.00	-0.05	0.05	**-0.19**	0.08	-0.03	0.08	-0.02	-0.05	-0.09	-0.05	-0.01	**-0.10**
MO	**0.17**	**0.17**	**0.23**	**0.15**	**0.23**	**0.12**	**0.22**	0.03	**0.12**	**0.18**	**0.27**	**0.11**	**0.26**	**0.25**	**0.28**
NV	**0.11**	0.05	0.08	0.09	**0.13**	0.03	-0.06	**0.14**	**0.15**	**0.15**	**0.28**	**0.12**	**0.13**	**0.21**	0.04
OH	**0.17**	0.05	0.03	0.07	-0.06	-0.06	**0.18**	**0.12**	-0.07	-0.09	-0.06	**0.11**	0.04	0.05	0.09
OK	0.01	0.02	-0.06	-0.01	0.05	-0.03	0.10	0.07	0.00	0.07	-0.02	0.10	-0.01	0.09	-0.08
PA	**0.13**	0.09	**0.12**	0.03	0.01	-0.03	0.08	**0.12**	0.02	**0.14**	-0.05	**-0.11**	0.09	0.06	**0.14**
WA	0.03	-0.05	-0.01	**-0.11**	0.06	**0.15**	0.03	0.01	0.05	-0.03	0.06	0.10	0.02	0.06	-0.04
SC	-0.02	-0.09	0.01	-0.03	**-0.12**	0.04	**-0.12**	0.03	0.00	-0.10	-0.04	0.00	-0.05	-0.06	0.03

Notes: CaseMgr = case manager; Needs = needs assessment; RPlan = reentry plan; RPrgm = reentry program/class; LifeSk = life skills; EmplSrv = employment services; MHtx = mental health treatment; AODtx = substance abuse treatment; PersRel = help with personal relationships; CrimAtt = training to change attitude towards criminal behavior; AngrMgt = anger management; Educ = educational services; PSB = practical services bundle; ICSB = individual change service bundle; SVORI = Serious and Violent Offenders Reentry Initiative.

*Highlighted cells have r ≥ 0.30; **bold** entries are significant at p < 0.05.*

Exhibit 13. Pearson correlation coefficients among site and pre-release service items for juvenile males

State	CaseMgr	Needs	RPlan	RPrgm	LifeSk	EmplSrv	MHtx	AODtx	PersRel	CrimAtt	AngrMgt	Educ	PSB	ICSB	SVORI
CO	**0.12**	0.09	**0.18**	**0.24**	**0.26**	**0.39**	-0.01	**0.23**	0.11	**0.23**	**0.25**	-0.02	**0.37**	**0.26**	-0.09
FL	0.08	0.09	-0.09	**-0.17**	-0.06	-0.06	**0.22**	**-0.13**	**0.11**	**0.17**	-0.08	-0.03	-0.07	0.08	**-0.16**
KS	-0.05	**-0.14**	-0.06	0.04	-0.10	-0.10	**-0.18**	0.07	**-0.19**	**-0.46**	**-0.27**	-0.05	**-0.13**	**-0.34**	**0.27**
SC	**-0.15**	-0.06	0.00	-0.05	-0.07	**-0.18**	-0.07	**-0.12**	-0.04	0.04	**0.13**	0.09	**-0.12**	0.00	0.00

Notes: CaseMgr = case manager; Needs = needs assessment; RPlan = reentry plan; RPrgm = reentry program/class; LifeSk = life skills; EmplSrv = employment services; MHtx = mental health treatment; AODtx = substance abuse treatment; PersRel = help with personal relationships; CrimAtt = training to change attitude towards criminal behavior; AngrMgt = anger management; Educ = educational services; PSB = practical services bundle; ICSB = individual change service bundle; SVORI = Serious and Violent Offenders Reentry Initiative.

INDIVIDUAL CHARACTERISTICS

We included a number of variables that have been theoretically and empirically linked to the outcomes of interest. In particular, we included the following variables measured at the Wave 1 interview:

- Demographics—age at release (**age_rel**), whether they were married or in a steady relationship at the Wave 1 interview (**partner**), whether they had graduated from high school or had a GED (**highschl**), and race (**race_white**, the reference category; **race_black**; **race_hispan**; and **race_other**). For the juvenile males, we included only the **race_white** indicator.
- Employment—whether they worked during the 6 months before their incarceration (**employed**).
- Substance abuse history—three variables measuring the number of times they had been in substance abuse treatment before the current incarceration (the reference category **AODtx_0** = none; **AODtx_1** = in treatment once; **AODtx_2** = two or more times). For juvenile males, we included one variable (**AODtx_**) that indicated whether they had ever been in substance abuse treatment before the current incarceration.
- Mental health status—Global Severity Index (**GSI**) from the SA-45, a 45-item scale derived from the SCL-90 (Strategic Advantage, Inc., 2000), and the mental health component score (**MCS12**) from the SF-12 (Ware, Kosinski, & Keller, 1996) perceived health functioning scale. For the GSI measure, higher values are worse; for the MCS12, higher values are better.
- Criminal histories—number of prior convictions (**#Conv**), number of prior arrest charges for person offenses (**p_arrest_person_#**), number of prior arrest charges for property offenses, (**p_arrest_property_#**), number of prior arrest charges for drug offenses (**p_arrest_drug_#**), number of prior arrest charges for other offenses (**p_arrest_other_#**), age at first arrest (**Age1stArr**), number of juvenile detentions (**#Juvie**), and whether they were serving time for a probation or parole violation (**P-PViol**).

Risk—risk of criminal behavior was accommodated by a created variable[13] (**HiRisk**) that was equal to 1 if the individual was high risk (scored as 6–8) and scored as 0 otherwise. (Very few individuals scored as low risks, so the comparison is effectively between high-risk and medium-risk subjects.)

[13] We created eight indicator variables that are equivalent to or roughly correspond to the eight items in the Level of Service Inventory-Revised: Screening Version (LSI-R:SV). (For a discussion of the LSI-R:SV, see http://www.mhs.com/product.aspx?gr = saf&prod = lsi-rs&id = overview.) The first item is an indicator of whether the individual has two or more prior convictions. The second item is an indicator of whether the individual was arrested before age 16. The third item in the LSI-R:SV is an indicator of whether the individual is currently employed. Because respondents in the SVORI evaluation were interviewed while incarcerated, this third indicator was approximated by considering work release jobs and pre-prison employment. Respondents with work release jobs at the time of the interview were treated as employed. Respondents without work release jobs who had been incarcerated more than 1 year were treated as unemployed. For respondents without work release jobs who had been incarcerated less than 1 year, pre-prison employment was used as the indicator of employment status. The fourth item is an indicator of whether the individual has some criminal friends. Respondents who reported that they were currently in a gang or that any of their friends prior to incarceration had ever been convicted of a crime or in a correctional facility were coded as having criminal friends. The fifth item in the LSI-R:SV is an indicator of a current alcohol or drug problem that interferes with educational and/or work achievement. For this study, the fifth item is simply an indicator of a preincarceration alcohol or drug problem based on whether the respondent got drunk or used drugs more than once a week in the 30 days prior to incarceration. The sixth item is an indicator of mental or psychological problems. This item is coded as 'yes' if any of the following are true: the respondent did not have a high school degree or GED at the time of the interview, perpetrated violence against someone during the six months prior to incarceration, reported needing a batterer

In addition to these measures, we also controlled for site. For the models for the adult males, we included state indicator variables for Iowa, Indiana, Kansas, Maryland, Missouri, Nevada, Ohio, Oklahoma, Pennsylvania, and Washington, using South Carolina as the reference category.[14] The indicators and reference categories were the same for the adult females, with the exception that there were no women in the Maryland sample, and thus the MD indicator was excluded from these models. The site indicators for the models using the juvenile male data were for Colorado, Florida, and Kansas; South Carolina was again the reference category.

These variables and their means and standard errors (propensity score weighted; see Methods section) for the three demographic groups are shown in ***Exhibit 14***.

intervention program, scored above a T-score of 60 on any of the seven subscales in the SA-45, or scored below the study sample midpoint on a constructed scale of self-efficacy. The seventh item is an indicator of 'non-rewarding' family relationships and is coded 'yes' if the respondent scored below the study sample midpoint on a constructed scale of family emotional support. The eighth item is an indicator of an orientation or attitudes supportive of crime. It is coded 'yes' if the respondent agreed or strongly agreed with three statements about breaking the law (see appendix A). The eight dichotomous indicators were summed. Respondents with scores of 6-8 were classified as high risk for these analyses.

[14] The 79 adult males and 9 adult females from Maine are excluded from these analyses because we could not submit their identifiers to NCIC and thus did not have the data to calculate their prior arrest counts, which were included in the outcome models as controls.

Exhibit 14. Individual characteristics of the adult males, adult females, and juvenile males

Variable	Description	Adult Males			Adult Females			Juvenile Males		
		N	Mean	SE	N	Mean	SE	N	Mean	SE
age_rel	Age at release (years) from instant incarceration	1697	29.23	0.180	357	31.20	0.364	337	16.95	0.070
partner	Currently married or in steady relationship (1 = Yes, 0 = No) at Wave 1 interview	1690	0.396	0.012	353	0.486	0.028	337	0.445	0.030
highschl	Completed 12th grade or GED/other high school equivalent (1 = Yes, 0 = No) at Wave 1 interview	1695	0.596	0.012	357	0.624	0.027	337	0.160	0.020
employed	Employed during 6 mos. before instant incarceration (1 = Yes, 0 = No)	1696	0.657	0.012	357	0.523	0.028	337	0.371	0.029
race_white	Race: white (1 = Yes, 0 = No) (reference category)	1694	0.338	0.012	357	0.426	0.028	337	0.189	0.023
race_black	Race: black (1 = Yes, 0 = No)	1694	0.538	0.012	357	0.412	0.028	337	0.547	0.030
race_hispan	Race: Hispanic (1 = Yes, 0 = No)	1694	0.041	0.005	357	0.066	0.014	337	0.192	0.023
race_other	Race: multi/other (1 = Yes, 0 = No)	1694	0.082	0.007	357	0.096	0.016	337	0.072	0.019
AODtx_0	No AOD treatment before instant incarceration (reference category)	1696	0.612	0.012	357	0.451	0.028	336	0.750	0.025
AODtx_1	One AOD treatment before instant incarceration (1 = Yes, 0 = No)	1690	0.158	0.009	355	0.146	0.019	336	0.135	0.020
AODtx_2	Two or more AOD treatments before instant incarceration (1 = Yes, 0 = No)	1690	0.228	0.010	355	0.401	0.028	336	0.115	0.019
AODtx_	Any AOD treatment before instant incarceration (1 = Yes, 0 = No) (used in logistic regression models for juvenile males instead of three AOD treatment indicators)	NA	NA	NA	NA	NA	NA	336	0.250	0.025
HiRisk	Maximum (6–8) risk classification (1 = Yes, 0 = No; see footnote 9)	1697	0.438	0.012	357	0.274	0.026	337	0.484	0.030
GSI	Global severity index from the SA-45	1697	67.30	0.537	357	77.69	1.693	337	63.69	1.114
MCS12	Mental health component score from SF-12	1673	48.70	0.260	351	44.27	0.706	333	48.99	0.626
#Conv	Number times convicted	1658	5.539	0.151	333	5.313	0.306	327	3.112	0.170
p_arrest_person_#	Total number of person arrest charges before instant incarceration	1618	2.573	0.077	348	1.488	0.120	NA	NA	NA
p_arrest_prop_#	Total number of property arrest charges before instant incarceration	1618	3.692	0.139	348	3.564	0.273	NA	NA	NA
p_arrest_drug_#	Total number of drug arrest charges before instant incarceration	1618	3.234	0.115	348	2.868	0.274	NA	NA	NA
p_arrest_other_#	Total number of public order/other charge arrest charges before instant incarceration	1618	4.531	0.139	348	6.399	0.443	NA	NA	NA
Age1stArr	Age at first arrest (years)	1685	16.00	0.121	347	19.07	0.329	331	13.02	0.120
#Juvie	# times in juvenile detention	1680	1.725	0.077	349	1.306	0.185	327	3.415	0.182
P-PViol	Incarcerated for probation or parole violation (only or in addition to other offenses)	1695	0.307	0.011	357	0.256	0.024	337	0.485	0.030
CO	Site = Colorado (juvenile only); SC is reference category	NA	NA	NA	NA	NA	NA	337	0.172	0.021
FL	Site = Florida (juvenile only); SC is reference category	NA	NA	NA	NA	NA	NA	337	0.389	0.030

(continued)

Exhibit 14. Individual characteristics of the adult males, adult females, and juvenile males (continued)

Variable	Description	Adult Males			Adult Females			Juvenile Males		
		N	Mean	SE	N	Mean	SE	N	Mean	SE
IA	Site = Iowa; SC is reference category	1697	0.098	0.007	357	0.106	0.017	NA	NA	NA
IN	Site = Indiana; SC is reference category	1697	0.093	0.007	357	0.273	0.024	NA	NA	NA
KS	Site = Kansas; SC is reference category	1697	0.041	0.005	357	0.154	0.021	337	0.207	0.025
ME	Site = Maine; SC is reference category	1697	0.046	0.005	357	0.022	0.008	NA	NA	NA
MD	Site = Maryland; SC is reference category	1697	0.152	0.009	NA	NA	NA	NA	NA	NA
MO	Site = Missouri; SC is reference category	1697	0.049	0.005	357	0.070	0.015	NA	NA	NA
NV	Site = Nevada; SC is reference category	1697	0.090	0.007	357	0.047	0.012	NA	NA	NA
OH	Site = Ohio; SC is reference category	1697	0.051	0.005	357	0.086	0.017	NA	NA	NA
OK	Site = Oklahoma; SC is reference category	1697	0.055	0.006	357	0.025	0.008	NA	NA	NA
PA	Site = Pennsylvania; SC is reference category	1697	0.075	0.007	357	0.018	0.008	NA	NA	NA
SC	Site = South Carolina; SC is reference category	1697	0.204	0.010	357	0.163	0.021	337	0.232	0.025
WA	Site = Washington; SC is reference category	1697	0.047	0.005	357	0.035	0.011	NA	NA	NA

Note: AOD = alcohol and other drug; GED = general equivalency diploma; SE = standard error of the mean. NA = not available/applicable.

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RESULTS: ADULT MALES

The purpose of these analyses was to identify "what works for whom and for how long." Outcome models were estimated controlling for the individual characteristics listed in ***Exhibit 14***, site (SC was the reference category), and SVORI program participation. The variables of specific interest are those indicating receipt of pre-release services, and the results presented here primarily focus on the odds ratio estimates for the service items—either the individual items *or* the two bundle scores (**PSB** and **ICSB**). Tables including full model results for all variables (service indicators plus control variables), including parameter estimates, standard errors, test statistics, and odds ratio estimates, are in ***Appendix B*** for the full adult male sample and in ***Appendix C*** for the stratified samples (risk, age, prior employment, and attitudes).

HOUSING

We chose two housing indicators—housing independence and housing challenges. Housing independence was defined as having lived in one's own house or apartment, contributed to the costs of housing, or having one's name on the lease or mortgage where they lived. Housing challenges were defined as being homeless, having trouble finding a place to live, or reporting that one's current living situation was not as good as the last. In ***Exhibit 3***, we saw that between 70% and 80% of the adult male study participants reported that they were living in their own house or apartment, were contributing to the cost of their housing, or had their name on the lease or mortgage in the time period before the post-release interview. About 20% reported that they had experienced housing challenges during those periods.

Odds ratio estimates for the 12 service items and for SVORI program participation from the full model of housing independence are shown in ***Exhibit 15***. The strongest beneficial effects in the 3-month period after release were the effect of **CrimAtt**, where those reporting having received training on changing attitudes toward criminal behavior were almost twice as likely to report being housing independent; **CaseMgr** and **AODtx** were both also associated with reports of fewer housing challenges. Somewhat surprisingly, **CaseMgr** and **AngrMgt** were associated with less housing independence but also with fewer housing challenges. **MHtx** was associated with more housing challenges at 3 and 15 months after release. Those receiving education while incarcerated (**Educ**) had more housing independence but also reported more housing challenges. Clearly, these two variables are capturing different experiences in which individuals are assuming greater responsibility for their housing but finding it more difficult to keep or find adequate housing.

The models estimated using the two service bundle scores (**ICSB** and **PSB**), **SVORI**, and the control variables yielded mixed and weak findings, as shown in ***Exhibit 16***. The **ICSB** was not related to housing independence and was associated with a greater likelihood of reporting housing challenges at 15 months. The **PSB** was associated with a somewhat lower likelihood of reporting housing independence at 9 months ($p = 0.09$). Odds ratios for the SVORI program participation indicator were greater than 1 for housing independence, but these findings were not statistically significant at usual levels. These findings are perhaps not surprising, considering the mix of effects within the bundles that we observed in ***Exhibit 15***. The first six items compose the **PSB** and the following six compose the **ICSB.** The two statistically significant service items at 3 months in the **ICSB** have opposite effects—**CrimAtt** was associated with a greater likelihood and **AngrMgt** with a smaller likelihood of housing independence. Thus, the effect of the bundle would depend on which items were actually included for an individual.

Exhibit 15. Odds ratios of service items from full models of housing independence and housing challenges at 3, 9, and 15 months after release for the adult male sample

Variable	Housing Independence			Housing Challenges		
	3 Months	9 Months	15 Months	3 Months	9 Months	15 Months
CaseMgr	0.6408*	1.0163	0.9501	0.7032*	0.6901	0.6943
Needs	0.7187	0.5789*	1.0655	1.0621	1.2560	0.8768
RPlan	1.1965	0.7605	0.9816	0.6146	0.9497	0.8800
RPrgm	1.1128	1.0120	0.9097	1.4859	0.8956	1.0731
LifeSk	1.3056	1.1649	1.1152	0.6675	1.0458	0.6978
EmplSrv	0.7949	1.0922	0.7242	1.1953	1.0028	1.8960*
MHtx	0.7834	0.7203	0.7407	1.8139*	0.7265	2.0021*
AODtx	1.1935	1.5773*	0.8768	0.5475*	0.7728	1.4503†
PersRel	0.8612	0.9967	0.9757	0.9534	1.0076	1.3858
CrimAtt	1.8600*	1.1503	1.2259	1.3212	1.1124	1.0156
AngrMgt	0.4471*	0.8017	0.8297	0.9210	0.8997	1.3595
Educ	1.1368	1.5197*	1.2098	1.5276†	1.0512	0.7014
SVORI	1.2307	1.1787	1.1753	0.8427	0.9131	1.2159
N	867	909	971	867	876	851

Note: Housing independence is coded 1 for individuals reporting living in their own house or apartment (currently or right before reincarceration), contributing to the costs of housing (since release at 3 months, since previous interview or 6 months prior if no previous interview at 9 and 15 months, if not homeless), or having their name on the lease or mortgage where they currently lived (since release at 3 months, since previous interview or 6 months prior if no previous interview at 9 and 15 months, if not homeless); it is coded 0 otherwise. Housing challenges is coded 1 if the individual reported being homeless (currently or right before reincarceration), having trouble finding a place to live (since release at 3 months, since previous interview or 6 months prior if no previous interview at 9 and 15 months, if not homeless), or having a current living situation worse than the previous one (since release at 3 months, since previous interview or 6 months prior if no previous interview at 9 and 15 months, if not homeless); it is coded 0 otherwise. SVORI = Serious and Violent Offenders Reentry Initiative. Full model results are shown in ***Appendix B****,* ***Tables 1*** *and* ***2****.*

**p < 0.05; † p ≤ 0.10*

Exhibit 16. Odds ratios of service bundles from full models of housing independence and housing challenges at 3, 9, and 15 months post release for the adult male sample

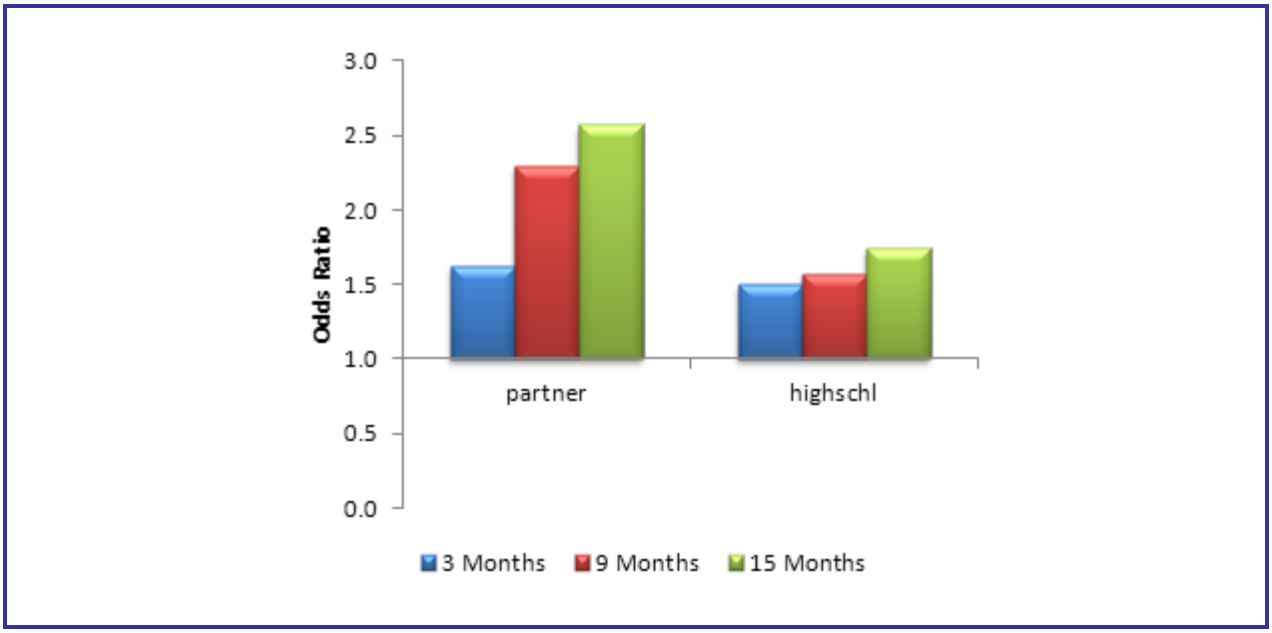
Variable	Housing Independence			Housing Challenges		
	3 Months	9 Months	15 Months	3 Months	9 Months	15 Months
ICSB	0.9852	1.1223	0.9950	1.0319	0.9434	1.1812*
PSB	0.9639	0.9004†	0.9528	0.9124	0.9754	0.9669
SVORI	1.2795	1.2644	1.3017	0.8000	0.8358	1.1757
N	867	909	971	867	876	851

Note: ICSB = individual change service bundle; PSB = practical services bundle; SVORI = Serious and Violent Offenders Reentry Initiative. Housing independence is coded 1 for individuals who reported living in their own house or apartment (currently or right before reincarceration), contributing to the costs of housing (since release at 3 months, since previous interview or 6 months prior if no previous interview at 9 and 15 months, if not homeless), or having their name on the lease or mortgage where they currently lived (since release at 3 months, since previous interview or 6 months prior if no previous interview at 9 and 15 months, if not homeless); it was coded 0 otherwise. Housing challenges is coded 1 if the individual reported being homeless (currently or right before reincarceration), having trouble finding a place to live (since release at 3 months, since previous interview or 6 months prior if no previous interview at 9 and 15 months, if not homeless), or having a current living situation worse than the previous one (since release at 3 months, since previous interview or 6 months prior if no previous interview at 9 and 15 months, if not homeless); it was coded 0 otherwise. Full model results are shown in ***Appendix B****,* ***Tables 26*** *and* ***27****.*

**p < 0.05; † p ≤ 0.10*

Reporting being in a relationship (**partner**) at the time of release and having a high school diploma were strongly related to housing independence after release, as is shown in ***Exhibit 17*** (data in ***Appendix B, Table 1***). Individuals in relationships were also less likely to report housing challenges, with an average odds ratio over the three time periods of 0.6 (data in ***Appendix B, Table 2***).

Exhibit 17.Effects of having a partner or a high school degree on housing independence, adult males



Note: Housing independence is coded 1 for individuals who reported living in their own house or apartment (currently or right before reincarceration), contributing to the costs of housing (since release at 3 months, since previous interview or 6 months prior if no previous interview at 9 and 15 months, if not homeless), or having their name on the lease or mortgage where they currently lived (since release at 3 months, since previous interview or 6 months prior if no previous interview at 9 and 15 months, if not homeless); it was coded 0 otherwise. Full model results are shown in ***Appendix B, Table 1****.*

EMPLOYMENT

A major goal of the SVORI reentry programs was to provide education, training, and other support that would lead to better employment outcomes after release. We identified four variables in the survey data that were related to the employment outcomes—whether reentrants were supporting themselves with a job in the period before the interview (**EMP3**, **EMP9**, **EMP15**), whether they worked each month since release or the previous interview (**StblEmp3**, **StblEmp9**, and **StblEmp15**), whether the current or most recent job had formal pay (**FormalPay3**, **FormalPay9**, and **FormalPay15**), and whether the current or most recent job offered health insurance or paid leave (**Benefits3**, **Benefits9**, and **Benefits15**).

Results for "Support Self with Job" and "Worked Each Month" are shown in ***Exhibit 18***. About 65% reported that they were currently supporting themselves with a job; however, only about 40% reported that they had worked each month (see ***Exhibit 3***). A number of services were weakly related to these two outcomes ($p \leq 0.1$), although none consistently. The strongest finding was negative, with those who reported receiving mental health treatment less likely to have a job or to have worked each month. Furthermore, self-reported receipt of employment services (**EmplSrv**) had no effect on these employment outcomes.

Exhibit 18. Odds ratios of service items from models of "support self with job" and "worked each month" employment outcomes at 3, 9, and 15 months after release for the adult male sample

Variable	Support Self with Job			Worked Each Month		
	3 Months	9 Months	15 Months	3 Months	9 Months	15 Months
CaseMgr	0.9523	0.8416	1.1363	1.5633†	1.1926	1.0514
Needs	0.8867	1.0248	0.9760	0.6511	1.0148	1.2061
RPlan	1.2471	0.8823	1.1047	0.9968	0.8796	0.8639
RPrgm	0.9387	1.4547†	1.5204†	1.0686	1.1174	1.2707
LifeSk	1.5917†	0.9059	0.7857	1.1903	1.0463	1.0919
EmplSrv	0.8013	0.9205	1.0799	0.8313	1.1934	1.3726
MHtx	0.9228	0.6332†	0.4579*	0.6244†	0.5359*	0.9471
AODtx	1.2047	1.0014	1.2113	1.1395	1.2940	0.8301
PersRel	1.3673	1.2244	1.3683	0.7520	0.9618	0.9854
CrimAtt	0.8748	1.0014	0.9830	0.7638	0.5299*	0.7446
AngrMgt	0.6606*	1.4984†	0.9356	1.0351	1.0090	1.2231
Educ	1.1792	1.4745†	1.0707	1.4212†	1.2288	0.9627
SVORI	0.9466	0.9093	1.2432	0.8219	0.9718	1.0227
N	863	860	811	651	697	638

Note: "Currently supports self with job" is coded 1 if the individual reported a job as a source of support (currently or before reincarceration) and 0 otherwise. "Worked each month" is coded 1 if the individual reported working at least 1 day during each of the previous months (since release at 3 months, since previous interview or the last 6 months if no previous interview at 9 and 15 months) and 0 otherwise. SVORI = Serious and Violent Offenders Reentry Initiative. Full model results are shown in ***Appendix B****,* ***Tables 3*** *and* ***4****.*

**p < 0.05; † p ≤ 0.10*

Among the control variables (see ***Appendix B***, ***Table 3***), having worked in the 6 months before the current incarceration (**employed**), having a high school degree or equivalent (**highschl**), and being in a relationship (**partner**) were all strongly related to post-release employment with average odds ratios for the three time periods of 1.4–1.7 for these variables. Blacks were less likely to be working than whites (average odds ratio across the three interviews of 0.5). Those who reported having been in alcohol and other drug treatment (**AODtx_1**, **AODtx_2**) before the current incarceration were also less likely to report supporting themselves with a job.

Given the relatively weak and mixed effects of items within the bundles (some positive, others negative), it is not surprising that results are once again weak for the two service bundles. ***Exhibit 19*** shows the odds ratios for the two bundle scores and the SVORI indicator. Higher individual change services (**ICSB**) scores were associated with a greater likelihood of "support self with job" at 9 months (p = 0.06), and more practical services (**PSB**) were associated with a greater likelihood of "support self with job" at 15 months (p = 0.04). There were no significant findings for the employment stability outcome. Also, SVORI participation was not related to these employment outcomes.

Previous research has suggested that employment services may be more beneficial to older participants. We stratified the sample on the median age at release (27 years) and estimated separate models to determine whether there were differential effects depending upon age at release. ***Exhibit 20*** displays the odds ratio estimates for the 12 service items for **EMP3**. As can be seen, there are differential effects. **Lifesk** have much larger positive effects for the older group, whereas larger positive effects are observed among the younger group for **RPlan, MHtx, PersRel, CrimAtt,** and **Educ**. Self-reported receipt of employment services (**EmplSrv**) is associated with negligible negative effects overall and for both age groups. (The odds ratios for all, for those 27 and younger, and

for those older than 27 years are 0.80, $p = 0.28$; 0.63, $p = 0.18$; and 0.97, $p = 0.93$.) Full model results for the stratified data are in ***Appendix C***, ***Tables 1*** and ***13***.

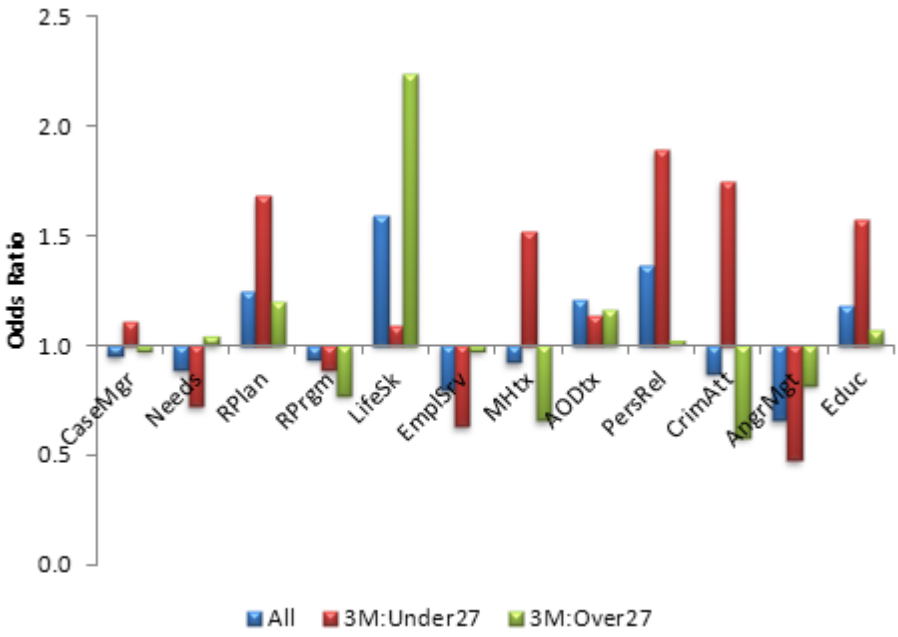
Exhibit 19. Odds ratios of service bundles from models of "support self with job" and "worked each month" employment outcomes at 3, 9, and 15 months after release for the adult male sample

Variable	Support Self with Job			Worked Each Month		
	3 M	9 M	15 M	3 M	9 M	15 M
ICSB	0.9933	1.1413†	0.9677	0.9615	0.9273	0.9406
PSB	1.0592	0.9772	1.1252*	0.9890	1.0197	1.1057
SVORI	1.0001	0.9188	1.2213	0.9016	0.9401	0.9809
N	863	860	811	651	697	638

*Note: ICSB = individual change service bundle; PSB = practical services bundle; SVORI = Serious and Violent Offenders Reentry Initiative. "Currently supports self with job" is coded 1 if the individual reported a job as a source of support (currently or before reincarceration) and 0 otherwise. "Worked each month" is coded 1 if the individual reported working at least 1 day during each of the previous months (since release at 3 months, since previous interview or the last 6 months if no previous interview at 9 and 15 months) and 0 otherwise. Full model results are shown in **Appendix B**, **Tables 28** and **29**.*

**p < 0.05; † p ≤ 0.10*

Exhibit 20. Effects of pre-release service items on supporting self with job at 3 months after release for adult males, by age group

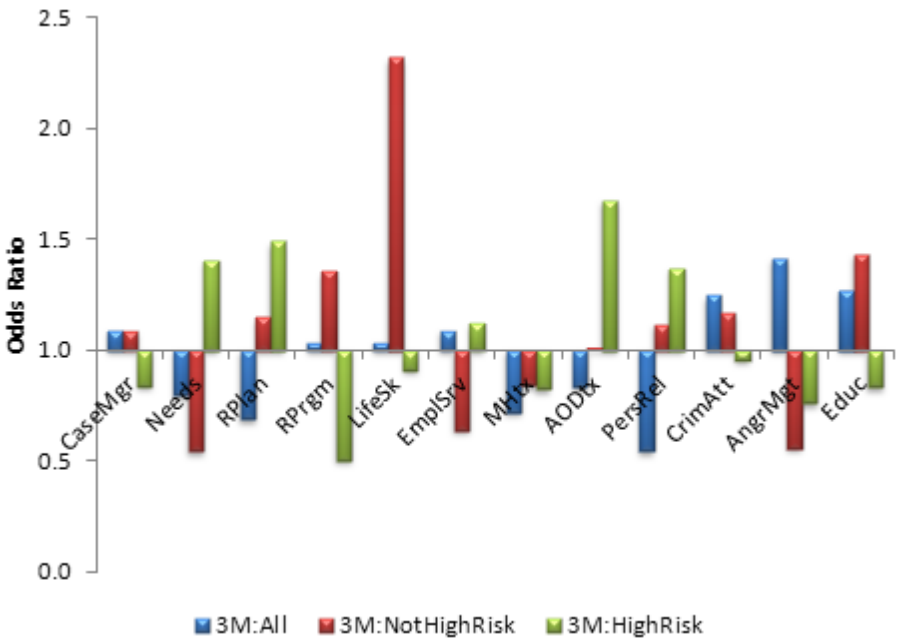


*Notes: EMP3 is coded 1 if the individual reported at the 3-month interview that he was supporting himself with a job. All = full adult male sample; 3M:Under27 = adult male subsample 27 years and younger; 3M:Over27 = adult male subsample older than 27 years. Full model results are in **Appendix B**, **Table 3** and **Appendix C**, **Tables 1** and **13**.*

Some researchers have suggested that services and programs may be more effective for high-risk offenders. ***Exhibit 21*** shows results for the sample stratified on risk for **EMP3**. The risk variable, **HiRisk,** was coded 1 if the individual had a risk score of 6–8 and 0 otherwise (see ***Appendix C***, ***Tables 25*** and ***37***). Very few individuals had low risk scores, so effectively this stratification is between high risk (44%) and medium risk. As can be seen, some

services have differential effects on having a job after release, depending on the risk classification of the individual. For example, **AODtx** has a much stronger effect for high-risk than not-high-risk individuals, while **Lifesk** is associated with a greater likelihood of employment for the not-high-risk group and with no effect for the high-risk group. There is no effect of self-reported employment services (**EmplSrv)** for either group.

Exhibit 21. Effects of service items on supporting self with job at 3 months after release for adult males, by risk score



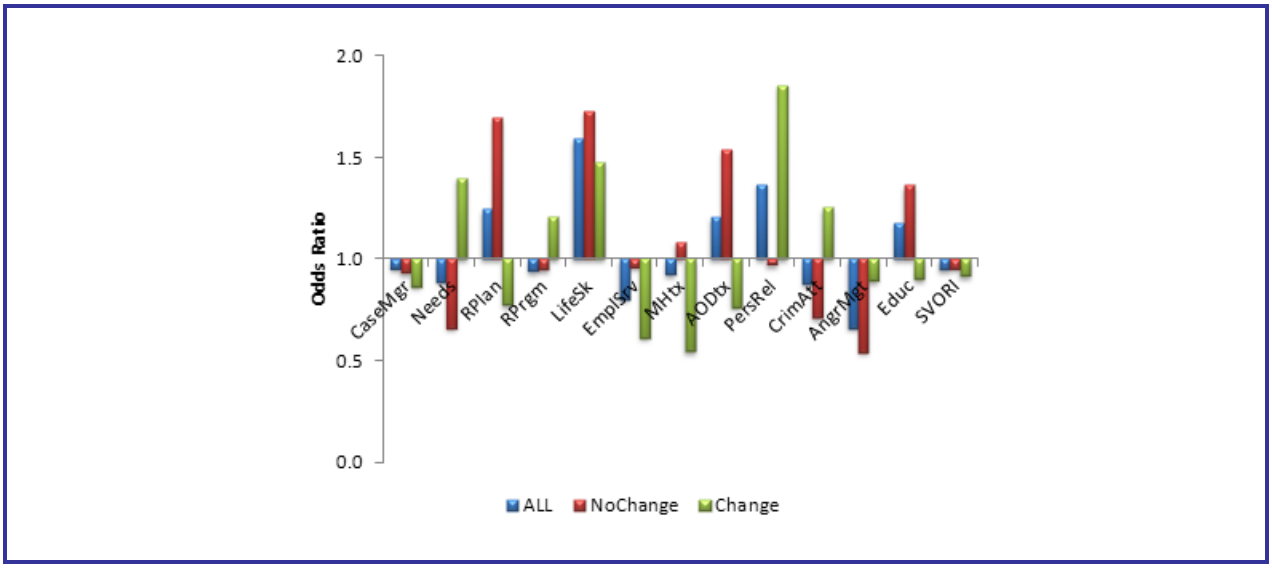
*Notes: EMP3 is coded 1 if the individual reported at the 3-month interview that he was supporting himself with a job. 3M: All = full adult male sample; 3M:NotHighRisk = adult male subsample not coded high risk; 3M:HighRisk = adult male subsample coded high risk. Full model results are in **Appendix B**, **Table 3** and **Appendix C**, **Tables 25** and **37**.*

Readiness for change has also been identified as a potential factor in successful treatment outcomes. Respondents were asked during the Wave 1 interview, "How much do you need to change your attitudes related to criminal behavior?" Response categories were "a lot," "a little," or "not at all." We stratified the sample with those responding "a lot" in one stratum (36%) and the others in the second stratum. ***Exhibit 22*** shows the odds ratios for all subjects and the two strata from the models for supporting self with job at 3 months (see ***Appendix B, Table 3*** and ***Appendix C***, ***Tables 49*** and ***55***). Again, we see some differences in effects between the two groups, although few of the estimates are statistically significant. Specifically, we see that having a reentry plan, life skills training, and **AODtx** are associated with a greater likelihood of supporting oneself with a job following release—but only for the group that didn't think they needed to change their attitudes "a lot." Once again, employment services were not effective for either group.

We also looked at whether service items or SVORI program participation was related to the quality of post-release employment, measured by whether the job provided formal pay or benefits (health insurance or paid leave). Somewhat more than three-quarters of those working said they received formal pay, whereas less than half reported that their current or most recent job provided benefits. The results are shown in ***Exhibit 23***. Once again, reporting having received employment-related services was not related to these two employment-related outcome variables. Although the effects of the individual service items are weak, SVORI program participation is

associated with better outcomes on these two variables, perhaps reflecting some unobserved benefit associated with participating in a reentry program that is not captured by the specific services. **Lifeskills** has a strongly negative effect on formal pay immediately after release—a finding that also appeared with other outcomes and that we address in the Discussion section.

Exhibit 22. Effects of service items on supporting self with job at 3 months after release for adult males, by self-reported need for attitude change toward criminal behavior



*Notes: All = full adult male sample; NoChange = adult male subsample who reported not needing to change their attitudes toward criminal behavior "a lot"; Change = adult male subsample who reported needing to change their attitudes "a lot." Full model results are given in **Appendix B**, **Table 3** and **Appendix C**, **Tables 49** and **55**.*

Exhibit 23. Odds ratios from full models of formal pay and benefits at 3, 9, and 15 months after release for the adult male sample

Variable	Formal Pay			Benefits		
	3 Months	9 Months	15 Months	3 Months	9 Months	15 Months
CaseMgr	1.2023	0.9162	0.8746	1.0912	0.8830	1.1360
Needs	0.9701	0.8567	0.5852†	0.7945	1.1794	1.0658
RPlan	1.2977	0.9530	0.9789	0.6895	1.1008	0.9862
RPrgm	0.9054	0.8837	0.8858	1.0349	0.9580	0.9295
LifeSk	0.3993*	0.7398	0.7530	1.0363	1.0210	1.0480
EmplSrv	1.0593	0.8213	1.0704	1.0875	1.0195	0.8127
MHtx	1.0878	0.8159	1.7028	0.7197	0.7297	1.1442
AODtx	0.7118	1.3132	0.8877	0.8323	1.2896	1.2527
PersRel	0.8947	1.2218	1.4951	0.5424*	1.1366	1.0056
CrimAtt	1.4350	1.0569	1.6535	1.2469	0.8528	0.8342
AngrMgt	1.2936	0.7803	1.5722	1.4132	1.0240	1.2127
Educ	1.6342†	1.0401	1.0752	1.2703	0.9994	0.9227
SVORI	1.6936*	1.2151	1.2380	1.4087†	1.4798*	1.2429
N	651	697	651	697	651	697

*Note: "Formal pay" is coded 1 if the individual reported that his current or most recent job was compensated with "formal pay where you receive a pay stub" and 0 otherwise. "Benefits" is coded 1 if the individual reported that his current or most recent job had health insurance or any paid leave such as sick leave or vacation and 0 otherwise. SVORI = Serious and Violent Offenders Reentry Initiative. Full model results are shown in **Appendix B, Tables 5** and **6**.*

**p < 0.05; † p ≤ 0.10*

Exhibit 24 shows the results for the models including the two service bundle scores instead of the individual service items. Here we see effects for the individual change services at 15 months, but little other effect. (Full results are in ***Appendix B, Tables 30*** *and* ***31***.) Reentry program participation (**SVORI**) is significant in these models for benefits—at least during the early period after release—suggesting that program participation was associated, perhaps, with job quality even if it did not affect the likelihood of having a job.

Exhibit 24. Odds ratios of service bundles from models of formal pay and benefits at 3, 9, and 15 months after release for the adult male sample

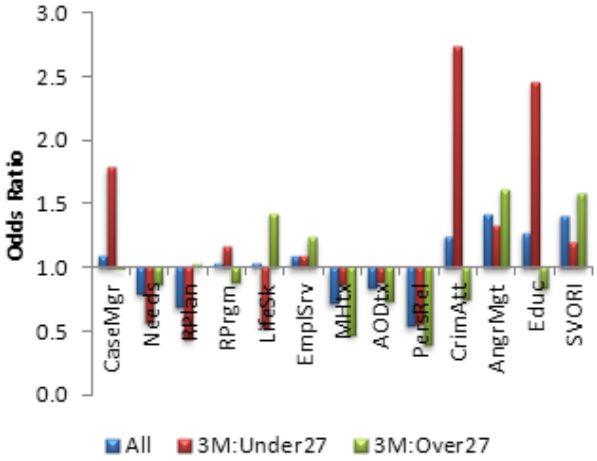
Variable	Formal Pay			Benefits		
	3 Months	9 Months	15 Months	3 Months	9 Months	15 Months
ICSB	1.0321	1.0061	1.2569*	0.9970	1.0224	1.0450
PSB	0.9542	0.9030	0.8870	0.9345	1.0361	1.0003
SVORI	1.8637*	1.1783	1.2308	1.4011†	1.4920*	1.2439
N	651	697	638	645	694	635

Notes: ICSB = individual change service bundle; PSB = practical services bundle; SVORI = Serious and Violent Offenders Reentry Initiative. "Formal pay" is coded 1 if the individual reported that his current or most recent job was compensated with "formal pay where you receive a pay stub" and 0 otherwise. "Benefits" is coded 1 if the individual reported that his current or most recent job had health insurance or any paid leave such as sick leave or vacation and 0 otherwise. Full model results are shown in ***Appendix B, Tables 30*** *and* ***31****.*

**p < 0.05; † p ≤ 0.10*

As with the earlier outcomes, we also compared results from the stratified analyses. ***Exhibit 25*** shows the effects at 3 months for benefits by age group. As can be seen, many effects are negligible or weakly negative regardless of the age group. Education and help with changing criminal thinking have the strongest positive effects on employment benefits for the younger age group, while the effects of these two services are negligible for those older. (Full results are in ***Appendix C***, ***Tables 3*** and ***15***.)

Exhibit 25. Odds ratios of service items from model of benefits at 3 months after release for adult males, by age group

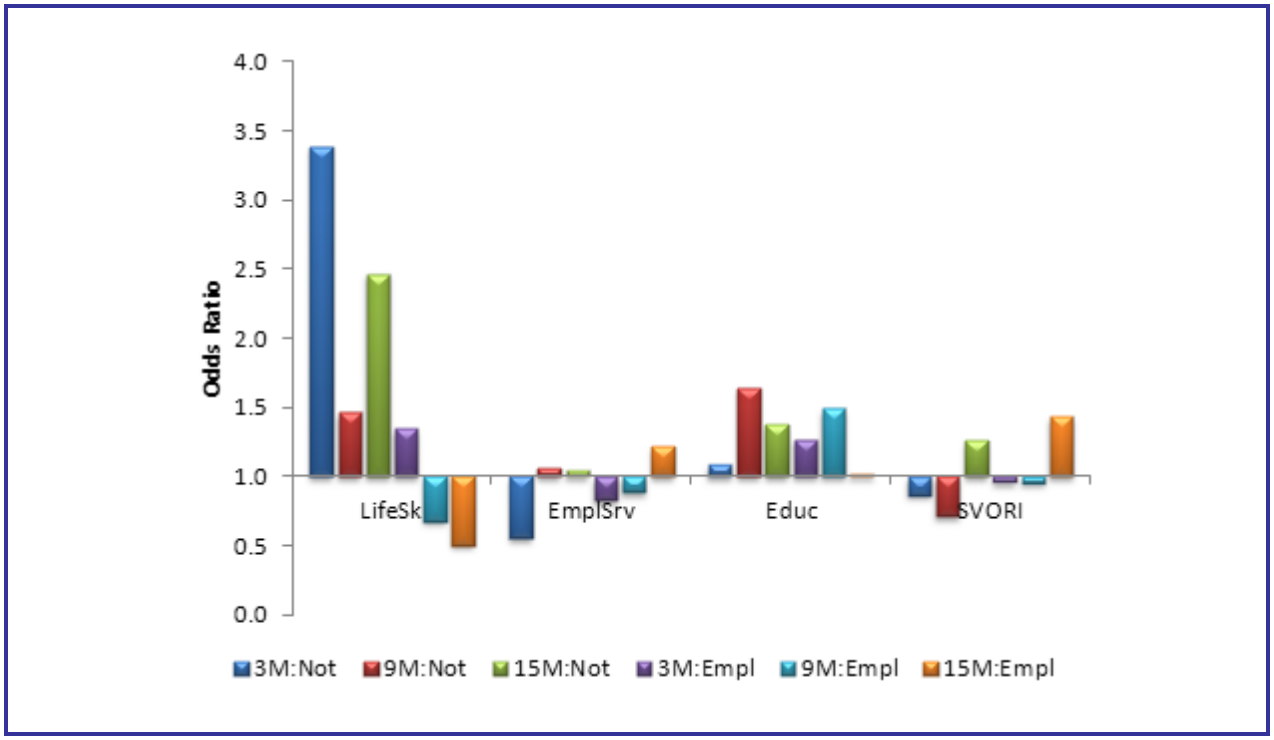


Notes: "Benefits" is coded 1 if the individual reported that his current or most recent job had health insurance or any paid leave such as sick leave or vacation and 0 otherwise. 3M:Under27 = 3-month results for those 27 years of age or younger; 3M:Over27 = 3-month results for those over 27 years of age. Full model results are shown in ***Appendix B, Table 6*** **and** ***Appendix C, Tables 3*** *and* ***15****.*

Although employment services were not related to employment outcomes for the full sample, it is possible that these services would be more helpful either for those who were not working before incarceration or for those who were working before incarceration. Working at a legal job before the instant incarceration is a potential indicator of success after release. We stratified the sample on the basis of whether the individual reported being employed in the 6 months before incarceration; 66% reported having been employed.

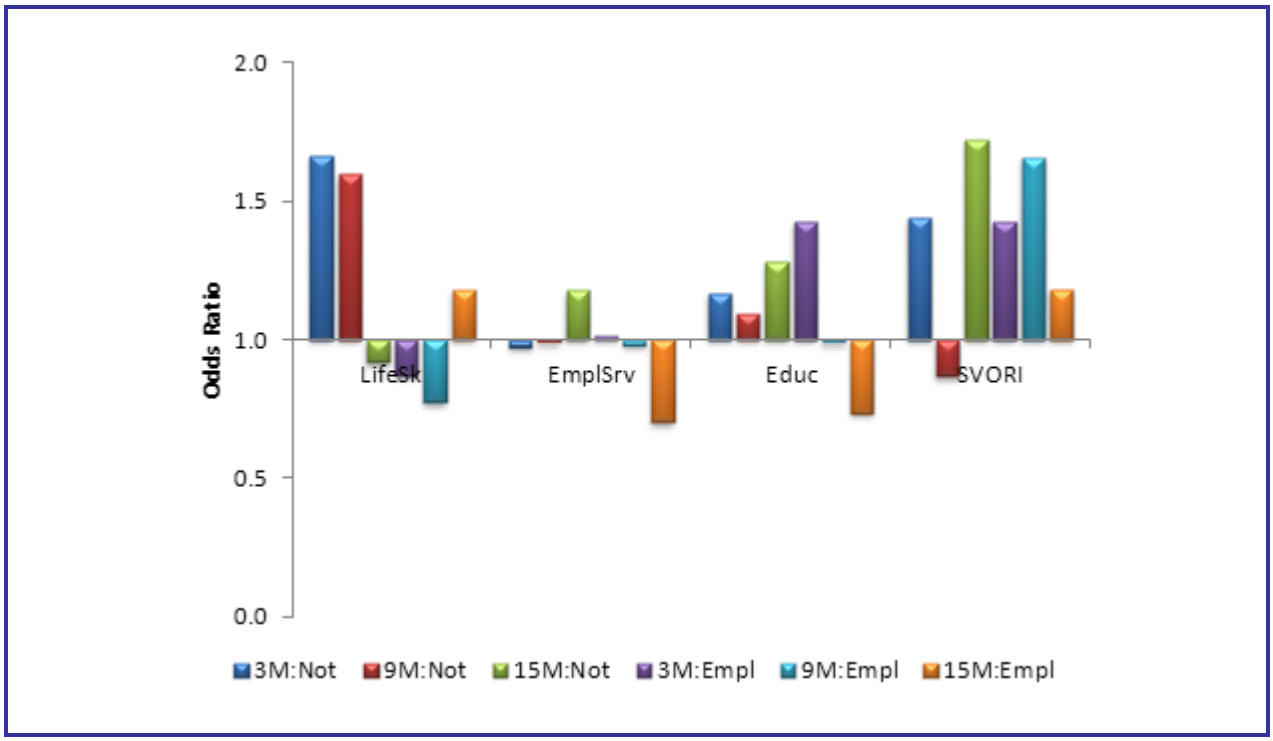
Exhibits 26 and ***27*** show the odds ratios for **LifeSk**, **EmplSrv**, **Educ**, and **SVORI** on the "currently support self with job" and "benefits" outcomes for those who were and were not employed before incarceration (full results are in ***Appendix C***, ***Tables 61***, ***62, 71*** and ***72***). As can be seen, employment services have no effect for either group, whereas life skills training (**LifeSk**) is effective for those who were not previously employed. Education appears to have weak effects for both groups. Results are similar for the "benefits" outcomes, although participating in the **SVORI** reentry program appears to have beneficial effects for both groups.

Exhibit 26. Odds ratios of selected service items from models of "currently support self with job" at 3, 9, and 15 months for the adult male sample



Notes: 3M:Not, 9M:Not, and 15M:Not = supporting self with job at 3 months, 9 months, and 15 months after release for the adult male subsample not employed in the 6 months before incarceration; 3 M:Empl, 9 M:Empl, and 15M:Empl = supporting self with job at 3 months, 9 months, and 15 months after release for the adult male subsample employed in the 6 months before incarceration. Full model results are shown in ***Appendix C, Tables 61*** *and* ***71****.*

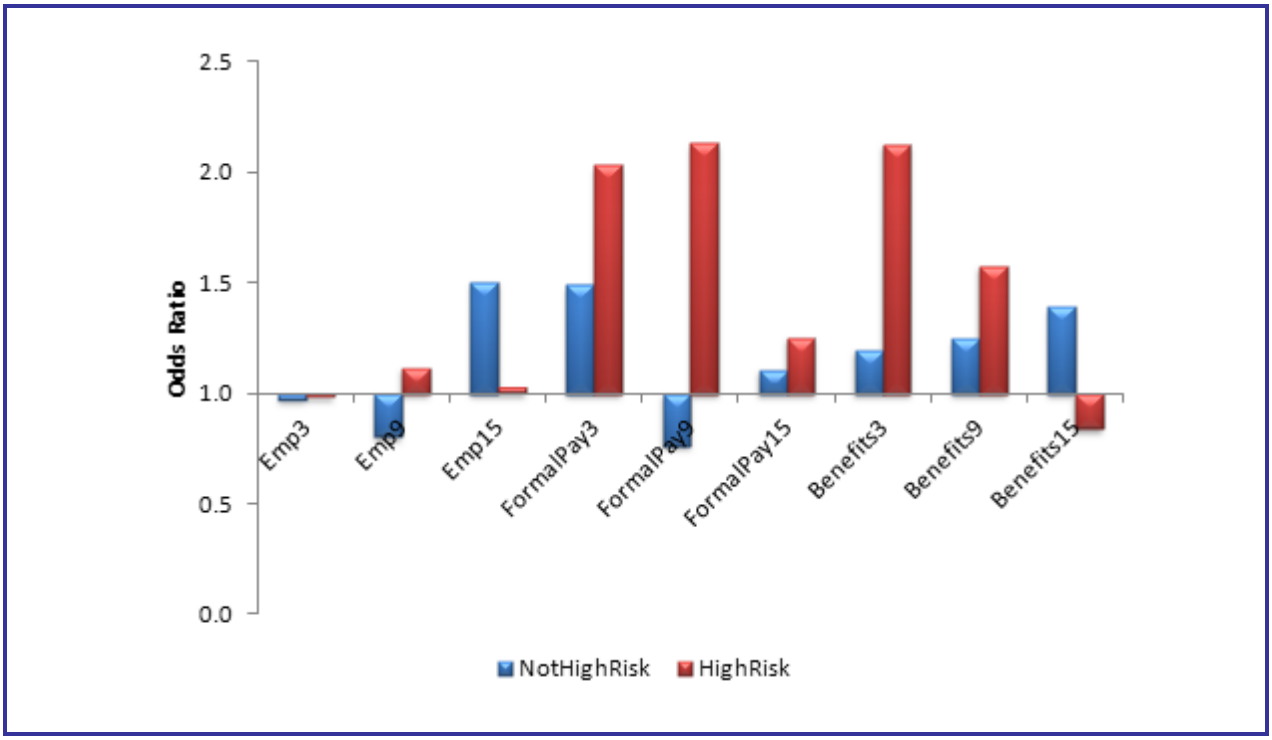
Exhibit 27. Odds ratios of selected service items from models of benefits at 3, 9, and 15 months for the adult male sample



Notes: 3M:Not, 9M:Not, and 15M:Not = job with benefits at 3 months, 9 months, and 15 months after release for the adult male subsample not employed in the 6 months before incarceration; 3 M:Empl, 9 M:Empl, and 15M:Empl = supporting self with job at 3 months, 9 months, and 15 months after release for the adult male subsample employed in the 6 months before incarceration. Full model results are shown in ***Appendix C, Tables 62*** *and* ***72****.*

None of the service items exerted significant effects on having a job after release for the high-risk group. The effect of life skills training was positive and significant for the non-high-risk group with respect to having a job immediately after release, but negative for receiving formal pay (data not shown; see ***Appendix C***, ***Tables 25–27*** and ***37–39***). Reporting receiving employment services was not significant for either risk group. Participating in a reentry (**SVORI**) program was beneficial in terms of being more likely to receive formal pay and to have a job with benefits—particularly for the high-risk group, as can be seen in ***Exhibit 28.***

Exhibit 28. Odds ratios for the reentry program indicator (SVORI) for employment outcomes at 3, 9, and 15 months after release for adult male subgroups, by risk group



Notes: Emp3, Emp9, and Emp15 = currently support self with job at 3, 9, and 15 months after release; FormalPay3, FormalPay9,and FormalPay15 = current or most recent job offered formal pay at 3, 9, and 15 months after release; Benefits3, Benefits9, and Benefits15 = current or most recent job offered benefits at 3, 9, and 15 months after release. NotHighRisk = adult males coded as not high risk; HighRisk = adult males coded high risk. Full model results are in ***Appendix C****,* ***Tables 25–27*** *and* ***37–39****.*

VICTIMIZATION

Victimization, which was broadly constructed to include threats, was reported by 26% of the men at 3 months, 38% at 9 months, and 39% at 15 months (see ***Exhibit 3***). We saw few effects of services on self-reported victimization during the period since release or previous interview. The odds ratios from the 3-, 9-, and 15-month models for the service items are shown in ***Exhibit 29***. (Full model results are in ***Appendix B, Table 7***.) Odds ratios for the two service bundle scores also were not significantly different from one (***Appendix B, Table 32***). Participating in a reentry program (**SVORI**) was associated with a lower risk of victimization that was statistically significant in the 9-month model.

In the immediate period after release, receiving educational services (**Educ**) was associated with lower victimization at 3 months (OR = 0.50, $p = 0.03$) for those 27 years or younger, and substance abuse treatment (**AODtx**) was associated with higher victimization for those older than 27 years (OR = 1.79, $p = 0.08$). There were few differences in the other strata comparisons for the service items or the SVORI indicator (data not shown).

In ***Tables 7*** and ***32 (Appendix B)***, we do see that some individual characteristics are associated with post-release victimization. Individuals who reported being married or in a relationship 30 days before release are more likely to report victimization immediately after release, although this effect dissipates over time. Individuals reporting more mental health symptoms as measured by the **GSI** were more likely to report victimization at each interview wave.

Individuals who reported having experienced two or more substance abuse treatment episodes before incarceration were also more likely to report victimization.

Exhibit 29. Odds ratios from full model of victimization at 3, 9, and 15 months after release for the adult male sample

Variable	3 Months	9 Months	15 Months
CaseMgr	1.0498	0.7986	0.6151*
Needs	0.9888	1.2051	1.3552
RPlan	1.0551	1.3514	1.0341
RPrgm	0.7776	1.0146	1.2287
LifeSk	1.2138	1.1884	1.5394†
EmplSrv	0.9369	0.9833	1.3164
MHtx	1.2520	1.3475	1.1513
AODtx	1.2264	1.0945	1.4258†
PersRel	1.2829	0.9121	0.7452
CrimAtt	0.7915	1.0910	0.7026
AngrMgt	1.1324	0.7038†	1.2800
Educ	0.7852	0.8523	0.8702
SVORI	0.9244	0.6883*	0.7800
N	866	864	810

*Note: Victimization is coded 1 if the individual reported any victimization (threatened with being hit; had anything thrown at them; pushed, grabbed, or shoved; slapped, kicked, bitten, or hit with a fist; threatened with or had a weapon used on them) since release but before reincarceration if reincarcerated at 3 months and since previous interview or past 6 months if no previous interview and before current incarceration if reincarcerated at 9 and 15 months; it was coded 0 otherwise. SVORI = Serious and Violent Offenders Reentry Initiative. Full model results are shown in **Appendix B, Table 7**.*

**p < 0.05; † p ≤ 0.10*

COMPLIANCE WITH SUPERVISION REQUIREMENTS

Most of those on supervision reported that they had complied with the conditions of their supervision. Specifically, only 22% at 3 months, 30% at 9 months, and 38% at 15 months reported that they had failed to comply with at least one supervision condition in the time since release (3 months) or since the last interview (or in the last 6 months if the previous interview was missed). The effects of services on post-release compliance with supervision requirements are shown in ***Exhibit 30***. As can be seen, few of the effects are statistically significant. Individuals who reported receiving mental health treatment (**MHtx**) are more likely to report not complying with supervision conditions, and this effect is significant and large at 15 months. Having classes to change attitudes about criminal behavior reduces reports of failure to comply at each interview although the results are not significant; at 3 months the odds ratio of 0.63 has a *p*-value of 0.11. Examining the average odds ratios over the three data collection periods, we see that only two measures have averages smaller than 0.90, indicating that the service reduced non-compliance: **CrimAtt** has an average odds ratio of 0.72, and **RPlan** has an average of 0.81. However, these results are not statistically significant.

Not surprisingly, neither of the two service bundle measures is significant in the models that include these variables instead of the individual items (see ***Appendix B, Table 33***). Odds ratios range from 0.89 to 1.09 for the two bundles across the three periods. The **PSB** has an average odds ratio across the three periods of 0.94; the average for the **ICSB** is 0.98.

Exhibit 30. Odds ratios from full model of "failed to comply with conditions of supervision" at 3, 9, and 15 months after release for the adult male sample

Variable	3 Months	9 Months	15 Months
CaseMgr	0.9645	1.0128	0.8391
Needs	0.7129	1.2124	1.0165
RPlan	1.0296	0.6839	0.7080
RPrgm	0.9410	0.9789	1.0649
LifeSk	1.0804	0.9915	1.0313
EmplSrv	0.7065	1.3215	1.1354
MHtx	1.2101	1.2564	1.9492*
AODtx	0.8828	0.8197	1.0101
PersRel	1.6823†	0.6247†	1.0865
CrimAtt	0.6251	0.7149	0.8145
AngrMgt	0.8876	1.1670	1.1184
Educ	0.8113	1.1411	1.1809
SVORI	1.1291	1.2154	0.8521
N	738	627	520

*Note: "Failed to comply with conditions of supervision" is coded 1 if the individual reported any failure to comply with conditions of supervision since release but before reincarceration if reincarcerated at 3 months and since previous interview or past 6 months if no previous interview and before current incarceration if reincarcerated at 9 and 15 months; it was coded 0 otherwise. Questions were asked only if the subject reported being on supervision during the period. SVORI = Serious and Violent Offenders Reentry Initiative. Full model results are shown in **Appendix B, Table 8**.*

**p < 0.05; † p ≤ 0.10*

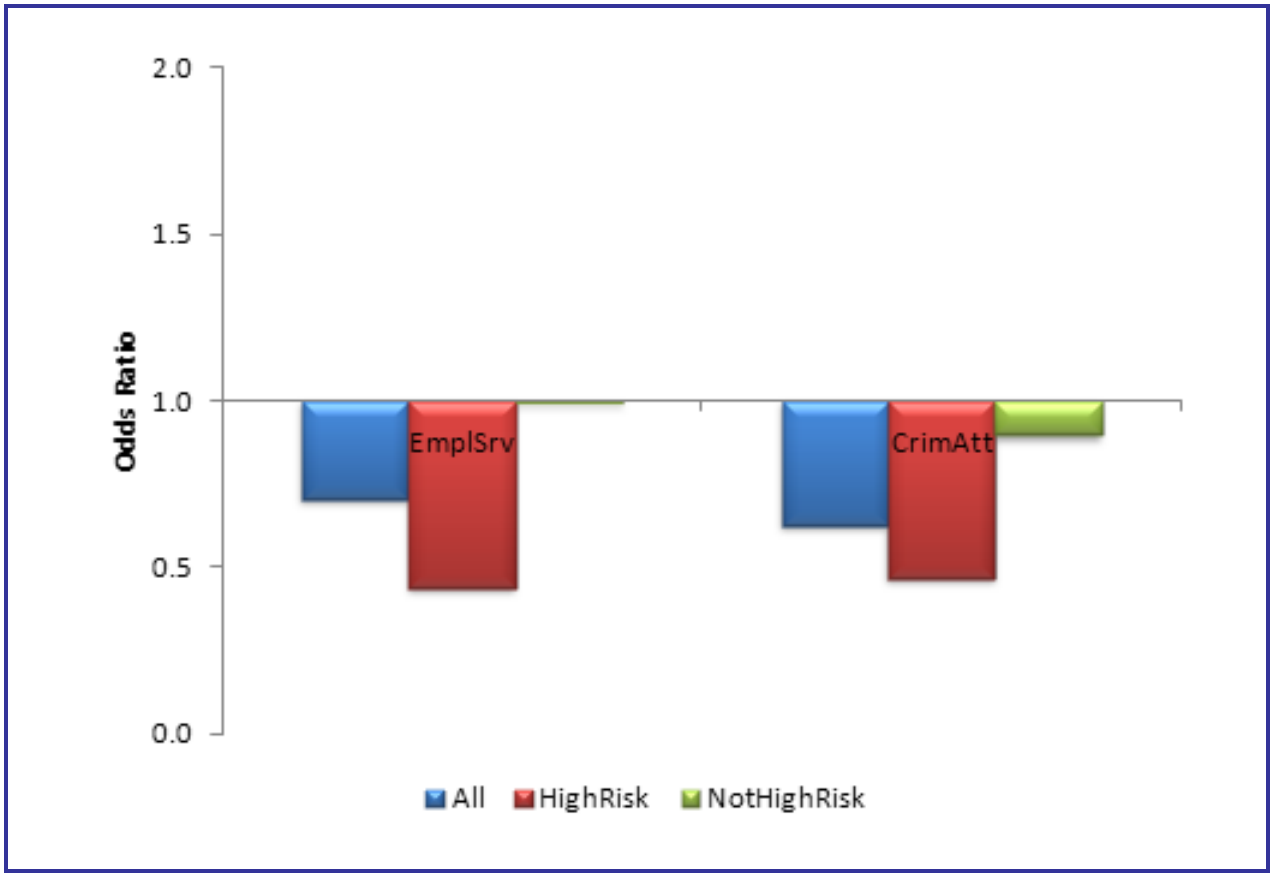
Few of the individual characteristics are significantly associated with failure to comply with supervision conditions. Two differences are apparent for the effect of services on failure to comply when comparing the high-risk and not-high-risk subgroups. (Full model results are in ***Appendix C***, ***Tables 28*** and ***40***.) As can be seen in ***Exhibit 31***, **EmplSrv** and **Crim Att** are associated with self-reported supervision compliance (i.e., less likelihood of reporting not complying) for the high-risk group but not for the low-risk group, for whom the odds ratios are not significantly different from one. This finding is consistent with the literature that suggests that services may be more effective for high-risk individuals.

Exhibit 32 shows the services that exhibited different effects for those 27 years and younger and those older than 27 years (***Appendix C***, ***Tables 4*** and ***16***). Employment services (**EmplSrv**) were effective in improving supervision compliance for the younger group, but they provided no benefit to those older. Similarly, substance abuse treatment (**AODtx**) was associated with greater supervision compliance by the younger group but not by the older group. As can be seen, services directed toward helping with personal relationships (**PersRel**) exhibited a negative effect for both groups, but this effect was significant only for those 27 years and younger. In contrast, programs to help change attitudes toward criminal behavior (**CrimAtt**) were associated with greater compliance among the older group, whereas the effect was not significant for the younger group.

Exhibit 33 shows the effect of services for the groups who were and were not employed before incarceration (***Appendix C***, ***Tables 63*** and ***73***). Four services were significant at the $p \leq 0.1$ level for at least one group. Having a needs assessment (**Needs**) and life skills (**LifeSk**) had different effects on the two employment strata, as can be seen. A needs assessment was associated with more noncompliance among those who were not employed before incarceration and less compliance among those who were previously employed. In contrast, life skills training was

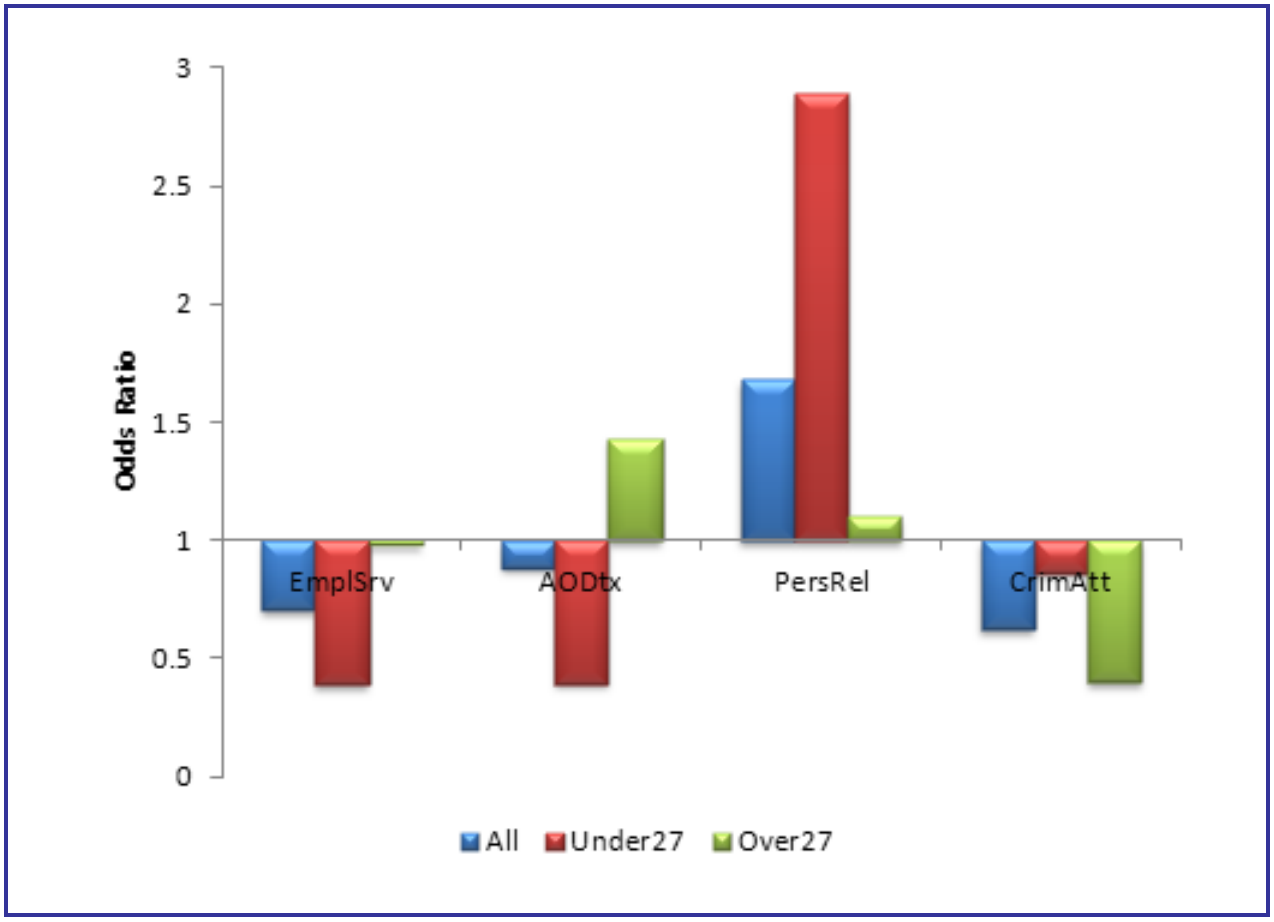
associated with more compliance among those who were not previously employed and less compliance among those who were. Employment services (**EmplSrv**) and training to reduce criminal thinking (**CrimAtt**) were associated with less reporting of failure to comply with supervision conditions; however, these were statistically significant only for those who reported not working in the 6 months before their incarceration.

Exhibit 31. Effects of services on failure to comply with supervision between release and 3-month interview, for adult males, by risk group



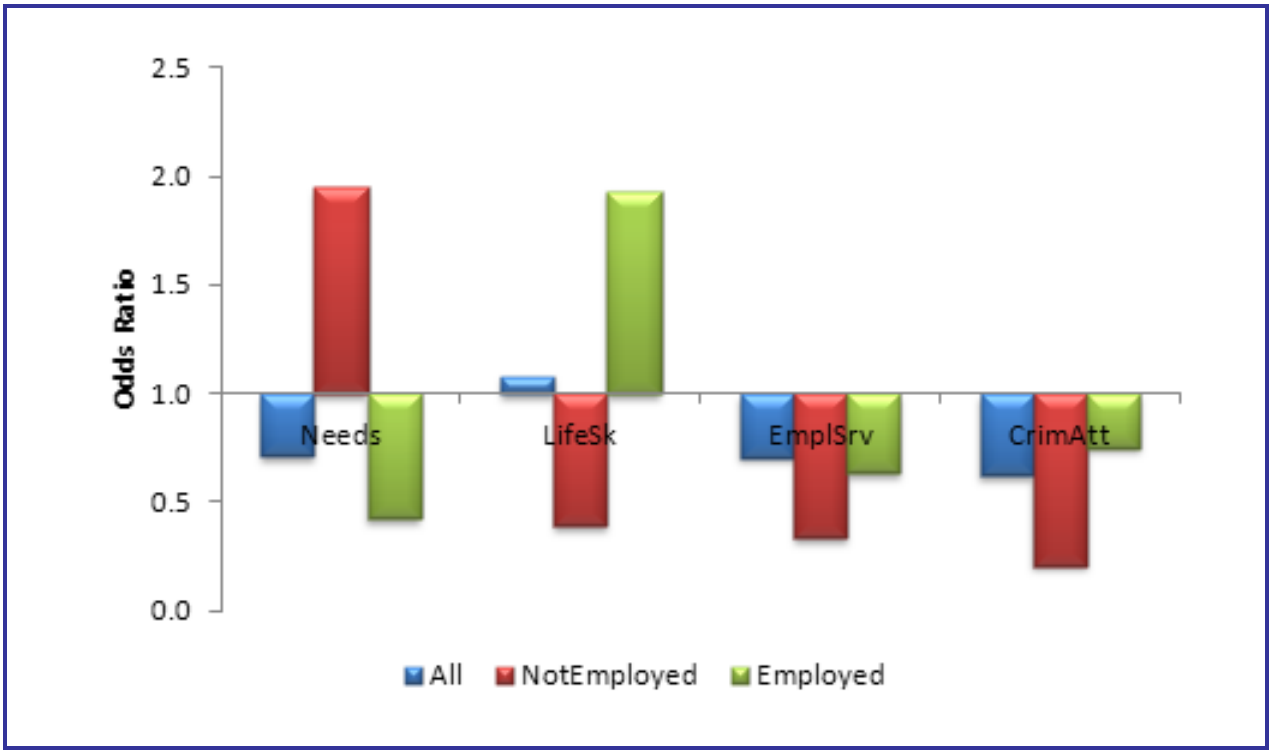
Note: "Failed to comply with conditions of supervision" is coded 1 if the individual reported any failure to comply with conditions of supervision since release but before reincarceration if reincarcerated at 3 months and since previous interview or past 6 months if no previous interview and before current incarceration if reincarcerated at 9 and 15 months; it was coded 0 otherwise. Questions are asked only if the subject reported being on supervision during the period. All = full adult male sample; HighRisk = subsample coded as high risk on the risk scale HiRisk; NotHighRisk = subsample not coded as high risk on the HiRisk risk scale. Full model results are shown in ***Appendix B****,* ***Table 8, and Appendix C, Tables 28 and 40****.*

Exhibit 32. Effects of services on failure to comply with supervision between release and 3-month interview, for adult males, by age group



Note: "Failed to comply with conditions of supervision" is coded 1 if the individual reported any failure to comply with conditions of supervision since release but before reincarceration if reincarcerated at 3 months and since previous interview or past 6 months if no previous interview and before current incarceration if reincarcerated at 9 and 15 months; it was coded 0 otherwise. Questions were asked only if the subject reported being on supervision during the period. All = full adult male sample; Under 27 = subsample 27 years and younger; Over 27 = subsample 27 years and older. Full model results are shown in ***Appendix B, Table 8, and Appendix C, Tables 4 and 16****.*

Exhibit 33. Effects of services on failure to comply with supervision between release and 3-month interview, for adult males, by employment status in the 6 months before incarceration



Note: "Failed to comply with conditions of supervision" is coded 1 if the individual reported any failure to comply with conditions of supervision since release but before reincarceration if reincarcerated at 3 months and since previous interview or past 6 months if no previous interview and before current incarceration if reincarcerated at 9 and 15 months; it was coded 0 otherwise. Questions were asked only if the subject reported being on supervision during the period. All = full adult male sample; NotEmployed = subsample not reporting employment in the 6 months before incarceration; Employed = subsample reporting employment in the 6 months before incarceration. Full model results are shown in ***Appendix B, Table 8, and Appendix C, Tables 63*** and ***73****.*

DRUG USE

Most of the study participants admitted having used drugs in their lifetimes, and about two-thirds reported having used illegal drugs in the 30 days before their incarceration (data not shown). We also saw in ***Exhibit 14*** that nearly 40% reported having been in substance abuse treatment before incarceration and in ***Exhibit 7*** that 43% reported receiving substance abuse treatment while incarcerated. Many resumed their drug use after release. In ***Exhibit 3*** we reported the results for our combined drug use outcome measure, which was coded 1 if the individual self-reported drug use, tested positive on the urinalysis test, or refused to consent to the test; it was coded 0 otherwise.[15] We have two measures—any drug use in the past 30 days and any drug use since release or last

[15] Those incarcerated at the time of the interview were not asked to take the urine test. If they had been in the community at least 1 day since the last interview (or in the last 6 months), they were asked about drug use before reincarceration and were coded as 1 on the drug use variable if they reported any use and 0 otherwise. If they were incarcerated for the entire period since the last interview, they were coded as missing on this variable.

interview—at the 3- and 15-month interviews.[16] Drug use was surprisingly high. On the combined measure at 3 months, 50% had used drugs since release, and 47% had used drugs in the past 30 days. At the 15-month interview, 62% had used drugs since release or last interview, and 56% had used drugs in the last 30 days.

Exhibit 34 shows the odds ratios on the service items and the SVORI program participation indicator. (Full model results are in ***Appendix B***, ***Tables 10*** and ***11***.) Only education services (**Educ**) exert a significant effect on drug use at 3 months, with those reporting receiving educational services significantly less likely to have used drugs. Somewhat surprisingly, receiving employment services is weakly associated with being more likely to have used drugs at 3 months; the odds ratio of 1.45 is significant at the 0.1 level for any drug since release or last interview and the odds ratio of 1.36 for any drug use in the past 30 days has a *p*-value of 0.12. **AODtx** is not significant in any of the models.

Exhibit 34. Odds ratios from full models of drug use outcomes at 3 and 15 months after release for the adult male sample

Variable	Any Drug Use Past 30 Days		Any Drug Use Since Release or Last Interview	
	3 Months	15 Months	3 Months	15 Months
CaseMgr	1.1798	1.0528	1.0767	1.1484
Needs	0.9487	0.7529	0.9784	0.7950
RPlan	1.0364	0.7022†	1.0544	0.7578
RPrgm	1.0657	1.1246	0.9678	1.0042
LifeSk	1.4065	1.2522	1.3762	0.9866
EmplSrv	1.3578	0.9589	1.4456†	1.2997
MHtx	1.2348	2.0109*	1.2126	2.1157*
AODtx	0.8758	1.1246	0.9580	1.2347
PersRel	0.8988	0.9094	1.0237	0.7939
CrimAtt	0.8244	0.7959	0.8016	0.9947
AngrMgt	0.9359	0.8879	1.0399	0.9055
Educ	0.6572*	0.8300	0.6506*	0.8397
SVORI	0.9038	0.9651	0.9091	0.8676
N	867	811	867	811

*Note: Individuals were asked a series of questions about any use of drugs that were not prescribed for them or in larger amounts than prescribed (sedatives, tranquilizers, pain relievers or opiates, methadone, stimulants, anabolic steroids) and recreational use of other drugs (marijuana or hashish, hallucinogens, cocaine, heroin, amphetamines, and inhalants). The questions were asked since release but before reincarceration if reincarcerated at 3 months and since previous interview or past 6 months if no previous interview and before current incarceration if reincarcerated at 15 months. "Any drug use past 30 days" is coded 1for individuals who responded that they had used any of these drugs in the past 30 day, who tested positive for at least one drug on the urinalysis conducted after the interview, or who refused consent for the urinalysis; it was coded 0 otherwise. Individuals who were incarcerated at the time of the interviews were not asked to consent to the urine test and were coded on the basis of their responses to the self-reported drug use questions. "Any drug use since release or last interview" is coded 1for individuals who responded that they had used any of these drugs since release at 3 months or since the previous interview or past 6 months if no previous interview at 15 months, who tested positive for at least one drug on the urinalysis conducted after the interview, or who refused consent for the urinalysis; it was coded 0 otherwise. Individuals who were incarcerated at the time of the interviews were not asked to consent to the urine test and were coded on the basis of their responses to the self-reported drug use questions. Urine testing was not done in conjunction with the 9-month interview. SVORI = Serious and Violent Offenders Reentry Initiative. Full model results are shown in **Appendix B**, **Tables 10** and **11**.*

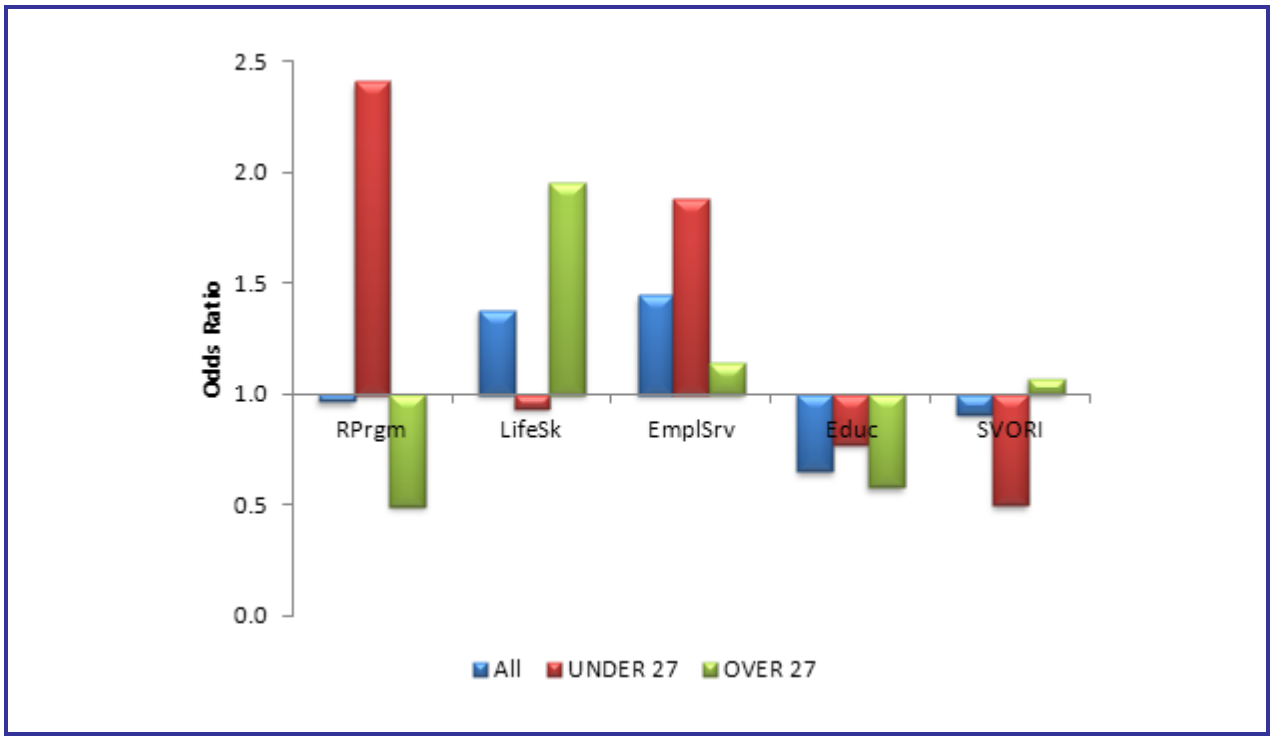
**p < 0.05; † p ≤ 0.10*

[16] We did not conduct urine tests at 9 months. The difference between the any drug use and any drug use in the past 30 days is responses to separate questions asking about any use and any use in the past 30 days, since the urine test results will be the same for both measures and will reflect recent use for most substances.

Examination of ***Exhibit 34*** shows that most of the odds ratios for the items in the **PSB** are greater than 1 and most of the odds ratios for the **ICSB** are less than 1—particularly at 3 months. The odds ratios for the **PSB** (see ***Appendix B***, ***Tables 35*** and ***36***) are 1.12 (p = 0.03) for the "any drug use in the past 30 days" measure and 1.10 (p = 0.07) for the "any drug use since release/last interview" measure, suggesting that these services are associated with about a 10% greater likelihood of drug use. The odds ratios for the **ICSB** (see ***Appendix B***, ***Tables 35*** and ***36***) are 0.89 (p = 0.06) for the "any drug use in the past 30 days" measure and 0.93 (p = 0.23) for the "any drug use since release or last interview" measure, suggesting that these services are associated with about a 10% smaller likelihood of drug use at least in the initial period after release.

Exhibit 35 shows the differential effects of services for the two age groups on any drug use since release at the 3-month interview (***Appendix C***, ***Tables 6*** and ***18)***. Shown are the odds ratios for measures that are significant ($p \leq$ 0.1) for at least one of the two groups. Reentry programs or classes (**RPrgm**) are strongly associated with greater drug use for the younger age group and strongly associated with less drug use for the older age group. Life skills training (**LifeSk**) exhibits no effect for the younger group, but it is associated with higher use among the older age group. Employment services (**EmplSrv**) also are associated with more drug use, significantly so overall and for the younger group. Education (**Educ**) is associated with less use for both groups, although significantly so only for the older group. Finally, **SVORI** program participation has no effect overall or for the older group, but it is associated with less use for those 27 years or younger. Results are similar for **AnyDrug3_30** measure (***Appendix C***, ***Tables 5*** and ***17***).

Exhibit 35. Effects of services on any drug use between release and 3-month interview, for adult males, by age group



Notes: "Any Drug Use Since Release or Last Interview" is coded 1 for individuals who responded that they had used any of these drugs since release at 3 month, who tested positive for at least one drug on the urinalysis conducted after the interview, or who refused consent for the urinalysis; it was coded 0 otherwise. Individuals who were incarcerated at the time of the interviews were not asked to consent to the urine test and were coded on the basis of their responses to the self-reported drug use questions only. Full model results are shown in ***Appendix B, Table 11,*** *and* ***Appendix C, Tables 6*** *and* ***18****.*

At 15 months, none of these variables is significant. However, for those 27 years of age or younger, help with personal relationships (**PersRel**) is associated with less drug use, and case management (**CaseMgr**) and anger management classes (**AngrMgt**) are associated with more drug use. For those over the age of 27, anger management classes (**AngrMgt**) are associated with less drug use, and having received mental health treatment (**MHtx**) is associated with more drug use (see ***Appendix C***, ***Tables 5***, ***6***, ***17***, and ***18***).

> *Drug use was high, and few pre-release services appear to have had any impact on the resumption of drug use after release.*

Anger management (**AngrMgt**) and education (**Educ**) were associated with less drug use at 3 months for the not-high-risk group but not the high-risk group (see ***Appendix C***, ***Tables 29, 30, 41,*** and ***42***). None of the services was effective for the employed group, whereas education (**Educ**) and **SVORI** program participation were associated with less drug use among those who had reported not working in the 6 months before incarceration (***Appendix C***, ***Tables 64*** and ***74***). The final stratification variable was based on the individual's reporting that he needed to change his attitude toward criminal behavior "a lot." None of the services was beneficial for the "no change" group (**MHtx** has an odds ratio of 2.6; see ***Appendix C***, ***Tables 51*** and ***57***). For the "need to change a lot" group, having a reentry plan (**RPlan**) and anger management (**AngrMgt**) were associated with less drug use at 15 months, whereas life skills (**LifeSk**) and mental health treatment (**MHtx**) were associated with more drug use.

Overall, drug use was high, and few pre-release services appear to have had any impact on the resumption of drug use after release. By the final follow-up data collection, more than 60% were reporting (or testing positive for) drug use. Particularly notable is that pre-release drug treatment (**AODtx**) does not appear to have had any impact—either overall or for the stratified subsamples.

RECIDIVISM

The adult men included in the SVORI evaluation have had active criminal histories. As shown in ***Exhibit 14***, on average, the age at first arrest (**Age1stArr**) was 16 years for the adult males in the study, they had been in juvenile detention more than once (**#Juvie** = 1.7),and the number of prior convictions (**#Conv**) was 5.5. They had also accumulated a lot of arrest charges before their current incarceration: an average of 2.5 for person crimes, 3.7 for property crimes, 3.2 for drug crimes, and 4.5 for other crimes. Against this criminal history, and aware that past criminal behavior is the best predictor of future criminal behavior, we would expect that this group of men would be at substantial risk of recidivating. ***Exhibit 5*** showed the cumulative failure distributions for time to first rearrest and reincarceration. Within the 1,694 days (56 months) for which we had follow-up data for all adult subjects, 82% of the adult males had been arrested at least once, and 54% of them had been reincarcerated at least once. In this section, we examine the impact of pre-release services on the following recidivism indicators:

- Self-report at 3, 9, and 15 months post release of having committed any crime
- Time between release and first rearrest and conditional analyses on the time between the first and second arrests, the second and third arrests, and the third and fourth arrests
- Number of arrests
- Time between release and first reincarceration
- Number of reincarcerations

SELF-REPORTED CRIMINAL BEHAVIOR

Fewer than half of the respondents reported having committed any crimes—24% at the 3-month interview, 39% at the 9-month interview, and 37% at the 15-month interview. Odds ratios for the service items from the full model results are shown in ***Exhibit 36*** (full model results are in ***Appendix B***, ***Table 9***). As can be seen, reporting having a reentry plan 30 days before release (**RPlan**) and being in a **SVORI** program are weakly associated with not reporting committing crimes. Participating in reentry programs or classes (**RPrgm**), on the other hand, is associated with being *more* likely to report having committed a crime, although only marginally so at 3 months.

Exhibit 36. Odds ratios for service items from full model of "committed any crime" at 3, 9, and 15 months after release for the adult male sample

Variable	3 Months	9 Months	15 Months
CaseMgr	0.7667	1.1740	1.2248
Needs	1.1229	0.7890	0.8545
RPlan	0.6517†	1.0498	0.7136†
RPrgm	1.5289†	1.2552	1.3053
LifeSk	1.1529	1.6626*	0.9159
EmplSrv	0.9259	0.8756	1.0239
MHtx	0.9993	1.2107	1.7013*
AODtx	0.8785	0.8197	1.0456
PersRel	1.4225	1.0074	1.1282
CrimAtt	0.8785	0.9055	0.9090
AngrMgt	0.7681	0.9014	1.0756
Educ	0.7520	1.1952	0.8794
SVORI	0.6691†	0.7387†	0.8808
N	867	909	971

Note: "Committed any crime" is coded 1 for individuals who responded "yes" to any of a series of questions asking if they had carried a weapon or committed any violent crimes, other crimes against people, drug possession crimes, drug sales crimes, any other drug crimes, DWI/DUI crimes, property crimes, or any other crimes, regardless of whether they were caught. The questions were asked since release but before reincarceration if reincarcerated at 3 months and since previous interview or past 6 months if no previous interview and before current incarceration if reincarcerated at 9 and 15 months; it was coded 0 otherwise. SVORI = Serious and Violent Offenders Reentry Initiative. Full model results are shown in ***Appendix B, Table 9****.*

**p < 0.05; † p ≤ 0.10*

Given the weak and mixed effects of the service items within the bundles on self-reported crime, it is not surprising that the service bundles **PSB** and **ICSB** are not significant in any of the three models that include bundles rather than items (***Appendix B***, ***Table 34***). (The average odds ratios across the three time periods are 1.01 for the **PSB** and 1.00 for the **ICSB**.) The SVORI indicator is significant at 3 months (odds ratio = 0.64, $p = 0.035$). The odds ratio is 0.78 at 9 months and 0.87 at 15 months—in the right direction but no longer significantly different from 1.

ARREST

Data on arrests were obtained from the NCIC and were used for several types of analyses. First, the data were coded to indicate the occurrence of a first rearrest by cumulative time periods of 3, 6, 9, 12, 15, 18, 21, 24, 30, 36, 42, 48, and 54 months after release, and a series of logistic regressions were estimated in a manner consistent with the examination of the survey-based outcomes. We coded the most serious charge at first arrest by person, property, drug, and public order/other. For the 1,335 subjects with at least one arrest, the most serious charge at

first arrest was a person charge for 248 (18.6%), a property charge for 271 (20.3%), a drug charge for 358 (26.8%), and a public order/other charge for 458 (34.3%). There was not a statistically significant difference in the nature of first most serious arrest charge between SVORI and non-SVORI participants ($X^2 = 3.5845$, p = 0.31).

Second, the timing and incidence of sequential post-release arrests was coded and used for a gap analysis that examined the time to sequential rearrests conditioned on having a previous arrest. Third, the arrests accrued by each subject during the fixed follow-up period (56 months) were counted, and a negative binomial model of the number of post-release arrests was estimated. There was some variation in numbers of total arrest events and numbers of most serious charges between the SVORI and non-SVORI groups during the 56 months following release. There were significant differences between the SVORI and non-SVORI groups on these measures. SVORI program participants averaged 3.2 (sd = 3.2) arrest events and 5.4 (sd = 5.6) arrest charges and non-SVORI participants averaged 3.8 (sd = 3.9) arrest events and 6.4 (sd = 7.1) arrest charges during the fixed follow-up period (t = 2.99, p = 0.003; t = 3.14, p =.0.002). In addition, there were differences for some specific offense types, with SVORI program participants having fewer arrest events for which property and other offenses were the most serious charge; there were no statistically significant differences in the number of arrest events for which person or drug offenses were the most serious charge (data not shown). In terms of total numbers of charges, there were no significant differences between the SVORI and non-SVORI groups in total numbers of person, property, or drug offenses, while the non-SVORI group averaged nearly one additional arrest charge for public order/other offenses (data not shown).

The arrest models were estimated in a multivariate framework using the service items or service bundles, the SVORI program participation indicator, and individual characteristics and site as control variables.

Results from the analyses of post-release arrest suggest that SVORI program participation was associated with a longer time to arrest and with fewer rearrests in a 56-month fixed, post-release follow-up period.

LOGISTIC REGRESSION: LIKELIHOOD OF FIRST REARREST BY TIME T

The purpose of these analyses was to examine the effect of services on the likelihood of arrest within a specified time post-release. ***Exhibit 37*** shows the percentage of the adult males who have been rearrested within a specified number of months after release. More than 15% were rearrested within 3 months of release, and at 54 months after release, 82.2% had been rearrested. (A total of 1,335 or 82.5% of the 1,618 for whom we acquired long-term follow-up data were rearrested within the maximum fixed follow-up period of 56 months.)

The odds ratios for the service items and SVORI program participation indicators are shown in ***Exhibit 38*** for the three follow-up interview periods. Few of the pre-release services affect the probability of rearrest. As can be seen, only **Educ** is associated with a lower likelihood of rearrest—and weakly so at 3 months. Life skills training (**LifeSk**) and mental health treatment (**MHtx**) are associated with a higher likelihood of rearrest.

Of course, the initial period after release is often a turbulent one for offenders, and services received in prison may prove beneficial in the longer run. The odds ratios for the **PSB** items for first rearrest within 6, 12, 18, 24, 30, 36, 42, 48, and 54 months are shown in ***Exhibit 39.*** (Full model results are in ***Appendix B, Tables 12–16***.) As can be seen, most of the values are greater than one throughout the follow-up period, suggesting that these items had either no effect (if insignificant) or were associated with greater likelihood of rearrest. Most striking are the values

for the life skills indicator (**LifeSk**), which suggest that reporting receiving life skills services was associated with a greater likelihood of arrest after release—significantly so for the first 18 months.

Exhibit 37. Cumulative percentage of the adult males who were arrested by the specified month after release

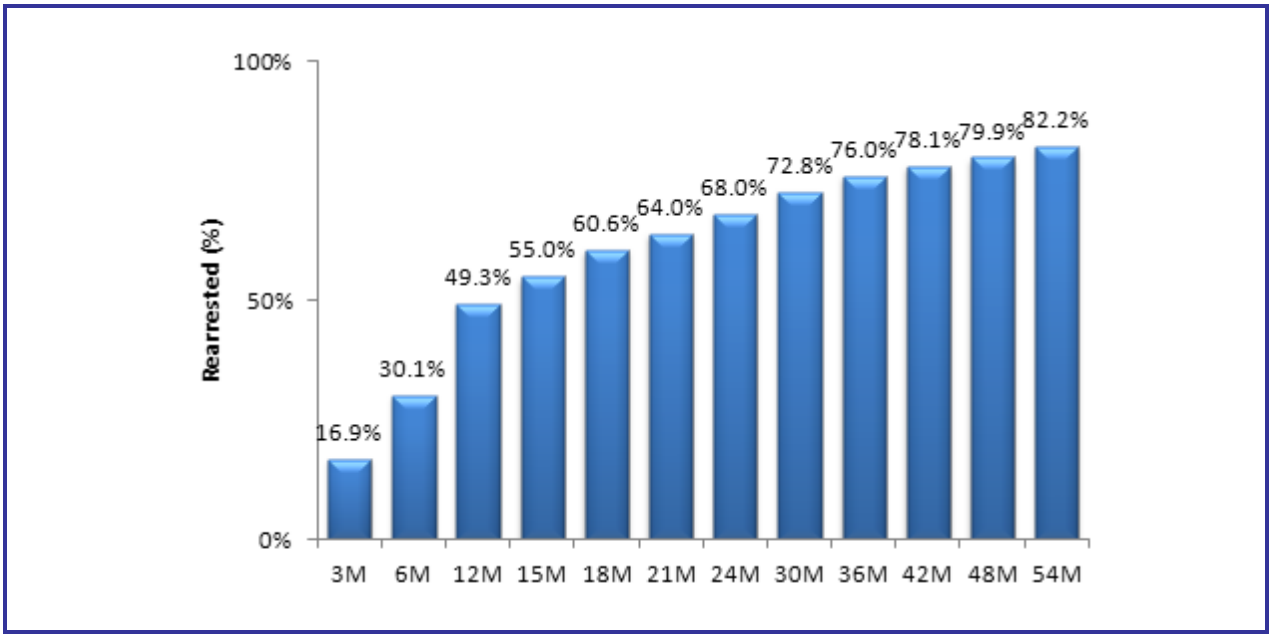


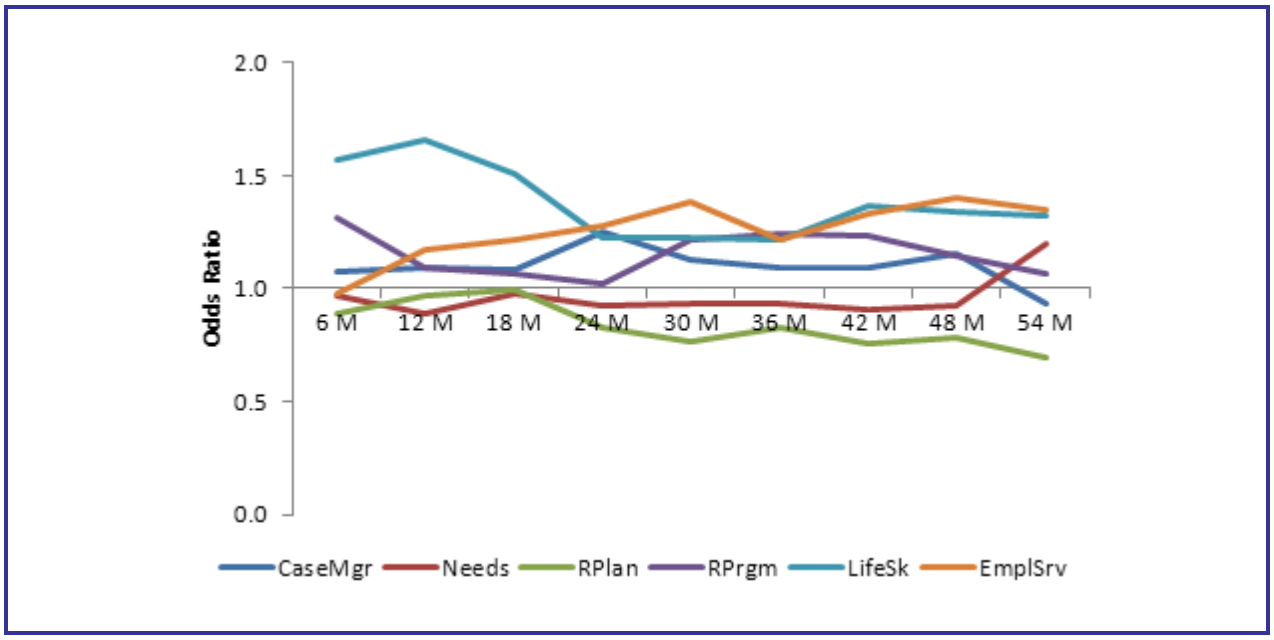
Exhibit 38. Odds ratios for service items from full models of first rearrest within 3, 9, and 15 months after release for the adult male sample

Variable	Rearrest within		
	3 Months	9 Months	15 Months
CaseMgr	0.9930	1.0904	1.1645
Needs	1.0513	0.8552	0.9752
RPlan	1.0121	0.9134	0.9453
RPrgm	1.3057	1.1667	1.1817
LifeSk	0.9735	1.6685*	1.4581*
EmplSrv	0.9000	1.0790	1.1424
MHtx	1.5953*	1.3908†	1.1044
AODtx	0.8031	0.8865	0.8931
PersRel	0.8311	0.8548	0.8904
CrimAtt	0.8441	0.9561	0.8148
AngrMgt	1.0927	0.7756	0.8633
Educ	0.7130†	0.8668	0.8763
SVORI	0.9390	0.8348	0.8912

*Note: SVORI = Serious and Violent Offenders Reentry Initiative. Full model results are shown in **Appendix B, Tables 12** and **13**.*

**p < 0.05; † p ≤ 0.10*

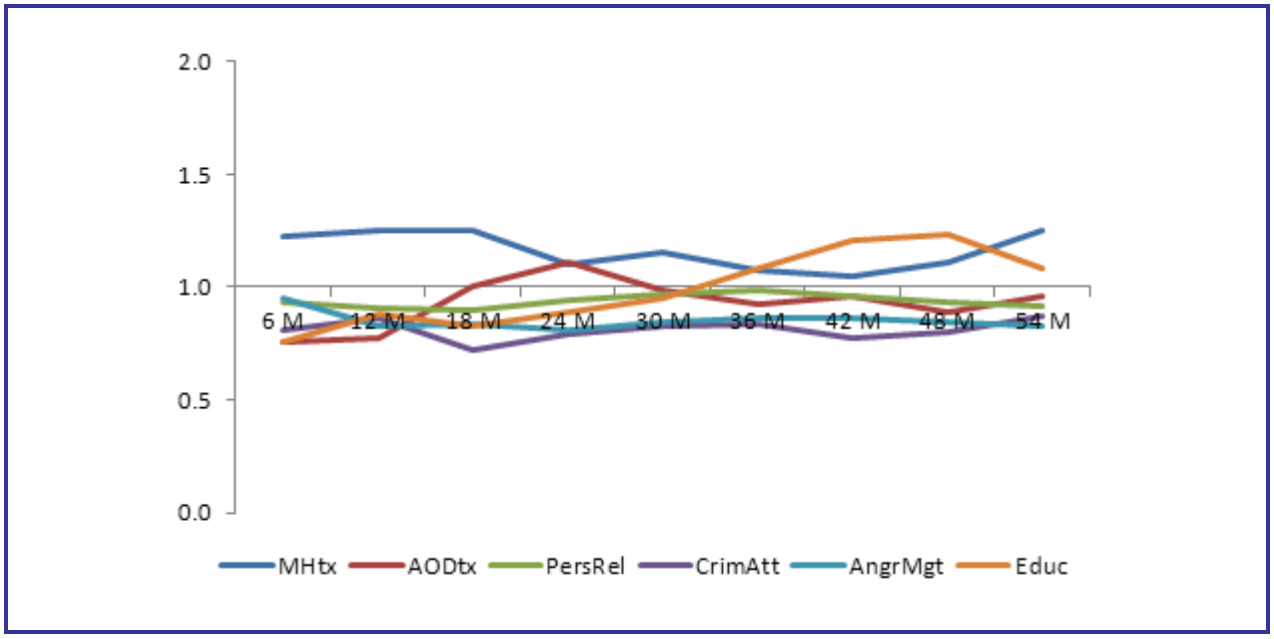
Exhibit 39. Effects of practical service bundle items on post-release arrest for adult male sample



*Note: Full models results are in **Appendix B, Tables 12 -16**.*

The odds ratios for the **ICSB** items are shown in ***Exhibit 40***. Here, most of the values are less than one throughout the follow-up period, although only a few values are statistically significant. Substance abuse treatment (**AODtx**) and education (**Educ**) are weakly protective in the immediate period after release. In contrast, mental health treatment appears to be associated with a higher likelihood of rearrest, particularly soon after release.

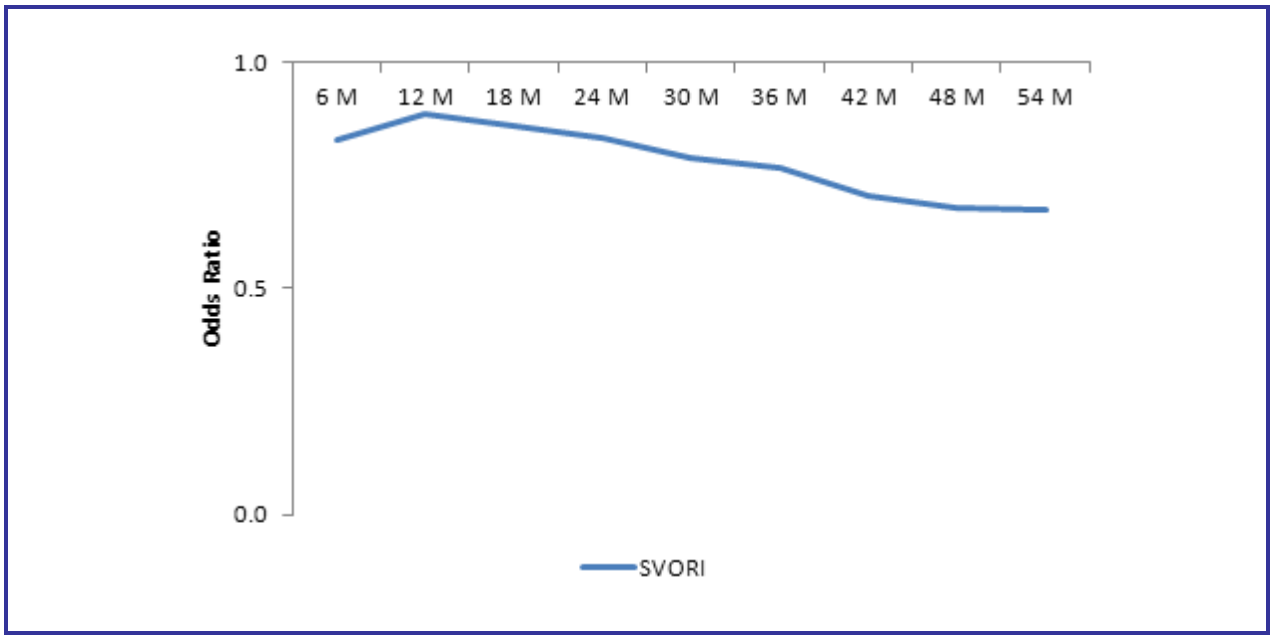
Exhibit 40. Effects of individual change service bundle items on post-release arrest for adult male sample



*Note: Full models results are in **Appendix B, Tables 12–16**.*

SVORI is the final service indicator, indicating whether the individual participated in a reentry program. The odds ratios for **SVORI** are less than one throughout the observation period and indicate a stronger effect as time after release increases. These odds ratios are shown in ***Exhibit 41***.

Exhibit 41. Effects of SVORI program participation on post-release arrest for adult male sample



*Note: Full models results are in **Appendix B, Tables 12–16**.*

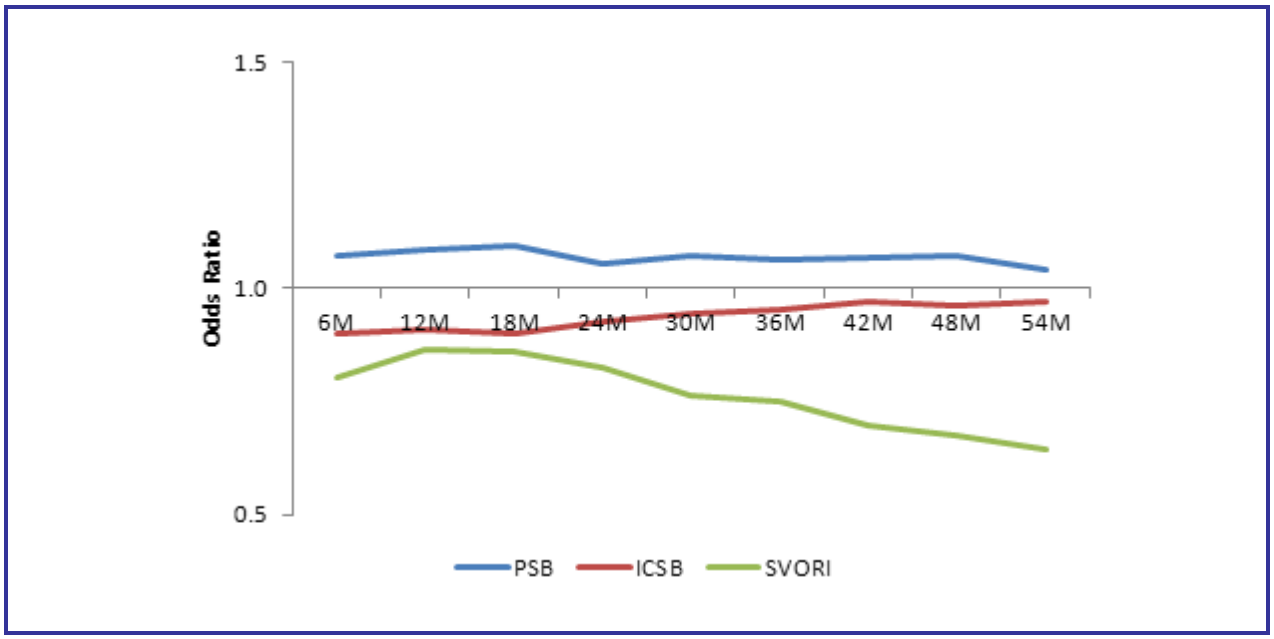
The full model results are shown in ***Tables 12–16*** in ***Appendix B***. Results for the control variables are largely as we would expect. Individuals who were older at release and who had graduated from high school were less likely and those with more prior arrests for property and drug offenses were more likely to be rearrested.

Given the findings shown in ***Exhibits 39–41***, the results from the models including bundle scores rather than individual items shown in ***Exhibit 42*** are consistent. *Specifically, receipt of more practical services is associated with a higher likelihood of arrest, and receipt of individual change services is associated with a lower likelihood of arrest. SVORI program participation is associated with lower likelihood of arrest that, as in the model with the service items, becomes stronger over time.* (Full model results are shown in ***Appendix B***, ***Tables 37-41***.)

As discussed previously, we also stratified the sample by a number of individual characteristics, including respondent's age and acknowledgement of his need to change his attitudes toward criminal behavior, to determine whether the impact of service receipt varied by these individual characteristics. Receiving substance abuse treatment (**AODtx**) before release appeared to be more effective for those who said they needed to change their attitudes about criminal behavior "a lot" compared with those who did not (see ***Appendix C***, ***Tables 52–54*** and ***58–60***). Overall, as before, there were few significant effects, although there were some differences between the two groups. ***Exhibit 43*** shows the effects on arrest at 3 months and 54 months for selected service items for the two groups—those who didn't think they needed to change their attitudes "a lot" and those who thought that they did need to change their attitudes. **Educ** and **SVORI** were significant and protective at 3 months for the group who said they did not need to change, whereas **AODtx** was protective at 3 months for those who said they needed to change. The effects diminished by 54 months following release, except that **SVORI** remained significant and protective at 54 months for the group that said they did not need to change. **Lifesk** was associated with a greater likelihood of rearrest among those who said they needed to change. Among those who said that they needed to

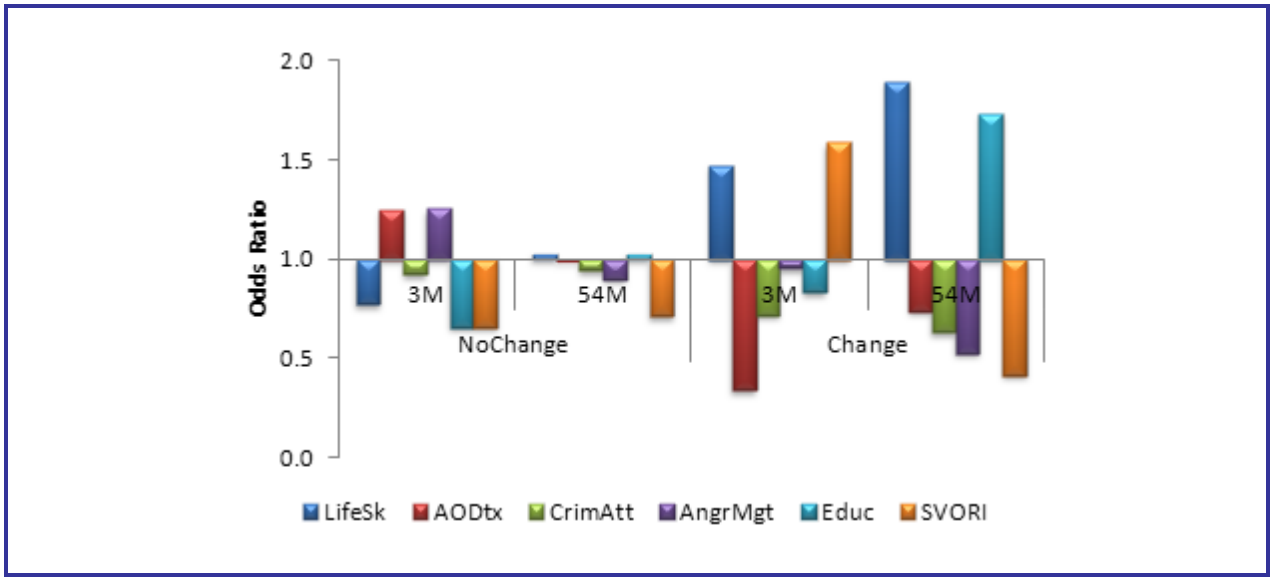
change their attitudes, having attended classes or having received training to change their attitudes (**CrimAtt**) was associated with a smaller likelihood of rearrest, particularly later on.

Exhibit 42. Effects of practical services bundle and individual change service bundle scores and SVORI program participation on post-release arrest for the adult male sample



Notes: ICSB = individual change service bundle score; PSB = practical service bundle score; SVORI = Serious and Violent Offenders Reentry Initiative. Full model results are in ***Appendix B, Tables 37–41****.*

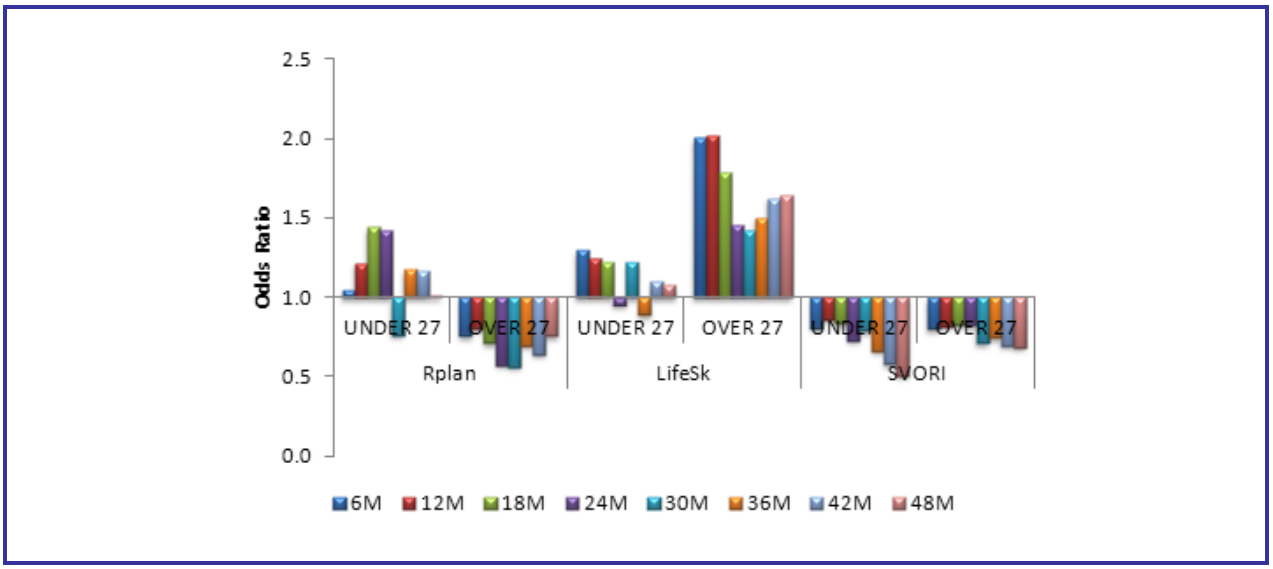
Exhibit 43. Effects of selected service items on the likelihood of rearrest within 3 and 54 months after release for adult males, by self-identified need to change attitudes



Note: Full model results are in ***Appendix C, Tables 52–54*** *and****58–60.***

Exhibit 44 shows the differential effect on likelihood of rearrest of selected service items by age group. (Full model results are in ***Appendix C***, ***Tables 7–9*** and ***19–21***.) As can be seen, having a reentry plan (**RPlan**) is beneficial for those older than 27 but not for those 27 or younger. Life skills (**LifeSk**) is associated with a greater likelihood of arrest for those older than 27, and **SVORI** program participation is most beneficial for the younger group.

Exhibit 44. Effects of selected services on rearrest within specified time periods for adult males, by age group



*Note: Full model results are in **Appendix C**, **Tables 7–9** and **19–21**.*

Overall, with the exception of employment-related services, services appear to have been more beneficial for those who were unemployed before incarceration (see ***Appendix C, Tables 65–67*** and ***75–77***). Those who were unemployed before incarceration and reported receiving employment services while incarcerated had a greater likelihood of rearrest. Education (**Educ**) and assistance changing their attitudes toward criminal behavior (**CrimAtt**) were beneficial for this group. Anger management programs (**AngrMgt**) and **SVORI** program participation while incarcerated were associated with a lower likelihood of rearrest after release (data not shown; see ***Appendix C***). Education (**Educ**) and employment services (**EmplSrv**) appear to have been mildly more beneficial for those who were rated high risk on our high-risk indicator than those who were not high risk (see ***Appendix C, Tables 31-33*** and ***43-45***). **SVORI** program participation appears to have been weakly beneficial for both groups in the out years.

GAP MODELS: TIME TO REARREST

Gap analysis (Cook & Lawless, 2007) was used to estimate the time to rearrest for multiple arrest events. As described in the Analytic Approach section, successive survival models were estimated on the time between arrest events. For the adult males, we had sufficient events to model the first four episodes:

- Gap1 = days between release and first new arrest
- Gap2 = days between first arrest and second arrest, conditional on having a first arrest
- Gap3 = days between second and third arrests, conditional on having a second arrest
- Gap4 = days between third and fourth arrests, conditional on having a third arrest

Several functional forms were tried, and the exponential function provided the best fit to the data for these episodes.[17] (Additional details are below.) The exponential survival model is characterized by a constant hazard rate—in other words, the instantaneous likelihood of experiencing the event of interest (here, an arrest) is the same at every time t (Kalbfleisch and Prentice, 2002).

We addressed the issue of another event's changing or eliminating the likelihood of the event of interest occurring in two ways. First, subjects were censored on their date of death—in other words, the date of death was treated as the end of the follow-up period for individuals who had died. We also censored subjects on the date of their first reincarceration after release, as we did not always have release dates and thus could not remove the periods of incarceration from the arrest models.

Exhibit 45 shows the full model output for the first two gap models. A negative coefficient means a shorter time to rearrest, and a positive coefficient means a longer time to rearrest.

Exhibit 45. Full model output for Gap1 and Gap2 models of arrest after release for the adult male sample

Variable	Gap1: Release to Arrest 1				Gap2: Arrest 1 to Arrest 2			
	Estimate	SE	Z	*p*	Estimate	SE	Z	*p*
Intercept	5.1877*	0.2305	22.5114	0.00	4.9704*	0.2600	19.123	0.00
CaseMgr	-0.0440	0.0511	-0.8608	0.39	-0.0312	0.0619	-0.505	0.61
Needs	0.0158	0.0529	0.2977	0.77	-0.0075	0.0638	-0.118	0.91
RPlan	0.1145*	0.0528	2.1697	0.03	0.0099	0.0624	0.159	0.87
RPrgm	-0.1102*	0.0539	-2.0456	0.04	0.0584	0.0626	0.933	0.35
LifeSk	-0.2014*	0.0606	-3.3252	0.00	-0.1573*	0.0703	-2.238	0.03
EmplSrv	-0.1544*	0.0550	-2.8090	0.00	-0.0074	0.0629	-0.118	0.91
MHtx	-0.1522*	0.0630	-2.4147	0.02	0.0991	0.0749	1.323	0.19
AODtx	0.0166	0.0535	0.3112	0.76	-0.0472	0.0614	-0.768	0.44
PersRel	0.1531*	0.0636	2.4097	0.02	0.0866	0.0751	1.153	0.25
CrimAtt	0.1550*	0.0578	2.6806	0.01	-0.0657	0.0656	-1.002	0.32
AngrMgt	0.1912*	0.0588	3.2538	0.00	-0.1218†	0.0651	-1.871	0.06
Educ	0.0313	0.0479	0.6540	0.51	-0.0462	0.0549	-0.842	0.40
SVORI	**0.1836***	**0.0467**	**3.9336**	**0.00**	**0.1363***	**0.0531**	**2.566**	**0.01**
age_rel	0.0386*	0.0041	9.4734	0.00	0.0187*	0.0048	3.895	0.00
partner	0.0348	0.0437	0.7949	0.43	0.0649	0.0503	1.291	0.20
highschl	0.2645*	0.0469	5.6425	0.00	0.0798	0.0524	1.524	0.13
employed	0.0172	0.0468	0.3674	0.71	0.0444	0.0529	0.84	0.40
race_black	-0.3594*	0.0560	-6.4209	0.00	-0.0939	0.0660	-1.422	0.16
race_hispan	0.2648*	0.1221	2.1690	0.03	0.2113	0.1440	1.463	0.14
race_other	0.0105	0.0902	0.1168	0.91	-0.1285	0.1030	-1.242	0.21

(continued)

[17] For Gap1 models, the AIC = 23071.52 and the BIC = 23310.10 for the lognormal model and the AIC = 22994.98 and the BIC = 23228.26 for the exponential model. For the Gap2 models, the AIC = 17507.41 and the BIC = 17751.29 for the lognormal model and the AIC = 17233.92 and the BIC = 17472.51 for the exponential model. For Gap3 models, the AIC = 13471.20 and the BIC = 13703.62 for the lognormal model and the AIC = 13384.42 and the BIC = 13611.90 for the exponential model. For the Gap4 models, the AIC = 10273.24 and the BIC = 10510.61 for the lognormal model and the AIC = 10251.48 and the BIC = 10483.90 for the exponential model.

Exhibit 45. Full model output for Gap1 and Gap2 models of arrest after release for the adult male sample (continued)

Variable	Gap1: Release to Arrest 1				Gap2: Arrest 1 to Arrest 2			
	Estimate	SE	Z	*p*	Estimate	SE	Z	*p*
AODtx_1	-0.0255	0.0609	-0.4191	0.68	0.0129	0.0694	0.186	0.85
AODtx_2	-0.0050	0.0568	-0.0881	0.93	0.0615	0.0659	0.934	0.35
HiRisk	-0.1235*	0.0485	-2.5489	0.01	-0.1784*	0.0560	-3.187	0.00
GSI	0.0003	0.0012	0.2819	0.78	0.0014	0.0015	0.938	0.35
MCS12	0.0122*	0.0026	4.6220	0.00	0.0074*	0.0030	2.485	0.01
#Conv	-0.0011	0.0045	-0.2417	0.81	-0.0089	0.0048	-1.841	0.07
p_arrest_person_#	-0.0256*	0.0076	-3.3570	0.00	-0.0131	0.0089	-1.478	0.14
p_arrest_prop_#	-0.0463*	0.0036	-12.9941	0.00	-0.0165*	0.0049	-3.384	0.00
p_arrest_drug_#	-0.0413*	0.0054	-7.5999	0.00	-0.0435*	0.0061	-7.126	0.00
p_arrest_other_#	-0.0093*	0.0042	-2.2298	0.03	-0.0109*	0.0054	-1.997	0.05
rbcad1:Age1stArr	0.0097	0.0058	1.6650	0.10	-0.0059	0.0064	-0.919	0.36
#Juvie	-0.0216*	0.0079	-2.7388	0.01	-0.0050	0.0085	-0.586	0.56
P-PViol	-0.0920	0.0478	-1.9233	0.05	-0.2078*	0.0553	-3.761	0.00
IA	-0.1518	0.1024	-1.4828	0.14	0.7443*	0.1340	5.569	0.00
IN	-0.2337*	0.0837	-2.7918	0.01	-0.5124*	0.0927	-5.525	0.00
KS	0.0177	0.1172	0.1511	0.88	0.0152	0.1340	0.113	0.91
MD	-0.1968*	0.0764	-2.5773	0.01	-0.2172*	0.0849	-2.559	0.01
MO	0.2520*	0.1165	2.1632	0.03	0.2651*	0.1320	2.014	0.04
NV	-0.3072*	0.0971	-3.1645	0.00	0.2069*	0.1040	1.991	0.05
OH	-0.0360	0.1043	-0.3451	0.73	-0.1583	0.1160	-1.359	0.17
OK	-0.0843	0.1004	-0.8400	0.40	0.3401	0.1160	2.928	0.00
PA	0.6739*	0.1092	6.1727	0.00	0.9979	0.1410	7.097	0.00
WA	-0.6753*	0.1148	-5.8807	0.00	0.0792	0.1230	0.644	0.52
Log(scale)	0.5603	0.0147	38.1632	0.0000				
Gap1					0.0018	0.0001	32.895	0.00

Notes: SE = standard error; p = p-value of Z test statistic.

**p < 0.05; † p ≤ 0.10*

*Several of the **PSB** services are associated with shorter times to rearrest in the Gap1 model, although having an **RPlan** is protective. **LifeSk**, in particular, has a strongly negative effect that carries over to the Gap2 model. In contrast, several of the **ICSB** services are associated with a longer time to first rearrest, although these effects fade for the subsequent models. The **SVORI** program participation indicator is protective in both of the Gap1 and Gap2 models.*

As can be seen, consistent with some of the earlier findings, several of the **PSB** services (**RPrgm**, **LifeSk**, **EmplSrv**) are associated with shorter times to rearrest in the Gap1 model, although having a **RPlan** is protective. **LifeSk**, in particular, has a strongly negative effect that carries over to the Gap2 model. In contrast, several of the **ICSB** services (**PersRel**, **CrimAtt**, **AngrMgt**) are associated with a longer time to first rearrest, although these effects fade for the subsequent models. The **SVORI** program participation indicator is protective in both of these models. Among the control variables, the effects are consistent with prior research: longer time to first rearrest is associated with being older at release (**age_rel**) and having graduated high school or completing a GED (**highschl**),

whereas being black (**race_black**) or high risk (**HiRisk**) or having large numbers of prior arrest charges is associated with shorter times to first rearrest.

Exhibit 46 shows the full model output for the Gap3 and Gap4 models. These results show that many of the services that exerted an effect on the time to the first and second arrests are no longer effective, although training to change attitudes toward criminal behavior (**CrimAtt**) remains protective.

Exhibit 46. Full model output for Gap3 and Gap4 models of arrest after release for the adult male sample

Variable	Gap3: Arrest 2 to Arrest 3				Gap4: Arrest 3 to Arrest 4			
	Estimate	SE	Z	*p*	Estimate	SE	Z	*p*
Intercept	4.8203*	0.3060	15.7378	0.00	4.3741*	0.3830	11.4201	0.00
CaseMgr	-0.0859	0.0663	-1.2959	0.20	-0.1911*	0.0775	-2.4665	0.01
Needs	-0.2313*	0.0697	-3.3183	0.00	-0.2931*	0.0808	-3.6273	0.00
RPlan	-0.0121	0.0706	-0.1708	0.86	0.0868	0.0808	1.0747	0.28
RPrgm	0.0987	0.0719	1.3725	0.17	0.1215	0.0812	1.4950	0.14
LifeSk	0.0259	0.0806	0.3217	0.75	0.2191*	0.0916	2.3930	0.02
EmplSrv	-0.1041	0.0732	-1.4208	0.16	0.0629	0.0818	0.7696	0.44
MHtx	0.2537*	0.0863	2.9405	0.00	0.1864†	0.0989	1.8848	0.06
AODtx	-0.0778	0.0699	-1.1140	0.27	-0.0794	0.0804	-0.9880	0.32
PersRel	-0.2259*	0.0854	-2.6450	0.01	0.0126	0.1017	0.1238	0.90
CrimAtt	0.2515*	0.0743	3.3870	0.00	0.0352	0.0854	0.4125	0.68
AngrMgt	0.1465	0.0764	1.9170	0.06	-0.0004	0.0903	-0.0050	1.00
Educ	0.1416	0.0646	2.1897	0.03	0.0765	0.0722	1.0600	0.29
SVORI	0.1138	0.0613	1.8554	0.06	-0.2421*	0.0698	-3.4667	0.00
age_rel	0.0315*	0.0056	5.5984	0.00	0.0191*	0.0069	2.7873	0.01
partner	-0.1943*	0.0559	-3.4753	0.00	0.1311*	0.0656	1.9980	0.05
highschl	0.0559	0.0596	0.9374	0.35	-0.1039	0.0684	-1.5192	0.13
employed	-0.0442	0.0612	-0.7224	0.47	0.0863	0.0685	1.2598	0.21
race_black	0.0644	0.0751	0.8578	0.39	0.1052	0.0823	1.2781	0.20
race_hispan	-0.0067	0.1620	-0.0412	0.97	0.0901	0.1808	0.4985	0.62
race_other	-0.2926*	0.1190	-2.4630	0.01	0.1805	0.1350	1.3375	0.18
AODtx_1	0.0124	0.0781	0.1593	0.87	0.2178*	0.0897	2.4282	0.02
AODtx_2	0.0552	0.0751	0.7351	0.46	0.1607†	0.0865	1.8586	0.06
HiRisk	-0.0884	0.0640	-1.3808	0.17	0.0953	0.0728	1.3089	0.19
GSI	0.0023	0.0017	1.4006	0.16	0.0038†	0.0020	1.9535	0.05
B_MCS12	-0.0020	0.0032	-0.6152	0.54	-0.0020	0.0039	-0.5232	0.60
#Conv	-0.0174*	0.0051	-3.3885	0.00	-0.0046	0.0058	-0.7941	0.43
p_arrest_person_#	-0.0279*	0.0091	-3.0656	0.00	-0.0103	0.0109	-0.9431	0.35
p_arrest_prop_#	-0.0158*	0.0050	-3.1943	0.00	-0.0144*	0.0064	-2.2342	0.03
p_arrest_drug_#	-0.0039	0.0069	-0.5631	0.57	0.0032	0.0075	0.4239	0.67
p_arrest_other_#	-0.0163*	0.0060	-2.7005	0.01	-0.0117	0.0072	-1.6151	0.11
rbcad1:Age1stArr	0.0020	0.0082	0.2456	0.81	0.0140	0.0103	1.3569	0.18
#Juvie	-0.0014	0.0091	-0.1531	0.88	-0.0031	0.0104	-0.2944	0.77
P-PViol	-0.0855	0.0629	-1.3585	0.17	-0.1918*	0.0710	-2.7014	0.01
IA	0.5979*	0.1500	3.9835	0.00	0.2940	0.1741	1.6891	0.09
IN	-0.1956	0.1120	-1.7433	0.08	-0.5574*	0.1249	-4.4637	0.00

(continued)

Exhibit 46. Full model output for Gap3 and Gap4 models of arrest after release for the adult male sample (continued)

Variable	Gap3: Arrest 2 to Arrest 3				Gap4: Arrest 3 to Arrest 4			
	Estimate	SE	Z	*p*	Estimate	SE	Z	*p*
KS	0.3010*	0.1510	1.9956	0.05	-0.7285*	0.1655	-4.4019	0.00
MD	-0.1448	0.0925	-1.5658	0.12	-0.1160	0.1095	-1.0596	0.29
MO	-0.0796	0.1470	-0.5430	0.59	0.3389	0.1870	1.8122	0.07
NV	0.1834	0.1180	1.5515	0.12	-0.1772	0.1398	-1.2678	0.21
OH	0.0664	0.1330	0.4995	0.62	-0.3610*	0.1494	-2.4160	0.02
OK	0.3407*	0.1350	2.5148	0.01	-0.0878	0.1621	-0.5416	0.59
PA	0.9262*	0.1920	4.8305	0.00	0.2546	0.2599	0.9796	0.33
WA	-0.3761*	0.1290	-2.9205	0.00	-0.4637*	0.1467	-3.1613	0.00
Gap3					0.0015*	0.0001	12.1261	0.0000
Gap2	0.0010*	0.0001	11.1174	0.00	0.0013*	0.0001	11.5201	0.0000
Gap1	0.0009*	0.0001	11.1604	0.00	0.0014*	0.0001	13.7741	0.0000

Notes: SE = standard error; p = p-value of Z test statistic.

**p < 0.05; † p ≤ 0.10*

NEGATIVE BINOMIAL MODELS: COUNTS OF POST-RELEASE ARRESTS

As described earlier (***Exhibit 6***) most of the study participants were arrested once and many experienced multiple arrests in the years after release. We estimated a negative binomial model of the number of arrests experienced by our subjects during the initial 56 months after release.[18] Results are shown in ***Exhibit 47***. Three of the service items are associated with fewer post-release arrests as per the incident rate ratio (IRR): **CaseMgr**, **AngrMgt**, and **Educ.** The **SVORI** program indicator is also associated with fewer post-release arrests among the adult men (*p* = 0.08).

Exhibit 47. Negative binomial model results for the number of post-release arrests for the adult male sample

Variable	Estimate	SE	Z Value	*P*	IRR
Intercept	2.1683	0.1759	12.3240	0.00	8.7431*
CaseMgr	-0.1121	0.0351	-3.1910	0.00	0.8939*
Needs	0.0459	0.0393	1.1690	0.24	1.0470
RPlan	0.0463	0.0411	1.1280	0.26	1.0474
RPrgm	-0.0239	0.0407	-0.5860	0.56	0.9764
LifeSk	0.0090	0.0414	0.2170	0.83	1.0090
EmplSrv	-0.0042	0.0462	-0.0900	0.93	0.9958
MHtx	0.0600	0.0422	1.4220	0.16	1.0618
AODtx	-0.0421	0.0484	-0.8700	0.38	0.9588
PersRel	-0.0014	0.0404	-0.0360	0.97	0.9986
CrimAtt	0.0204	0.0484	0.4210	0.67	1.0206
AngrMgt	-0.0853	0.0440	-1.9390	0.05	0.9183†
Educ	-0.1009	0.0442	-2.2830	0.02	0.9040*
SVORI	-0.0642	0.0364	-1.7640	0.08	0.9378†
age_rel	-0.0281	0.0030	-9.2730	0.00	0.9723*

(continued)

[18] Zero-inflated negative binomial modeling was not necessary. The Vuong test statistic comparing the negative binomial to the zero-inflated binomial was -0.2308. This test statistic is normally distributed with a *p*-value of 0.40.

Exhibit 47. Negative binomial model results for the number of post-release arrests for the adult male sample (continued)

Variable	Estimate	SE	Z Value	*P*	IRR
partner	0.0383	0.0332	1.1530	0.25	1.0391
highschl	-0.1231	0.0353	-3.4830	0.00	0.8842*
employed	-0.0297	0.0355	-0.8360	0.40	0.9708
race_black	0.2141	0.0420	5.0940	0.00	1.2388*
race_hispan	-0.1608	0.0934	-1.7210	0.09	0.8514†
race_other	0.1190	0.0693	1.7180	0.09	1.1264†
AODtx_1	0.0020	0.0458	0.0440	0.97	1.0020
AODtx_2	-0.0307	0.0433	-0.7100	0.48	0.9697
HiRisk	0.1008	0.0369	2.7310	0.01	1.1061*
GSI	-0.0028	0.0010	-2.8840	0.00	0.9972*
MCS12	-0.0064	0.0020	-3.2490	0.00	0.9936*
#Conv	0.0101	0.0031	3.2100	0.00	1.0101*
p_arrest_person_#	0.0166	0.0059	2.8150	0.00	1.0168*
p_arrest_prop_#	0.0320	0.0030	10.5600	0.00	1.0325*
p_arrest_drug_#	0.0208	0.0041	5.1140	0.00	1.0210*
p_arrest_other_#	0.0120	0.0035	3.4570	0.00	1.0120*
Age1stArr	-0.0057	0.0044	-1.2850	0.20	0.9943
#Juvie	0.0103	0.0058	1.7610	0.08	1.0104†
P-PViol	0.1796	0.0364	4.9310	0.00	1.1967*
IA	-0.2694	0.0762	-3.5340	0.00	0.7638*
IN	0.3795	0.0632	6.0010	0.00	1.4616*
KS	-0.0013	0.0912	-0.0140	0.99	0.9987
MD	0.2005	0.0563	3.5610	0.00	1.2220*
MO	-0.2773	0.0924	-3.0020	0.00	0.7579*
NV	0.1700	0.0719	2.3620	0.02	1.1852*
OH	0.0428	0.0795	0.5380	0.59	1.0437
OK	-0.1931	0.0819	-2.3580	0.02	0.8244*
PA	-1.0913	0.0926	-11.7910	0.00	0.3358*
WA	0.4762	0.0830	5.7380	0.00	1.6100*

Notes: SE = standard error; p = p-value of Z test statistic; IRR = incidence rate ratio.

**p < 0.05; † p ≤ 0.10*

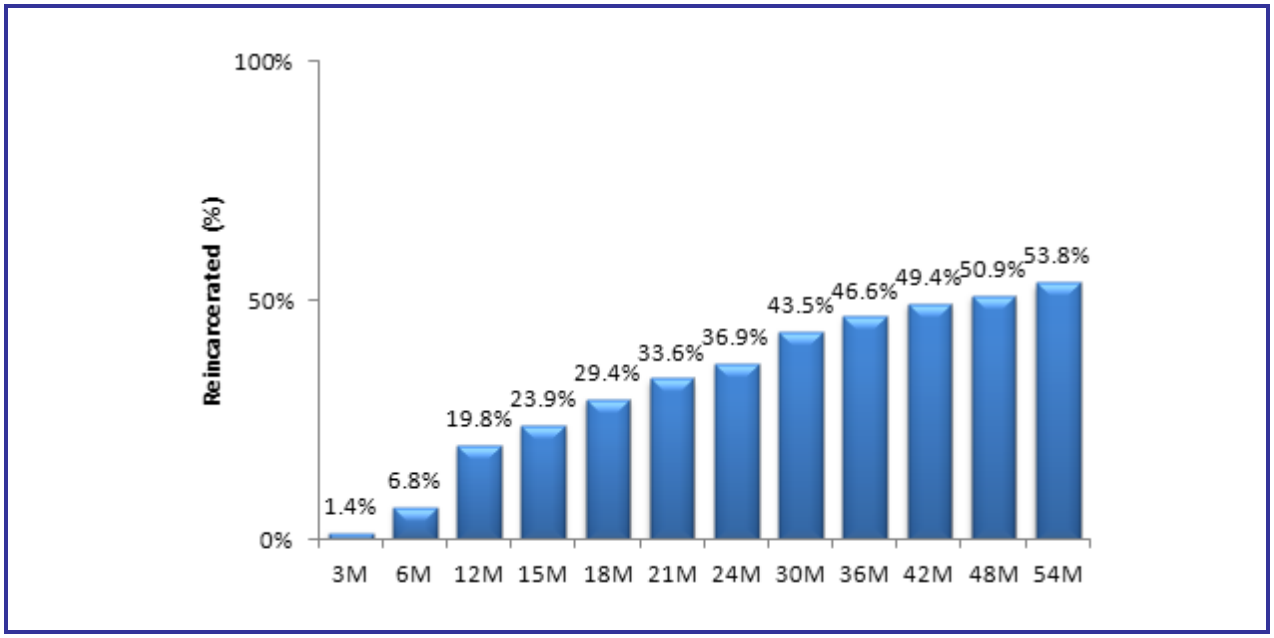
Focusing on the effect of SVORI on the number of arrests after release in a 56-month follow-up period, the data show that the adult men on average had 3.49 new arrests after their release. Those who participated in SVORI programs had 3.22 arrests and those who did not had 3.76. The negative binomial model provided a good fit, predicting that SVORI program participants would have 3.25 arrests, on average, and those who did not participate in a SVORI program would have 3.82 arrests, on average.

The parameter estimates for a number of control variables were statistically different from zero, with results largely consistent with the literature. Older subjects, those who had completed high school, and those in relationships had fewer arrests after release, other things equal. Those with higher scores on the GSI and MCS12, indicating worse symptoms and functioning, also experienced fewer arrests after release. Not surprisingly, those with more extensive criminal histories, as measured by prior arrests, prior convictions, juvenile detention(s), and currently serving time for a parole/probation violation also experienced more arrests post release. Finally, those who were high risk had more arrests than those who were not.

REINCARCERATION

Updated reincarceration data were obtained from the NCIC for participants from seven adult sites, as described earlier.[19] More than half of the adult male sample was incarcerated at least once during the 56-month fixed follow-up period. ***Exhibit 48*** shows the cumulative reincarceration distribution for the adult male sample over the first 54 months after release. As can be seen, relatively few were reincarcerated during the initial 12 months after release, reflecting, most likely, the length of time it takes a case to process through the courts. Within 12 months, nearly 20% had been reincarcerated.

Exhibit 48. Cumulative reincarceration distribution for the adult male incarceration subsample



Analyses using the reincarceration subsample differ from others reported here in that they exclude individuals from four sites. To examine whether this distinction would have affected the results for the arrest analyses, we compared the results of the logistic regression models on rearrest at various increments with the results that obtained when we limited the sample to those in the incarceration sample. The differences in odds ratios (and significance) that resulted were small. Specifically, when we looked at the ratio of the odds ratio estimate from the full sample and divided by the estimate from the incarceration sample, we found relatively few differences across the various time periods. ***Exhibit 49*** shows the maximum and minimum values for the set of ratios comparing all variables (39 variables) and comparing only the service items and SVORI indicator ratios (13 variables). As can be seen, although there are a few outliers, most of the values are close and the means across the variables range between 0.98 and 1.02 across the full variable set and 0.98 and 1.0 across the set of service indicators.

[19] We limited these new analyses to seven states for which valid incarceration data were available from NCIC. For one of the adult sites, we did not have permission to submit identifying information to the NCIC. For the other sites, complete incarceration data were not available. Further, we were unable to obtain reliable information for all of the sites with respect to the reason for the reincarceration(s). Thus, we are unable to address whether the reincarcerations were for technical violations or for new crimes. Examination of the data suggested that SVORI and non-SVORI subjects were equally likely to have been released on supervision.

Exhibit 49. Comparison of odds ratios from logistic regression models of arrest with the full adult male sample and the incarceration subsample

Variable Set	Value	6M	12M	18M	24M	30M	36M	42M	48M	54M
Full model variables	**Max**	1.57	1.39	1.23	1.77	1.74	1.34	1.34	1.50	1.34
	Min	0.80	0.76	0.81	0.81	0.79	0.66	0.78	0.67	0.75
	Mean	1.02	1.02	1.00	1.01	1.00	0.98	0.98	0.99	1.00
Service items & SVORI	**Max**	1.31	1.19	1.23	1.33	1.39	1.34	1.34	1.30	1.34
	Min	0.80	0.76	0.81	0.89	0.84	0.86	0.78	0.75	0.75
	Mean	1.00	1.00	1.00	1.01	1.00	1.00	0.99	0.99	0.98

LOGISTIC REGRESSION: LIKELIHOOD OF REINCARCERATION

Exhibit 50 shows the odds ratios from the logistic regression models of reincarceration within 6, 9, 12, 15, 18, 21, 24, 30, 36, 42, 48, and 54 months. Among the **PSB** items, receiving life skills training (**LifeSk**) is associated with a *greater* likelihood of reincarceration, particularly in the first 2 years after release; receiving employment services (**EmplSrv**) is associated with a *reduced* chance of reincarceration, but only at 12 and 15 months. **LifeSk** had a similarly deleterious effect on rearrest (see ***Exhibits 38–39***; also ***Appendix B***, ***Tables 12-16***), as it was associated with an increased likelihood of rearrest. **EmplSrv** was associated with a greater likelihood of rearrest in most cases, although generally the effects were not statistically significant. With the exception of mental health treatment (**MHtx**) and help with personal relationships (**PersRel**), all of the **ICSB** services are associated with a reduced chance of reincarceration, although the effects are only occasionally significant. (Full models are shown in ***Appendix B***, ***Tables 22–25***.) These **ICSB** results were similar to the findings for rearrest, with **MHtx** associated with a greater likelihood of rearrest and the other **ICSB** items with odds ratios less than 1.

Exhibit 50. Odds ratios from logistic regression models of reincarceration within fixed time periods for adult males

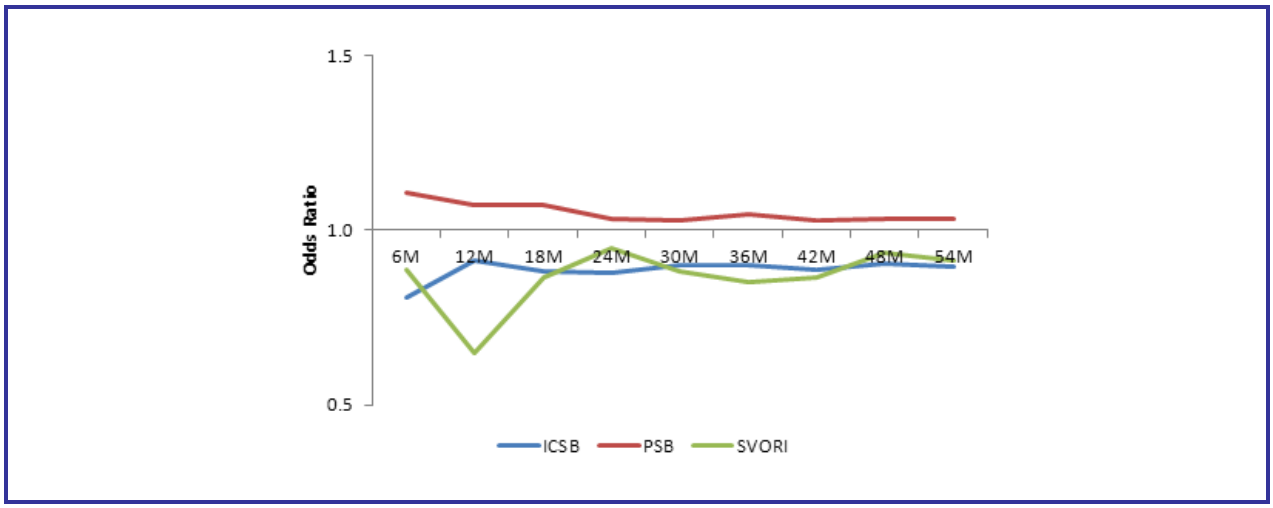
Variable	Reincarcerated Within											
	6M	**9M**	**12M**	**15M**	**18M**	**21M**	**24M**	**30M**	**36M**	**42M**	**48M**	**54M**
CaseMgr	1.096	0.997	1.030	1.163	1.242	1.165	1.234	1.241	1.282	1.310	1.275	1.339†
Needs	0.831	0.913	1.159	1.025	0.882	0.882	0.880	0.760	0.767	0.800	0.720†	0.744†
RPlan	1.251	1.610*	1.378	1.424	1.143	1.067	1.194	1.165	1.073	1.050	1.055	0.983
RPrgm	1.036	1.027	1.123	1.099	0.911	0.958	0.952	0.981	1.010	0.926	1.046	1.040
LifeSk	2.818*	1.743†	1.573	1.270	1.653*	1.428†	1.220	1.299	1.303	1.297	1.185	1.162
EmplSrv	0.762	0.737	0.578*	0.688†	0.894	0.797	0.834	0.882	1.020	0.992	1.072	1.103
MHtx	1.273	1.025	1.112	0.933	1.285	1.098	1.036	0.928	0.810	0.748	0.766	0.826
AODtx	0.818	0.910	0.951	0.801	0.919	0.976	1.089	0.953	0.918	0.843	0.830	0.828
PersRel	1.072	1.048	1.107	1.149	0.982	1.078	0.950	0.914	0.945	1.013	1.102	1.105
CrimAtt	0.495†	0.902	0.799	0.779	0.790	0.813	0.819	0.926	0.972	0.901	0.863	0.913
AngrMgt	0.637	0.733	0.680	0.842	0.784	0.698†	0.720†	0.798	0.780	0.797	0.851	0.769
Educ	0.749	0.748	0.834	0.884	0.751†	0.804	0.786	0.866	0.925	0.962	1.020	0.957
SVORI	0.863	0.746	0.628*	0.708*	0.845	0.963	0.927	0.854	0.821	0.832	0.898	0.880

Note: Full model results are presented in ***Appendix B, Tables 22–25****.*

**p < 0.05; † p ≤ 0.10*

Exhibit 51 shows the effects of the service bundles on reincarceration. As can be seen, the **ICSB** and **SVORI** are associated with a lesser chance of reincarceration, while the **PSB** is associated with no effects.

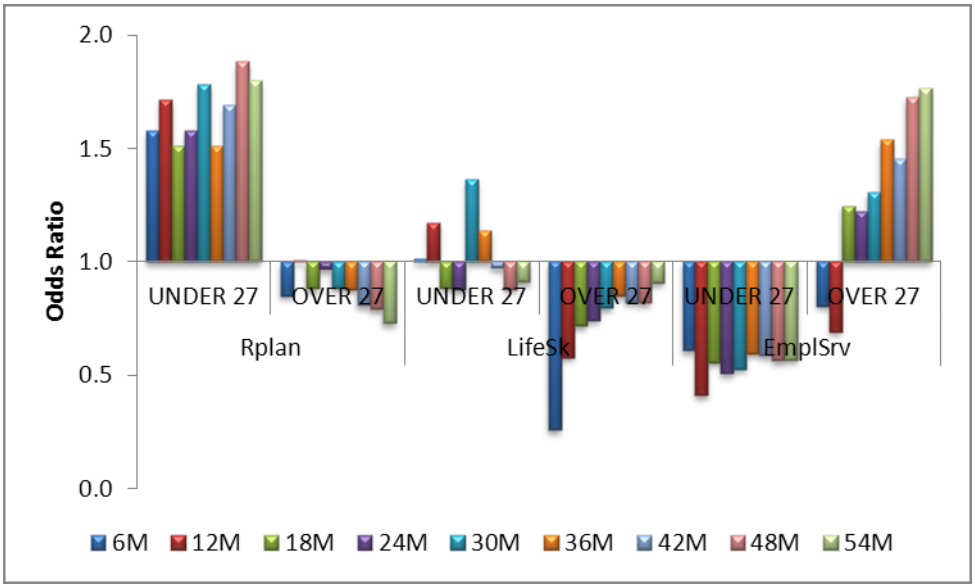
Exhibit 51. Effects of service bundles and SVORI on reincarceration after release for the adult males



Note. ICSB = individual change service bundle; PSB = practical services bundle; SVORI = Serious and Violent Offenders Reentry Initiative.

Exhibit 52 shows the differential effects by age group of three of the PSB service items on reincarceration. (These items were statistically significant for at least one of the two age groups in at least one time period. Full results are shown in ***Appendix C***, ***Tables 10-12*** and ***22-24***.) As can be seen, having a reentry plan (**RPlan**) is associated with a greater likelihood of reincarceration for the younger age group, while having a reentry plan had little effect for the older group. Life skills training (**LifeSk**) was protective for the older group, but had no effect for the younger group. Employment services (**EmplSrv**) were protective for the younger group but associated with a greater likelihood of reincarceration for the older group.

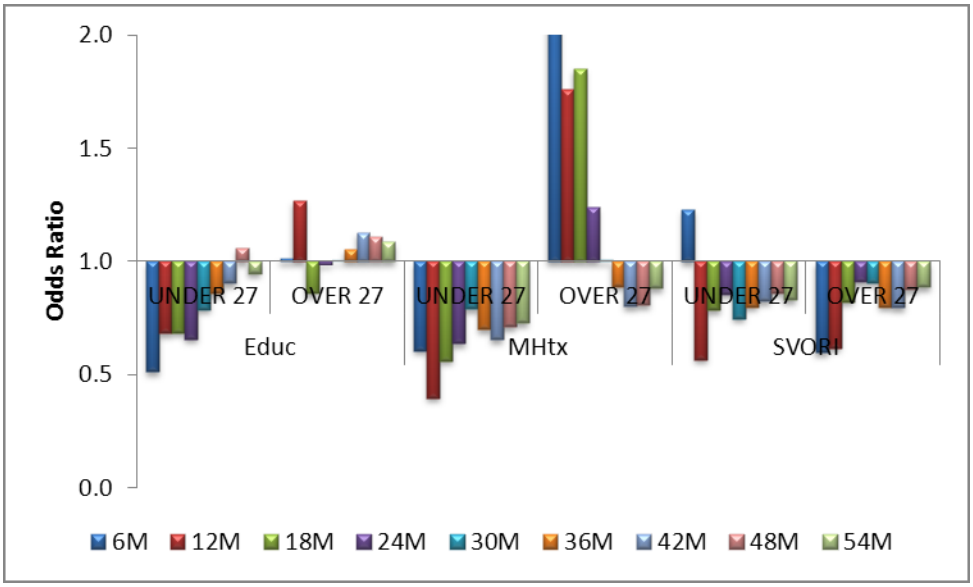
Exhibit 52. Effects of selected practical service bundle items on reincarceration within specified time periods for adult males, by age group



Note. RPlan = had reentry plan 30 days prior to release; LifeSk = had life skills training prelease; EmplSrv = received any employment services prior to release. Under 27 refers to those 27 years or younger; Over27 refers to those older than 27 years. Full results are shown in **Appendix C***,* **Tables 10-12** *and* **22-24***.*

Exhibit 53 shows the results for two **ICSB** service items that produced significant findings for at least one of the two age groups and for the **SVORI** reentry program indicator. **Educ** was associated with a *lower* likelihood of reincarceration for the younger group, but not the older group. **MHtx** was protective for the younger group, but associated with a greater likelihood of reincarceration in the first two years following release among the older group. **SVORI** was associated with a reduced likelihood of reincarceration for both groups—at least initially following release.

Exhibit 53. Effects of selected individual change service bundle items on reincarceration within specified time periods for adult males, by age group

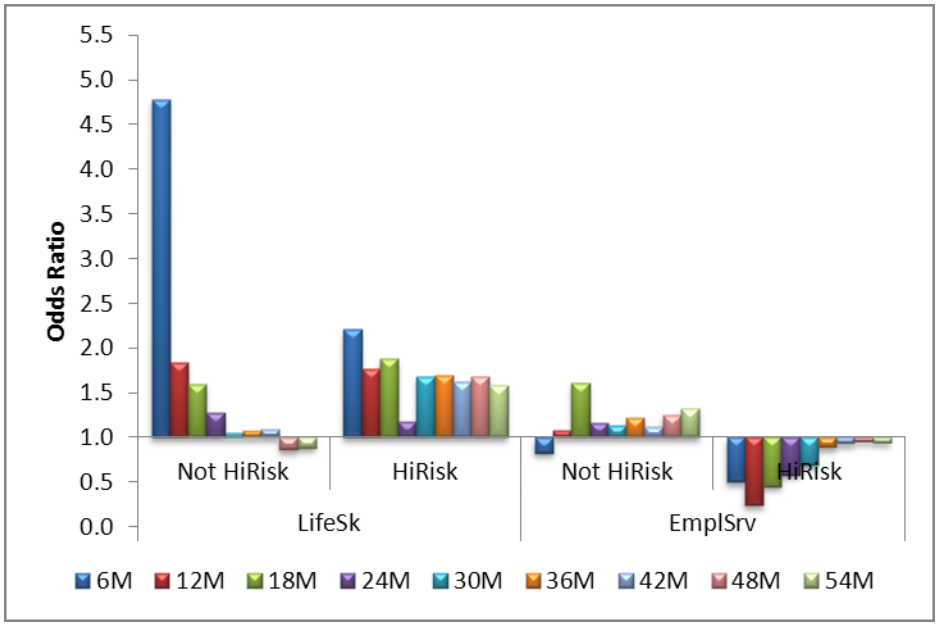


Note. Educ = received educational services prior to release; LifeSk = had life skills training prelease; SVORI = participated in SVORI reentry program. Under 27 refers to those 27 years or younger; Over27 refers to those older than 27 years. Full results are shown in **Appendix C***,* **Tables 10-12** *and* **22-24***.*

Exhibits 54 and ***55*** present significant findings for service items for the two risk groups—the high risk and not-high-risk groups. (Full model results are presented in ***Appendix C***, ***Tables 34-36*** and ***46-48***.) ***Exhibit 54*** shows the results for the two **PSB** service items. **LifeSk** was associated with a higher likelihood of reincarceration for both groups, while **EmplSrv** was associated with reduced risk for the high risk group, but had no effects for the not-high-risk group.

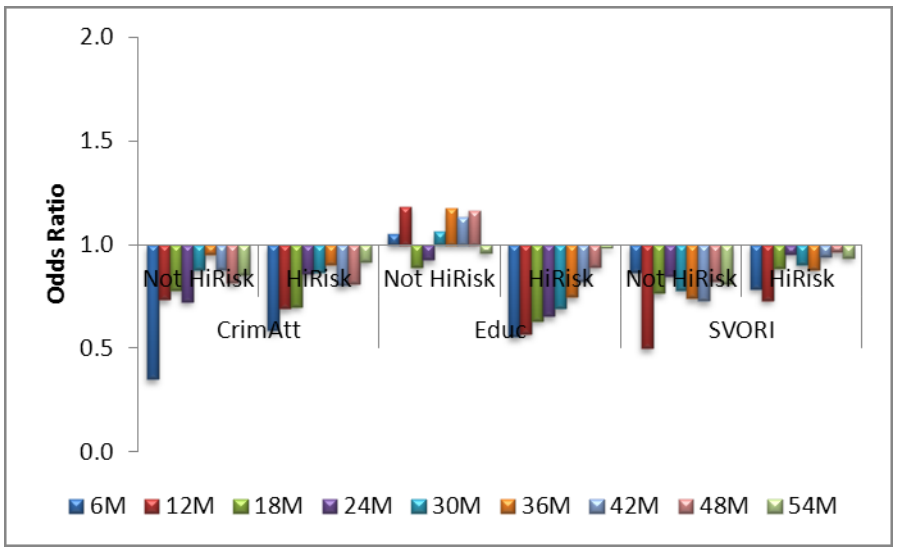
Exhibit 55 shows the results for the two **ICSB** items that were significant for at least one of the risk groups and for the **SVORI** indicator, which was also significant for at least one group. ***Exhibit 55*** shows that programs to change attitudes about criminal behavior (**CrimAtt**) were protective for both risk groups—particularly in the immediate period following release. Educational programs (**Educ**) were protective for the high risk group, but not for the lower risk group, consistent with previous research suggesting that some programs may be more effective for higher risk subjects. Participating in a **SVORI** reentry program was protective for both groups, but results were only statistically significant in the year following release for the not-high-risk group.

Exhibit 54. Effects of selected practical service bundle items on reincarceration within a specified period for adult males, by risk group



Note. LifeSk = had life skills training prelease; EmplSrv = received employment services prior to release. Not HiRisk refers to those with a score of less than 6 on the HiRisk measure; HiRisk refers to those with a score of 6-8 on the HiRisk measure. Full results are shown in **Appendix C**, **Tables 34-36** *and* **46-48**.

Exhibit 55. Effects of selected individual change service bundle items and SVORI program participation on reincarceration within a specified time period for adult males, by risk group

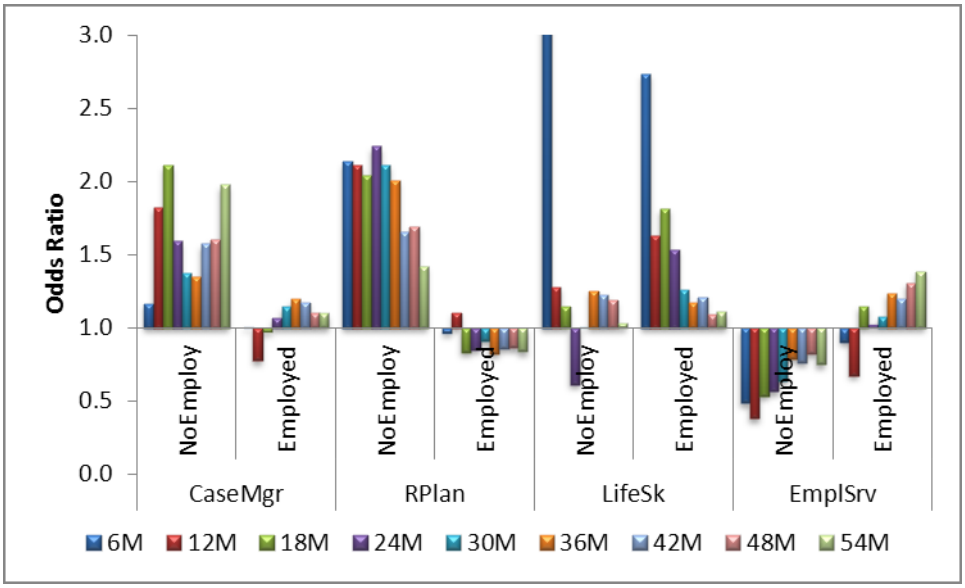


Note. CrimAtt = had training to change attitudes toward criminal behavior prelease; Educ = received education services prior to release; SVORI = participated in SVORI reentry program. Not HiRisk refers to those with a score of less than 6 on the HiRisk measure; HiRisk refers to those with a score of 6-8 on the HiRisk measure. Full results are shown in **Appendix C**, **Tables 34-36** *and* **46-48**.

Exhibits 56 and ***57*** show results from the analyses stratified on preincarceration employment status. (Full model results are shown in ***Appendix C***, ***Tables 68-70*** and ***78-80***.) Again, we see some differential effects. ***Exhibit 56*** shows the results for the **PSB** items for which at least one odds ratio was statistically significant for at least one group. For those who reported not working in the 6 months prior to their incarceration (NoEmploy), having a case manager (**CaseMgr**), a reentry plan (**RPlan**), or life skills training (**LifeSk**) was associated with a *higher* likelihood of reincarceration, while **CaseMgr** and **RPlan** had little effect on those who had reported being employed prior to incarceration (Employed). **LifeSk** was associated with significantly higher risk for those who reported working prior to incarceration. Finally, employment-related services (**EmplSrv**) were more beneficial for those who had not worked, while they had little effect for those who had worked prior to prison.

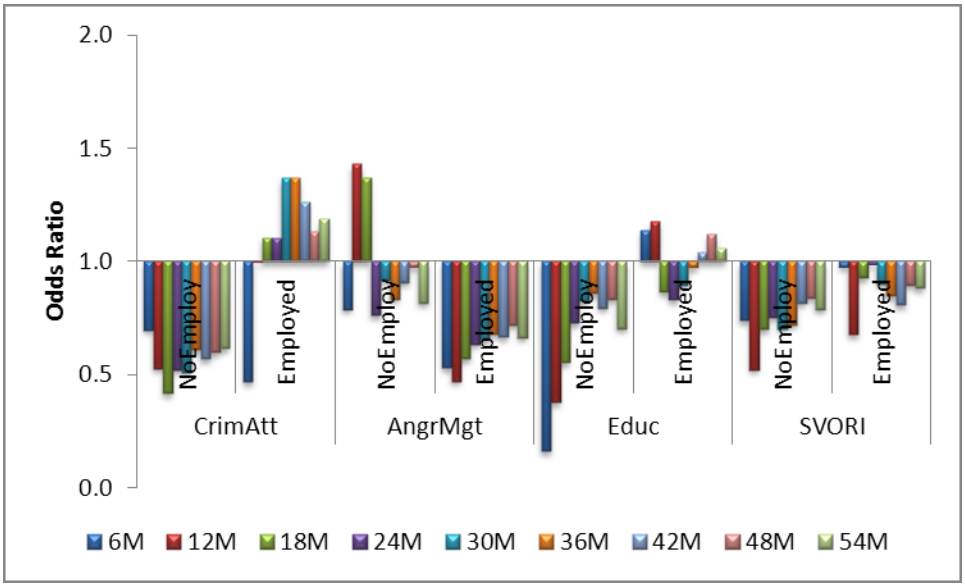
Exhibit 57 shows the results for the **ICSB** items for which at least one odds ratio was statistically significant for at least one group and for the **SVORI** indicator. For those who reported not working in the 6 months prior to their incarceration (NoEmploy), training to change criminal attitudes (**CrimAtt**), education services (**Educ**), and participating in a **SVORI** reentry program were associated with a lower likelihood of reincarceration, while **CrimAtt** was associated with a *higher* likelihood of reincarceration among those who had reported being employed prior to incarceration (Employed). **Educ** and **SVORI** had little effect for those who reported working prior to incarceration. Finally, anger management (**AngrMgt**) was more beneficial for those who had worked, having mixed effects for those who had not worked prior to prison.

Exhibit 56. Effects of practical service bundle items on reincarceration for adult males by preincarceration employment status



Note. CaseMgr = had a case manager pre-release; RPlan = had reentry plan 30 days prior to release; LifeSk = had life skills training prelease; EmplSrv = received any employment services prior to release. NoEmploy refers to those who reported not working in the 6 months prior to incarceration; employed refers to those who reported working in the 6 months prior to incarceration. Full results are shown in **Appendix C***,* **Tables 68-70** *and* **78-80***.*

Exhibit 57. Effects of individual change service bundle items on reincarceration for adult males by preincarceration employment status



Note. CrimAtt = had training to change attitudes about criminal behavior; AngrMgt = had anger management classes prior to release; Educ = had educational programs or services prelease; SVORI = participated in SVORI reentry program. NoEmploy refers to those who reported not working in the 6 months prior to incarceration; employed refers to those who reported working in the 6 months prior to incarceration. Full results are shown in **Appendix C**, **Tables 68-70** *and* **78-80**.

SURVIVAL ANALYSIS: TIME TO REINCARCERATION

We were able to look only at the time to first reincarceration because we did not have release dates for all of the subjects who were reincarcerated and, thus, were unable to exclude the period of incarceration from analyses of later episodes. After trying several functional forms, we estimated a lognormal survival model, which fit the data best. ***Exhibit 58*** shows the full model results for the lognormal time-to-reincarceration model.

Exhibit 58. Lognormal survival model results of time to first post-release reincarceration for the adult male sample

Variable	Estimate	SE	Z Value	*p*
Intercept	6.767	0.342	19.803	0.000
CaseMgr	-0.129	0.075	-1.718	0.086
Needs	0.124	0.079	1.558	0.119
RPlan	-0.075	0.081	-0.924	0.356
RPrgm	-0.041	0.080	-0.512	0.608
LifeSk	-0.187*	0.093	-2.017	0.044
EmplSrv	0.036	0.085	0.418	0.676
MHtx	0.063	0.098	0.643	0.520
AODtx	0.052	0.080	0.647	0.518
PersRel	-0.029	0.096	-0.304	0.761
CrimAtt	0.099	0.088	1.130	0.259
AngrMgt	0.193*	0.088	2.186	0.029

(continued)

Exhibit 58. Lognormal survival model results of time to first post-release reincarceration for the adult male sample (continued)

Variable	Estimate	SE	Z Value	*p*
Educ	0.090	0.071	1.266	0.206
SVORI	0.135*	0.068	1.990	0.047
age_rel	0.013*	0.005	2.367	0.018
partner	0.213*	0.065	3.273	0.001
highschl	0.141*	0.069	2.038	0.042
employed	-0.017	0.071	-0.244	0.808
race_black	-0.175*	0.080	-2.181	0.029
race_hispan	0.115	0.225	0.511	0.610
race_other	-0.108	0.144	-0.752	0.452
AODtx_1	-0.133	0.088	-1.512	0.131
AODtx_2	0.144†	0.084	1.709	0.087
HiRisk	-0.034	0.072	-0.472	0.637
GSI	-0.001	0.002	-0.627	0.531
MCS12	-0.004	0.004	-0.951	0.341
#Conv	-0.011†	0.006	-1.808	0.071
p_arrest_person_#	0.015	0.012	1.256	0.209
p_arrest_prop_#	-0.036*	0.006	-6.043	0.000
p_arrest_drug_#	-0.017*	0.008	-2.181	0.029
p_arrest_other_#	-0.006	0.007	-0.867	0.386
Age1stArr	0.038*	0.009	4.527	0.000
#Juvie	-0.017	0.012	-1.408	0.159
P-PViol	-0.125†	0.070	-1.783	0.075
IA	-1.015*	0.129	-7.848	0.000
IN	0.078	0.116	0.671	0.502
MD	-0.048	0.102	-0.472	0.637
OH	-0.277*	0.138	-2.003	0.045
OK	0.085	0.137	0.624	0.533
WA	0.448*	0.160	2.804	0.005
Log(scale)	0.289*	0.022	13.220	0.000
N	1103			
ChiSq (*p*-value)	306.43 (*p* <.0001)			

**p < 0.05; † p ≤ 0.10*

*Participation in a **SVORI** program was associated with a longer time to first post-release arrest and a longer time to reincarceration.*

Only three of the service items are statistically significant: anger management classes (**AngrMgt**) are associated with a longer time to reincarceration, and having a case manager (**CaseMgr**) or participating in life skills training (**LifeSk**) is associated with a shorter time to reincarceration. These findings differ somewhat from the findings with respect to rearrest shown in ***Exhibit 45***. The Gap1 arrest model showed that most service items and **SVORI** were statistically significant. In that model, three of the six **PSB** items (**RPrgm**, **LifeSk**, and **EmplSrv**) were associated with a shorter time to the first rearrest and one (**RPlan**) was associated with a longer time to first rearrest. Three of the **ICSB** items (**PersRel**, **CrimAtt**, and **AngrMgt**) were associated with a longer time to rearrest and **MHtx** was

associated with a shorter time to first rearrest. The effects of participating in a reentry program (**SVORI**) were similar for the two models—participation in a **SVORI** program was associated with a longer time to first post-release arrest and a longer time to reincarceration.

Results for the control variables were consistent with the literature. The time to reincarceration was longer for those older at release, who had a high school diploma or GED, who were married or in a steady relationship, and who were older at first arrest. The time to reincarceration was shorter on average for blacks, and those with more prior convictions and arrests.

NEGATIVE BINOMIAL MODELS: COUNTS OF POST-RELEASE REINCARCERATIONS

As described earlier (***Exhibit 6***), some of the study participants were reincarcerated more than once in the 56-month fixed follow-up period. We initially estimated a negative binomial model of the number of reincarcerations experienced by our subjects during the initial 56 months after release; however, a check of dispersion suggested no over-dispersion so a Poisson model was estimated as the final model.[20] The mean number of reincarcerations for the full sample was 0.80 (variance = 0.82). The mean (variance) for the SVORI and non-SVORI groups were 0.80 (0.82) and 0.81 (0.82). Predicted means from the final model were 0.81 for both the SVORI and non-SVORI groups.

Results are shown in ***Exhibit 59.*** Three service items were associated with fewer incarcerations (**Needs, MHtx,** and **AngrMgt**), and one was associated with a higher count of reincarceration (**CaseMgr**). **Needs** and **CaseMgr** were two of the **PSB** items, while **MHtx** and **AngrMgt** were two of the **ICSB** items. **SVORI** was not significantly related to the number of post-release incarcerations. In comparison, **CaseMgr**, **AngrMgt**, and **Educ** were associated with fewer arrests (see ***Exhibit 47***), as was participation in a **SVORI** reentry program.

Exhibit 59. Negative binomial model results for the number of post-release incarcerations for the adult male sample (fixed 56- month follow-up period)

Variable	Estimate	SE	Z Value	*p*	IRR
Intercept	0.4262	0.2691	1.5840	0.1132	1.5314
CaseMgr	0.1305	0.0585	2.2300	0.0258	1.1394
Needs	-0.1844	0.0614	-3.0010	0.0027	0.8316
RPlan	0.0502	0.0626	0.8010	0.4232	1.0515
RPrgm	0.0205	0.0618	0.3310	0.7406	1.0207
LifeSk	-0.0159	0.0734	-0.2170	0.8286	0.9842
EmplSrv	0.0163	0.0653	0.2490	0.8033	1.0164
MHtx	-0.1613	0.0794	-2.0310	0.0423	0.8510
AODtx	-0.0055	0.0627	-0.0880	0.9296	0.9945
PersRel	0.0428	0.0728	0.5890	0.5561	1.0437
CrimAtt	-0.0643	0.0686	-0.9370	0.3489	0.9377
AngrMgt	-0.1557	0.0689	-2.2600	0.0238	0.8558
Educ	-0.0523	0.0541	-0.9670	0.3337	0.9490
SVORI	-0.0713	0.0526	-1.3550	0.1754	0.9312
age_rel	-0.0132	0.0044	-2.9860	0.0028	0.9869
partner	-0.1272	0.0505	-2.5200	0.0117	0.8806

(continued)

[20] Vuong Non-Nested Hypothesis Test-Statistic: -0.2326, $p = 0.41$.

Exhibit 59. Negative binomial model results for the number of post-release incarcerations for the adult male sample (fixed 56- month follow-up period) (continued)

Variable	Estimate	SE	Z Value	*p*	IRR
highschl	-0.1516	0.0538	-2.8190	0.0048	0.8593
employed	-0.0317	0.0534	-0.5940	0.5525	0.9688
race_black	0.1080	0.0615	1.7560	0.0790	1.1140
race_hispan	-0.2829	0.1984	-1.4260	0.1538	0.7536
race_other	-0.0483	0.1158	-0.4170	0.6769	0.9528
AODtx_1	0.1065	0.0664	1.6030	0.1090	1.1124
AODtx_2	-0.0478	0.0642	-0.7450	0.4564	0.9533
HiRisk	0.0805	0.0555	1.4520	0.1464	1.0838
GSI	-0.0010	0.0015	-0.6640	0.5064	0.9990
MCS12	0.0008	0.0030	0.2790	0.7804	1.0008
#Conv	0.0103	0.0045	2.2940	0.0218	1.0104
p_arrest_person_#	-0.0102	0.0095	-1.0750	0.2824	0.9899
p_arrest_prop_#	0.0220	0.0041	5.3490	0.0000	1.0222
p_arrest_drug_#	0.0055	0.0060	0.9170	0.3592	1.0055
p_arrest_other_#	0.0023	0.0052	0.4470	0.6552	1.0023
Age1stArr	-0.0200	0.0070	-2.8750	0.0040	0.9802
#Juvie	0.0183	0.0087	2.0990	0.0358	1.0185
P-PViol	0.0966	0.0530	1.8220	0.0684	1.1014
IA	-0.0791	0.0794	-0.9950	0.3196	0.9239
IN	0.5952	0.0965	6.1690	0.0000	1.8134
MD	0.0045	0.0916	0.0490	0.9606	1.0045
OH	0.0285	0.1083	0.2630	0.7924	1.0289
OK	-0.1467	0.1158	-1.2670	0.2051	0.8636
WA	-0.3304	0.1357	-2.4350	0.0149	0.7186

Notes: SE = standard error; p = p-value of Z test statistic; IRR = incidence rate ratio.

**p < 0.05; † p ≤ 0.10*

SUMMARY AND DISCUSSION: ADULT MALE SAMPLE

These analyses specifically examined the impact of 12 reentry-related, pre-release services that are commonly implemented by correctional agencies and generally thought to improve reintegration outcomes, as well as the impact of participating in a SVORI-funded reentry program. Many scholars would argue that these 12 services would form the core of an evidence-based approach to preparing inmates for release. However, no previous research has examined the impact of these services on a wide range of post-release outcomes. In fact, many of these services have never been empirically linked in multiple studies to better outcomes for individuals returning to the community after a period of confinement. Moreover, recent reviews of the reentry and rehabilitation research suggest that services directed toward individual change (including education, mental health treatment, drug treatment, and programs focusing on changing cognitive thinking) have greater beneficial effects than services focused on practical needs such as developing a reentry plan, addressing housing difficulties, and receiving employment-related assistance. However, no previous study has ever compared the impacts of practical services with those of individual change services on post-release outcomes.

EFFECTS OF PRACTICAL SERVICES BUNDLE ITEMS

The services most commonly provided to soon-to-be released prisoners are reentry preparation services, including talking with a case manager, receiving a reentry-related needs assessment, receiving a reentry plan, attending reentry-related classes, or participating in some combination of these. ***Exhibit 7*** shows that 50% of the men received at least one of these services. The effects on the intermediate self-reported, post-release outcomes of housing challenges and independence, employment, illegal substance use, and self-reported criminal activity for these four commonly implemented reentry preparation services and for the other two practical service bundle items, **LifeSk** and **EmplSrv**, are summarized in ***Exhibit 60***.

Exhibit 60. Summary of effects of practical service bundle items on self-reported, intermediate outcomes for adult men

Outcome	Practical Service Bundle Item																	
	CaseMgr			Needs			RPlan			RPrgm			LifeSk			EmplSrv		
Month	**3**	**9**	**15**	**3**	**9**	**15**	**3**	**9**	**15**	**3**	**9**	**15**	**3**	**9**	**15**	**3**	**9**	**15**
HouInd	D*	B	D	D	D*	B	B	D	D	B	B	D	B	B	B	D	B	D
HouChal	B*	B	B	D	D	B	B	B	B	D	B	D	B	D	B	D	D	D*
Emp	D	D	B	D	B	D	B	D	B	D	B†	B†	B†	D	D	D	D	B
StblEmp	B†	B	B	D	B	B	D	D	D	B	B	B	B	B	B	D	B	B
FormalPay	B	D	D	D	D	D†	B	D	D	D	D	D	D*	D	D	B	D	B
Benefits	B	D	B	D	B	B	D	B	D	B	D	D	B	B	B	B	B	D
AnyCrime	B	D	D	D	B	B	B†	D	B†	D†	D	D	D	D*	B	B	B	D
AnyDrug	D		D	B		B	D		B	B		D	D		B	D†		D
AnyDrug_30	D		D	B		B	D		B†	D		D	D		D	D		B

*Note: Subdivided cells indicate results at 3-, 9- and 15- month interviews; 3 and 15 months for drug outcomes. **B*** = effect is beneficial and significant at $p < 0.05$; **B†** = effect is beneficial and significant at $p \leq 0.1$; **D*** = effect is deleterious and significant at $p < 0.05$; **D†** = effect is deleterious and significant at $p \leq 0.1$.*

Reentry Preparation Services. The findings with respect to the four reentry preparation services (**CaseMgr**, **Needs**, **RPlan**, and **RPrgm**) in ***Exhibit 60*** indicate the following:

- Housing outcomes at 3, 9, and 15 months: zero to detrimental effect of these services on housing independence, short-term beneficial effect of case management on housing challenges
- Employment outcomes at 3, 9, and 15 months: zero to weak beneficial effect of these services (deleterious effects on formal pay)
- Drug use outcomes at 3 and 15 months: zero to weak detrimental effects of these services
- Self-reported criminal activity: zero to weak beneficial effects for **RPlan**, weak detrimental short-term effects of **RPrgm**

It is important to point out that not only did the four reentry preparation services have no consistent, beneficial effect on housing, employment, drug use, and self-reported criminal behavior, but in several instances these services appear to have been detrimental to the individual's reintegration.

In addition to these self-reported outcomes, we also examined administrative indicators of recidivism including rearrest and reincarceration. We estimated survival models to look at the time to arrest for the first four arrests and the time to first reincarceration, as well as count models to look at the effect of services on the numbers of

post-release arrests and reincarcerations during a fixed 56-month follow-up period. ***Exhibit 61*** summarizes the findings for the **PSB** items for these outcomes.

Exhibit 61. Summary of effects of practical service bundle items on administrative recidivism outcomes for adult men

Outcome	Practical Service Bundle Item					
	CaseMgr	Needs	RPlan	RPrgm	LifeSk	EmplSrv
Gap1: Release to Arrest 1	D	B	**B***	**D***	**D***	**D***
Gap2: Arrest 1 to Arrest 2	D	D	B	B	**D***	D
Gap3: Arrest 2 to Arrest 3	D	**D***	D	B	B	D
Gap4: Arrest 3 to Arrest 4	**D***	**D***	B	B	**B***	B
Number of Arrests	**B***	D	D	B	D	B
Time to Reincarceration	**D†**	B	D	D	**D***	B
Number of Reincarcerations	**D***	**B***	D	D	B	D

*Note: **B*** = effect is beneficial and significant at $p < 0.05$; **B†** = effect is beneficial and significant at $p \leq 0.1$; **D*** = effect is deleterious and significant at $p < 0.05$; **D†** = effect is deleterious and significant at $p \leq 0.1$.*

The results are mixed but suggest, overall, primarily weak to detrimental effects for the four reentry preparation services. The only significant beneficial effects of these services were the effect of a reentry plan on the time to first arrest, of case manager on the frequency of rearrest in the negative binomial model, and of a needs assessment on the number of reincarcerations.

Life Skills: Inmates often receive services intended to improve life skills. In this sample, 32% of the men responded that they received "any assistance with life skills." The effects of reporting that one had received life skills services or training, are mixed, but where the effects are non-zero are largely detrimental. This is particularly true for the time to arrest (first and second) and the time to reincarceration. We conducted a number of analyses trying to determine whether these findings were spurious as it was difficult to understand why life skills would be criminogenic. The delivery of life skills was distributed over the sites, so this variable was not confounded by site (although remember that the multivariate models did include site indicators as well as the service receipt indicators). One suggestion was that individuals who were receiving life skills services, perhaps were taking these instead of more substantive programming (i.e., they were "slackers"). We checked the bivariate correlations (see ***Exhibit 8***) and then we regressed the life skills indicator on the other variables included in the model and found that those reporting life skills training were more likely to report receipt of most of the other services (the exceptions were **Needs**, **MHtx**, **AODtx**, and **AngrMgt**); those reporting life skills were also more likely to have been in a SVORI program. Thus, we were unable to uncover any potential alternative explanation for these findings.

Employment Services: Many reentry programs in correctional facilities include some type of employment-related assistance because it is widely believed that employment will reduce recidivism and that employment services will result in more or better employment post release. In this sample, only 28% of the men received any employment services. Moreover, employment services had no beneficial impact on post-release housing, employment, and drug use outcomes, and in many instances receipt of these services was detrimental to reintegration (e.g., related to higher drug use) (***Exhibits 60*** and ***61***). Employment services had mostly zero to weakly detrimental effects on self-reported criminal activity and rearrest and mostly zero effects on reincarceration. Receipt of employment services *reduced* the time to first rearrest.

EFFECTS OF INDIVIDUAL CHANGE SERVICE BUNDLE ITEMS

In addition to the PSB service items, we also examined the effects of services directed at fostering individual change. Overall, these services were less likely to be delivered but were associated, in most cases, with more beneficial (or at least less detrimental) effects. ***Exhibit 62*** summarizes the results for the effects of these services on self-reported, intermediate outcomes. ***Exhibit 63*** shows the results for the recidivism measures.

Exhibit 62. Summary of effects of individual change service bundle items on self-reported, intermediate outcomes for adult men

Outcome	Individual Change Service Bundle Item																	
	MHtx			AODtx			PersRel			CrimAtt			AngrMgt			Educ		
Month	**3**	**9**	**15**	**3**	**9**	**15**	**3**	**9**	**15**	**3**	**9**	**15**	**3**	**9**	**15**	**3**	**9**	**15**
HouInd	D	D	D	B	**B***	D	D	D	D	**B***	B	B	**D***	D	D	B	**B***	B
HouChal	**D***	B	**D***	**B***	B	D†	B	D	D	D	D	D	B	B	D	D†	D	B
Emp	D	D†	**D***	B	B	B	B	B	B	D	B	D	**D***	B†	D	B	B†	B
StblEmp	D†	**D***	D	B	B	D	D	D	D	D	**D***	D	B	B	B	B†	B	D
FormalPay	B	D	B	D	B	D	D	B	B	B	B	B	B	D	B	B†	B	B
Benefits	D	D	B	D	B	B	**D***	B	B	B	D	D	B	B	B	B	D	D
AnyCrime	B	D	**D***	B	B	D	D	D	D	B	B	B	B	B	D	B	D	B
AnyDrug	D		**D***	B		D	D		B	B		B	D		B	**B***		B
AnyDrug_30	D		**D***	B		D	B		B	B		B	B		B	**B***		B

Note: Subdivided cells indicate results at 3-, 9- and 15- month interviews; 3 and 15 months for drug outcomes. ***B**** *= effect is beneficial and significant at $p < 0.05$;* ***B†*** *= effect is beneficial and significant at $p \leq 0.1$;* ***D**** *= effect is deleterious and significant at $p < 0.05$;* ***D†*** *= effect is deleterious and significant at $p \leq 0.1$.*

Exhibit 63. Summary of effects of individual change service bundle items on administrative recidivism outcomes for adult men

Outcome	Individual Change Service Bundle Item					
	MHtx	AODtx	PersRel	CrimAtt	AngrMgt	Educ
Gap1: Release to Arrest 1	**D***	B	**B***	**B***	**B***	B
Gap2: Arrest 1 to Arrest 2	B	D	B	D	D†	D
Gap3: Arrest 2 to Arrest 3	**B***	D	**D***	**B***	B	B
Gap4: Arrest 3 to Arrest 4	B†	D	B	B	D	B
Number of Arrests	D	B	B	D	B†	**B***
Time to Reincarceration	B	B	D	B	**B***	B
Number of Reincarcerations	**B***	B	D	B	**B***	B

Note: ***B**** *= effect is beneficial and significant at $p < 0.05$;* ***B†*** *= effect is beneficial and significant at $p \leq 0.1$;* ***D**** *= effect is deleterious and significant at $p < 0.05$;* ***D†*** *= effect is deleterious and significant at $p \leq 0.1$.*

Mental Health Treatment: A small group of men in this sample (18%) received mental health treatment. Receipt of mental health treatment (**MHtx**) was associated with zero or deleterious effects across multiple self-reported outcomes (***Exhibit 62***). Although we included two measures of mental health symptoms or functioning in the multivariate models (**GSI** and **MCS12**) in an effort to control for mental health treatment need, mental health service receipt was associated with increased housing challenges, worse employment outcomes, higher likelihood

of self-reported crime, and greater drug use in the 15 months after release. Perhaps our pre-release measures of mental health functioning are insufficient to capture mental health in the months after release. ***Exhibit 63*** shows that mental health treatment was associated with mixed results with respect to the administrative measures of recidivism. Specifically, **MHtx** was associated with a shorter time to first rearrest (but a longer time between the third and fourth arrests), and with a smaller number of reincarcerations.

Substance Abuse Treatment: Overall, more than 40% of the men reported receiving substance abuse treatment before release. Other than a beneficial effect on housing outcomes shortly after release, however, there were no effects of pre-release drug treatment on these self-reported outcomes. **AODtx** does not appear to have had any impact—either overall or for the stratified subsamples on the resumption of drug use after release. By the final follow-up data collection at 15 months, more than 60% were reporting (or testing positive for) drug use. **AODtx** received prior to release also had no significant effects on the administrative measures of recidivism (***Exhibit 63***).

Cognitive Behavioral Programs: Three services capture services intended to change cognitive patterns surrounding criminal behavior—assistance with personal relationships (**PersRel**), specific training to change criminal attitudes (**CrimAtt**), and participation in anger management programs (**AngrMgt**). These services were received by 20%–40% of the men in the sample. Research suggests that well-implemented cognitive behavioral programs can significantly reduce recidivism. In this sample, these services were generally unrelated to self-reported post-release outcomes and significant effects were more likely to be deleterious than beneficial (***Exhibit 62***). Results were more positive for the administrative measures of recidivism (***Exhibit 63***), with all three services significantly increasing the time to the first rearrest and **AngrMgt** associated with a longer time to reincarceration and fewer incarcerations.

Education Services: A need for more education was the highest expressed need for men in this sample (Lattimore & Visher, 2009), and almost half of the men (48%) reported receiving educational services while in prison. Of the 12 services examined, education services had the most beneficial impact across various outcomes, including reducing the number of post-release rearrests, although these impacts are far from consistent throughout the follow-up period.

SVORI REENTRY PROGRAM PARTICIPATION

Although the primary purpose of these analyses was to examine the effects of specific service items. The multivariate models also included an indicator of SVORI reentry program participation (**SVORI**). This measure would capture any residual program effects over and beyond those generated by the specific services included in the model and discussed above. In particular, this indicator could capture the effects of services provided but not explicitly included in the model (e.g., help with housing, transportation, documents), as well as the beneficial effects of any wraparound services associated with participating in the reentry program.

Findings suggest that SVORI program participation was associated with the following effects:

- Greater likelihood of having a job that provided formal pay (at 3 months post release) and benefits (at 3 and 9 months)
- Reduced likelihood of self-reported crime at 3 months post release

The most striking effects however were observed for the administrative recidivism models, as shown in ***Exhibit 64***. SVORI program participation was associated with a longer time to first, second and third arrest, as well as a longer time to reincarceration.

Exhibit 64. Summary of effects of SVORI program participation on administrative recidivism outcomes for adult men

Outcome	SVORI
Gap1: Release to Arrest 1	**B***
Gap2: Arrest 1 to Arrest 2	**B***
Gap3: Arrest 2 to Arrest 3	B†
Gap4: Arrest 3 to Arrest 4	**D***
Number of Arrests	B†
Time to Reincarceration	**B***
Number of Reincarcerations	B

Note: B = effect is beneficial and significant at $p < 0.05$; B† = effect is beneficial and significant at $p \leq 0.1$; D* = effect is deleterious and significant at $p < 0.05$; D† = effect is deleterious and significant at $p \leq 0.1$.*

SUMMARY

Overall, as a group, the six practical service items exhibited zero to detrimental effects on post-release outcomes, whereas, as a group, the individual change items had weak beneficial effects on outcomes. However, there is considerable variability within these two groups of services. We found that SVORI program participation appears beneficial in reducing recidivism, although the services that were delivered as part of SVORI show no or inconsistent impacts on recidivism. "Something else" about SVORI participation that is unmeasured is affecting post-release outcomes, independent of all the individual control variables in the models. This "something else" could be other services provided before release in conjunction with reentry, perhaps greater levels of post-release services provided to those in the reentry programs (although the random effects models we estimated did not show such effects), or something more intangible about the programs including, perhaps, any wraparound services and support provided.

POLICY IMPLICATIONS

The mixed findings with respect to the effects of the specific service items and reentry program participation overall suggest the need for continued investigation of "what works" to help former prisoners reintegrate into their communities following release. The study population was "serious and violent" offenders who had active criminal careers prior to their current incarcerations; about half measured high risk and the other half medium risk on a risk scale that approximated the LSI-R:SV (our **HiRisk** measure). To the extent that previous work and the principles of effective intervention (Andrews & Bonta, 2006) suggest that interventions may be more effective for higher-risk offenders, the study population was one that should have been amenable to reform.

Surprisingly, the results not only fail to show consistent beneficial effects of specific services on outcomes in the housing, employment, drug use, and criminal recidivism domains, but in some cases show statistically significant deleterious effects. In particular, the implications of the detrimental effects of the practical services are potentially large for practice. These services (**CaseMgr**, **Needs**, **RPlan** and **RPrgm**) were the most commonly provided of the services received by participants in this study and could be considered to be the foundation of most reentry programming. Indeed, these were the specific service items prescribed for those applying for SVORI grant funds, with the other services to be provided to be determined by population needs and local capabilities. In most cases, these services appear to have had no effect on post release housing, employment, and substance use outcomes. These services were also more likely to be associated with deleterious effects on post-release administrative measures of recidivism.

Results were somewhat more positive for the individual change service items although the absence of significant beneficial findings for **AODtx** and **CrimAtt** was somewhat surprising. **AODtx** was associated with positive effects on housing outcomes immediately following release, but had no effects on substance use or criminal behavior outcomes. Receiving training to change attitudes about criminal behavior (**CrimAtt**) was associated with longer times to first rearrest, but otherwise exhibited few other effects on outcomes.

Participating in a **SVORI** reentry program did, however, appear to exert residual effects on post-release criminal behavior as measured by time to rearrest, numbers of new arrests, and time to reincarceration. These findings suggest positive benefits of reentry program participation over and beyond any effects that would be captured by the receipt of specific services. As noted earlier, these **SVORI** effects may be a result of other services not explicitly included in the models, wraparound or other support services associated with program participation, or may simply be a "Hawthorne" effect.

As noted, we have no measures of program quality nor do we have dosage measures of services. However, there is no reason to believe that the services being provided would be any less than the "average" of such services being delivered in correctional settings in 2004-2005. Indeed, because of the review taken in selecting the sites for inclusion in the earlier impact study that included consideration of likelihood of implementation, these programs should have had a better chance of implementing quality services. Thus, our findings are likely to be reflective of what would generally be implemented but not necessarily reflective of the effects of carefully selected evidence-based programs that were implemented with fidelity that sustained over the course of the program.

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RESULTS: ADULT FEMALES

The purpose of these analyses was to identify "what works for whom and for how long." Outcome models to estimate the effects of specific services were estimated controlling for the individual characteristics listed in ***Exhibit 14,*** site (South Carolina was the reference category), and SVORI program participation. The variables of interest are those indicating receipt of pre-release services, and the results presented here primarily focus on the odds ratio estimates from the logistic regression models for the service items—either the individual items OR the two bundle scores (**PSB** and **ICSB** service). Full model results for all variables (service indicators and control variables), including parameter estimates, standard errors, test statistics, and odds ratio estimates, are in ***Appendix D***.

The adult female sample included 357 individuals at the Wave 1 (pre-release) interview, and 236, 239, and 248 individuals at the 3-, 9-, and 15-month post-release interviews. The multivariate models included 42 covariates plus the intercept term, suggesting that the model would have relatively weak power with respect to identifying effects of the included variables (e.g., see VanVoorhis & Morgan, 2007).[21]

HOUSING

We chose two indicators of housing outcomes—housing independence and housing challenges. In ***Exhibit 3***, we saw that between 67% and 75% of the adult female study participants reported that they were living in their own house or apartment, were contributing to the cost of their housing, or had their name on the lease or mortgage during the periods before the interviews. Between 20% and 30% reported that they had experienced housing challenges during those periods. Odds ratio estimates from the full model of housing independence for the 12 service items and for SVORI program participation are shown in ***Exhibit 65***. A few services were related to these two outcomes, although none consistently. For example, although respondents who reported receiving alcohol or other drug treatment (**AODtx)** were less likely to report housing independence 9 months after release, they were also less likely to report experiencing housing challenges 3 and 9 months after release. **AngerMgmt** was associated with a reduced likelihood of experiencing housing challenges at 9 months. A number of other services were weakly related to these two housing outcomes ($p \leq 0.1$), although none consistently. (Full model results are in ***Appendix D***, ***Tables 1*** and ***2***.)

[21] Given the relatively small number of women in the sample, we also re-ran the models with fewer covariates by collapsing categorical variables. Race was recoded to white/nonwhite, prior AOD treatment was recoded to any prior treatment/no prior treatment, and the property, drug, and other prior arrest charge variables were summed to create one count of prior non-violent arrest charges. With regard to the effects of service items and bundles, the results, for the most part, were substantially unchanged. However, in some cases the level of significance varied between these models. It is not surprising that some differences were found given the large number of relationships examined. For the most part, differences in significance consisted of a marginally significant finding (p<.10) in one model and a non-significant finding in the other. This occurred in both directions (for some relationships, the reduced model produced a marginally significant effect while the full model produced a nonsignificant effect and vice versa). Given the similarities across the full and reduced models, only results from the full models are presented in this report.

Exhibit 65. Odds ratios of service items from full models of housing independence and housing challenges at 3, 9, and 15 months after release for the adult female sample

Variable	Housing Independence			Housing Challenges		
	3 Months	9 Months	15 Months	3 Months	9 Months	15 Months
CaseMgr	0.7982	0.5097	1.1479	0.7117	0.8519	2.8413†
Needs	1.9859	1.4943	1.7505	1.2099	2.6141†	1.7794
RPlan	1.5304	2.1881	0.9357	2.0854	0.6030	0.8789
RPrgm	1.4369	0.8116	1.6361	0.4463	0.9095	1.0580
LifeSk	1.0931	2.0226	1.1792	2.0683	2.0416	1.5820
EmplSrv	0.6371	0.6961	0.5653	0.9410	0.8174	0.4804†
MHtx	0.7143	0.9026	0.8154	0.6094	1.8325	1.9924
AODtx	1.3826	0.4171†	0.3946	0.2117*	0.3761†	0.7165
PersRel	0.5943	1.5642	0.5897	1.3898	3.6185	0.6685
CrimAtt	0.8353	0.3087	1.2825	0.4915	0.4903	0.6670
AngrMgt	0.3992	0.7166	2.2727	1.1937	0.2531*	1.8946
Educ	0.7890	1.1944	0.9631	1.1177	2.9183†	1.1589
SVORI	1.4973	0.9647	0.9873	0.4214	0.9499	0.8253
N	208	219	235	208	216	219

*Note: SVORI = Serious and Violent Offenders Reentry Initiative. Housing independence is coded 1 for individuals who reported living in their own house or apartment (currently or right before reincarceration), contributing to the costs of housing (since release at 3 months, since previous interview or 6 months prior if no previous interview at 9 and 15 months, if not homeless), or having their name on the lease or mortgage where they currently lived (since release at 3 months, since previous interview or 6 months prior if no previous interview at 9 and 15 months, if not homeless); it was coded 0 otherwise. Housing challenges is coded 1 if the individual reported being homeless (currently or right before reincarceration), having trouble finding a place to live (since release at 3 months, since previous interview or 6 months prior if no previous interview at 9 and 15 months, if not homeless), or having a current living situation worse than the previous one (since release at 3 months, since previous interview or 6 months prior if no previous interview at 9 and 15 months, if not homeless); it was coded 0 otherwise. Full model results are shown in **Appendix D, Tables 1 and 2**.*

**p < 0.05; † p ≤ 0.10*

The models estimated using the two service bundle scores (**ICSB** and **PSB**), **SVORI**, and the control variables also yielded weak findings, as shown in ***Exhibit 66***. (Full model results are in ***Appendix D***, ***Tables 21*** and ***22***.) Neither the **PSB** nor the **ICSB** was related to either housing independence or challenges. These findings are perhaps not surprising, considering the weak effects of the services within the bundles that we observed in ***Exhibit 65***.

Furthermore, few individual characteristics were consistently associated with housing outcomes. Employment before incarceration (**employed**) was associated with housing independence at 3 months ($p \leq 0.1$) and 15 months after release but was not associated with housing challenges (data in ***Appendix D, Tables 1*** and ***2***). The number of prior arrest charges for property crimes was marginally associated with less housing independence 3 months after release but was associated with increased housing independence at 9 months after release. Unlike for the adult males, being married or in a relationship was not related to better housing outcomes for the adult female subjects.

Exhibit 66. Odds ratios of service bundles from full models of housing independence and housing challenges at 3, 9, and 15 months post release for the adult female sample

Variable	Housing Independence			Housing Challenges		
	3 Months	9 Months	15 Months	3 Months	9 Months	15 Months
PSB	1.1191	0.7239	1.1959	0.8551	1.2353	1.1286
ICSB	0.7723	0.2960	0.8489	0.4418	0.9917	1.0800
SVORI	1.5383	0.6161	0.8913	0.9658	0.7836	0.6097
N	212	224	239	212	221	223

Note: PSB = practical services bundle; ICSB = individual change services bundle; SVORI = Serious and Violent Offenders Reentry Initiative. Housing independence is coded 1 for individuals who reported living in their own house or apartment (currently or right before reincarceration), contributing to the costs of housing (since release at 3 months, since previous interview or 6 months prior if no previous interview at 9 and 15 months, if not homeless), or having their name on the lease or mortgage where they currently lived (since release at 3 months, since previous interview or 6 months prior if no previous interview at 9 and 15 months, if not homeless); it was coded 0 otherwise. Housing challenges is coded 1 if the individual reported being homeless (currently or right before reincarceration), having trouble finding a place to live (since release at 3 months, since previous interview or 6 months prior if no previous interview at 9 and 15 months, if not homeless), or having a current living situation worse than the previous one (since release at 3 months, since previous interview or 6 months prior if no previous interview at 9 and 15 months, if not homeless); it was coded 0 otherwise. Full model results are shown in ***Appendix D, Tables 21 and 22.***

**p < 0.05; † p ≤ 0.10*

EMPLOYMENT

A major goal of the SVORI reentry programs was to provide education, training, and other support that would lead to better employment outcomes after release. We identified four variables in the survey data that were related to the employment outcomes—whether respondents were supporting themselves with a job in the period before the interview (**EMP3**, **EMP9**, **EMP15**), whether they worked each month (**StblEmp3**, **StblEmp9**, and **StblEmp15**), whether their current or most recent job had formal pay (**FormalPay3**, **FormalPay9**, and **FormalPay15**), and whether their current or most recent job offered health insurance or paid leave (**Benefits3**, **Benefits9**, and **Benefits15**).

Results for "Support Self with Job" and "Worked Each Month" are shown in ***Exhibit 67***. Between 50% and 60% reported that they were currently supporting themselves with a job, although only about 30% to 40% reported that they worked at least 1 day each month (see ***Exhibit 3***). A few services were related to these two outcomes; however, the results are not consistent. For example, 3 months after release, self-reported receipt of reentry planning (**RPlan**) was associated with a *reduced* likelihood of working each month; by 15 months after release, **RPlan** was associated with an *increased* likelihood of supporting oneself with a job. Receipt of mental health treatment (**MHtx**) and training to change criminal attitudes (**CrimAtt**) were associated with working each month at 15 and 3 months after release, respectively. **SVORI** was negatively, but inconsistently, related to employment outcomes; participants in **SVORI** were less likely to support themselves with a job at 3 months after release and less likely to report working each month 9 months after release. Notably, employment services (**EmplSrv**) were associated with an increased likelihood of supporting oneself with a job 15 months after release.

Although few of the estimates were statistically significant, the overall pattern observed with the adult male data is apparent. Overall, the **PSB** service items were more likely to be associated with a reduced likelihood and the **ICSB** items were associated with a greater likelihood of reporting supporting oneself with a job or to have worked each month. An exception among the **PSB** items is **EmplSrv**, which, for the adult female subjects, is associated with a greater likelihood of reporting working at the 9- and 15-month interviews and of reporting working each month

at 3 and 9 months. Somewhat surprisingly, and again in contrast to the findings for the adult males, reports of receiving educational services were associated with a reduced chance of reporting supporting oneself with a job.

Exhibit 67. Odds ratios of service items from models of "support self with job" and "worked each month" employment outcomes at 3, 9, and 15 months after release for the adult female sample

Variable	Support Self with Job			Worked Each Month		
	3 M	9 M	15 M	3 M	9 M	15 M
CaseMgr	0.8508	0.8038	0.4414	0.4594	0.4771	0.6897
Needs	0.7613	0.6003	1.1859	0.6384	0.9164	0.9884
RPlan	0.9115	0.5255	4.2432*	0.0449*	1.7940	4.8448
RPrgm	0.6490	1.1278	1.2710	4.5938	3.9038†	0.1663
LifeSk	2.3394	0.8150	0.5311	0.1566	1.0806	0.2670
EmplSrv	0.8146	1.4054	3.2389*	2.5369	1.1659	0.8557
MHtx	1.3700	1.4097	0.5723	2.9166	0.4577	11.4063*
AODtx	2.2416	1.6672	0.7626	1.2146	0.7565	0.5286
PersRel	2.2991	0.3181†	1.2147	1.4049	1.6089	0.4158
CrimAtt	0.5747	2.1933	0.5564	16.7889*	0.4363	3.4589
AngrMgt	2.8595	1.3863	1.4046	1.3235	2.8053	1.3818
Educ	0.3835	0.9379	0.9396	0.1148†	0.6816	2.4488
SVORI	0.1760*	0.9579	1.3371	2.0591	0.1277*	0.2904
N	208	212	213	133	162	156

Note: SVORI = Serious and Violent Offenders Reentry Initiative. "Currently supports self with job" is coded 1 if the individual reported a job as a source of support (currently or before reincarceration) and 0 otherwise. "Worked each month" is coded 1 if the individual reported working at least 1 day during each of the previous months (since release at 3 months, since previous interview or the last 6 months if no previous interview at 9 and 15 months) and 0 otherwise. Full model results are shown in ***Appendix D, Tables 3 and 4.***

**p < 0.05; † p ≤ 0.10*

Among the control variables (see ***Appendix D***, ***Table 3***), having a high school degree or equivalent (**highshl**) was related to supporting oneself with a job at 3 and 15 months after release, with odds ratios over 3.0. Other control variables were not consistently related to either employment outcome.

Given the lack of consistent effects of items within the bundles, it is perhaps not surprising that results are once again weak for the two service bundles. ***Exhibit 68*** shows the odds ratios for the two bundle scores and the SVORI indicator. Individual change services were associated with a greater likelihood of "worked each month" at 3 months ($p \leq 0.1$), and practical services were associated with a greater likelihood of "support self with job" at 15 months ($p \leq 0.1$). Findings for the SVORI program participation indicator were inconsistent.

We also looked at whether service items or SVORI program participation were related to the quality of post-release employment, measured by whether the job provided formal pay or benefits (health insurance or paid leave). Among women who reported working, more than 80% reported receiving formal pay and nearly 40% receiving benefits. The model results are shown in ***Exhibit 69***. Fewer services are related to quality of employment variables. Having received employment-related services (**EmplSrv**) was associated with having a job that provides benefits at 9 months after release, and respondents who reported having a case manager (**CaseMgr**) were more likely to report having formal pay at 15 months after release.

Exhibit 70 shows the results for the models including the two service bundle scores. Here we see weak effects for the practical services at 9 months, but little other effect. (Full results are in ***Appendix D, Tables 25*** *and* ***26***.)

Exhibit 68. Odds ratios of service bundles from models of "support self with job" and "worked each month" employment outcomes at 3, 9, and 15 months after release for the adult female sample

Variable	Support Self with Job			Worked Each Month		
	3 M	9 M	15 M	3 M	9 M	15 M
PSB	0.9430	0.8028	1.3324†	0.8403	1.0866	0.7396
ICSB	1.3100†	1.0668	0.8770	1.1268	1.0052	1.4092
SVORI	0.2585*	0.7490	1.5761	1.1054	0.2154*	0.4949
N	212	217	217	134	164	157

Note: PSB = practical services bundle; ICSB = individual change services bundle; SVORI = Serious and Violent Offenders Reentry Initiative. "Currently supports self with job" is coded 1 if the individual reported a job as a source of support (currently or before reincarceration) and 0 otherwise. "Worked each month" is coded 1 if the individual reported working at least 1 day during each of the previous months (since release at 3 months, since previous interview or the last 6 months if no previous interview at 9 and 15 months) and 0 otherwise. Full model results are shown in ***Appendix D, Tables 28 and 29****.*

**p < 0.05; † p ≤ 0.10*

Exhibit 69. Odds ratios from full models of formal pay and benefits at 3, 9, and 15 months after release for the adult female sample

Variable	Formal Pay			Benefits		
	3 Months	9 Months	15 Months	3 Months	9Months	15 Months
CaseMgr		0.6629	13.4022*	0.6579	0.8368	1.9601
Needs		1.6337	1.2475	1.3956	1.3487	1.0646
RPlan		2.2115	0.0740	0.5180	0.8575	2.1998
RPrgm		3.5321	0.9305	1.6382	2.3963	1.1809
LifeSk		0.0719†	7.4715	0.3276	0.7677	0.9620
EmplSrv		0.4702	0.8699	1.3371	5.8906*	1.5717
MHtx		4.3723	2.5262	1.5705	0.5157	1.5609
AODtx		5.3566	0.2331	1.0684	1.4330	0.9860
PersRel		0.1799	2.2398	1.1795	0.3124	0.6184
CrimAtt		7.1577	0.5836	1.5620	2.6667	1.0388
AngrMgt		5.5024	1.6985	0.7852	1.8262	1.0930
Educ		0.4264	0.3360	1.9560	0.5079	1.3029
SVORI		5.6746†	2.2985	1.1414	2.5773	0.9721
N		162	156	131	162	155

Note: SVORI = Serious and Violent Offenders Reentry Initiative. Results are not presented for formal pay at 3 months because the model did not converge. "Formal pay" is coded 1 if the individual reported that her current or most recent job was compensated with "formal pay where you receive a pay stub" and 0 otherwise. "Benefits" is coded 1 if the individual reported that her current or most recent job had health insurance or any paid leave such as sick leave or vacation and 0 otherwise. Full model results are shown in ***Appendix D, Tables 5*** *and* ***6****.*

Exhibit 70. Odds ratios of service bundles from models of formal pay and benefits at 3, 9, and 15 months after release for the adult female sample

Variable	Formal Pay			Benefits		
	3 M	9 M	15 M	3 M	9 M	15 M
PSB	1.5202	0.9400	1.4694	0.9290	1.4208†	1.3755
ICSB	0.7548	1.3703	0.9221	1.1173	0.7986	0.9877
SVORI	19.8997	2.4063	1.3238	0.9466	1.8184	1.0434
N	134	154	157	132	164	156

Notes: PSB = practical services bundle; ICSB = individual change services bundle; SVORI = Serious and Violent Offenders Reentry Initiative. "Formal pay" is coded 1 if the individual reported that her current or most recent job was compensated with "formal pay where you receive a pay stub" and 0 otherwise. "Benefits" is coded 1 if the individual reported that her current or most recent job had health insurance or any paid leave such as sick leave or vacation and 0 otherwise. Full model results are shown in ***Appendix D, Tables 25*** *and* ***26****.*

VICTIMIZATION

We also examined the impact of reentry services on post-release victimization, which was broadly constructed to include threats. Victimization was reported by 19% of women at 3 months, 34% at 9 months, and 37% at 15 months. A few services were associated with self-reported victimization during the period since release or previous interview. The odds ratios from the 3-, 9-, and 15-month models for the service items are shown in ***Exhibit 71***. (Full model results are in ***Appendix D, Table 7***.) Receipt of both employment services (**EmplSrv**) and anger management (**AngrMgt**) was associated with reports of increased victimization at 3 and 15 months after release. Participating in a reentry program (**SVORI**) was associated with a lower risk of victimization that was marginally significant in the 3-month model, and receiving assistance with personal relationships (**PersRel**) was associated with a lower risk of victimization that was marginally significant in the 15-month model. Odds ratios for the two service bundle scores were not significantly different from one (***Appendix D, Table 27***).

In ***Appendix D, Tables 7*** and ***27***, we do see individual characteristics that are associated with post-release victimization. Individuals who reported being married or in a relationship 30 days before release were less likely to report victimization immediately after release, although this effect dissipated over time. Individuals reporting prior parole or probation violations were more likely to report victimization at each interview wave (p <.1 in the 9- and 15-month models). Age was negatively associated with victimization at both 3 and 15 months after release.

COMPLIANCE WITH SUPERVISION REQUIREMENTS

Most women on supervision after-release reported that they had complied with the conditions of their supervision. Specifically, only 20% at 3 months, 34% at 9 months, and 35% at 15 months reported that they had failed to comply with at least one supervision condition in the time since release (3 months) or since the last interview (or in the last 6 months if the previous interview was missed). The effects of services on post-release compliance with supervision requirements are shown in ***Exhibit 72.*** A few services were associated with failing to comply with supervision conditions after release, albeit inconsistently. Individuals who reported receiving mental health treatment are more likely to report not complying with supervision conditions in both the 3- and 9-month models. At 9 months after release, having received employment services (**EmplSrv**) and attended classes to change attitudes about criminal behavior (**CrimAtt**) reduced reports, whereas receipt of life skills services (**LifeSk**) was associated with increased reports of failure to comply with supervision.

Exhibit 71. Odds ratios from full model of victimization at 3, 9, and 15 months after release for the adult female sample

Variable	3 Months	9 Months	15 Months
CaseMgr	0.6131	2.1890	0.7008
Needs	0.7851	2.2585	1.2208
RPlan	5.9844	0.6388	1.0722
RPrgm	0.9604	0.5151	0.5625
LifeSk	1.9157	1.9015	2.2371
EmplSrv	2.9597*	1.0755	2.5174†
MHtx	0.3859	1.4863	1.4076
AODtx	0.4788	0.8119	0.6071
PersRel	1.5442	0.8750	0.2918†
CrimAtt	0.3384	1.5941	0.7063
AngrMgt	4.8433†	0.5391	6.2217*
Educ	1.0890	1.2652	0.7757
SVORI	0.1783†	0.8557	0.8864
N	208	214	213

*Note: SVORI = Serious and Violent Offenders Reentry Initiative. Victimization is coded 1 if the individual reported any victimization (threatened with being hit; having anything thrown at her; pushed, grabbed or shoved; slapped, kicked, bitten, or hit with a fist; threatened with or had a weapon used on her) since release but before reincarceration if reincarcerated at 3 months and since previous interview or past 6 months if no previous interview and before current incarceration if reincarcerated at 9 and 15 month; it was coded 0 otherwise. Full model results are shown in **Appendix D**, **Table 7**.*

Exhibit 72. Odds ratios from full model of "failed to comply with conditions of supervision" at 3, 9, and 15 months after release for the adult female sample

Variable	3 Months	9 Months	15 Months
CaseMgr	1.5637	0.8653	1.7519
Needs	0.3870	2.0045	0.1137
RPlan	0.7897	3.3524	0.3004
RPrgm	0.5647	0.7765	0.2716
LifeSk	1.8967	11.5779†	40.3875
EmplSrv	5.7668	0.1268*	9.1674
MHtx	5.7106*	3.6307†	0.6265
AODtx	2.9462	0.4112	0.7847
PersRel	1.1661	0.8985	0.0521
CrimAtt	0.3234	0.0864†	3.1107
AngrMgt	1.2267	0.9388	466.4819
Educ	0.8022	0.9158	0.0018
SVORI	0.3633	3.2410	0.2619
N	166	143	105

*Note: SVORI = Serious and Violent Offenders Reentry Initiative. "Failed to comply with conditions of supervision" is coded 1 if the individual reported any failure to comply with conditions of supervision since release but before reincarceration if reincarcerated at 3 months and since previous interview or past 6 months if no previous interview and before current incarceration if reincarcerated at 9 and 15 months; it was coded 0 otherwise. Questions were asked only if the subject reported being on supervision during the period. Full model results are shown in **Appendix D**, **Table 8**.*

Neither of the two service bundle measures was significant in the models that include these variables instead of the individual items (see ***Appendix D, Table 28***). Furthermore, only a handful of individual characteristics were

even marginally significantly associated with failure to comply with supervision conditions, and none was significant in more than one time period.

DRUG USE

Nearly all women reported having used alcohol and marijuana during their lifetimes, and more than two-thirds of the women reported having used one or more illicit drugs during the 30 days before incarceration. We also saw in ***Exhibit 14*** that the majority reported having been in substance abuse treatment before incarceration and in ***Exhibit 7*** that 45% reported receiving substance abuse treatment while incarcerated. Many resumed their drug use after release. In ***Exhibit 3*** we reported the results for our combined drug use outcome measure, which was coded 1 if the individual self-reported drug use, tested positive on the urinalysis test, or refused to consent to the test and 0 otherwise.[22] We have two measures—any drug use in the past 30 days and any drug use since release or last interview—at the 3-month and 15-month interviews.[23] Drug use was surprisingly high. At the 3-month interview, 42% had used drugs since release and 37% had used drugs in the past 30 days. At the 15-month interview, 58% had used drugs since release or last interview and 51% had used drugs in the last 30 days.

Exhibit 73 shows the odds ratios on the service items and the SVORI program participation indicator. (Full model results are in ***Appendix D, Tables 10*** and ***11***.) Somewhat surprisingly, receiving life skills or employment services is associated with being more likely to have used drugs. **AODtx** is not significant in any of the models.

Examination of ***Exhibit 73*** shows that, although none of the odds ratios for the items in the **ICSB** are significant at the 15-month interview for "any drug past 30 days," four out of six are less than one. It is perhaps not surprising then that the odds ratio for the **ICSB** (see ***Appendix D***, ***Table 31***) is 0.72 ($p < 0.01$), suggesting that these services are associated with a smaller likelihood of drug use. However, neither of the two service bundle measures is significant in the other drug use models (see ***Appendix D***, ***Tables 30*** and ***31***).

In ***Tables 10*** and ***11*** in ***Appendix D***, we do see individual characteristics that are associated with drug use after release. Having a high school degree or equivalent is associated with reduced drug use since release or last interview and in the past 30 days at both the 3- and 15-month interviews. Women who reported having been in alcohol and other drug (AOD) treatment two or more times before the instant incarceration were more likely to report drug use 15 months after release. Being classified as high risk was also weakly associated with drug use 3 months after release.

[22] Those incarcerated at the time of the interview were not asked to take the urine test. If they had been in the community at least 1 day since the last interview (or in the last 6 months), they were asked about drug use before reincarceration and were coded as 1 on the drug use variable if they reported any use and 0 otherwise. If they were incarcerated for the entire period since the last interview, they were coded as missing on this variable.

[23] We did not conduct urine tests at 9 months. The difference between the any drug use and any drug use in the past 30 days is responses to separate questions asking about any use and any use in the past 30 days, since the urine test results will be the same for both measures and will reflect recent use for most substances.

Exhibit 73. Odds ratios from full models of drug use outcomes at 3 and 15 months after release for the adult female sample

Variable	Any Drug Use Past 30 Days		Any Drug Use Since Release or Last Interview	
	3 Months	15 Months	3 Months	15 Months
CaseMgr	0.5466	0.6536	0.7767	0.4212
Needs	0.9785	0.7028	0.9049	0.7025
RPlan	1.0500	2.3073	0.8536	2.9576
RPrgm	0.5621	1.0878	0.5408	0.7349
LifeSk	5.3466†	1.1972	5.9256*	0.9944
EmplSrv	3.1811*	4.1389*	2.1033	3.2219*
MHtx	1.1958	0.6949	0.9861	0.6795
AODtx	1.2776	1.0202	1.2133	0.9697
PersRel	0.2511	0.3870	0.2689†	0.5390
CrimAtt	1.8429	0.5776	1.7691	0.4221
AngrMgt	0.7695	1.4746	1.1675	2.4582
Educ	0.4350	0.5309	0.6049	0.7073
SVORI	0.5337	0.9859	0.5124	0.8811
N	207	213	207	213

*Note: SVORI = Serious and Violent Offenders Reentry Initiative. Individuals were asked a series of questions about any use of drugs that were not prescribed for them or in larger amounts than prescribed (sedatives, tranquilizers, pain relievers or opiates, methadone, stimulants, anabolic steroids) and recreational use of other drugs (marijuana or hashish, hallucinogens, cocaine, heroin, amphetamines, and inhalants). The questions were asked since release but before reincarceration if reincarcerated at 3 months and since previous interview or past 6 months if no previous interview and before current incarceration if reincarcerated at 15 months. "Any drug use past 30 days" is coded 1 if the individual responded that she had used any of these drugs in the past 30 days, or tested positive for at least one drug on the urinalysis conducted after the interview, or refused consent for the urinalysis; it was coded 0 otherwise. Individuals who were incarcerated at the time of the interviews were not asked to consent to the urine test and were coded on the basis of their responses to the self-reported drug use questions. "Any Drug Use Since Release or Last Interview" is coded 1 if the individual responded that she had used any of these drugs since release at 3 months or since the previous interview or past 6 months if no previous interview at 15 months, or tested positive for at least one drug on the urinalysis conducted after the interview, or refused consent for the urinalysis; it was coded 0 otherwise. Individuals who were incarcerated at the time of the interviews were not asked to consent to the urine test and were coded on the basis of their responses to the self-reported drug use questions. Urine testing was not done in conjunction with the 9-month interview. Full model results are shown in **Appendix D**, **Tables 10** and **11**.*

**p < 0.05; † p ≤ 0.10*

RECIDIVISM

The adult women included in the SVORI evaluation have had active criminal histories. As shown in ***Exhibit 14***, on average, the age at first arrest (**Age1stArr**) was 19 years, they had been in juvenile detention more than once (**#Juvie** = 1.3),and the number of prior convictions (**#Conv**) was 5.3. They had also accumulated a lot of arrest charges before their current incarceration: an average of 1.5 for person crimes, 3.6 for property crimes, 2.9 for drug crimes, and 6.4 for other crimes. Against this criminal history and aware that past criminal behavior is the best predictor of future criminal behavior, we would expect that this group of women would be at substantial risk of recidivating. ***Exhibit 5*** showed the cumulative failure distributions for time to first rearrest and reincarceration. Within the 1,694 days (56 months) for which we had follow-up data for all adult subjects, 70% of the adult females had been arrested at least once and 44% of them had been reincarcerated at least once. In this section, we examine the following recidivism indicators:

- Self-report at 3, 9, and 15 months after release of having committed any crime
- Time between release and first rearrest and conditional analyses on the time between the first and second arrests
- Number of arrests
- Time between release and first reincarceration
- Number of reincarcerations

SELF-REPORTED CRIMINAL BEHAVIOR

Fewer than half of the respondents reported committing any crimes—20% at the 3-month interview, 28% at the 9-month interview, and 33% at the 15-month interview. Odds ratios for the service items from the full model results are shown in ***Exhibit 74*** (full model results are in ***Appendix D, Table 9***). As can be seen, few services are consistently associated with self-reported criminal activity. Having a needs assessment (**Needs**) and receiving educational services (**Educ**) are associated with reporting not committing any crime during the 3- and 15-month interviews, respectively. Receiving life skills services (**LifeSk**), on the other hand, is associated with being more likely to report having committed a crime at 3 and 9 months after release. Among individual characteristics, women who were categorized as high risk were more likely to report committing any crime at the 3- and 9-month interviews.

Exhibit 74. Odds ratios for service items from full model of "committed any crime" at 3, 9, and 15 months after release for the adult female sample

Variable	3 Months	9 Months	15 Months
CaseMgr	0.5216	1.2283	0.4862
Needs	0.0888*	2.8020	1.1702
RPlan	0.7188	0.3160	0.5432
RPrgm	0.9676	1.0234	1.2992
LifeSk	43.6228*	5.4396†	2.1207
EmplSrv	1.7881	0.3807	1.4321
MHtx	1.6884	2.8186	0.7127
AODtx	0.2819	0.9255	1.3411
PersRel	0.4631	2.3358	0.5993
CrimAtt	1.1977	0.2443	1.0790
AngrMgt	1.2683	0.7449	1.6254
Educ	2.0971	1.4422	0.3936†
SVORI	0.2408	1.1465	0.9201
N	208	219	235

*Note: SVORI = Serious and Violent Offenders Reentry Initiative. "Committed any crime" is coded 1 if the individual responded "yes" to any of a series of questions asking if she had carried a weapon or committed any violent crimes, other crimes against people, drug possession crimes, drug sales crimes, any other drug crimes, DWI/DUI crimes, property crimes, or any other crimes regardless of whether she was caught; it was coded 0 otherwise. The questions were asked since release but before reincarceration if reincarcerated at 3 months and since previous interview or past 6 months if no previous interview and before current incarceration if reincarcerated at 9 and 15 months. Full model results are shown in **Appendix D, Table 9**.*

**p < 0.05; † p ≤ 0.10*

Given the weak and mixed effects of the service items within the bundles, it is not surprising that the service bundles **PSB** and **ICSB** are not significant in any of the three models that include bundles rather than items (***Appendix D, Table 29***). (The average odds ratios across the three time periods are 1.01 for the PSB and 1.00 for

the ICSB.) The SVORI indicator is significant at 3 months (odds ratio = 0.64, p = 0.035). The odds ratio is 0.78 at 9 months and 0.87 at 15 months—in the right direction but no longer significantly different from 1.

ARREST

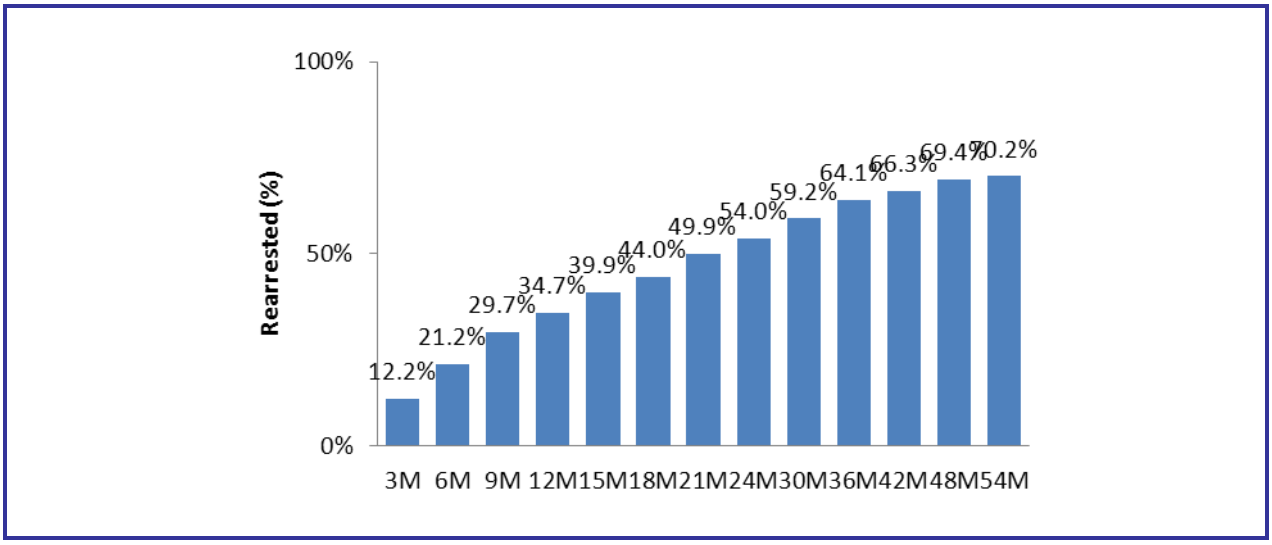
Data on arrests were obtained from the NCIC and were used for several types of analyses. First, the data were coded to indicate the occurrence of a first rearrest by cumulative time periods of 3, 6, 9, 12, 15, 18, 21, 24, 30, 36, 42, 48, and 54 months, and a series of logistic regressions was estimated in a manner consistent with the examination of the survey-based outcomes. Second, the timing and incidence of sequential post-release arrests were coded and used for a gap analysis that examined the time to sequential rearrests conditioned on having a previous arrest. Third, the arrests accrued by each subject during the fixed follow-up period (56 months) were counted, and a negative binomial model of the number of post-release arrests was estimated. These models were estimated in a multivariate framework using the service items or service bundles, the SVORI program participation indicator, and individual characteristics and site as control variables.

Results from the analyses of post-release arrest suggest that SVORI program participation was associated with a slightly longer time to first arrest in the post-release follow-up period.

LOGISTIC REGRESSION: LIKELIHOOD OF FIRST REARREST BY TIME T

The purpose of these analyses was to examine the effect of services on the likelihood of arrest within a specified time after release. ***Exhibit 75*** shows the percentage of the adult females who have been rearrested within a specified number of months after release. More than 12% were rearrested within 3 months of release; at 54 months after release, 70.2% had been rearrested. (A total of 259 or 74.4% of the 348 for whom we acquired long-term follow-up data were rearrested within the maximum fixed follow-up period of 56 months.)

Exhibit 75. Cumulative percentage of the adult females who were arrested by the specified month after release



The odds ratios for the service items and SVORI program participation indicators are shown in ***Exhibit 76*** for the three follow-up interview periods. As can be seen, no services are consistently associated with a lower likelihood of rearrest. **AngrMgt** is associated with a lower likelihood of rearrest 9 months after release. Having a case manager (**CaseMgr**) is consistently associated with a higher likelihood of rearrest, and **Educ** is associated with a higher likelihood of arrest 9 months after release.

Exhibit 76. Odds ratios for service items from full models of first rearrest within 3, 9, and 15 months after release for the adult female sample

Variable	Rearrest within…		
	3 Months	9 Months	15 Months
CaseMgr	4.7589*	3.5127*	2.6573*
Needs	0.9040	1.1041	1.5813
RPlan	4.1367	1.2574	1.4980
RPrgm	1.5635	0.9077	1.1475
LifeSk	2.2276	1.0747	1.4151
EmplSrv	1.2674	0.7966	0.9233
MHtx	0.4859	0.6512	0.6198
AODtx	2.1355	1.6799	1.6295
PersRel	0.3716	0.6915	0.5430
CrimAtt	0.8747	1.0911	0.8301
AngrMgt	0.3861	0.2996†	0.5477
Educ	0.6781	3.4006*	1.3883
SVORI	1.0904	1.0738	0.7194

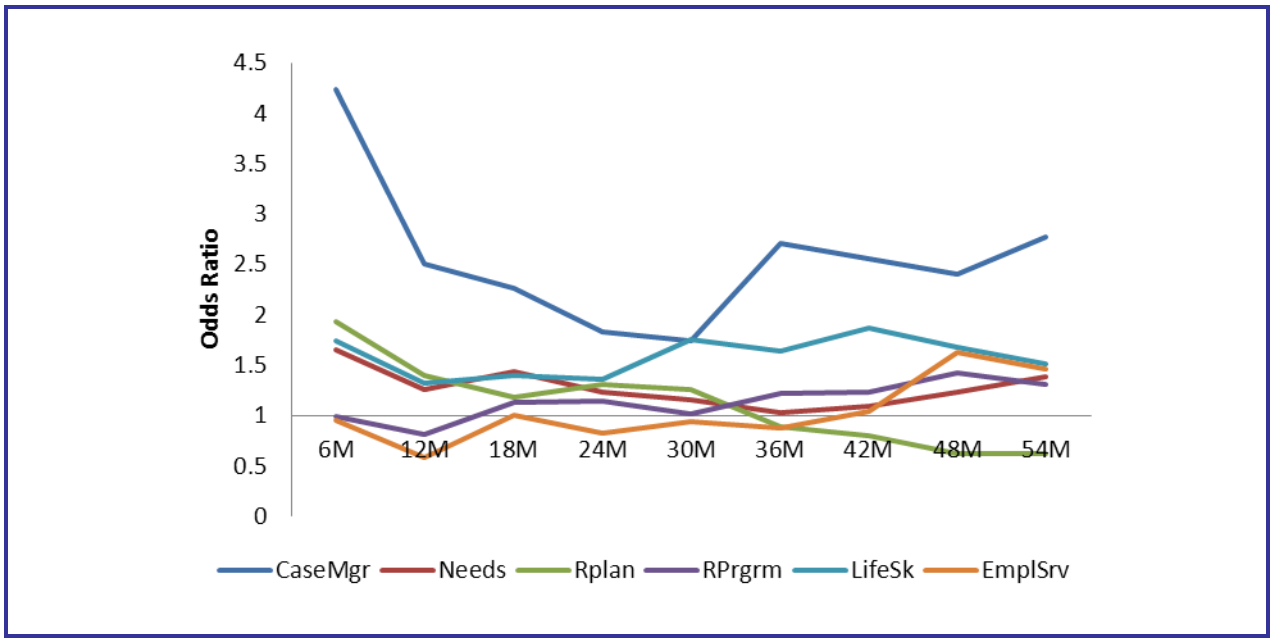
*Note: SVORI = Serious and Violent Offenders Reentry Initiative. Full model results are shown in **Appendix D**, **Tables 12** and **13**.*
**p < 0.05; † p ≤ 0.10*

Of course, the initial period after release is often a turbulent one for offenders, and services received in prison may prove beneficial in the longer run. The odds ratios for the **PSB** items for first rearrest within 6, 12, 18, 24, 30, 36, 42, 48, and 54 months are shown in ***Exhibit 77.*** (Full model results are in ***Appendix D, Tables 12–16***.) As can be seen, most of the values are greater than one throughout the follow-up period, suggesting that these items had either no effect (if insignificant) or were associated with greater likelihood of rearrest. Most striking are the values for **CaseMgr**, which suggest that reporting having a case manager was associated with a greater likelihood of arrest after release—significantly ($p \leq 0.1$) so for all time periods except 24 and 30 months.

The odds ratios for the **ICSB** items are shown in ***Exhibit 78***. Here, most of the values are less than one throughout the follow-up period, although only a few values are statistically significant. Anger management (**AngerMgmt**) is weakly protective in the period 6–12 months after release, whereas receiving assistance with personal relationships is protective in the period starting 42 months after release. Surprisingly, the effect of some services appears to change direction over time. Most notably, education is associated with a higher likelihood of arrest within the first year of release but is subsequently associated with a lower likelihood of arrest beginning 36 months after release.

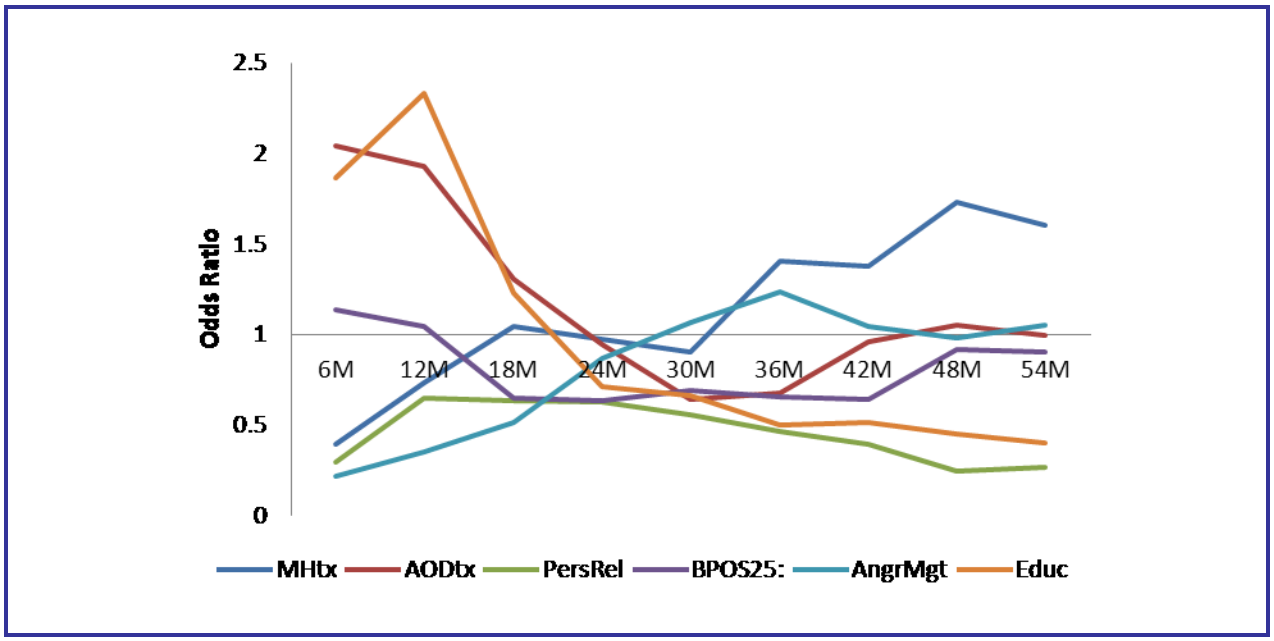
SVORI is the final service indicator, indicating whether the individual participated in a reentry program. The odds ratios for **SVORI** are greater than one in the first year after release and less than one throughout the remainder of the observation period. It appears that the effects are stronger as time after release increases; however, the effects are not significant in any of the models. These odds ratios are shown in ***Exhibit 79***.

Exhibit 77. Effect of practical service bundle items on post-release arrest for adult female sample



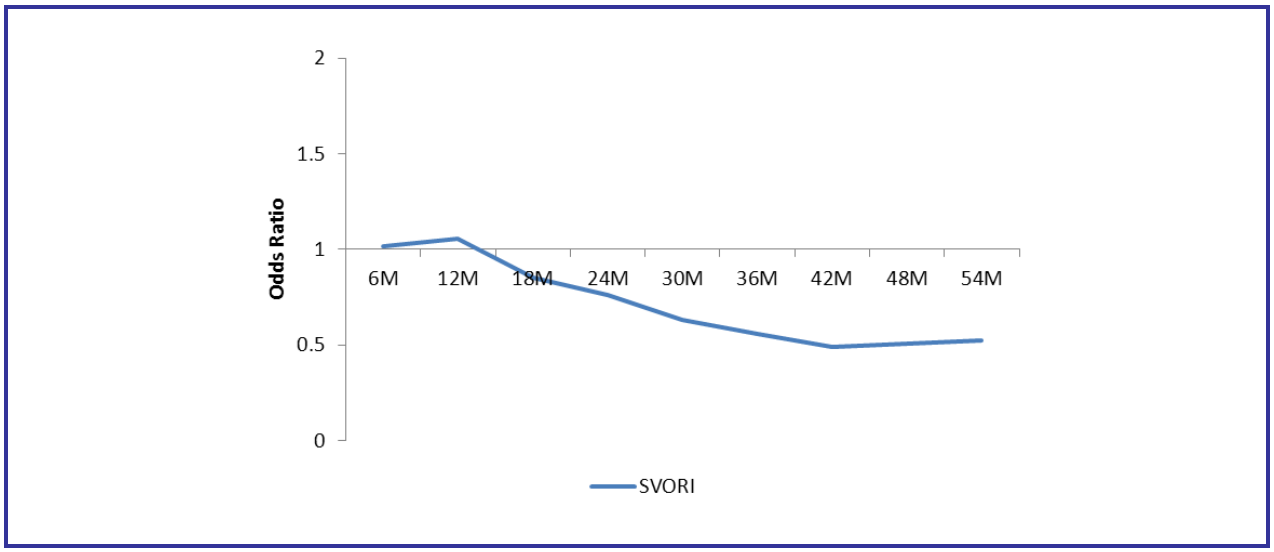
*Note: Full model results are in **Appendix D, Tables 12–16**.*

Exhibit 78. Effect of individual change service bundle items on post-release arrest for adult female sample



*Note: Full model results are in **Appendix D, Tables 12–16**.*

Exhibit 79. Effects of SVORI program participation on post-release arrest for adult female sample

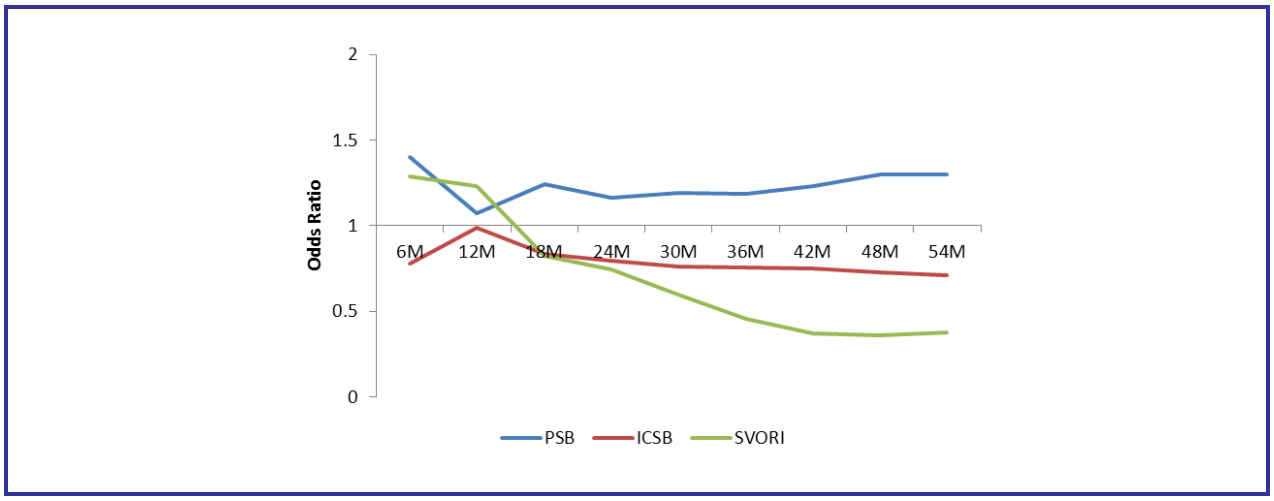


*Note: Full model results are in **Appendix D, Tables 12–16**.*

The full model results are shown in **Tables 12–16** in **Appendix D**. Results for the control variables are largely as we would expect. Individuals who had graduated from high school were less likely to be rearrested, whereas those who were high risk or had more prior arrests for property, drug, and other offenses were more likely to be arrested.

Given these findings, the results from the models including bundle scores rather than individual items shown in ***Exhibit 80*** are fairly consistent. Specifically, receipt of more practical services is associated with a higher likelihood of arrest, and receipt of individual change services is associated with a lower likelihood of arrest. From 18 months after release forward, SVORI program participation is associated with lower likelihood of arrest that, as in the model with the service items, becomes stronger over time. (Full model results are shown in ***Appendix D, Tables 32-36***.)

Exhibit 80. Effects of practical services bundle and individual change service bundle scores and SVORI program participation on post-release arrest for the adult female sample



*Note: Full model results are in **Appendix D, Tables 32-36.***

GAP MODELS: TIME TO REARREST

Gap analysis (Cook & Lawless, 2007) was used to estimate the time to rearrest for multiple arrest events. As described in the Analytic Approach section, successive survival models were estimated on the time between arrest events. For the adult females, we had sufficient events to model the first two episodes:

- Gap1 = days between release and first new arrest
- Gap2 = days between first arrest and second arrest, conditional on having a first arrest

Several functional forms were tried and the exponential function provided the best fit to the data for these episodes.[24] (Additional details are below.) The exponential survival model is characterized by a constant hazard rate—in other words, the instantaneous likelihood of experiencing the event of interest (here, an arrest) is the same at every time t (Kalbfleisch & Prentice, 2002).

We addressed the issue of another event changing or eliminating the likelihood of the event of interest occurring in two ways. First, subjects were censored on their date of death—in other words, the date of death was treated as the end of the follow-up period for individuals who had died. We also censored subjects on the date of their first reincarceration after release.

Exhibit 81 shows the full model output for the two gap models. Positive parameters are associated with longer survival times (i.e., longer time until arrest), and negative parameters are associated with shorter survival times (i.e., shorter time until arrest). Having a case manager (**CaseMgr**) is associated with longer survival times from both release to first arrest and from first to second arrest. For Gap 1, both **LifeSk** and **SVORI** are associated with a longer survival time, whereas receiving assistance with personal relationships (**PersRel**) is associated with a shorter survival time. Receipt of mental health services (**MHtx**) was associated with a longer survival time between the first and second arrests. Not surprisingly, women who were classified as high risk and who had a greater number of prior arrests have shorter survival times for both gaps.

Exhibit 81. Full model output for Gap1 and Gap2 models of arrest after release for the adult female sample

Variable	Gap1: Release to Arrest 1				Gap2: Arrest 1 to Arrest 2			
	Estimate	SE	Z	*p*	Estimate	SE	Z	*p*
Intercept	4.5720	0.8127	5.6260	0.0000	2.1711	0.9410	2.3070	0.0211
CaseMgr	0.8757*	0.1428	6.1327	0.0000	0.4837*	0.1670	2.9010	0.0037
Needs	0.0596	0.1371	0.4345	0.6640	0.1440	0.1950	0.7380	0.4600
RPlan	0.0783	0.1652	0.4739	0.6360	0.0311	0.2030	0.1530	0.8780
RPrgm	0.0408	0.1528	0.2671	0.7890	0.3320†	0.1950	1.6990	0.0893
LifeSk	0.4171*	0.1627	2.5632	0.0104	0.0766	0.2190	0.3500	0.7260
EmplSrv	-0.0033	0.1312	-0.0251	0.9800	0.0989	0.1550	0.6380	0.5230
MHtx	0.1524	0.1378	1.1054	0.2690	0.4062*	0.1620	2.5050	0.0122
AODtx	-0.0102	0.1281	-0.0798	0.9360	0.1893	0.1570	1.2040	0.2290
PersRel	-0.7507*	0.1804	-4.1621	0.0000	-0.3907†	0.2110	-1.8500	0.0644
CrimAtt	-0.0601	0.1664	-0.3614	0.7180	0.0257	0.1930	0.1330	0.8940

(continued)

[24] For Gap1 models, the AIC = 4405.66 and the BIC = 4567.59 for the lognormal model and the AIC = 4393.79 and the BIC = 4552.03 for the exponential model. For the Gap2 models, the AIC = 3217.60 and the BIC = 3383.20 for the lognormal model and the AIC = 3142.58 and the BIC = 3304.51 for the exponential model.

Exhibit 81. Full model output for Gap1 and Gap2 models of arrest after release for the adult female sample (continued)

Variable	Gap1: Release to Arrest 1				Gap2: Arrest 1 to Arrest 2			
	Estimate	SE	Z	*p*	Estimate	SE	Z	*p*
AngrMgt	-0.0707	0.1624	-0.4354	0.6630	0.2181	0.1800	1.2110	0.2260
Educ	-0.0475	0.1315	-0.3610	0.7180	0.1437	0.1510	0.9520	0.3410
SVORI	0.4315*	0.1519	2.8402	0.0045	0.2510	0.1840	1.3620	0.1730
age_rel	0.0098	0.0140	0.6995	0.4840	0.0111	0.0174	0.6380	0.5240
partner	0.1352	0.1153	1.1734	0.2410	0.0125	0.1230	0.1020	0.9190
highschl	0.1625	0.1321	1.2301	0.2190	0.4132*	0.1480	2.7960	0.0052
employed	-0.1044	0.1171	-0.8918	0.3730	0.1120	0.1430	0.7820	0.4340
race_black	-0.0074	0.1453	-0.0506	0.9600	0.3167*	0.1460	2.1620	0.0306
race_hispan	0.1948	0.2437	0.7996	0.4240	0.3991	0.2790	1.4300	0.1530
race_other	0.2545	0.2381	1.0690	0.2850	0.2679	0.2770	0.9670	0.3340
AODtx_1	-0.1005	0.1748	-0.5748	0.5650	0.1240	0.2170	0.5710	0.5680
AODtx_2	-0.3765*	0.1457	-2.5847	0.0098	-0.0799	0.1660	-0.4820	0.6300
HiRisk	-0.6684*	0.1441	-4.6384	0.0000	-0.3942*	0.1710	-2.3050	0.0212
GSI	0.0075*	0.0027	2.7917	0.0052	0.0106*	0.0037	2.8950	0.0038
B_MCS12	0.0195*	0.0063	3.0814	0.0021	-0.0032	0.0078	-0.4040	0.6860
#Conv	-0.0022	0.0129	-0.1696	0.8650	-0.0265*	0.0131	-2.0160	0.0439
p_arrest_person_#	-0.0051	0.0364	-0.1395	0.8890	0.0799*	0.0326	2.4520	0.0142
p_arrest_prop_#	-0.0679*	0.0139	-4.8935	0.0000	-0.0192	0.0133	-1.4360	0.1510
p_arrest_drug_#	-0.0549*	0.0155	-3.5413	0.0004	-0.0015	0.0200	-0.0730	0.9420
p_arrest_other_#	-0.0277*	0.0077	-3.5976	0.0003	-0.0180*	0.0088	-2.0420	0.0412
rbcad1:Age1stArr	0.0377*	0.0137	2.7589	0.0058	-0.0149	0.0175	-0.8500	0.3950
#Juvie	-0.0212	0.0209	-1.0171	0.3090	-0.0183	0.0215	-0.8500	0.3950
P-PViol	-0.1776	0.1361	-1.3044	0.1920	0.6098*	0.1850	3.2990	0.0010
IA	0.4355†	0.2568	1.6960	0.0899	0.9413*	0.3440	2.7370	0.0062
IN	-0.7521*	0.2036	-3.6945	0.0002	-0.3156	0.2280	-1.3830	0.1670
KS	0.9247*	0.2228	4.1500	0.0000	-0.1865	0.2570	-0.7260	0.4680
MO	0.5073†	0.2916	1.7398	0.0819	-0.2288	0.3370	-0.6780	0.4980
NV	-0.7594*	0.2910	-2.6102	0.0091	0.2398	0.3460	0.6930	0.4880
OH	0.3748	0.2637	1.4215	0.1550	0.6979*	0.3130	2.2300	0.0257
OK	0.2446	0.3786	0.6459	0.5180	-0.1465	0.4320	-0.3390	0.7350
PA	0.0851	0.4741	0.1795	0.8580	-0.5515	0.6080	-0.9070	0.3650
WA	-0.3052	0.3240	-0.9421	0.3460	0.5250	0.3940	1.3320	0.1830
Gap1					0.0019*	0.0001	15.9110	0.0000

NEGATIVE BINOMIAL MODELS: COUNTS OF POST-RELEASE ARRESTS

As described earlier (***Exhibit 6***), most of the study participants were arrested once and many experienced multiple arrests in the years after release. We estimated a negative binomial model of the number of arrests experienced by our subjects during the initial 56 months after release.[25] Results are shown in ***Exhibit 82.*** Four of the service items are associated with fewer post-release arrests as per the IRR: **CaseMgr**, **MHtx, AODtx**, and **SVORI. PersRel**,

[25] Zero-inflated negative binomial modeling was not necessary. The Vuong test statistic comparing the negative binomial to the zero-inflated binomial was -0.522941. This test statistic is normally distributed with a *p*-value of 0.30.

however, is associated with more post-release arrests. Among the control variables, women who were at high risk and had a larger number of prior convictions and arrests had more post-release arrests.

Exhibit 82. Negative binomial model results for the number of post-release arrests for the adult female sample

Variable	Estimate	SE	z	*p*	IRR
Intercept	2.9171	0.6711	4.3460	0.0000	18.4876
CaseMgr	-0.3136	0.1162	-2.6980	0.0070	0.7308*
Needs	0.0855	0.1199	0.7130	0.4757	1.0893
RPlan	0.0083	0.1390	0.0600	0.9522	1.0084
RPrgm	-0.0725	0.1299	-0.5580	0.5771	0.9301
LifeSk	-0.1000	0.1335	-0.7500	0.4535	0.9048
EmplSrv	-0.0226	0.1057	-0.2140	0.8304	0.9776
MHtx	-0.2078	0.1127	-1.8440	0.0651	0.8124†
AODtx	-0.1945	0.1084	-1.7940	0.0728	0.8233†
PersRel	0.3312	0.1402	2.3630	0.0181	1.3926*
CrimAtt	0.0775	0.1345	0.5760	0.5646	1.0805
AngrMgt	0.2147	0.1317	1.6300	0.1031	1.2395
Educ	0.1257	0.1061	1.1840	0.2363	1.1339
SVORI	-0.3532	0.1276	-2.7680	0.0056	0.7024*
age_rel	-0.0210	0.0091	-2.3080	0.0210	0.9793*
partner	0.0160	0.0923	0.1730	0.8623	1.0161
highschl	-0.1630	0.1054	-1.5470	0.1219	0.8496
employed	0.1779	0.1000	1.7790	0.0753	1.1947†
race_black	-0.3723	0.1125	-3.3080	0.0009	0.6891*
race_hispan	-0.3472	0.1898	-1.8300	0.0673	0.7066†
race_other	-0.2506	0.1721	-1.4560	0.1454	0.7784
AODtx_1	-0.1981	0.1439	-1.3760	0.1687	0.8203
AODtx_2	0.0163	0.1154	0.1410	0.8877	1.0164
HiRisk	0.3450	0.1192	2.8950	0.0038	1.4119*
GSI	-0.0069	0.0023	-2.9600	0.0031	0.9931*
MCS12	-0.0100	0.0053	-1.8820	0.0598	0.9900†
#Conv	0.0180	0.0104	1.7370	0.0823	1.0181†
p_arrest_person_#	0.0259	0.0250	1.0350	0.3008	1.0262
p_arrest_prop_#	0.0524	0.0107	4.8910	0.0000	1.0538*
p_arrest_drug_#	0.0303	0.0131	2.3180	0.0204	1.0308*
p_arrest_other_#	0.0251	0.0063	4.0080	0.0001	1.0255*
Age1stArr	-0.0386	0.0111	-3.4850	0.0005	0.9622*
#Juvie	0.0026	0.0155	0.1680	0.8664	1.0026
P-PViol	-0.1135	0.1174	-0.9670	0.3336	0.8927
IA	-0.6436	0.2143	-3.0030	0.0027	0.5254*
IN	0.6560	0.1674	3.9180	0.0001	1.9271*
KS	-0.5522	0.1794	-3.0780	0.0021	0.5757*
MO	-0.0102	0.2349	-0.0440	0.9652	0.9898
NV	0.5056	0.2472	2.0450	0.0408	1.6580*
OH	-0.1622	0.2150	-0.7540	0.4506	0.8503
OK	-0.0866	0.3093	-0.2800	0.7794	0.9170

(continued)

Exhibit 82. Negative binomial model results for the number of post-release arrests for the adult female sample (continued)

Variable	Estimate	SE	Z	*p*	IRR
PA	-0.2499	0.4344	-0.5750	0.5650	0.7788
WA	0.2564	0.2626	0.9760	0.3289	1.2922

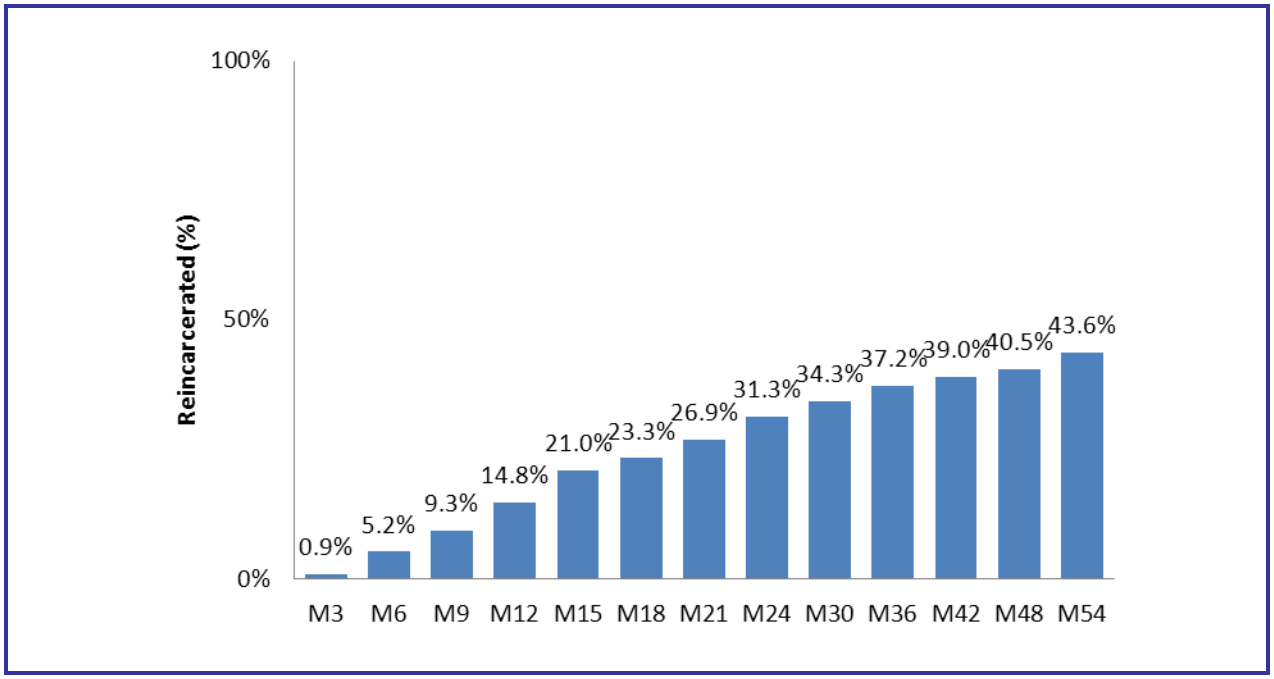
Note. IRR = incidence rate ratio.

Focusing on the effect of SVORI number of arrests after release in a 56-month follow-up period, the data show that the adult females on average had 3.18 new arrests after their release. Those who participated in SVORI programs had 2.06 arrests and those who did not had 4.00. The negative binomial model provided a good fit, predicting that SVORI program participants would have 1.82 arrests, on average, and those who did not participate in a SVORI program would have 4.12 arrests, on average.

REINCARCERATION

Updated reincarceration data were obtained from the NCIC for participants from seven adult sites, as described earlier.[26] More than 40% of the adult female sample was incarcerated at least once during the 56-month fixed follow-up period. ***Exhibit 83*** shows the cumulative reincarceration distribution for the adult female sample over the first 54 months after release. As can be seen, relatively few were reincarcerated during the initial 12 months after release, reflecting, most likely, the length of time it takes a case to process through the courts. Within 12 months, nearly 15% had been reincarcerated.

Exhibit 83. Cumulative reincarceration distribution for the adult female incarceration subsample



[26] We limited these new analyses to sites for which valid data were available from NCIC (IA, IN, OH, OK, SC, and WA). For one of the adult sites, we did not have permission to submit identifying information to the NCIC. For the other sites, complete incarceration data were not available.

LOGISTIC REGRESSION: LIKELIHOOD OF REINCARCERATION

Exhibit 84 shows the odds ratios from the logistic regression models of reincarceration with 9, 12, 15, 18, 21, 24, 30, 36, 42, 48, and 54 months. Among the **PSB** items, having a case manager (**CaseMgr**) is protective in the first year after release. However, receiving life skills training (**LifeSk**) is associated with a greater likelihood of reincarceration beginning 3 years after release. Among the **ICSB** services, receiving mental health treatment is associated with a reduced chance of reincarceration, whereas receiving alcohol or other drug treatment (**AODtx**) is associated with an increased chance of reincarceration, although the effects are only occasionally significant. (Full models are shown in ***Appendix D, Tables 17–20***.)

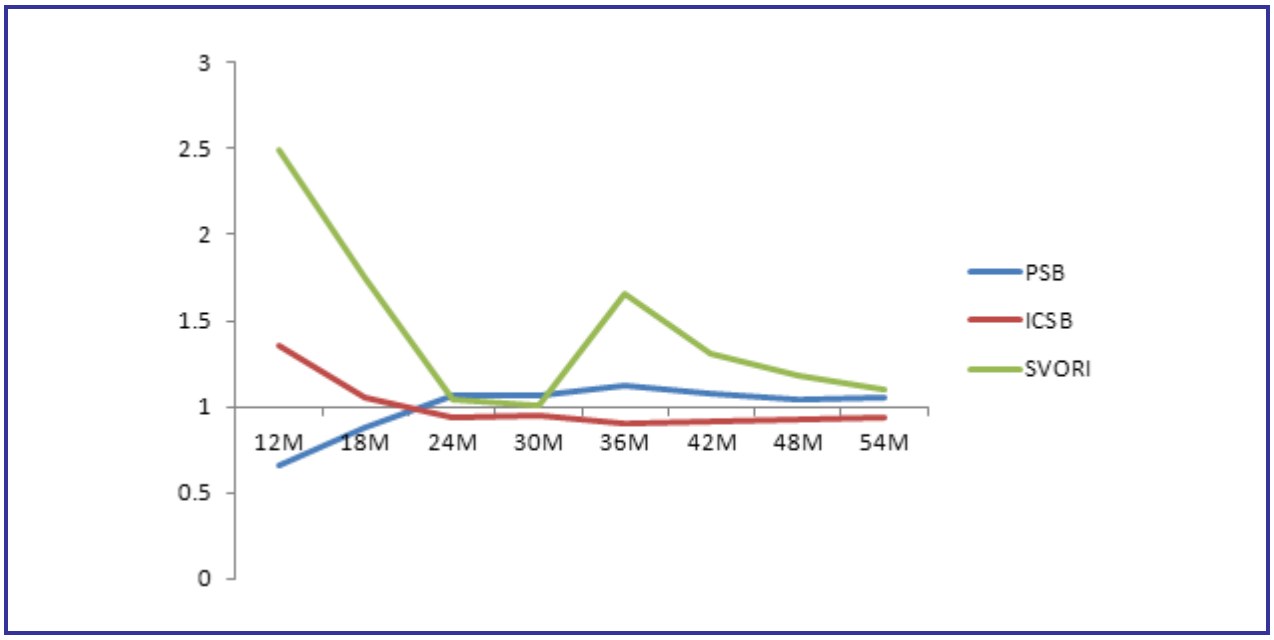
Exhibit 84. Odds ratios from logistic regression models of reincarceration within fixed time periods for adult females

Variable	Reincarcerated Within…										
	9 Months	12 Months	15 Months	18 Months	21 Months	24 Months	30 Months	36 Months	42 Months	48 Months	54 Months
CaseMgr	0.1765†	0.1713*	0.5511	0.5095	0.5393	0.8102	0.8067	1.2999	1.2992	1.0564	0.8451
Needs	0.5840	0.4859	0.5592	0.8335	0.9682	0.7371	1.0197	0.9738	1.1135	1.1267	1.3437
RPlan	5.5935	4.4078	1.2904	1.0985	1.3837	1.4499	1.0847	0.6747	0.8950	0.8947	1.0143
RPrgm	0.1733	0.3938	1.5803	1.8889	1.6983	1.7068	1.9644	1.6513	1.1569	1.0449	1.1423
LifeSk	2.2058	1.1730	2.5905	2.6083	1.7547	1.5826	1.6787	2.6675†	2.9073†	2.8242†	2.9970†
EmplSrv	1.3739	0.5379	0.8877	0.6497	1.2701	1.3972	1.0389	1.0997	0.8272	0.8296	0.7967
MHtx	0.5673	0.2835†	0.3481†	0.3477†	0.3563*	0.3750†	0.4608	0.7155	0.6888	0.6637	0.8746
AODtx	3.2534	2.4531†	1.7630	2.8325†	1.2592	1.1963	1.0825	1.2319	1.3710	1.2285	1.3735
PersRel	3.8664	1.7400	1.0341	0.7875	0.9105	0.7298	0.7440	0.7608	0.8299	0.9908	0.6812
CrimAtt	0.5061	2.9450	0.7117	0.7893	0.9116	1.1659	1.0906	0.7501	0.4884	0.4753	0.4278
AngrMgt	0.4646	0.5521	1.0711	0.8368	0.9768	0.8752	0.8809	0.6975	0.8881	0.7868	0.9873
Educ	3.0307	1.1754	1.0790	0.7063	0.9270	1.0357	1.0007	0.9663	0.8523	0.9995	0.9465
SVORI	0.0967*	1.0937	1.4476	1.3698	0.5997	0.7333	0.7551	1.6000	1.1857	1.0318	0.9307

*Note: SVORI = Serious and Violent Offenders Reentry Initiative. Full model results are presented in **Appendix D, Tables 17–20**.*
**p < 0.05; † p ≤ 0.10*

Exhibit 85 shows the effects of the service bundles on reincarceration. As can be seen, the odds ratios for ICSB are typically negative, whereas those for **PSB** and **SVORI** are typically positive. However, the effects are rarely significant. The full model results are presented in ***Appendix D, Tables 37–40***.

Exhibit 85. Effects of the service bundles and SVORI on reincarceration after release for the adult female sample



Note: Full model results are in ***Appendix D, Tables 37-40.***

SURVIVAL ANALYSIS: TIME TO REINCARCERATION

We were able to look only at the time to first reincarceration because we did not have release dates for all of the subjects who were reincarcerated and, thus, were unable to exclude the period of incarceration from analyses of later episodes. After trying several functional forms, we estimated a lognormal survival model, which fit the data best.

Exhibit 86 shows the survival distribution function for time to reincarceration. ***Exhibit 87*** presents the full model results for the lognormal time-to-reincarceration model. Women who received life skills services (**LifeSk**) have a longer survival time whereas those who attended classes to change attitudes about criminal behavior have a shorter survival time (**CrimAtt**). No other service item was associated with time to reincarceration. Not surprisingly, women who were classified as high risk have shorter survival times.

Exhibit 86. Survival curve of time to first post-release reincarceration for the adult female sample

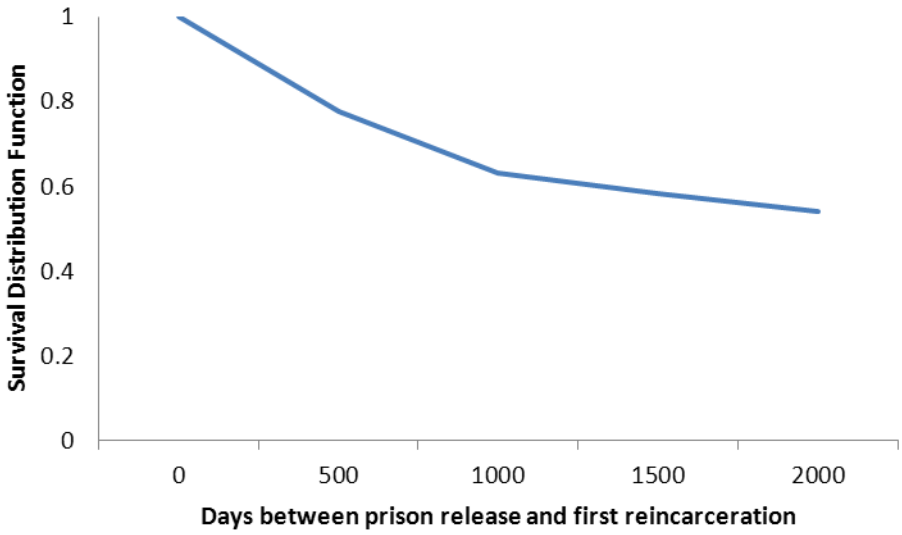


Exhibit 87. Log-normal survival model of time to first post-release reincarceration for the adult female sample

Variable	Estimate	SE	Z	p
Intercept	7.86953*	1.1763	6.6901	0.00
CaseMgr	-0.13731	0.21534	-0.6376	0.52
Needs	-0.14303	0.2165	-0.6606	0.51
RPlan	-0.06661	0.24574	-0.271	0.79
RPrgm	-0.14296	0.23222	-0.6156	0.54
LifeSk	0.70438*	0.24238	2.906	0.00
EmplSrv	-0.10822	0.18814	-0.5752	0.57
MHtx	-0.33492	0.20455	-1.6374	0.10
AODtx	0.1961	0.19508	1.0053	0.32
PersRel	-0.22894	0.23342	-0.9808	0.33
CrimAtt	-0.42439†	0.24291	-1.7471	0.08
AngrMgt	0.09429	0.22511	0.4188	0.68
Educ	0.00318	0.18092	0.0176	0.99
SVORI	0.20908	0.21206	0.986	0.32
age_rel	0.00489	0.01398	0.35	0.73
partner	0.11934	0.15953	0.7481	0.45
highschl	-0.03598	0.17205	-0.2091	0.83
employed	0.03921	0.17029	0.2302	0.82
race_black	0.1294	0.20274	0.6383	0.52
race_hispan	0.19717	0.35296	0.5586	0.58
race_other	0.12653	0.3008	0.4206	0.67
AODtx_1	-0.27086	0.23068	-1.1742	0.24
AODtx_2	-0.27766	0.19376	-1.433	0.15
HiRisk	-0.73936*	0.19823	-3.7297	0.00
GSI	-0.00232	0.00384	-0.6048	0.55

(continued)

Exhibit 87. Log-normal survival model of time to first post-release reincarceration for the adult female sample (continued)

Variable	Estimate	SE	Z	p
MCS12	0.00264	0.00938	0.2814	0.78
#Conv	-0.03226†	0.01641	-1.9656	0.05
p_arrest_person_#	0.03222	0.05833	0.5525	0.58
p_arrest_prop_#	-0.03929*	0.01903	-2.0641	0.04
p_arrest_drug_#	-0.02347	0.02368	-0.9914	0.32
p_arrest_other_#	0.00368	0.01053	0.3499	0.73
Age1stArr	0.05408*	0.01727	3.132	0.00
#Juvie	-0.02715	0.0272	-0.9979	0.32
P-PViol	0.08411	0.20203	0.4163	0.68
IA	-0.89993*	0.30065	-2.9932	0.00
IN	-0.46467	0.2861	-1.6242	0.10
OH	0.2042	0.33557	0.6085	0.54
OK	0.36611	0.47843	0.7652	0.44
WA	1.03398*	0.46951	2.2022	0.03

**p < 0.05; † p ≤ 0.10*

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RESULTS: JUVENILE MALES

The purpose of these analyses was to identify "what works for whom and for how long." Outcome models for the juvenile male study participants were estimated controlling for the individual characteristics listed in ***Exhibit 14***, with two exceptions. To make the models more parsimonious given the relatively small number of juvenile males in the sample: (1) a single dichotomous indicator of race (race_white) was used instead of the multiple race indicators used in the adult models and (2) a single dichotomous indicator of any AOD treatment prior to incarceration was used instead of the multiple AOD treatment indicators used in the adult models. Additionally, unlike the models for the adult males and adult females, receipt of education services (**Educ**) was not included in the models for the juvenile males because 95% of juveniles reported receiving education services. The models also controlled for site (South Carolina was the reference category) and SVORI program participation. The variables of interest are those indicating receipt of pre-release services, and the results presented here focus primarily on the odds ratio estimates from the logistic regression models for the service items—either the individual items *or* the two bundle scores (**PSB** and **ICSB** service). Full model results for all variables (service indicators and control variables), including parameter estimates, standard errors, test statistics, and odds ratio estimates, are in ***Appendix E***.

HOUSING

We chose two housing indicators—housing independence and housing challenges. In ***Exhibit 3***, we saw that between 27% and 41% of the juvenile male study participants reported that they were living in their own house or apartment, were contributing to the cost of their housing, or had their name on the lease or mortgage during the period before the interview. Roughly 10% reported that they had experienced housing challenges during that period. As shown in ***Exhibit 3***, fewer juvenile males reported achieving housing independence or experiencing housing challenges than did adult males or adult females. This is likely because the juveniles were returning to their parents' or guardians' homes after release and still living with them at the time of the follow-up interview. Thus, we would not expect all individuals in the juvenile sample, especially those under age 18, to be living in their own house or apartment or to have their name on the lease or mortgage.

Odds ratio estimates from the full model of housing independence for the 11 service items and for SVORI program participation are shown in ***Exhibit 88***. A few services were related to these two outcomes; however, none of the services was consistently related to either outcome across time periods. For example, although respondents who reported having met with a case manager (**CaseMgr)** were more likely to report housing independence 15 months after release, they were also more likely to report experiencing housing challenges 9 months after release. Similarly, **SVORI** program participation was associated with a reduced likelihood of housing challenges at 9 months and a reduced likelihood of housing independence at 15 months.

The models estimated using the two service bundle scores (**ICSB** and **PSB**), **SVORI**, and the control variables yielded weak and inconsistent findings, as shown in ***Exhibit 89***. The **PSB** was associated with a greater likelihood of housing independence and lower likelihood of housing challenges 15 months after release, but it was also associated with a greater likelihood of housing challenges at 3 months after release. The **ICSB** was not related to housing independence or challenges. These findings are perhaps not surprising, considering the inconsistent effects within the bundles that we observed in ***Exhibit 88***. Similar to the findings for the model with the individual service items, SVORI program participation was associated with a lower likelihood of housing independence at 15 months after release.

Exhibit 88. Odds ratios of service items from full models of housing independence and housing challenges at 3, 9, and 15 months after release for the juvenile male sample

Variable	Housing Independence			Housing Challenges		
	3 Months	9 Months	15 Months	3 Months	9 Months	15 Months
CaseMgr	1.5581	2.3846	5.8888*	0.4139	10.6441†	0.3862
Needs	0.6558	0.8527	0.7632	2.6412	0.1896	0.4586
RPlan	0.5863	1.0765	3.2582*	3.2869	1.2586	1.6045
RPrgm	1.7981	0.8630	0.4674	4.1589†	0.2236	0.7975
LifeSk	1.1655	1.0184	0.9935	0.8434	1.5219	0.2338
EmplSrv	1.7205	0.9598	1.6803	0.8610	3.7508	1.2665
MHtx	0.3894†	0.5582	1.0169	1.2930	0.3942	0.4050
AODtx	1.1639	1.8604	1.5654	1.0308	1.6760	1.5109
PersRel	0.7149	1.3523	1.1364	0.9707	1.0749	0.1739
CrimAtt	1.1339	0.7717	0.6688	0.9611	8.3655†	0.5131
AngrMgt	1.6985	0.9812	1.6116	0.4927	0.8629	1.3189
SVORI	0.5682	0.6675	0.3497*	0.6653	0.2106*	0.8996
N	205	204	213	205	196	199

Note: SVORI = Serious and Violent Offenders Reentry Initiative. Housing independence is coded 1 if the individual reported living in his own house or apartment (currently or right before reincarceration), contributing to the costs of housing (since release at 3 months, since previous interview or 6 months prior if no previous interview at 9 and 15 months, if not homeless), or having his name on the lease or mortgage where he currently lived (since release at 3 months, since previous interview or 6 months prior if no previous interview at 9 and 15 months, if not homeless; it was coded 0 otherwise. Housing challenges is coded 1 if the individual reported being homeless (currently or right before reincarceration), having trouble finding a place to live (since release at 3 months, since previous interview or 6 months prior if no previous interview at 9 and 15 months, if not homeless), or having a current living situation worse than the previous one (since release at 3 months, since previous interview or 6 months prior if no previous interview at 9 and 15 months, if not homeless); it was coded 0 otherwise. Full model results are shown in ***Appendix E, Tables 1*** *and* ***2****.*

**p < 0.05; † p ≤ 0.10*

Furthermore, few individual characteristics were consistently associated with housing outcomes. As we might expect, age at release (**age_rel**) was positively related to housing independence; juvenile males who were older at the time of release were more likely to report housing independence at each of the follow-up interviews. Age at release was not, however, associated with housing challenges (data in ***Appendix E, Tables 1*** and ***2***).

Exhibit 89. Odds ratios of service bundles from full models of housing independence and housing challenges at 3, 9, and 15 months after release for the juvenile male sample

Variable	Housing Independence			Housing Challenges		
	3 Months	9 Months	15 Months	3 Months	9 Months	15 Months
PSB	1.1476	1.0944	1.2109†	1.4952*	1.1517	0.6509†
ICSB	0.9146	0.9952	1.1690	0.8353	1.0349	0.7011
SVORI	0.7250	0.6684	0.4301*	0.7065	0.3813	0.6294
N	219	218	228	219	210	213

*Note: PSB = practical services bundle; ICSB = individual change services bundle; SVORI = Serious and Violent Offenders Reentry Initiative. Housing independence is coded 1 if the individual reported living in his own house or apartment (currently or right before reincarceration), contributing to the costs of housing (since release at 3 months, since previous interview or 6 months prior if no previous interview at 9 and 15 months, if not homeless), or having his name on the lease or mortgage where he currently lived (since release at 3 months, since previous interview or 6 months prior if no previous interview at 9 and 15 months, if not homeless); it was coded 0 otherwise. Housing challenges is coded 1 if the individual reported being homeless (currently or right before reincarceration), having trouble finding a place to live (since release at 3 months, since previous interview or 6 months prior if no previous interview at 9 and 15 months, if not homeless), or having a current living situation worse than the previous one (since release at 3 months, since previous interview or 6 months prior if no previous interview at 9 and 15 months, if not homeless); it was coded 0 otherwise. Full model results are shown in **Appendix E, Tables 13** and **14**.*

**p < 0.05; † p ≤ 0.10*

EMPLOYMENT

A major goal of the SVORI reentry programs was to provide education, training, and other support that would lead to better employment outcomes after release. We examined three variables in the survey data that were related to the employment outcomes—whether respondents were supporting themselves with a job in the period before the interview (**EMP3**, **EMP9**, **EMP15**), whether their current or most recent job had formal pay (**FormalPay3**, **FormalPay9**, and **FormalPay15**), and whether their current or most recent job offered health insurance or paid leave (**Benefits3**, **Benefits9**, and **Benefits15**).

Results for "Support Self with Job" are shown in ***Exhibit 90***. Between 35% and 48% of juvenile males reported that they were currently supporting themselves with a job (see ***Exhibit 3***). Similar to differences in housing outcomes, we might expect fewer juveniles than adults to report supporting themselves with a job during the follow-up period. Having met with a case manager before release was weakly ($p \leq 0.1$) associated with an increased likelihood of supporting oneself with a job at 3 and 15 months after release. Receiving training to change criminal attitudes (**CrimAtt**) was associated with a greater likelihood of reporting supporting oneself with a job at 15 months after release but not at 3 or 9 months after release. **SVORI** participation was associated with a lower likelihood of reporting supporting oneself with a job at 9 months after release, and AODtx was associated with a lower likelihood of reporting supporting oneself with a job at 15 months after release.

Among the control variables (see ***Appendix E***, ***Table 3***), having a high school degree or equivalent (**highshl**), was related to supporting oneself with a job at 3 and 9 months after release, with odds ratios over 5.0 and 4.0, respectively. Other control variables were not consistently related to supporting oneself with a job.

Given the lack of consistent effects of items within the bundles, it is perhaps not surprising that results are once again weak for the two service bundles. ***Exhibit 91*** shows the odds ratios for the two bundle scores and the SVORI indicator. Practical services were associated with a greater likelihood of "support self with job" at 3 and 9 months after release ($p \leq 0.1$). Individual change services were not associated with this employment outcome.

Exhibit 90. Odds ratios of service items from models of support self with job employment outcomes at 3, 9, and 15 months post release for the juvenile male sample

Variable	Support Self with Job		
	3 M	9 M	15 M
CaseMgr	3.1713†	1.5329	3.4508†
Needs	2.3359	2.3573	0.6736
RPlan	1.2828	1.6879	0.6570
RPrgm	1.1207	0.5356	0.5235
LifeSk	1.0439	1.5928	0.7495
EmplSrv	0.9489	1.6515	2.3597
MHtx	2.1173	0.7332	0.6332
AODtx	1.4273	0.9174	0.4548†
PersRel	0.6525	0.9294	1.2488
CrimAtt	0.7612	1.3141	3.8642*
AngrMgt	0.7546	1.0188	0.8870
SVORI	0.8323	0.3233*	0.9622
N	205	196	196

Note: SVORI = Serious and Violent Offenders Reentry Initiative. "Currently supports self with job" is coded 1 if the individual reported a job as a source of support (currently or before reincarceration), and was coded 0 otherwise. Full model results are shown in **Appendix E, Table 3**.

**p < 0.05; † p ≤ 0.10*

Exhibit 91. Odds ratios of service bundles from models of support self with job employment outcomes at 3, 9, and 15 months post release for the juvenile male sample

Variable	Support Self with Job		
	3 M	9 M	15 M
PSB	1.2631†	1.2608†	1.0028
ICSB	1.0821	0.9677	1.0284
SVORI	0.7587	0.5273	1.2478
N	219	210	210

Note: PSB = practical services bundle; ICSB = individual change services bundle; SVORI = Serious and Violent Offenders Reentry Initiative. "Currently supports self with job" is coded 1 if the individual reported a job as a source of support (currently or before reincarceration), and was coded 0 otherwise. Full model results are shown in ***Appendix E, Table 15***.

**p < 0.05; † p ≤ 0.10*

We also looked at whether service items or SVORI program participation was related to the quality of post-release employment, measured by whether the job provided formal pay or benefits (health insurance or paid leave). Among juvenile males who reported working, between 67 and 74 percent reported receiving formal pay and between 32 and 49 percent reported receiving benefits (***Exhibit 3***). The results of these outcome models are shown in ***Exhibit 92***. Services were not consistently related to quality of employment. The one service that was associated with receipt of formal pay at more than one follow up was in the wrong direction: help with personal relationships (**PersRel**) was associated with a reduced likelihood of formal pay at 3 and 15 months after release. Assistance with personal relationships (**PersRel**) was associated with a greater likelihood of benefits at 3 months after release but a lower likelihood of benefits at 15 months after release.

Exhibit 92. Odds ratios from full models of "formal pay" and "benefits" at 3, 9, and 15 months post release for the juvenile male sample

Variable	Formal Pay			Benefits		
	3 M	9 M	15 M	3 M	9M	15 M
CaseMgr	6.6557	3.6262	0.1222	0.9182	0.3151	0.3675
Needs	0.0809	1.2700	1.0603	0.3388	2.8624	5.0461
RPlan	1.3910	19.6136*	0.9741	62.4512*	2.0771	2.0486
RPrgm	5.3898†	2.0201	2.6577	0.4035	1.4056	3.9966*
LifeSk	1.5454	0.1198*	0.4219	0.6161	0.7998	0.3058*
EmplSrv	0.4079	1.1562	0.5976	0.3416	0.2977†	0.9300
MHtx	0.6905	0.2787	1.1309	1.0661	1.5533	0.7970
AODtx	1.7200	1.6198	1.4400	0.7284	0.8253	0.4012
PersRel	0.2492*	0.2616	0.2186*	10.4143*	1.5796	0.3519†
CrimAtt	0.5469	9.2243†	2.0949	0.8017	1.2191	1.4132
AngrMgt	1.9753	0.9855	0.6032	0.2279	1.3571	1.2249
SVORI	1.6827	2.8433	1.3885	0.8970	1.3638	1.8728
N	111	126	135	111	124	134

Note: SVORI = Serious and Violent Offenders Reentry Initiative. "Formal pay" is coded 1 if the individual reported that current or most recent job was compensated with "formal pay where you receive a pay stub," and was coded 0 otherwise. "Benefits" is coded 1 if the individual reported that current or most recent job had health insurance or any paid leave such as sick leave or vacation, and was coded 0 otherwise. Full model results are shown in ***Appendix E, Tables 4*** *and* ***5****.*

Exhibit 93 shows the results for the models including the two service bundle scores. Here we see a weak positive effect on receipt of formal pay for the practical services at 9 months and a weak negative effect on receipt of formal pay for the individual change services at 9 months. SVORI is not associated with quality of post-release employment. (Full results are in ***Appendix E, Tables 16*** *and* ***17***.)

Exhibit 93. Odds ratios of service bundles from models of "formal pay" and "benefits" at 3, 9, and 15 months post release for the juvenile male sample

Variable	Formal Pay			Benefits		
	3 M	9 M	15 M	3 M	9 M	15 M
PSB	1.3649	1.5685†	0.7996	1.3294	0.9727	1.1622
ICSB	0.7792	0.6359†	0.8235	1.0210	1.1280	0.8377
SVORI	0.6146	1.5701	1.0952	0.6254	1.0540	1.3876
N	114	135	145	114	133	144

Notes: PSB = practical services bundle; ICSB = individual change services bundle; SVORI = Serious and Violent Offenders Reentry Initiative. "Formal pay" is coded 1 if the individual reported that current or most recent job was compensated with "formal pay where you receive a pay stub," and was coded 0 otherwise. "Benefits" is coded 1 if the individual reported that current or most recent job had health insurance or any paid leave such as sick leave or vacation, and was coded 0 otherwise. Full model results are shown in ***Appendix E, Tables 16*** *and* ***17****.*

VICTIMIZATION

We also examined the impact of reentry services on post-release victimization, which was broadly constructed to include threats. Victimization was reported by 35% of juvenile males at 3 months, 53% at 9 months, and 48% at 15 months (see ***Exhibit 3***). The rates of victimization are higher among juvenile males than among adult males or adult females. There are few effects of services on self-reported victimization during the period since release or previous interview (***Exhibit 94***). Having met with a case manager (**CaseMgr**) is associated with a lower likelihood of victimization at 15 months after release. Conversely, life skills training (**LifeSk**) and receipt of AOD treatment (**AODtx**) are associated with a greater likelihood of victimization at 9 months after release, while assistance with personal relationships (**PersRel**) is associated with a greater likelihood of victimization at 15 months after release.

Exhibit 94. Odds ratios from full model of victimization at 3, 9, and 15 months post release for the juvenile male sample

Variable	3 Months	9 Months	15 Months
CaseMgr	0.8615	1.6881	0.2585*
Needs	1.5267	2.2419	1.3098
RPlan	2.0535	0.5686	0.4548
RPrgm	0.6953	1.0558	0.7761
LifeSk	1.0066	2.6275*	0.8460
EmplSrv	0.8625	0.9657	0.5334
MHtx	1.8990	1.3030	1.3986
AODtx	1.7831	3.0808*	0.6289
PersRel	0.9440	0.5293	3.6787*
CrimAtt	1.6407	1.5163	0.8978
AngrMgt	0.8756	0.8917	1.9050
SVORI	1.4154	1.5964	2.1117†
N	205	195	196

*Note: SVORI = Serious and Violent Offenders Reentry Initiative. Victimization is coded 1 if the individual reported any victimization (threatened with being hit; anything thrown at them; pushed, grabbed or shoved; slapped, kicked, bitten, or hit with a fist; threatened with or had a weapon used on them) since release but before reincarceration if reincarcerated at 3 months and since previous interview or past 6 months if no previous interview and before current incarceration if reincarcerated at 9 and 15 months, and was coded 0 otherwise. Full model results are shown in **Appendix E**, **Table 7**.*

Odds ratios for the models with the two service bundles are shown in ***Exhibit 95***. Neither service bundle nor SVORI was significantly associated with victimization at 3 or 9 months after release. At 15 months after release, practical change services were associated with a reduced likelihood of victimization, while individual change services and SVORI were associated with an increased likelihood of victimization.

Exhibit 95. Odds ratios of service bundles from models of victimization at 3, 9, and 15 months post release for the juvenile male sample

Variable	3 Months	9 Months	15 Months
PSB	1.1082	1.1385	0.6733*
ICSB	1.1612	1.2040	1.4470*
SVORI	1.4732	1.4870	2.1465†
N	219	209	210

*Note: PSB = practical services bundle; ICSB = individual change services bundle; SVORI = Serious and Violent Offenders Reentry Initiative. Victimization is coded 1 if the individual reported any victimization (threatened with being hit; anything thrown at them; pushed, grabbed or shoved; slapped, kicked, bitten, or hit with a fist; threatened with or had a weapon used on them) since release but before reincarceration if reincarcerated at 3 months and since previous interview or past 6 months if no previous interview and before current incarceration if reincarcerated at 9 and 15 months, and was coded 0 otherwise. Full model results are shown in **Appendix E**, **Table 18**.*

In ***Appendix E Tables 6*** and ***18***, we see that only one individual characteristic is strongly associated with post-release victimization during more than one follow-up period: GSI score was positively associated with post-release victimization at all three follow-ups in the models with the individual service items as well as the models with the service bundles. In other words, individuals with higher scores on the GSI from the SA-45 were more likely to report victimization at each of the follow-up interviews.

DRUG USE

Nearly all juveniles reported having used alcohol and marijuana during their lifetimes, and more than two thirds of the juveniles reported having used alcohol or illicit drugs during the 30 days before incarceration. Although 75% of juvenile males had never been in substance abuse treatment before incarceration (see ***Exhibit 14***), a majority (60%) reported receiving substance abuse treatment while incarcerated (***Exhibit 7***). Many resumed their drug use after release. In ***Exhibit 3*** we reported the results for our combined drug use outcome measure, which was coded 1 if the individual self-reported drug use, tested positive on the urinalysis test, or refused to consent to the test and 0 otherwise[27]. We have two measures—any drug use in the past 30 days and any drug use since release/last interview—at the 3-month and 15-month interview[28]. Drug use was surprisingly high. At the 3 months interview, 48% had used drugs since release and 45% had used drugs in the past 30 days. At the 15 month interview, 61% had used drugs since release/last interview and 56% had used drugs in the last 30 days.

Exhibit 96 shows the odds ratios for the service items and the SVORI program participation indicator. (Full model results are in **Appendix E**, ***Tables 8*** and ***9***.) No services are consistently associated with drug use at both 3 months and 15 months after release. Employment services (**EmplSrv**) is associated with a lower likelihood of drug use in the past 30 days and since release at 3 months after release. **AODtx** is not significant in any of the models. **SVORI** is associated with a lower likelihood of drug use since release at 3 months after release.

The models estimated using the two service bundle scores (**ICSB** and **PSB**), SVORI, plus the control variables are shown in ***Exhibit 97***. Neither the **PSB** nor the **ICSB** is significantly associated with drug use at either follow-up. These findings are perhaps not surprising, considering the lack of effects within the bundles that we observed in ***Exhibit 96***. SVORI participation is weakly associated ($p \leq 0.1$) with a reduced likelihood of drug use in the past 30 days and strongly associated ($p < 0.05$) with a reduced likelihood of drug use since release at 3 months after release.

In ***Tables 8, 9, 20, and 21*** in ***Appendix E*** we see that being married or in a serious relationship (partner) is associated with an increased likelihood of drug use at both the 3- and the 15-month interviews. That is the only individual characteristic that is associated with drug use in both follow-up periods. Juvenile males who reported having been in AOD treatment were more likely to report drug use at 3 months after release.

[27] Those incarcerated at the time of the interview were not asked to take the urine test. If they had been in the community at least one day since the last interview (or in the last 6 months), they were asked about drug use before reincarceration and were coded as 1 on the drug use variable if they reported any use and 0 otherwise. If they were incarcerated for the entire period prior since the last interview, they were coded as missing on this variable.

[28] We did not conduct urine tests at 9 months. The difference between the any drug use and any drug use in the past 30 days is responses to separate questions asking about any use and any use in the past 30 days, since the urine test results will be the same for both measures and will reflect recent use for most substances.

Exhibit 96. Odds ratios from full models of drug use outcomes at 3 and 15 months post release for the juvenile male sample

Variable	Any Drug Use Past 30 Days		Any Drug Use since Release/Last Interview	
	3 Months	15 Months	3 Months	15 Months
CaseMgr	0.8603	0.7943	1.0297	0.8601
Needs	0.9156	1.9589	0.8852	1.7547
RPlan	1.2782	1.8689	1.3742	2.4038
RPrgm	1.6683	0.6394	1.4798	0.5200
LifeSk	0.7316	0.7442	0.6947	0.7074
EmplSrv	0.3762†	1.3312	0.3647†	1.0232
MHtx	1.5749	1.2594	1.7767	1.1560
AODtx	1.6647	1.8885	1.7604	1.7828
PersRel	1.2174	1.1360	1.1729	1.0188
CrimAtt	1.1695	0.6132	1.3177	0.6806
AngrMgt	0.8721	0.6916	0.8329	1.0643
SVORI	0.4677	0.7039	0.4468†	0.6348
N	205	196	205	196

*Note: SVORI = Serious and Violent Offenders Reentry Initiative. Individuals were asked a series of questions asking about any use of drugs that were not prescribed for them or in larger amounts than prescribed (sedatives, tranquilizers, pain relievers or opiates, methadone, stimulants, anabolic steroids) and recreational use of other drugs (marijuana or hashish, hallucinogens, cocaine, heroin, amphetamines, and inhalants). The questions were asked since release but before reincarceration if reincarcerated at 3 months and since previous interview or past 6 months if no previous interview and before current incarceration if reincarcerated at 15 months. "Any drug use past 30 days" is coded 1 if the individual responded that they had used any of these drugs in the past 30 days or the individual tested positive for at least one drug on the urinalysis conducted after the interview or the individual refused consent for the urinalysis, and was coded 0 otherwise. Individuals who were incarcerated at the time of the interviews were not asked to consent to the urine test and were coded based on their responses to the self-reported drug use questions. "Any Drug Use Since Release/Last Interview" is coded 1 if the individual responded that they had used any of these drugs since release at 3 months or since the previous interview or past 6 months if no previous interview at 15 months or the individual tested positive for at least one drug on the urinalysis conducted after the interview or the individual refused consent for the urinalysis, and was coded 0 otherwise. Individuals who were incarcerated at the time of the interviews were not asked to consent to the urine test and were coded based on their responses to the self-reported drug use questions. Urine testing was not done in conjunction with the 9-month interview. Full model results are shown in **Appendix E**, **Tables 8** and **9**.*

**p < 0.05; † p ≤ 0.10*

Exhibit 97. Odds ratios of service bundles from models of drug use outcomes at 3 and 15 months post release for the juvenile male sample

Variable	Any Drug Use Past 30 Days		Any Drug Use since Release/Last Interview	
	3 Months	15 Months	3 Months	15 Months
PSB	0.9465	0.9537	0.9207	0.9057
ICSB	1.1924	1.0120	1.1805	1.0813
SVORI	0.4963†	0.9085	0.4321*	0.7658
N	219	210	219	210

*Note: PSB = practical services bundle; ICSB = individual change services bundle; SVORI = Serious and Violent Offenders Reentry Initiative. Individuals were asked a series of questions asking about any use of drugs that were not prescribed for them or in larger amounts than prescribed (sedatives, tranquilizers, pain relievers or opiates, methadone, stimulants, anabolic steroids) and recreational use of other drugs (marijuana or hashish, hallucinogens, cocaine, heroin, amphetamines, and inhalants). The questions were asked since release but before reincarceration if reincarcerated at 3 months and since previous interview or past 6 months if no previous interview and before current incarceration if reincarcerated at 15 months. "Any drug use past 30 days" is coded 1 if the individual responded that they had used any of these drugs in the past 30 days or the individual tested positive for at least one drug on the urinalysis conducted after the interview or the individual refused consent for the urinalysis, and was coded 0 otherwise. Individuals who were incarcerated at the time of the interviews were not asked to consent to the urine test and were coded based on their responses to the self-reported drug use questions. "Any Drug Use Since Release/Last Interview" is coded 1 if the individual responded that they had used any of these drugs since release at 3 months or since the previous interview or past 6 months if no previous interview at 15 months or the individual tested positive for at least one drug on the urinalysis conducted after the interview or the individual refused consent for the urinalysis, and was coded 0 otherwise. Individuals who were incarcerated at the time of the interviews were not asked to consent to the urine test and were coded based on their responses to the self-reported drug use questions. Urine testing was not done in conjunction with the 9-month interview. Full model results are shown in **Appendix E**, **Tables 20** and **21**.*

**p < 0.05; † p ≤ 0.10*

RECIDIVISM

The juvenile males included in the SVORI evaluation had active criminal histories. As shown in ***Exhibit 14*** on average, the age at first arrest (**Age1stArr**) was 13 years, they had already been in juvenile detention more than three times (**#Juvie** = 3.4),and the number of prior convictions (**#Conv**) was 3.1. Given such extensive criminal histories, as well as extensive research suggesting that past criminal behavior is the best predictor of future criminal behavior, we would expect that this group of juvenile males would be at substantial risk of recidivating. ***Exhibit 5*** showed the cumulative failure distributions for time to first rearrest and reincarceration. Among juvenile males, 77% were arrested at least once and 22% were reincarcerated at least once within 24 months after release. In this section, we examine the following recidivism indicators:

- Self report of committing any crime at 3, 9 and 15 months post release
- Time between release and first rearrest and conditional analyses on the time between the first and second arrests
- Number of arrests
- Time to first reincarceration

SELF REPORT

One-quarter (25%) of juvenile male respondents reported committing any crimes at the 3-month interview, 44% reported committing any crimes at the 9-month interview, and 41% reported committing any crimes at the 15-month interview. Odds ratios for the service items from the full model results are shown in ***Exhibit 98***. As can be seen, no services are consistently associated with self-report criminal activity at more than one time period. For

example, meeting with a case manager (**CaseMgr**) is associated with a lower likelihood of committing any crime at 3 months after release but a higher likelihood of committing any crime at 15 months after release. Similarly, anger management (**AngrMgt**) is associated with a lower likelihood of committing any crime at 3 months after release but a higher likelihood of committing any crime at 15 months after release. Only one individual characteristic was associated with reporting having committed a crime at more than one time period (***Appendix E***, ***Table 7***): juvenile males who had higher GSI scores were more likely to report committing any crime at the 3- and 15-month interviews.

Exhibit 98. Odds ratios for service items from full model of "committed any crime" at 3, 9, and 15 months post release for the juvenile male sample

Variable	3 Months	9 Months	15 Months
CaseMgr	0.1252*	1.7981	4.5951*
Needs	1.7770	0.8043	0.2865*
RPlan	7.4362*	2.0561	1.7183
RPrgm	3.2295†	1.1620	0.8963
LifeSk	1.4998	0.9384	0.4080*
EmplSrv	1.0643	0.8097	0.7974
MHtx	1.8587	1.6983	0.5158
AODtx	0.7422	3.7500*	1.4936
PersRel	0.7636	0.4754	0.9430
CrimAtt	0.2713*	0.7574	0.7884
AngrMgt	0.3381†	0.8646	2.4118*
SVORI	0.4621	0.8463	0.7265
N	205	204	213

Note: SVORI = Serious and Violent Offenders Reentry Initiative. "Committed any crime" is coded 1 if the individual responded "yes" to any of a series of questions asking if they had committed any violent crimes, other crimes against people, carried a weapon, drug possession crimes, drug sales crimes, any other drug crimes, DWI/DUI crimes, property crimes, or any other crimes regardless of whether they were caught. The questions were asked since release but before reincarceration if reincarcerated at 3 months and since previous interview or past 6 months if no previous interview and before current incarceration if reincarcerated at 9 and 15 months, and was coded 0 otherwise. Full model results are shown in ***Appendix E, Table 7****.*

**p < 0.05; † p ≤ 0.10*

Given the mixed effects of the service items within the bundles, it is not surprising that the service bundles **PSB** and **ICSB** are not consistently associated with self-report of committing a crime across time periods (***Exhibit 99***). The individual change services are weakly associated with a reduced likelihood of reporting having committed a crime at 3 months after release, while the practical services are associated with an increased likelihood of reporting committing a crime at the same follow-up interview. The service bundles are not significantly associated with self-reported criminal activity at 9 months or 15 months after release. Again, GSI score is associated with self-reported criminal activity at more than one time period: individuals with higher GSI scores were more likely to report committing a crime at 3 and 15 months after release(***Appendix E***, ***Table 19***).

Exhibit 99. Odds ratios for service bundles from model of "committed any crime" at 3, 9, and 15 months post release for the juvenile male sample

Variable	3 Months	9 Months	15 Months
PSB	1.3606*	1.0635	0.9180
ICSB	0.7290†	1.0669	1.1064
SVORI	0.6309	0.9793	0.7595
N	219	218	228

Note: PSB = practical services bundle; ICSB = individual change services bundle; SVORI = Serious and Violent Offenders Reentry Initiative. "Committed any crime" is coded 1 if the individual responded "yes" to any of a series of questions asking if they had committed any violent crimes, other crimes against people, carried a weapon, drug possession crimes, drug sales crimes, any other drug crimes, DWI/DUI crimes, property crimes, or any other crimes regardless of whether they were caught. The questions were asked since release but before reincarceration if reincarcerated at 3 months and since previous interview or past 6 months if no previous interview and before current incarceration if reincarcerated at 9 and 15 months, and was coded 0 otherwise. Full model results are shown in ***Appendix E, Table 19****.*

$*p < 0.05$; † $p \leq 0.10$

ARREST

Data on arrests were obtained from the NCIC and were use for several types of analyses. First, the data were coded to indicate the occurrence of a first rearrest by cumulative time periods of 3, 6, 9, 12, 15, 18, 21, and 24 months, and a series of logistic regressions were estimated in a manner consistent with the examination of the survey-based outcomes. Second, the timing and incident of sequential post-release arrests were coded and used for a gap analysis that examined the time to sequential rearrests conditioned on having a previous arrest. Third, the arrests accrued by each subject during the fixed follow-up period (24 months) were counted and a negative binomial model of the number of post-release arrests was estimated. These models were estimated in a multivariate framework using the service items or service bundles, the SVORI program participation indicator, and individual characteristics and site as control variables.

Results from the analyses of post-release arrest among juvenile males suggest that SVORI program participation was associated with slightly longer times to first arrest and second arrest in the post-release follow-up period.

LOGISTIC REGRESSION: LIKELIHOOD OF FIRST REARREST BY TIME T

The purpose of these analyses was to examine the effect of services on the likelihood of rearrest within a specified time post release. ***Exhibit 100*** shows the percentage of juvenile males who were rearrested within a specified number of months post release. More than 15.3% were rearrested within 3 months of release and 76.9% had been rearrested within 24 months of release.

The odds ratios for the service items and SVORI program participation indicators are shown in ***Exhibit 101*** for the three follow-up interview periods. As can be seen, no services are consistently associated with rearrest at all three time points. Receiving life skills training (**LifeSk**) is associated with a lower likelihood of rearrest at 9 and 15 months after release. At 9 months after release, assistance with personal relationships (**PersRel**) is weakly associated with a lower likelihood of rearrest ($p < 0.10$). At 15 months after release, receiving employment services (**EmplSrv**) is weakly associated with a lower likelihood of rearrest ($p \leq 0.1$).

Exhibit 100. Cumulative percentage of the juvenile males who were arrested by the specified month after release

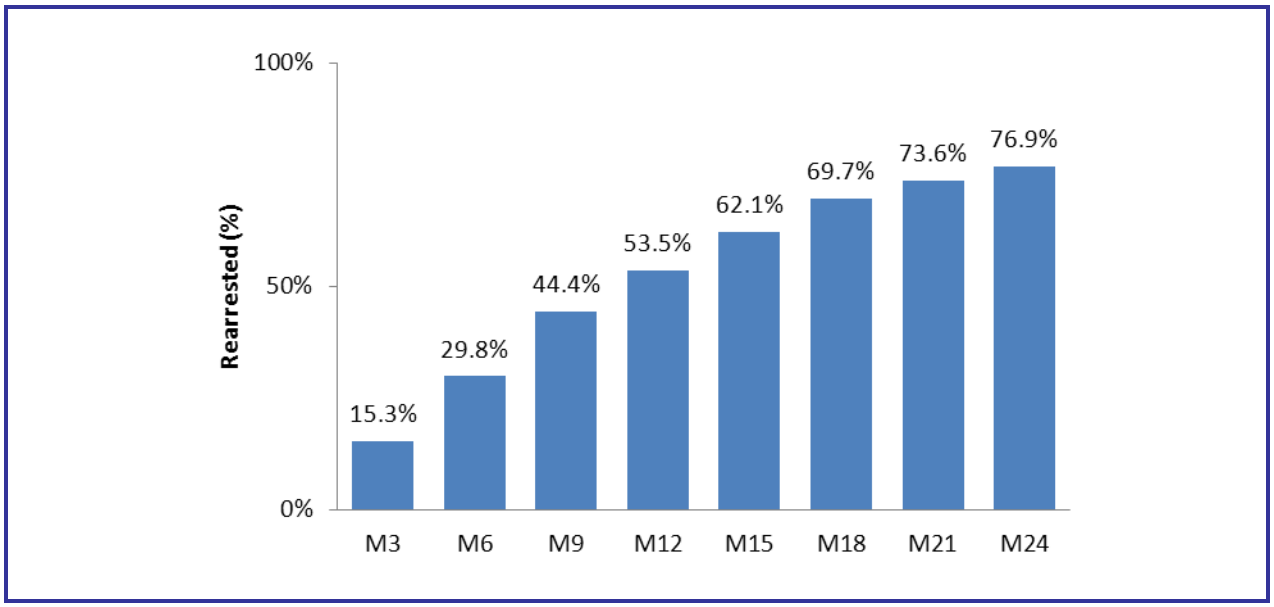


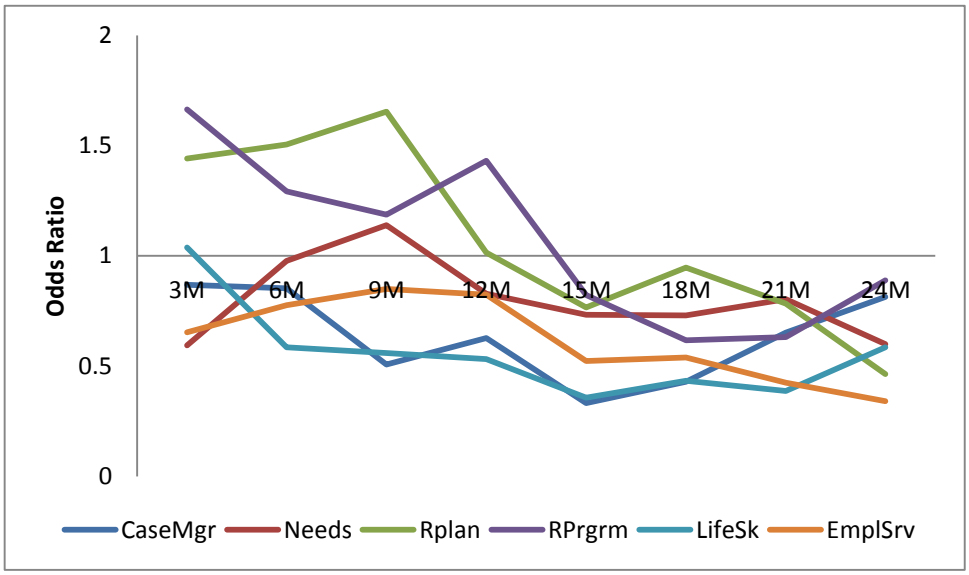
Exhibit 101. Odds ratios for service items from full models of first rearrest within 3, 9, and 15 months post release for the juvenile male sample

Variable	Rearrest within		
	3 Months	9 Months	15 Months
CaseMgr	0.8687	0.5062	0.3320
Needs	0.5934	1.1392	0.7327
RPlan	1.4417	1.6538	0.7651
RPrgm	1.6640	1.1860	0.8222
LifeSk	1.0379	0.5596†	0.3572*
EmplSrv	0.6533	0.8499	0.5226†
MHtx	1.5570	0.9412	1.3056
AODtx	1.2774	1.2118	1.2667
PersRel	0.8586	0.5267†	0.7627
CrimAtt	1.2420	1.2035	1.3371
AngrMgt	0.7750	1.2390	1.4647
SVORI	0.9623	0.5969	0.8882

*Note: SVORI = Serious and Violent Offenders Reentry Initiative. Full model results are shown in **Appendix E, Tables 10 and 11**.*
**p < 0.05; † p ≤ 0.10*

The odds ratios for the **PSB** items for first rearrest within 3, 6, 9, 12, 15, 18, 21, and 24 months are shown in ***Exhibit 102.*** (Full model results are in ***Appendix E, Tables 10*** through ***12***.) Here, most of the values are less than one throughout the follow-up period although only a few values are statistically significant. The most consistent result was that life skills training (**LifeSk**) was significantly associated with a lower likelihood of rearrest at 9, 12, 15, 18, and 21 months after release. Receipt of employment services (**EmplSrv**) was significantly associated with a lower likelihood of rearrest at three follow-up periods beginning at 15 months post release, suggesting a longer term effect of employment services on rearrest.

Exhibit 102. Effect of PSB service items on post-release arrest for juvenile male sample



*Note: Full models results are in **Appendix E, Tables 10-12**.*

The odds ratios for the **ICSB** items are shown in ***Exhibit 103***. As can be seen most of the values are greater than one throughout the follow-up period, suggesting that these items had either no effect (if insignificant) or were associated with greater likelihood of rearrest. Anger management (**AngerMgmt**) is significantly associated with a higher likelihood of arrest at 12, 21, and 24 months post release. Surprisingly, the effect of most services appears to change direction over time. Receiving assistance with personal relationships (**PersRel**) is the only service that is consistent across time periods; it is less than one but insignificant during all time periods but one (9 months post release).

SVORI is the final service indicator, indicating whether the individual participated in a reentry program. The odds ratios for **SVORI** are greater than one at 18 months post release and less than one at the other follow-up periods (***Exhibit 104***). At 9 months after release, SVORI is significantly associated with a reduced likelihood of rearrest.

The full model results are shown in ***Tables 10*** through ***12*** in ***Appendix E***. Few control variables are significantly associated with rearrest at more than one time period. Individuals who had been employed before incarceration and individuals with higher GSI scores were less likely to be arrested at two time periods, while individuals who were married or in a serious relationship were more likely to be arrested at three time periods.

The results from the models including bundle scores rather than individual items are shown in ***Exhibit 105***. Receipt of more practical services is associated with a lower likelihood of arrest beginning at around 6 months post release. The effect of practical services is significant beginning at 15 months post release through the 24-month follow-up period. Receipt of individual change services is associated with a higher likelihood of arrest at 3 months post release and from 12 months post release through the 24-month follow-up period, although the association is only significant at 15 months post release. SVORI program participation is again associated with lower likelihood of arrest, except at 18 months post release, although the association is only significant at 9 months post release. (Full model results are shown in ***Appendix E***, ***Tables 22*** through ***24***.)

Exhibit 103. Effect of ICSB service items on post-release arrest for juvenile male sample

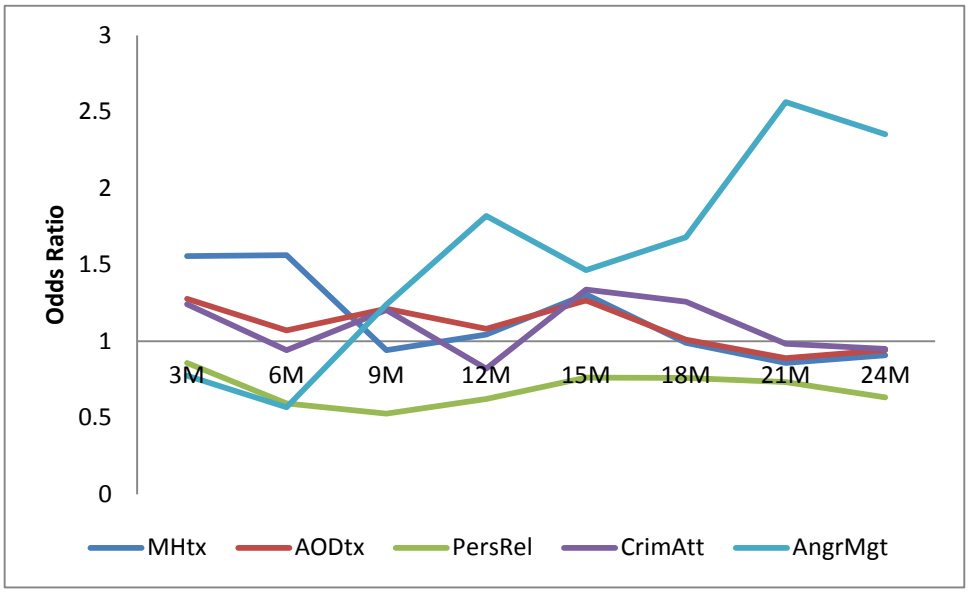


Exhibit 104. Effects of SVORI program participation on post-release arrest for juvenile male sample

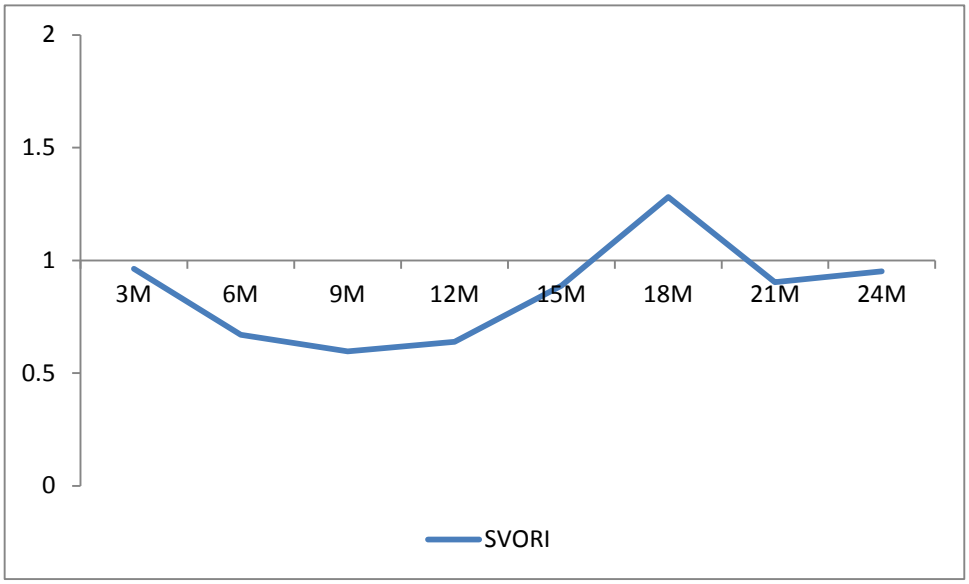
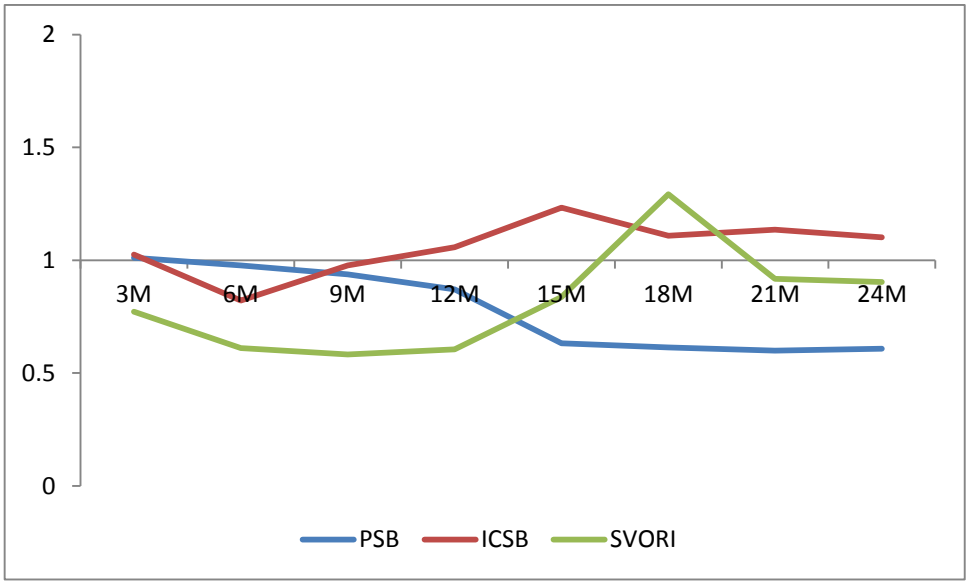


Exhibit 105. Effects of practical services bundle and individual change service bundle scores, and SVORI program participation on post-release arrest for the juvenile male sample



GAP MODELS: TIME TO REARREST

Gap analysis (Cook & Lawless, 2007) was used to estimate the time to rearrest for multiple arrest events. As described in the Analytic Approach section, successive survival models were estimated on the time between arrest events. For the adult females, we had sufficient events to model the first two episodes:

- Gap1 = days between release and first new arrest
- Gap2 = days between first arrest and second arrest, conditional on having a first arrest

Several functional forms were tried and the exponential function provided the best fit to the data for these episodes[29]. (Additional details below.) The exponential survival model is characterized by a constant hazard rate—in other words the instantaneous likelihood of experiencing the event of interest (here, an arrest) is the same at every time t (e.g., Kalbfleisch & Prentice, 2002).

We addressed the issue of another event changing or eliminating the likelihood of the event of interest occurring in two ways. First, subjects were censored on their date of death. We also censored subjects on the date of their first reincarceration after release.

Exhibit 106 shows the full model output for the first two gap models. Positive parameters are associated with longer survival times (i.e., longer time until arrest), and negative with lower survival times (i.e., shorter time until arrest). **SVORI** is the only service that is associated with longer survival times from both release to first arrest and

[29] For Gap1 models, the AIC = 4116.42 and the BIC = 4230.40 for the lognormal model and the AIC = 4096.41 and the BIC = 4206.71 for the exponential model. For the Gap2 models, the AIC = 3248.78 and the BIC = 3366.43 for the lognormal model and the AIC = 3157.54 and the BIC = 3271.52 for the exponential model.

from first to second arrest. For Gap 1, mental health treatment (**MHtx)** is also associated with a longer survival time, while receiving life skills training (**LifeSk**), employment services (**EmplSrv**), and assistance with personal relationships (**PersRel**) are all associated with a shorter survival time. Receipt of reentry programming (**LifeSk**) and life skills (**LifeSk**) were associated with a longer survival time between the first and second arrests. Juveniles who were black, had received AOD treatment before incarceration, and had more juvenile convictions had shorter survival times from release to first arrest. No individual characteristics were significantly associated with survival times at both gaps.

Exhibit 106. Full model output for Gap1 and Gap2 models of arrest post release for the juvenile male sample

Variable	Gap1: Release to Arrest 1				Gap2: Arrest 1 to Arrest 2			
	Estimate	StdErr	Z	*p*rob Z	Estimate	StdErr	Z	*p*rob Z
Intercept	7.9464	1.1410	6.9645	0.0000	3.6060	1.1803	3.0553	0.0023
CaseMgr	-0.1634	0.1617	-1.0102	0.3120	0.1362	0.2155	0.6321	0.5270
Needs	0.0047	0.1459	0.0323	0.9740	0.1548	0.1874	0.8260	0.4090
RPlan	-0.0307	0.1348	-0.2277	0.8200	0.0504	0.1631	0.3089	0.7570
RPrgm	-0.0469	0.1235	-0.3801	0.7040	0.3024*	0.1522	1.9866	0.0470
LifeSk	-0.2667*	0.1143	-2.3335	0.0196	0.2383†	0.1281	1.8602	0.0629
EmplSrv	-0.2761*	0.1264	-2.1836	0.0290	0.1048	0.1425	0.7353	0.4620
MHtx	0.2669*	0.1227	2.1757	0.0296	0.0755	0.1352	0.5583	0.5770
AODtx	0.0242	0.1067	0.2267	0.8210	-0.1448	0.1285	-1.1267	0.2600
PersRel	-0.2744*	0.1213	-2.2615	0.0237	-0.0925	0.1239	-0.7468	0.4550
CrimAtt	0.0552	0.1367	0.4039	0.6860	0.2365	0.1560	1.5158	0.1300
AngrMgt	0.1881	0.1194	1.5759	0.1150	0.0886	0.1294	0.6842	0.4940
Educ	-0.2557	0.2329	-1.0976	0.2720	-0.2697	0.2650	-1.0175	0.3090
SVORI	0.2780*	0.1092	2.5468	0.0109	0.3725*	0.1241	3.0009	0.0027
age_rel	-0.0779	0.0504	-1.5448	0.1220	0.0182	0.0527	0.3446	0.7300
partner	-0.2859*	0.1009	-2.8347	0.0046	-0.0818	0.1165	-0.7025	0.4820
highschl	0.4941*	0.1789	2.7622	0.0057	0.1900	0.1969	0.9646	0.3350
employed	0.3351*	0.1130	2.9660	0.0030	-0.1532	0.1271	-1.2054	0.2280
race_black	-0.2998*	0.1433	-2.0918	0.0365	0.1241	0.1567	0.7920	0.4280
race_hispan	0.1516	0.1740	0.8714	0.3840	-0.0428	0.1914	-0.2237	0.8230
race_other	0.2991	0.2459	1.2167	0.2240	0.1995	0.2851	0.6998	0.4840
AODtx_1	-0.2957*	0.1427	-2.0721	0.0383	0.2393	0.1721	1.3903	0.1640
AODtx_2	0.2352	0.1819	1.2928	0.1960	-0.2971	0.1996	-1.4884	0.1370
HiRisk	0.0295	0.1181	0.2498	0.8030	0.3278*	0.1310	2.5020	0.0123
GSI	0.0080*	0.0030	2.6574	0.0079	-0.0084*	0.0039	-2.1621	0.0306
B_MCS12	0.0041	0.0059	0.7057	0.4800	-0.0185*	0.0071	-2.6034	0.0092
#Conv	0.0003	0.0191	0.0167	0.9870	0.0030	0.0195	0.1557	0.8760
rbcad1:Age1stArr	-0.0104	0.0289	-0.3585	0.7200	0.0599†	0.0328	1.8249	0.0680
#Juvie	-0.0610*	0.0185	-3.2979	0.0010	0.0019	0.0212	0.0878	0.9300
P-PViol	0.1833†	0.1065	1.7214	0.0852	-0.3571*	0.1171	-3.0505	0.0023
Gap1					0.0045*	0.0003	17.0326	0.0000

**p < 0.05; † p ≤ 0.10*

NEGATIVE BINOMIAL MODELS: COUNTS OF POST-RELEASE ARRESTS

As described earlier (***Exhibit 6***), most of the study participants were arrested once and many experienced multiple arrests in the years after release. (The fixed follow-up period was 676 days for the sample of juvenile males in comparison with the approximately 1,700 days for the adults.) We estimated a negative binomial model of the number of arrests experienced by our subjects during the initial 24 months after release[30]. Results are shown in ***Exhibit 107.*** Only two of the service items are associated with fewer post release arrests as per the incident rate ratio (IRR): **AngrMgt** and **SVORI.** Life skills training (**LifeSk**), on the other hand, is associated with more post release arrests. Among the control variables, juvenile males who were black had more post-release arrests than did whites. Surprisingly, juvenile males who were at high risk and had higher GSI scores had fewer post-release arrests.

Exhibit 107. Negative binomial model results for the number of post-release arrests for the juvenile male sample

Variable	Estimate	SE	Z Value	*pr*(>|z|)	IRR
Intercept	1.4576	0.8590	1.6970	0.0897	
CaseMgr	-0.0591	0.1364	-0.4340	0.6646	0.9426
Needs	-0.1346	0.1187	-1.1350	0.2565	0.8740
RPlan	0.0300	0.1101	0.2720	0.7856	1.0304
RPrgm	-0.0452	0.1027	-0.4400	0.6596	0.9558
LifeSk	0.1615	0.0912	1.7710	0.0765	1.1753†
EmplSrv	0.0666	0.0979	0.6800	0.4966	1.0688
MHtx	0.0216	0.0973	0.2220	0.8242	1.0218
AODtx	-0.0376	0.0857	-0.4390	0.6607	0.9631
PersRel	-0.0238	0.0920	-0.2590	0.7960	0.9765
CrimAtt	-0.1196	0.1098	-1.0900	0.2758	0.8872
AngrMgt	-0.1538	0.0932	-1.6500	0.0990	0.8575†
Educ	0.1840	0.1801	1.0220	0.3068	1.2020
SVORI	-0.3580	0.0841	-4.2550	0.0000	0.6991*
age_rel	-0.0156	0.0379	-0.4100	0.6818	0.9846
partner	0.1325	0.0808	1.6410	0.1008	1.1417
highschl	-0.2004	0.1342	-1.4940	0.1353	0.8184
employed	-0.2920	0.0861	-3.3920	0.0007	0.7468*
race_black	0.3066	0.1157	2.6490	0.0081	1.3588*
race_hispan	-0.2778	0.1419	-1.9580	0.0502	0.7575†
race_other	-0.0646	0.1905	-0.3390	0.7344	0.9374
AODtx_1	0.1429	0.1178	1.2130	0.2251	1.1537
AODtx_2	0.1883	0.1361	1.3840	0.1665	1.2072
HiRisk	-0.3203	0.0903	-3.5480	0.0004	0.7259*
GSI	-0.0043	0.0025	-1.7380	0.0823	0.9957†
MCS12	0.0055	0.0049	1.1230	0.2613	1.0055
#Conv	-0.0225	0.0148	-1.5200	0.1285	0.9777
Age1stArr	-0.0133	0.0228	-0.5820	0.5604	0.9868
#Juvie	0.0230	0.0146	1.5750	0.1152	1.0232
P-PViol	0.1337	0.0826	1.6180	0.1056	1.1431

*$p < 0.05$; † $p \leq 0.10$

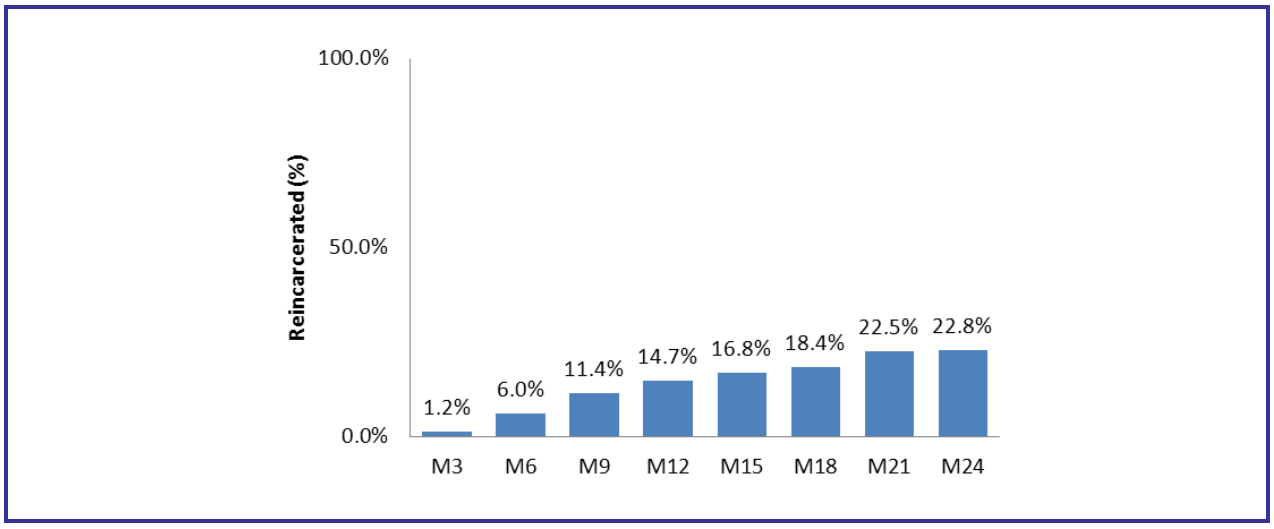
[30] Zero-inflated negative binomial modeling was not necessary. The Vuong test statistic comparing the negative binomial to the zero-inflated binomial was -0.0995. This test statistic is normally distributed with a p-value of 0.46.

Focusing on the effect of SVORI number of arrests after release, the data show that the juvenile males on average had 2.26 new arrests after their release. Those who participated in SVORI programs had 1.91 arrests and those who did not had 2.55. The negative binomial model provided a good fit, predicting that SVORI program participants would have 1.86 arrests, on average, and those who did not participate in a SVORI program would have 2.79 arrests, on average.

REINCARCERATION

About 23% of the juvenile male sample was reincarcerated at least once during the fixed follow-up period. ***Exhibit 108*** shows the cumulative reincarceration distribution for the juvenile male sample over the first 24 months after release.

Exhibit 108. Cumulative percentage of juvenile males who were reincarcerated by the specified month after release



SURVIVAL ANALYSIS: TIME TO REINCARCERATION

We were able to look only at the time to first reincarceration because we did not have release dates for all of the subjects who were reincarcerated and, thus, were unable to exclude the period of incarceration from analyses of later episodes. After trying several functional forms, we estimated a lognormal survival model, which fit the data best. ***Exhibit 109*** shows the survival distribution function for time to reincarceration. ***Exhibit 110*** presents the full model results for the lognormal time-to-reincarceration model. Juvenile males who had a reentry plan (**RPlan**) and received assistance with personal relationships (**PersRel**) had longer survival times. No other service items were associated with time to reincarceration. Juvenile males who were older at the time of release also had longer survival times.

Exhibit 109. Survival curve of time to first post-release reincarceration for the juvenile male sample

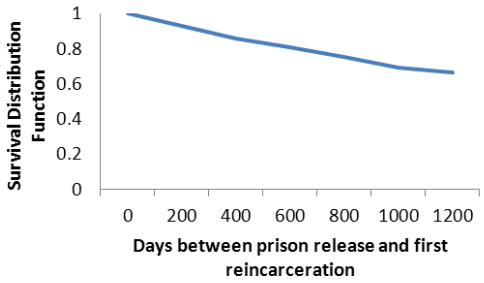


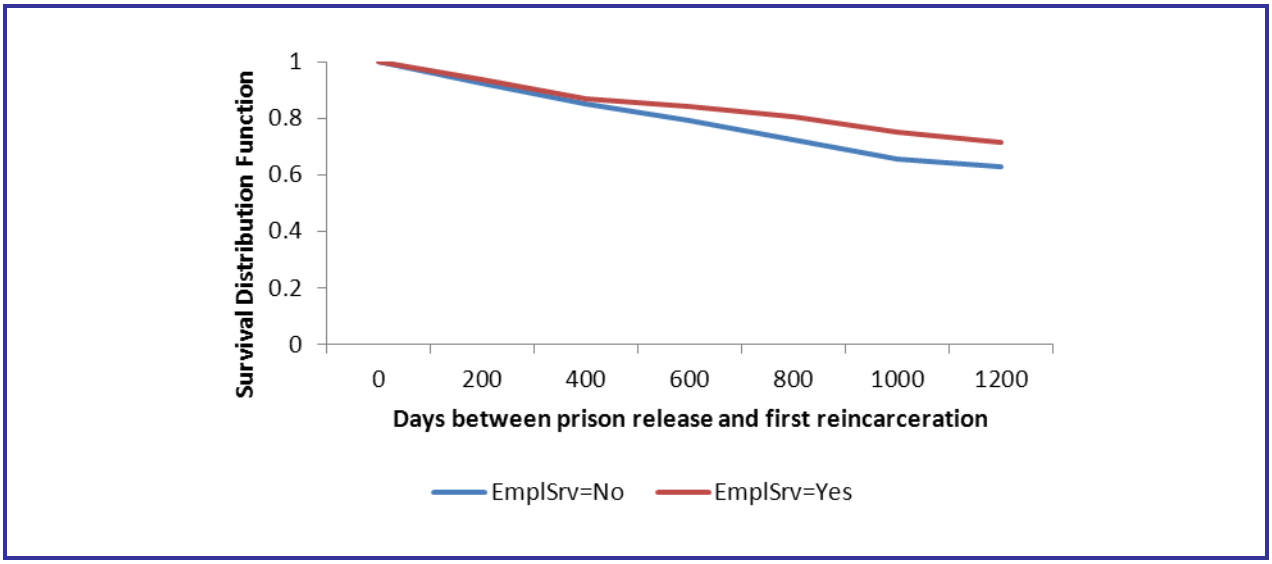
Exhibit 110. Log normal survival model of time to first post-release reincarceration for the juvenile male sample

Variable	Estimate	SE	Z	p
Intercept	4.5179	1.4234	3.1741	0.0015
CaseMgr	-0.1677	0.2567	-0.6533	0.5140
Needs	0.3341	0.2209	1.5124	0.1300
RPlan	0.4557*	0.1990	2.2904	0.0220
RPrgm	-0.3210	0.1908	-1.6828	0.0924
LifeSk	-0.3131	0.1648	-1.8997	0.0575
EmplSrv	0.2659	0.1817	1.4632	0.1430
MHtx	-0.3060	0.1828	-1.6740	0.0941
AODtx	-0.0929	0.1562	-0.5948	0.5520
PersRel	1.0008*	0.1875	5.3371	0.0000
CrimAtt	-0.0100	0.1928	-0.0516	0.9590
AngrMgt	-0.1714	0.1755	-0.9764	0.3290
Educ	0.2442	0.3220	0.7584	0.4480
SVORI	-0.2593	0.1564	-1.6579	0.0973
age_rel	0.1895*	0.0729	2.5993	0.0093
partner	0.1234	0.1512	0.8158	0.4150
highschl	0.0749	0.2468	0.3034	0.7620
employed	-0.2108	0.1593	-1.3232	0.1860
race_black	-0.0737	0.2109	-0.3492	0.7270
race_hispan	0.0032	0.2483	0.0127	0.9900
race_other	0.1306	0.3384	0.3860	0.7000
AODtx_1	-0.4250*	0.2098	-2.0263	0.0427
AODtx_2	0.1207	0.2564	0.4706	0.6380
HiRisk	0.0434	0.1712	0.2534	0.8000
GSI	-0.0017	0.0047	-0.3626	0.7170
MCS12	0.0101	0.0086	1.1664	0.2430
#Conv	0.0034	0.0268	0.1284	0.8980
Age1stArr	-0.0467	0.0417	-1.1187	0.2630
#Juvie	-0.0295	0.0273	-1.0814	0.2800
P-PViol	-0.4568*	0.1570	-2.9091	0.0036

**p < 0.05; † p ≤ 0.10*

We also stratified the sample on each service and generated separate survival curves and significance tests to determine whether survival times varied for those who received a specific service compared to those who did not. As shown in ***Exhibit 111***, juvenile males who received employment services were reincarcerated less quickly than those who did not.

Exhibit 111. Survival curve of time to first post-release reincarceration for the juvenile male sample by receipt of employment services (EmplSrv)



Note: -2Log(LR) = 2.7753, p =.0957

ECONOMIC EVALUATION: ADULT MALES

The economic evaluation assessed the benefits of reentry programs in terms of averted criminal justice costs. These averted costs would form a large portion of the overall societal benefits in a formal cost-benefit analysis. Because service costs per offender for all sites were not available and because other societal benefits were not measured, a full cost-benefit analysis was not conducted. *The economic research question examined the degree to which enhanced reentry and each of the 12 key reentry service components were associated with changes in rearrest costs and changes in reincarceration costs over the 56-month period following release.* Reincarceration costs include only costs associated with incarceration in a state prison facility, as information on post-sentencing days served in local jails was not available. The statistical specification closely followed that of the rearrest and reincarceration models in the outcome evaluation, so that the results of the economic evaluation can be readily compared to the results of the outcome evaluation. Because of data limitations in the women and juvenile analyses (particularly the relatively small sample sizes), the estimates were restricted to the adult male offenders. Data availability also meant that whereas analyses on rearrest costs were conducted for 11 states, analyses for reincarceration costs were conducted only for participants in the subset of 7 states. All estimates are reported in 2011 dollars.

METHODS AND DATA

To construct the rearrest cost per person, the cost per rearrest was multiplied by the number of rearrests for each type of arrest over the 56-month fixed follow-up period. The follow up period is the difference between a fixed end date and the initial release date. The arrest types considered are personal, property, drug, and other. The cost per type of arrest was computed by adapting estimates used by Cowell et al. (2009), who in turn had tailored and combined detailed analyses conducted by three sources (Cohen, Miller, & Rossman, 1994; Durose & Langan, 2003; Miller, Cohen, & Rossman, 1993). The estimates (see ***Exhibit 112***) included the costs of eight major stages of the criminal justice continuum: investigation and arrest, booking, pretrial jail, screening and prefiling process, arraignment, pretrial hearings, trial, and sentencing. The cost estimates vary by arrest type in two ways. First, at arraignment there are small differences in costs, likely reflecting both the proportion of cases that make it to arraignment and the resources used to process cases at arraignment. Second, after arraignment, offenders for non-person crimes are more likely to reach a plea deal. For example, according to Durose and Langan (2003), about 10 % of person arrests go to trial, whereas 4.5% of drug arrests go to trial.

Exhibit 112. Cost per arrest by offense type

Type of Offense	Cost per Offense (2011 $)
Person	$10,827
Property	$7,540
Drug	$7,639
Other	$7,540

Sources: Cohen et al. (1994), Cowell et al. (2009)

Notes: Estimates are adjusted to reflect prices in 2011.

The methodology used to calculate the cost of an arrest has a number of advantages and disadvantages. One advantage is that the methodology results in consistent cost estimates applied to arrests across all states in the study. The methodology also has high scientific integrity in that it uses an approach that is accepted by researchers and has passed peer review (e.g., Zarkin et al., 2011, use a similar approach). Finally, the estimates are very comprehensive in that they account for resources used in the criminal justice system at every stage from the police

response to the initial incident to sentencing at trial. The cost of punishment is not included in the arrest estimates. These advantages outweigh the disadvantage that components of the estimates are not derived from state-specific sources.

Prison reincarceration costs per person were constructed by multiplying the number of days incarcerated per incarceration by the cost per day incarcerated over the period following initial release to the fixed end date. However, the follow-up period for which reincarceration data were available is 51 days longer than the period for which rearrest data were available. Recall that the reincarceration analysis used a subset of 7 of the 11 states used in the rearrest analysis. The last initial release date for prisoners from that subset of 7 states was earlier than the last initial release date in the 4 states excluded from the reincarceration analysis. Because the follow up period is the difference between a fixed end date and the initial release date and because all observations in the analysis use the same follow-up period, the reincarceration subset has a slightly longer follow-up period than the sample as a whole. For the re-incarceration analysis, the fixed follow-up period was 1,745 days.

The actual number of days incarcerated for post-release incarcerations during this follow up period was not directly available from the data because the dates of release from incarceration were not reliably reported. Thus, the average number of days incarcerated was imputed using data on the current incarceration of these offenders. Baseline data on the sample included data on the length of incarceration and the number of prior incarcerations, as well as indicators for the state in which the offender was incarcerated. The median length of incarceration by state was applied to each reincarceration for each offender.[31] The average lengths of incarceration by state derived from the data are shown in ***Exhibit 113.***

The calculation for each individual takes into account the number of incarcerations (***Exhibit 6***) but also the date(s) of the incarceration(s) and the fixed period following release that is of interest here. For example, if an individual in Iowa was reincarcerated 500 days following his release, his incarceration costs would be the total shown in ***Exhibit 113*** or $70,258 as he could have served the full 874 days prior to the end of the fixed follow-up period. On the other hand, someone in Iowa incarcerated 10 days prior to the end of the follow-up period would have incarceration costs of $803.80 during the fixed follow-up period. The costs of multiple incarcerations were calculated for individuals who had more than one incarceration. The maximum number of days for which incarceration costs were assessed reflected the date(s) of the incarceration(s) and the fixed follow-up period. Thus, to provide a final example (by combining the previous two examples), suppose our Iowa individual was incarcerated 500 days following release. He would have served 874 days and been released on day 1374. Suppose he was subsequently reincarcerated 10 days prior to the end of the fixed follow-up period. His total incarceration costs for the purpose of these analyses are $71,062.10 ($70,258.30 + $803.80).

Estimates of the cost per night in prison by state came from Bureaus of Justice Statistics (BJS; 2009), as described by Cowell and others (2009). The data have both advantages and disadvantages for the analysis. Because the data were available from a single, reliable source, the data were comparable across states. However, the BJS-provided estimates do not account for structural changes over time, such as the ratio of guards to inmates from one year to the next. Exhibit 113 shows the cost per day incarcerated, by state.

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[31] We explored but did not use in the final analysis two alternative imputation approaches that were designed to increase the amount of offender-level variation in the length of stay. First, the median length of stay was estimated by the number of prior incarcerations, by offender by state (instead of using only the overall median by state). This alternative was not used because there was insufficient variation in the median length of stay by the number of prior incarcerations. Second, the length of stay of the initial incarceration was randomly assigned the 25th, 50th, and 75th percentile. This alternative was not used because it did not appreciably alter study conclusions while also being more complex.

Exhibit 113. Estimated incarceration costs by state

State	Cost per Day (2011 $)	Average Days Incarcerated	Average Total Cost
IA	$80.38	874.08	$70,258.30
IN	$76.34	185.19	$14,137.39
MD	$92.26	203.46	$18,770.91
OH	$91.90	727.66	$66,871.85
OK	$57.00	408.56	$23,287.87
SC	$58.58	477.73	$27,985.28
WA	$105.44	302.27	$31,871.64

Sources: BJS (2009), Cowell et al. (2009)

Notes: Estimates are adjusted to reflect prices in 2011.

ANALYTIC APPROACH

To address the research question, three separate multivariate models were estimated for the follow-up period (1,694 days for arrest, 1,745 days for reincarceration):

- Cost of rearrest
- Cost of reincarceration
- Criminal justice cost (the sum of rearrest and reincarceration)

The analyses were designed to mirror the main outcome analyses to the extent possible. Thus, the cost models used the same covariates and propensity weighting approach as the main outcome models. For the cost of rearrest model, for example, for a given individual the model is specified as follows:

$$Cost_rearrest = \alpha + \beta_0 individual_service_1 + \ldots + \beta_{12} SVORI + \Gamma Z + \varepsilon.$$

The terms in this equation are as follows: cost_rearrest is the outcome measure of the cost of all rearrests of the individual during the 56-month period; individual_service is one of twelve indicators of service receipt for the six **ICSB** and six practical service bundle items; **SVORI** is the indicator of participation in an enhanced reentry program; Z is a vector of other covariates (such as the number of rearrests before the original index incarceration; see ***Exhibit 14***; α, β, and Γ are coefficients to be estimated; and ε is the error term. Using ordinary least squares (OLS), the estimate of β_{12} directly provides the dollar impact of being in an enhanced reentry program (compared to not being in the enhanced reentry program) on rearrest costs.

Several distributional assumptions for the error were explored for each outcome. The default model was OLS, which provides unbiased estimates, is fairly robust to violations of its assumptions regarding model specification and error distribution, and, when using cost as the outcome, provides estimates in dollar terms that are straightforward to interpret (Cameron & Trivedi, 2005). Alternative approaches were also examined because the distributional assumptions of OLS were rarely met. For example, OLS assumes the error terms in the model are normally distributed. If this distributional assumption is not met then standard errors may be inflated and incorrect conclusions may be drawn from the results. Additionally, because of the imputation approach necessarily taken for reincarceration costs, the resultant data series had a number of peaks and troughs that were driven by fundamental differences across states in sentencing policies and in the cost of a night in prison.

Four sets of alternative approaches were examined. First, regressions were estimated around a different measure of central tendency, the median. OLS regression models the mean of costs and the alternative approach was to

model the 50th percentile or median. In addition to the median, costs were also modeled at the 25th and 75th percentiles. Second, the model was broken into two parts: (a) the odds of being rearrested and (b) the cost of rearrest conditional on being rearrested at all. The first part was modeled using logistic regression; the second part was modeled using OLS. Third, a variation of the two-part approach was used that took the natural logarithm of conditional costs to correct for skew in the costs. Fourth, the reincarceration cost data were smoothed by using random draws around the moments in the cost distribution. This method was designed to straightforwardly introduce variation around the imputed estimate and thus would reduce the peaks and troughs in the cost distribution. To compute these costs, rather than assume every observation in a state incurred the mean incarceration period, observations were randomly assigned moments of the cost distribution, such as the 25th percentile. The advantage of using this approach to introduce variation was that the variation was drawn from the distribution in the data, rather than external or artificial sources.

To determine the appropriate multivariate modeling approach, cross-tabulations, distributions, descriptive statistics over time and the results of each alternative approach to modeling the data were examined. For continuous costs (that is costs greater than zero), none of the alternative estimation approaches to OLS substantively changed the conclusions that would have been drawn from the findings. Thus, OLS was used for all continuous measures of costs. For reincarceration costs, a two-part approach was used, where the first part was estimated with logistic regression and the second with OLS on costs. Because 45% of the sample had no days reincarcerated during the period examined, the distribution of costs would be skewed and double peaked. These features of the data are problematic because distributions with many zero values often do not have a readily identifiable data generating process. The two-part approach explicitly models the zero terms, rather than assume them to be part of a continuous cost distribution. For the combined criminal justice costs (rearrest plus reincarceration), the few observations with zero costs were excluded; this approach increased estimating precision (reduced standard errors) without affecting the magnitude or sign of estimates.

RESULTS

DESCRIPTIVE STATISTICS OF COSTS

Exhibit 114 presents descriptive statistics of the three types of costs. The average costs of rearrest since release for all states is $28,859. Coincidentally, this mean is of similar scale to the average costs of reincarceration for the subset of 7 states, $32,876. Importantly, all three cost measures are skewed, with the mean substantially larger than the median, and have large standard deviations. Thus, the cost data are not normally distributed and have a large amount of natural variation. These two features of the data can make it difficult to detect a statistically significant impact of services on costs because the standard errors may be large. Additionally, the data contain a large number of zero costs, which in turn means that alternative statistical specifications are required to assess the robustness of conclusions.

Exhibit 114. Descriptive statistics of costs over the 56 months after release (2011 $)

Measure	Number of Observations	Median Cost	Mean Cost	Standard Deviation of Cost	% of Observations with Zero Costs
Rearrest	1,618[a]	$22,618	$28,589	$40,782	17%
Reincarceration	1,181[b]	$24,080	$32,876	$56,510	45%
Criminal justice (rearrest + reincarceration)	1,181[b]	$55,074	$64,308	$54,786	17%

Notes: a – 11 states included; b – 7 states included. Estimates are adjusted to reflect prices in 2011.

MULTIVARIATE RESULTS: REARREST COSTS

Exhibit 115 presents the estimates of the impact of the 13 service indicators on rearrest costs, as well as estimates for the other covariates included in the multivariate regression. The results suggest that, among the indicators for service receipt, only the indicator for the enhanced reentry program, **SVORI**, is statistically significant at conventional levels. *The coefficient estimate suggests that on average, being in a SVORI program is associated with $3,567 lower rearrest costs over the 56 month follow-up period. Multiplying that impact by the 1,213 offenders included in the model would mean a total savings in rearrest costs of over $4 million for these offenders*. Although such an extrapolation assumes each offender is represented by the estimate of the average cost, it provides a sense of the scale of the impact of enhanced reentry programming for this population.

Exhibit 115. Impact of service receipt on rearrest costs over the 56 months after release (OLS; N = 1,213)

Parameter	Estimate	SE	t	*p*
Reentry service indicators				
CaseMgr	$1,937	1644	1.18	0.24
Needs	-$206	1854	-0.11	0.91
RPlan	-$145	1677	-0.09	0.93
RPrgm	$705	2063	0.34	0.73
LifeSk	$677	1850	0.37	0.71
EmplSrv	$1,016	1588	0.64	0.52
MHtx	-$11	1992	-0.01	1.00
AODtx	$203	1717	0.12	0.91
PersRel	$103	1755	0.06	0.95
CrimAtt	-$2,456	1643	-1.49	0.14
AngrMgt	-$2,932†	1636	-1.79	0.07
Educ	-$1,319	1386	-0.95	0.34
SVORI	-$3,567*	1440	-2.48	0.01
Other offender characteristics				
age_rel	-$764*	122	-6.26	<.0001
partner	$1,489	1414	1.05	0.29
highschl	-$3,647*	1556	-2.34	0.02
employed	-$2,482	1575	-1.58	0.12
race_black	$6,260*	1743	3.59	0.00
race_hispan	-$4,321	2978	-1.45	0.15
race_other	$3,196	2480	1.29	0.20
AODtx_1	$106	1813	0.06	0.95
AODtx_2	-$1,120	1888	-0.59	0.55
HiRisk	$2,629†	1516	1.73	0.08

(continued)

Exhibit 115. Impact of service receipt on rearrest costs over the 56 months after release (OLS; N = 1,213) (continued)

Parameter	Estimate	SE	t	*p*
Reentry service indicators				
GSI	-$54	40	-1.35	0.18
MCS12	-$132	84	-1.58	0.11
#Conv	$370†	215	1.72	0.09
p_arrest_person_#	$702*	295	2.38	0.02
p_arrest_prop_#	$1,261*	232	5.42	<.0001
p_arrest_drug_#	$514*	203	2.54	0.01
p_arrest_other_#	$156	162	0.97	0.33
Age1stArr	$55	154	0.36	0.72
#Juvie	$191	288	0.67	0.51
P-PViol	$3,682*	1567	2.35	0.02
State of incarceration				
IA	-$4,421	2746	-1.61	0.11
IN	$13,313*	3754	3.55	0.00
KS	$295	3698	0.08	0.94
MD	$5,931*	2707	2.19	0.03
MO	-$7,675*	2835	-2.71	0.01
NV	$5,591†	3046	1.84	0.07
OH	-$316	3174	-0.1	0.92
OK	-$5,506*	2720	-2.02	0.04
PA	-$17,240*	2426	-7.11	<.0001
WA	$18,169*	4185	4.34	<.0001
Intercept	$48,515*	7299	6.65	<.0001

**p < 0.05; † p ≤ 0.10*

Of the 12 individual services, anger management (**AngrMgt**) has a marginally statistically significant parameter estimate (p = 0.07), suggesting that receiving that service may be associated with $2,932 lower rearrest costs on average. However, many of the service receipt indicators are imprecisely estimated, meaning the standard error of the estimate is large relative to the estimate. Thus, for 7 of the 12 specific reentry service types, the *p*-value (of the null hypothesis that the estimate is zero) is 0.7 or above.

Consistent with the arrest outcome models discussed previously, various offender characteristics were also significantly associated with rearrest costs, and each of these was in the expected direction. Two variables were associated with lower rearrest costs: being older at release and having a high school degree (versus no degree). Several variables were associated with higher rearrest costs, including being black, having a higher risk score (**HiRisk**), having more arrests before baseline, and violating terms of probation or parole. The impact of the binary measures that were significant was similar in scale to the impact of **SVORI**. Having a high school degree, for example, was associated with $3,657 lower rearrest costs.

Finally, many of the estimates for the site indicators of incarceration are large and statistically significant. The estimates are relative to the omitted category, South Carolina. Indeed, the estimates for several of these indicators were larger than the estimates for any service or personal characteristic. This finding suggests naturally large state-to-state variation in the number of each type of arrest, which is amplified by multiplying by a scalar – the cost per arrest.

MULTIVARIATE RESULTS: REINCARCERATION COSTS

Exhibits 116 and ***117*** present the estimates of the impact of the 13 service indicators and other covariates in the two-part model of reincarceration costs. The conclusion across the two parts of the model and over all covariates is that service receipt was not associated with any statistically significant reductions in reincarceration costs.

Exhibit 116 presents the results from the first part of the two-part model, the impact of the service indicators on whether someone was reincarcerated during the 56-month period. The estimates indicate that for the seven states examined, there was no association at typical levels of statistical significance ($p < 0.05$) between any of the service indicators and reincarceration. Perhaps most importantly, receiving enhanced reentry services is not associated with reincarceration. However, at the marginal level of significance ($p \leq 0.1$), two service indicators seem to have off-setting effects. Receiving case management (**CaseMgt**) is weakly associated with 34% higher odds of reincarceration (OR = 1.34; $p = 0.08$), whereas receiving a needs assessment (**Needs**) is associated with 26 percentage point lower odds of reincarceration (OR = 0.74; $p = 0.084$).

Three covariates capturing offender characteristics had statistically significant odds of being reincarcerated, and each of these was in the expected direction. Being reincarcerated was associated with being black (OR = 1.41; $p = 0.05$), having more prior arrests (OR = 1.05; $p = 0.00$), and being younger when first arrested (OR = 0.95; $p = 0.00$). As is found for rearrest, several of the estimates for the state indicators are large and statistically significant.

Exhibit 116. Impact of service receipt on any reincarceration during the 56 months after release (logistic regression; N = 1083)

Parameter	Odds Ratio	p
Reentry service indicators		
CaseMgr	1.34†	0.07
Needs	0.74†	0.08
RPlan	0.98	0.92
RPrgm	1.04	0.81
LifeSk	1.16	0.45
EmplSrv	1.10	0.60
MHtx	0.83	0.37
AODtx	0.83	0.29
PersRel	1.11	0.65
CrimAtt	0.91	0.62
AngrMgt	0.77	0.18
Educ	0.96	0.77
SVORI	0.88	0.38
Other offender characteristics		
age_rel	0.99	0.22
Partner	0.79	0.10
Highschl	0.87	0.35
Employed	1.13	0.42
race_black	1.41*	0.04
race_hispan	0.57	0.25
race_other	1.01	0.98
AODtx_1	1.10	0.62
AODtx_2	0.77	0.16

(continued)

Exhibit 116. Impact of service receipt on any reincarceration during the 56 months after release (logistic regression; N = 1083) (continued)

Parameter	Odds Ratio	p
HiRisk	1.14	0.41
GSI	1.00	0.69
MCS12	1.00	0.59
#Conv	1.03†	0.08
p_arrest_person_#	0.98	0.41
p_arrest_prop_#	1.05*	0.00
p_arrest_drug_#	1.02	0.29
p_arrest_other_#	1.00	0.93
Age1stArr	0.95*	0.00
#Juvie	1.01	0.84
P-PViol	1.15	0.37
State of incarceration		
IA	3.05*	0.00
IN	0.84	0.46
MD	0.78	0.24
OH	1.44	0.24
OK	1.38	0.27
WA	0.72	0.33

**p < 0.05; † p ≤ 0.10*

Exhibit 117 shows the results of the second part of the model, which is a regression of reincarceration costs, conditional on being reincarcerated. There were no statistically significant effects for any of the 13 service indicators examined. For all estimates, the relative standard errors on the estimates were large (high *p*-values), indicating that the estimates were imprecisely estimated. Two offender characteristics were statistically significantly associated with having lower reincarceration costs: having a high school education (relative to less than high school) and being employed at baseline (relative to not being employed). Both estimates were associated with approximately $4,500 lower reincarceration costs over the 54 month period. State effects were far larger in magnitude than either of these two significant findings. For example, Ohio was associated with over $53,000 higher reincarceration costs than the reference category, South Carolina.

Exhibit 117. Impact of service receipt on reincarceration costs (conditional on reincarceration) over the 56 months after release (OLS, N = 602)

Parameter	Estimate	SE	t	*p*
Reentry service indicators				
CaseMgr	$450.47	2478.40	0.18	0.86
Needs	-$1,671.28	2373.97	-0.70	0.48
RPlan	$1,118.15	2688.28	0.42	0.68
RPrgm	-$738.13	2602.87	-0.28	0.78
LifeSk	-$2,055.37	2910.52	-0.71	0.48
EmplSrv	-$1,640.11	2744.89	-0.60	0.55
MHtx	-$1,754.06	3234.96	-0.54	0.59
AODtx	$4,197.51	2669.92	1.57	0.12
PersRel	$2,343.98	3210.06	0.73	0.47

(continued)

Exhibit 117. Impact of service receipt on reincarceration costs (conditional on reincarceration) over the 56 months after release (OLS, N = 602) (continued)

Parameter	Estimate	SE	t	*p*
CrimAtt	-$2,181.52	2819.78	-0.77	0.44
AngrMgt	-$2,393.74	3064.27	-0.78	0.44
Educ	-$1,729.75	2328.38	-0.74	0.46
SVORI	-$1,603.54	2104.47	-0.76	0.45
Other offender characteristics				
age_rel	-$144.70	155.12	-0.93	0.35
Partner	-$2,207.51	2095.57	-1.05	0.29
Highschl	-$4,674.81*	2193.06	-2.13	0.03
Employed	-$4,507.89*	2339.83	-1.93	0.05
race_black	$1,546.30	2625.62	0.59	0.56
race_hispan	-$5,108.00	6508.87	-0.78	0.43
race_other	-$1,213.31	4781.41	-0.25	0.80
AODtx_1	$1,643.10	2738.72	0.60	0.55
AODtx_2	$1,115.04	3027.26	0.37	0.71
HiRisk	$2,241.27	2291.01	0.98	0.33
GSI	-$41.23	57.40	-0.72	0.47
MCS12	$51.60	122.42	0.42	0.67
#Conv	$37.37	212.33	0.18	0.86
p_arrest_person_#	-$319.10	365.69	-0.87	0.38
p_arrest_prop_#	$292.51	193.39	1.51	0.13
p_arrest_drug_#	-$169.01	227.73	-0.74	0.46
p_arrest_other_#	$85.61	200.87	0.43	0.67
Age1stArr	$365.09	276.61	1.32	0.19
#Juvie	$588.72	421.22	1.40	0.16
P-PViol	$2,196.09	2228.72	0.99	0.32
State of incarceration				
IA	$47,854.74*	4460.40	10.73	<.0001
IN	-$22,429.27*	3282.91	-6.83	<.0001
MD	-$18,172.20*	3083.94	-5.89	<.0001
OH	$53,624.78*	5102.45	10.51	<.0001
OK	-$11,871.20*	2810.32	-4.22	<.0001
WA	$7,762.11	5497.41	1.41	0.16
Intercept	$57,388.59*	10103.22	5.68	<.0001

**p < 0.05; † p ≤ 0.10*

MULTIVARIATE RESULTS: CRIMINAL JUSTICE COSTS: REARREST + REINCARCERATION

Exhibits 118 and ***119*** show the results of the two-part model of criminal justice costs, where criminal justice costs are the sum of the rearrest costs and reincarceration costs. ***Exhibit 118*** presents results from the first part of the model, for whether someone incurred a criminal justice cost. Note that because rearrest is typically a necessary step to reincarceration, most people with any criminal just cost have an arrest cost. None of the estimates for the 13 service indicators were statistically significant at conventional levels ($p < 0.05$). Five offender characteristics were associated with incurring any criminal justice cost: age at release (OR = 0.94; $p < 0.01$), being black (OR = 2.31; $p < 0.01$), having a lower mental health score (OR = 0.97; $p < 0.05$), the number of prior property offenses (OR = 1.11; $p < 0.05$), and having a higher count of parole or probation violations (OR = 1.18; $p < 0.05$).

Exhibit 118. Impact of service receipt on any criminal justice costs over the 56 months after release (logistic regression; N = 1083)

Parameter	Odds Ratio	*pr* > |t|
Reentry service indicators		
CaseMgr	0.97	0.91
Needs	1.02	0.94
RPlan	0.72	0.22
RPrgm	1.00	1.00
LifeSk	0.98	0.95
EmplSrv	1.43	0.25
MHtx	1.37	0.36
AODtx	1.02	0.95
PersRel	0.92	0.80
CrimAtt	0.81	0.44
AngrMgt	0.86	0.60
Educ	1.34	0.19
SVORI	0.82	0.36
Other offender characteristics		
age_rel	0.94*	0.00
Partner	0.78	0.24
Highschl	0.58*	0.02
Employed	0.91	0.70
race_black	2.31*	0.00
race_hispan	0.85	0.81
race_other	1.12	0.82
AODtx_1	1.20	0.54
AODtx_2	1.23	0.45
HiRisk	1.50	0.11
GSI	1.00	0.71
MCS12	0.97*	0.04
rbcad3	1.05	0.11
p_arrest_person_count	1.04	0.36
p_arrest_prop_count	1.11*	0.01
p_arrest_drug_count	1.05†	0.08
p_arrest_other_count	1.01	0.77
rbcad1	1.00	0.94
r2bcad4a	1.18*	0.03
bcad9r	0.96	0.85
State of incarceration		
IA	2.73*	0.02
IN	1.09	0.79
MD	1.03	0.92
OH	1.15	0.78
OK	2.08	0.15
WA	2.39	0.18

**p < 0.05; † p ≤ 0.10*

Exhibit 119 presents the results from the model of criminal justice costs, conditional on having any criminal justice costs. The findings suggest no statistically impact of receiving a service on criminal justice costs. None of the estimates of the 13 service indicators was statistically significant at conventional levels. Three services appear to be marginally significantly associated with criminal justice costs, case management (**CaseMgt**), having a needs assessment (**Needs**), and receiving education (**Educ**). **CaseMgt** and **Needs** are strongly associated with one another in service provision insofar as successfully conducting case management likely requires a need assessment. The estimates for the two services are opposite in sign and similar in magnitude, and so appear to offset one another. Case management is associated with about $6,500 ($p \leq 0.1$) increased criminal justice costs over the 56-month follow-up period, whereas receiving a needs assessment is associated with about $6,500 lower criminal justice costs ($p \leq 0.1$). These two offsetting estimates mirror the offsetting estimates for the same two measures in the binary arrest model, presented above. The third marginally significant effect is for **Educ**, which is associated with about $6,400 lower criminal justice costs ($p \leq 0.1$). All of the other service indicator parameters are very imprecisely estimated, including **SVORI**. This null finding may be driven by large natural variation in the cost data.

Exhibit 119. Impact of service receipt on criminal justice costs (conditional on any reincarceration) over the 54 months after release (OLS, N = 945)

Parameter	Estimate	Std. Error	t Value	*pr* > |t|
Reentry service indicators				
CaseMgr	$6,490.07	3709.19	1.75	0.08
Needs	-$6,555.16	3886.83	-1.69	0.09
RPlan	$3,927.19	4236.03	0.93	0.35
RPrgm	$1,352.21	4386.17	0.31	0.76
LifeSk	$794.43	4605.99	0.17	0.86
EmplSrv	-$1,915.25	4152.76	-0.46	0.64
MHtx	-$6,753.13	4745.35	-1.42	0.16
AODtx	-$53.16	4132.93	-0.01	0.99
PersRel	$5,220.02	4847.65	1.08	0.28
CrimAtt	-$5,157.85	4185.11	-1.23	0.22
AngrMgt	-$6,659.75	4310.91	-1.54	0.12
Educ	-$6,405.67	3502.40	-1.83	0.07
SVORI	-$1,568.01	3299.19	-0.48	0.63
Other offender characteristics				
age_rel	-$817.94	277.74	-2.95	< 0.01
Partner	-$612.54	3407.46	-0.18	0.86
Highschl	-$4,829.85	3569.19	-1.35	0.18
Employed	-$5,809.22	3743.42	-1.55	0.12
race_black	$7,256.13	3995.67	1.82	0.07
race_hispan	-$21,477.08	8169.34	-2.63	0.01
race_other	$4,799.65	7451.35	0.64	0.52
AODtx_1	$3,309.25	4197.02	0.79	0.43
AODtx_2	-$747.00	4473.20	-0.17	0.87
HiRisk	$4,386.35	3593.65	1.22	0.22
GSI	-$19.17	88.24	-0.22	0.83
MCS12	$145.49	186.31	0.78	0.44
#Conv	$684.66	414.07	1.65	0.10

(continued)

Exhibit 119. Impact of service receipt on criminal justice costs (conditional on any reincarceration) over the 54 months after release (OLS, N = 945) (continued)

Parameter	Estimate	Std. Error	t Value	*pr* > |t|
p_arrest_person_#	$180.26	563.63	0.32	0.75
p_arrest_prop_#	$1,894.79	352.32	5.38	< 0.01
p_arrest_drug_#	$188.41	406.65	0.46	0.64
p_arrest_other_#	$127.97	342.06	0.37	0.71
Age1stArr	-$181.04	423.50	-0.43	0.67
#Juvie	-$17.00	685.78	-0.02	0.98
P-PViol	$4,728.16	3659.01	1.29	0.20
State of incarceration				
IA	$40,707.87	6950.80	5.86	< 0.01
IN	$2,271.25	5964.43	0.38	< 0.01
MD	-$6,684.54	4964.95	-1.35	< 0.01
OH	$44,193.48	8561.40	5.16	< 0.01
OK	-$12,616.38	5129.93	-2.46	< 0.01
WA	$15,787.76	8109.01	1.95	0.02
Intercept	$78,195.50	16308.92	4.79	< 0.01

A number of covariates influenced criminal justice costs in the expected direction. Lower criminal justice costs are significantly associated with being older at release (-$817.94, $p < 0.01$) and being Hispanic (-$21,477.08, $p < 0.01$). Higher criminal justice costs are significantly associated with the number of prior property arrests ($1,894.79, $p < 0.01$), and marginally associated with the number of prior convictions ($684.66, $p = 0.10$) and being black ($7,256.13, $p = 0.07$).

DISCUSSION

The economic evaluation focused on the impact of the 13 service indicators on the costs of rearrest, reincarceration, and criminal justice system costs, which are the sum of these two costs. Reductions in these costs would comprise a significant portion of the benefits of a formal cost-benefit analysis. The results found that enhanced reentry programming reduced average rearrest costs by approximately $3,500, which is lower than existing estimates on service programming. A separate report on service costs for 4 of the 12 sites in the original SVORI evaluation found that annual pre-release service costs for a SVORI program participant were between $490 and $3,100, depending on the site (Cowell et al., 2009; dollar estimates inflated from 2007 $ to 2011 $); these estimates are below the $3,500 reduction in rearrest costs found here. Importantly, the rearrest cost includes most of the phases of the criminal justice process through sentencing. Thus, the costs incurred by many criminal justice agencies are included in the rearrest cost. These agencies are police agencies, which bear the cost of the arrest; agencies that run city and local jails, which bear the cost of holding offenders for processing; and agencies like pretrial services, public defenders, prosecutors, and courts, which bear the costs of adjudication. Thus, the offset in rearrest cost captures an offset in costs to the combination of these agencies in the criminal justice system. However, the findings in this report also provide evidence that would qualify such a conclusion. There is little evidence of an impact of SVORI reentry programming on reincarceration costs. This finding is possibly a result of the large variation in the cost of reincarceration over the follow-up period generating statistically imprecise estimates. When reincarceration costs are added to arrest costs, the sum – criminal justice system costs – has large variation; thus, it is difficult to detect any overall impact of reentry programming on criminal justice system costs.

DISCUSSION AND POLICY IMPLICATIONS

The purpose of these analyses was to determine which services were associated with positive outcomes for the adult male, adult female, and juvenile male samples that were included in the original Multi-site Evaluation of SVORI and to extend the investigation of effects on administrative recidivism outcomes from 2 years following release to a minimum of 56 months following release. The original multi-site evaluation results had suggested that SVORI program participation was associated with weakly beneficial effects across a wide range of outcomes, but they had shown no statistically significant effects on recidivism outcomes.

The approach to the current analyses was to estimate multivariate models that included indicators of self-reported receipt of 12 pre-release services, as well as participation in a SVORI reentry program. To control for observed differences between SVORI and non-SVORI comparison groups, these models included weights developed from propensity score models that estimated the likelihood of SVORI program participation as a function of individual characteristics. In addition, the multivariate models included a rich set of individual characteristics (demographics, criminal history, employment history, substance use, and mental health) as control variables and site indicators. Logistic regression was used to model binary outcomes; survival models and count models were used to model time to arrest and incarceration and numbers of arrests and incarcerations after release. Separate models were estimated for adult males, adult females, and juvenile males.

The 12 pre-release services included six that were "practical" and six that were focused on effecting individual change. The practical service bundle (**PSB**) items were case management (**CaseMgr**), needs assessment (**Needs**), reentry plan (**RPlan**), reentry programming (**RPrgm**), and employment services (**EmplSrv**). The **ICSB** items were mental health treatment (**MHtx**), substance abuse treatment (**AODtx**), help with personal relationships (**PersRel**), help changing attitudes about criminal behavior (**CrimAtt**), anger management programming (**AngrMgt**), and educational services (**Educ**). In addition, participation in **SVORI** was included to capture any residual effects not captured by the specific services.

RECIDIVISM

Results were encouraging for the effect of **SVORI** program participation on arrest and, to a lesser extent, incarceration outcomes. **SVORI** program participation was beneficial—associated with longer times to arrest and with fewer arrests during the fixed follow-up periods—and statistically significant for all three demographic groups. Results were more mixed for the effects of SVORI on post-release reincarceration. For the adult males, **SVORI** program participation was associated with a longer time to reincarceration and also fewer reincarcerations, although the latter result wasn't statistically significant (p = 0.18). For the adult females, the results were mixed and not significant. For the juvenile males, the results for reincarceration were in the right direction (i.e., less likelihood of reincarceration) but were not statistically significant.

> *Participation in SVORI programs was associated with longer times to arrest and fewer arrests after release for all three demographic groups.*

The effects of **SVORI** on the administrative recidivism outcomes stand in contrast to the mixed effects observed for specific service items on arrest and reincarceration. Focusing on the time to first rearrest, we see for the adult men that four services were associated with a statistically significant longer time to arrest and four were associated with a shorter time to arrest (***Exhibit 45***). Beneficial effects were seen for three **ICSB** services (**PersRel**, **CrimAtt**,

and **AngrMgt**) and one **PSB** service (**RPlan**). Three of the four with deleterious effects were **PSB** services (**RPrgm**, **LifeSk**, and **EmplSrv**), and the fourth was the **ICSB** service **MHtx**. These findings are consistent with other research that has suggested that services and programming that promotes individual change may be more effective than those that provide practical support.

However, the effects of specific services on time to arrest for the adult females differed from the findings for the adult males (***Exhibit 81***). **LifeSk** and **CaseMgr** were associated with significantly longer time to arrest, and **PersRel** was associated with a shorter time to arrest. Fewer of the effects were statistically significant, perhaps because of the much smaller sample of females (348 women compared with 1,618 men), but if we examine the signs of the coefficient estimates, we see that five of the six **PSB** services had positive estimates (longer time to arrest), including **CaseMrg** and **LifeSk**, and five of the **ICSB** services had negative estimates (shorter time to arrest), including **PersRel**. These findings contrast with the adult male results, which showed that four of six **PSB** items were negative and only one of the six **ICSB** services was negative.

ICSB services were more likely to be beneficial and PSB services detrimental with respect to the time to first arrest for the adult and juvenile male samples. Few effects were significant for the adult females, but five of six PSB services had positive coefficient estimates and five of the six ICSB services had negative estimates.

Results for the juvenile males (***Exhibit 106***) were similar to those for the adult males. Overall, **PSB** services were associated with a shorter time to first arrest, and **ICSB** service items were associated with longer time to first arrest. Four of the 12 service item coefficient estimates were statistically significant. (Again, the juvenile male sample of 337 was much smaller than the adult male sample.) Five of the six **PSB** items were negative, including two that were statistically significant (**LifeSk** and **EmplSrv**). Four of the six **ICSB** items were positive, including **MHtx,** but **PersRel** was negative and significant.

Results for the effects of services on numbers of arrests after release were mixed. ***Exhibit 120*** shows the incidence rate ratios (IRR) for the service items from the negative binomial models of rearrest (from ***Exhibits 47, 82***, and ***106***). IRR less than 1 mean that the service is associated with fewer arrests and IRR greater than 1 mean that the service is associated with more arrests. In two cases (**LifeSk** for the juvenile males and **PersRel** for the adult females), the statistically significant estimates suggested that a service was associated with more arrests following release. For the remainder of the statistically significant findings, the services were associated with fewer arrests following release. Specifically, having a case manager (**CaseMgr**) was beneficial for the adults and both mental health treatment (**MHtx**) and substance abuse treatment (**AODtx**) were beneficial for the adult females. Anger management (**AngrMgt**) was associated with fewer arrests for both the adult and the juvenile males, whereas educational services (**Educ**) were associated with fewer arrests only for the adult males. Overall, however, four of the **PSB** services (**Needs**, **RPlan**, **RPrgm**, and **EmplSrv**) and one **ICSB** service (**CrimAtt**) had no effect on the numbers of new arrests for any of the three groups.

Exhibit 120. Incidence rate ratios from negative binomial models of numbers of new arrests by demographic group

Service Item	Incidence Rate Ratio		
	Adult Male Sample	Adult Female Sample	Juvenile Male Sample
CaseMgr	0.8939*	0.7308*	0.9426
Needs	1.0470	1.0893	0.8740
RPlan	1.0474	1.0084	1.0304
RPrgm	0.9764	0.9301	0.9558
LifeSk	1.0090	0.9048	1.1753†
EmplSrv	0.9958	0.9776	1.0688
MHtx	1.0618	0.8124†	1.0218
AODtx	0.9588	0.8233†	0.9631
PersRel	0.9986	1.3926*	0.9765
CrimAtt	1.0206	1.0805	0.8872
AngrMgt	0.9183†	1.2395	0.8575†
Educ	0.9040*	1.1339	1.2020
SVORI	0.9378†	0.7024*	0.6991*

*Note: Full model results are presented in **Exhibits 47, 82**, and **108**.*
** $p < 0.05$; † $p \leq 0.1$.*

Services appear to have had less beneficial effect on the time to reincarceration than rearrest. For the adult males, four of the six **PSB** items were associated with shorter times to reincarceration, and two of these (**CaseMgr** and **LifeSk**) were statistically significant; five of the six **ICSB** items were associated with longer times to reincarceration, but only **AngrMgt** was statistically significant. Comparisons of effect of services on the time to reincarceration for the adult women and juvenile boys were conducted using SAS Proc Lifetest to compare the survival distributions by strata (received the service compared with didn't receive the service). The only statistically significant difference for the adult females was the effect of **AODtx**; women who reported receiving substance abuse treatment had shorter times to reincarceration. Results were somewhat more promising for the juvenile males, with **Needs**, **EmplSrv**, and **PersRel** all associated with longer times to reincarceration. In addition, **CrimAtt** was associated with delays to reincarceration in the first year or so following release, whereas **Educ** was protective after the first year.

Once we controlled for these 12 different types of services, there was a strong remaining effect of SVORI program participation on rearrest that was not identified in the previous work, which had focused on a shorter follow-up period.

Returning once again to the effect of SVORI program participation on numbers of arrests following release, we recall the differences in actual and predicted rearrests presented in the discussions of the negative binomial model results (***Exhibits 47***, ***82*** and ***106***). ***Exhibit 121*** shows the actual and predicted numbers of arrests for the three demographic groups. SVORI program participation was associated with about 14% fewer arrests for the adult men, 48% fewer arrests for the adult females, and 25% fewer arrests for the juvenile males over the fixed follow-up periods.

Exhibit 121. Actual and predicted numbers of post-release arrests, by demographic group and SVORI program participation status

Group	Adult Males			Adult Females			Juvenile Males		
	N	Actual	Predicted	N	Actual	Predicted	N	Actual	Predicted
All	1,483	3.49		300	3.18		337	2.26	
SVORI	763	3.22	3.25	127	2.06	1.82	152	1.91	1.86
Non-SVORI	720	3.76	3.82	173	4.00	4.12	185	2.55	2.79

Note: Fixed follow-up period for the adult males was 56 months (1,694 days), for the adult females was 58 months (1,744 days), and for the juvenile males 676 days (22 months); see Exhibit 4.

Finally, these findings must be tempered by the realization of the high level of recidivism that was observed for these three groups of subjects. SVORI was to target high-risk offenders, and these programs appear to have done so. On our constructed risk measure, **HiRisk**, 44% of the adult males, 27% of the adult females, and 48% of the juvenile males were "high risk." Most of the remaining cases were "medium risk," with few low-risk cases. On average, all three groups—including the juvenile males—had extensive criminal histories, multiple prior incarcerations, juvenile detentions, and early age at first arrest (particularly for the males). These indicators would portend a very high likelihood of renewed engagement in criminal activity and the criminal justice system. What was observed was a high return to criminal activity and criminal justice system interaction. However, those who participated in SVORI programs had lower levels of arrest than those who had not; **SVORI** was statistically significant in models that controlled not only for pre-release service receipt, but also for a large number of individual characteristics historically linked to recidivism.

SVORI program participation was associated with a $3,567 reduction in arrest-related costs over the fixed follow-up period for the adult males.

The benefits of the reduction in numbers of post-release arrests were evident in the economic analysis for the adult men. **SVORI** program participation was associated with a $3,567 reduction in arrest-related costs over the fixed follow-up period (***Exhibit 115***). This cost savings was net of savings (or additional costs) associated with the provision of specific services. The largest effects for specific services were −$2,932 for **AngrMgt** ($p$ = 0.07), −$2,456 for **CrimAtt** ($p$ = 0.14), +$1,937 for **CaseMgr** ($p$ = 0.24), and −$1,319 for **Educ** ($p$ = 0.34), although, as noted in the text, large standard errors meant that these estimates were imprecisely estimated.

OTHER OUTCOMES

The SVORI conceptual model shown in ***Exhibit 1*** posited a three-step effect process: Identify and provide services to meet needs associated with deficiencies (e.g., low education or skills, substance abuse); these services would result in improvements (e.g., more education, new job skills, reduced substance use) that would lead to a reduction in criminal activity and involvement with the criminal justice system. We examined the effects of services and SVORI on other outcomes that were the target of the SVORI—housing, employment, and health in particular substance use.

Services oriented toward practical needs—including reentry preparation, life skills programs, and employment services—did not improve post-release outcomes for men, including housing, employment, and drug use outcomes. In some cases, these services appeared to be detrimental to successful reintegration.

We first discuss the effect of services oriented towards practical needs—the **PSB** services—on non-recidivism outcomes. Subsequently, we look at the effect of the **ICSB** services, the effects of the bundle scores, and the effects of **SVORI** program participation.

We examined two housing indicators—housing independence and housing challenges. Services addressing reentry preparation had no significant effect on housing outcomes for the adult men. **RPlan**, **RPrgm**, **LifeSk**, and **EmplSrv** were not significantly related to housing independence or housing challenges immediately after release, and **EmplSrv** was significantly associated with greater housing challenges at the 15-month interview. The summative effects of the practical services, as measured by the **PSB**, showed no effects on housing independence (odds ratios ranged from 0.99 to 1.12 over the three measurement periods) and significant detrimental effects on housing challenges at 15 months (odds ratio of 1.18). There were no statistically significant service effects on housing independence for the adult females, although at 3 months four of the six **PSB** service items had positive coefficients. **EmplSrv** were associated with less housing independence (although these estimates were not statistically significant), fewer housing challenges at 3 months (again not significant), and significantly fewer housing challenges at 15 months (***Exhibit 65***).

We examined four measures of employment: currently supporting self with job, working each month since release or previous interview, receiving formal pay, or having benefits (health insurance or paid leave). Again, there were mixed effects for the PSB items. For the adult men, a greater likelihood of reporting supporting self with a job was associated with participating in a pre-release reentry class or program (**RPrgm**) at 9 and 15 months and with **LifeSk** at 3 months post release. **EmplSrv** were not significantly associated with either supporting self with job or with working each month. For the men, there were only two significant effects of PSB services on receipt of formal pay or benefits—pre-release needs assessment was associated with a *lower* likelihood of formal pay at 15 months and **LifeSk** was associated with a *lower* likelihood of formal pay at 3 months (***Exhibit 24***). For the adult females, results differed somewhat. Having a reentry plan 30 days before release and receiving employment services while incarcerated were both associated with a higher likelihood of supporting oneself with a job at 15 months, although results at 3 and 9 months suggested no effects. (Although none of the coefficient estimates on PSB items was statistically significant for the 3- and 9-month models of "supports self with job," five of the six items had negative coefficients at 3 months and four had negative coefficients at 9 months.) The 3-month model for formal pay for the adult females did not converge (***Exhibit 70***), and results at 9 and 15 months primarily suggested no effects of the **PSB** items; similarly, results were mixed and insignificant for the effects of these services on having a job with benefits. Because there were relatively few juvenile males in the sample and less than half of the juvenile males reported working in any of the periods following release, the models estimating effects only for those who worked (worked each month, formal pay, and benefits) had a small number of observations and yielded imprecise coefficient estimates that are not likely reliable.

We had measures of drug use at 3 and 15 months that included self-reported use and urine test results (or refusal, if in the community). Most of the odds ratios for the items in the **PSB** are greater than 1 for the adult males for two outcomes measured at 3 and 15 months after release: any drug use in the past 30 days and any drug use since release or last interview (***Exhibit 34***). Only one service is beneficial and statistically significant—having a **RPlan** is associated with less drug use in the past 30 days. On the other hand, **EmplSrv** were associated with greater drug

use. Two of the six PSB items were significantly related to drug use for the adult female sample—both **LifeSk** and **EmplSrv** were associated with a greater likelihood of drug use (***Exhibit 73***). None of the services was associated with reduced use for the juvenile males (***Exhibit 97***).

> *Services oriented toward individual change, including substance abuse treatment, cognitive-focused programs, and education (e.g., GED classes), may have modest beneficial effects on post-release outcomes. Educational services were most consistently associated with positive outcomes for the adult males.*

We also examined the effect of six individual change service items. These services appear to be somewhat more likely to exert positive effects on the outcomes that were examined, particularly for the adult males. The most substantial exception is the effect of mental health treatment. We attempted to control for needs for treatment by including indicators of functioning and symptoms in the models; however, **MHtx** before release was often associated with negative outcomes. We return to this item after we discuss the effects of the remaining five **ICSB** items. For the adult males, **AODtx** was associated with a greater likelihood of housing independence and a reduced likelihood of housing challenges immediately after release. **CrimAtt** and **Educ** were also associated with a greater likelihood of housing independence, although an enhanced likelihood of challenges. There were no effects for help with personal relationships (**PersRel**), and **AngrMgt** was associated with less housing independence, significantly so at 3 months. For the adult females, we had a smaller sample and the results were less stable from time period to time period. **AODtx** was associated with fewer housing challenges at 3 and 9 months, and **AngrMgt** was associated with fewer challenges at 9 months. Negative effects were observed for **AODtx** at 9 months after release and **Educ** was associated with greater housing challenges, significantly so at 9 months. Findings for the juvenile males were mixed and insignificant.

The results of the **ICSB** services on "support self with job" and "worked each month" were mixed. **AODtx** and **Educ** were associated with positive effects on these two outcomes, although these effects were not always statistically significant. The odds ratios for **CrimAtt** was less than 1 for all three periods for both "support self with job" and "worked each month," with the odds ratio significant at 9 months, suggesting that the likelihood of working each month was less than about half for those who reported **CrimAtt** training. Results were mixed for "formal pay" and "benefits." Results overall were mixed and insignificant for both the adult females and the juvenile boys.

For the adult men, **Educ** was associated with less drug use, significantly so at 3 months post release. Overall, with the exception of **MHtx**, the **ICSB** items were associated with less use, although the findings were seldom significant—including the effects of **AODtx**. Most of the coefficients on the ICSB service items were negative (odds ratio less than 1 signifying less use) for the adult females, but only **PersRel** at 3 months was statistically significant. **Educ** was associated ($p \leq 0.1$) with less use at 3 months after release for the juvenile males.

Thus, overall, the service item most often associated with beneficial outcomes appears to be educational services, including GED classes. Somewhat surprisingly, given findings in the literature, neither **AODtx** nor **CrimAtt** yielded consistent statistically significant findings, although we did find some effects for subgroups in the stratified analyses of the men's sample.

We return briefly to the findings for **MHtx**. It is not surprising that those coping with mental health issues would have more difficulty in finding employment and perhaps in abstaining from substance use after release. Those who reported receiving mental health treatment in our samples while incarcerated appear to have had worse outcomes after release. Although it is possible that these findings could suggest some criminogenic effects of in-prison

mental health treatment, it is also possible (perhaps more likely) that receipt of mental health treatment is simply serving as a proxy for unmeasured attributes of those individuals who received treatment and that these attributes are also associated with higher likelihood of negative outcomes in the domains we examined (over and beyond the two measures of mental health we included in the multivariate models).

> *SVORI reentry program participation was associated with positive outcomes in some cases, over and beyond the effects of individual service items, particularly for the adult male sample.*

Exhibit 122 summarizes the effects of SVORI program participation on 9 interview-based outcomes. As can be seen, there are only a few statistically significant effects, but most of the associations are in the right direction. For the adult males, SVORI program participation is associated with formal pay (3 months), benefits (3 and 9 months), and a lower likelihood of self-reported criminal activities (3 and 9 months). SVORI program participation is associated with formal pay at 9 months for the adult females ($p \leq 0.1$). For the juvenile males, SVORI program participation is associated with lower likelihoods of drug use at 3 months ($p \leq 0.1$) and housing challenges at 9 months ($p \leq 0.1$).

Exhibit 122. Summary of effects of SVORI program participation for adult males, adult females, and juvenile males

Outcome	Adult Males			Adult Females			Juvenile Males		
Month of Interview	3	9	15	3	9	15	3	9	15
Housing independence	B	B	B	B	D	D	D	D	D*
Housing challenges	B	B	D	B	B	B	B	B*	B
Support self with job	D	D	B	D*	D	B	D	D*	D
Stable employment	D	D	B	B	D*	D	N/A	N/A	N/A
Formal pay	B*	B	B	N/A	B†	B	B	B	B
Benefits	B†	B*	B	B	B	D	D	B	B
Committed any crime	B†	B†	B	B	D	B	B	B	B
Drug use past 30 days	B		B	B		B	B		B
Drug use since release or last interview	B		B	B		B	B†		B

Note: Multiple cells in each column indicate the 3-, 9-, and 15-month interview results. B = effect is "in the right direction" but not significant; D = effect is "in the wrong direction" but not significant. B = effect is beneficial and significant at $p < 0.05$; B† = effect is beneficial and significant at $p \leq 0.1$; D* = effect is deleterious and significant at $p < 0.05$; D† = effect is deleterious and significant at $p \leq 0.1$; N/A = not applicable.*

POLICY IMPLICATIONS

One question these findings raise is, "What is the mechanism for the effects of SVORI program participation on recidivism?" The reentry program model (e.g., the SVORI program model shown in ***Exhibit 1***) is premised on the fact that most prisoners have a variety of problems and deficiencies and that rehabilitation leading to successful reintegration rests on the provision of services to address individually identified needs, particularly for high-risk populations. The SVORI was a federal initiative funded nearly a decade ago to test this model through a "one-shot" provision of grant funds to state agencies to develop and implement programs based on case management, needs assessment, reentry planning, and services individually tailored to meet the needs of the target population.

Previous analyses showed that SVORI program participation was associated with more service receipt (Lattimore & Visher, 2009) and weak effects of intermediate outcomes and no significant effects on arrest and reincarceration. The current findings show

- limited effects of services on intermediate outcomes,
- few direct effects of services on recidivism outcomes,
- limited effects of SVORI program participation on intermediate outcomes, and
- significant effects of SVORI program participation on recidivism, particularly arrest.

The models controlled (indeed were actually testing) for the effects of specific services that were included in reentry programs but also were provided to some individuals who were not in SVORI programs as part of "treatment as usual." However, we found that in some cases, particularly for "practical" services, the effects of these services appear actually to have been harmful—associated with quicker arrest or more arrests. Once we controlled for these 12 different types of services, there was a strong remaining effect of SVORI program participation that was not identified in the previous work, which had focused on a shorter follow-up period and which had identified a small but not statistically significant difference in the likelihood of rearrest during the first 21 months after release. Following these subjects for a longer amount of time (at least 56 months after release) and taking a different statistical approach to the analyses of these data (survival and count model analyses as opposed to logistic regression) showed participation in SVORI programs associated with better recidivism and particularly better arrest outcomes. We hypothesize that these effects could be due to the following.

- The models included 12 of about 24 different services for which we had self-report receipt data. These services were selected because they either have been considered critical components of reentry programs (**CaseMgr**, **Needs**, **RPlan**, **RPrgm**) or were programs that address needs known to be pervasive among prison populations (**LifeSk**, **EmplSrv**, **MHtx**, **AODtx**, **PersRel**, **CrimAtt**, **AngrMgt**, and **Educ**). We dropped from consideration a number of items that had been included in our earlier work, such as help finding housing, help getting documents, or medical treatment. As our earlier work showed, SVORI program participants were more likely to receive these services (although oftentimes at low levels) than those who did not participate in SVORI programs. (The exceptions were medical and dental services, which were received at equal levels by both groups—as should have been expected given requirements to provide such services to prisoners.) *SVORI could be serving as a proxy for the enhanced likelihood of receiving these other (mostly) transitional services.*

- The models included only measures of pre-release service receipt. We excluded post-release services to maximize the number of observations we could retain in our analysis. *SVORI could be serving as a proxy for the enhanced likelihood of receiving post-release services*, as SVORI program participants did receive more services post release (although, as noted earlier, post-release service receipt was low for both SVORI and non-SVORI groups). However, we estimated some random effects outcome models that included measures of post-release service receipt and found little support for the effectiveness of post-release services.
- *Services received by SVORI program participants may have been qualitatively better than those received by those in the comparison group—resulting in better recidivism outcomes.* This is certainly possible if programs developed new services for SVORI program participants, although program director reports suggested that in many cases their SVORI funds were used to expand existing services (Lattimore et al., 2004).
- *SVORI program participants may have been the beneficiaries of unmeasured services—wraparound services, for example—that resulted in better recidivism outcomes.*

- *SVORI program participants may have been treated differently after release simply because of their program participation status.* This hypothesis would suggest that parole officers and law enforcement knew an individual was in a SVORI program and thus refrained from arresting the individual because of that status. We have no way to refute this hypothesis, except to note that in several sites we know that probation and parole services were never engaged in the reentry program. Furthermore, it is somewhat difficult to imagine knowledge of SVORI program participation extending to local law enforcement, particularly in states where program participants were released statewide.
- *SVORI program participation may have been associated with a "Hawthorne effect."* People who participated in SVORI programs were somewhat less likely to be arrested simply because their behavior improved simply as a function of the extra attention they received as a result of being a study participant.

Overall, our findings of few significant, beneficial effects of services (and some detrimental effects) coupled with the beneficial effect of SVORI participation suggest caution.

Why would reentry preparation services appear in some cases to be harmful?

The core of reentry programming (as defined by the SVORI in the early years of the 21st century) is case management, needs assessment, and reentry planning. Improving life skills and employment-related services to enhance post-release job prospects have also been targets of reintegration efforts. These services, as offered to the participants in this evaluation, appear to have done little good and, in the case particularly of life skills, to be associated with deleterious effects. We conducted extensive analyses trying to identify a plausible explanation for the **LifeSk** effect (e.g., those taking life skills were self-selecting into life skills in lieu of a more useful service or program) and came up empty.

What is the proper sequencing of services and the impact of "readiness for change"?

It is possible that reentry planning was not useful with respect to immediate post-release outcomes either because (1) promised services did not accompany the planning, or (2) promised outcomes did not accompany the delivery of services, or (3) the individual received services but was not "ready" to take advantage of them. If (3) is true, then it could provide a possible explanation for the longer-term positive effects of SVORI program participation on recidivism outcomes.

More services are not necessarily better.

Our initial goal for these analyses was to look at the relationship between numbers of services received and outcomes by constructing a continuous propensity score model and proceeding with outcome analyses from that platform. The continuous measure we used was the service "super bundle score" that was constructed during the original Multi-site Evaluation of SVORI. This score at the individual level represented the percentage of available services across multiple domains that the individual reported receiving. Multiple efforts at constructing this bundle and of examining the effects of the resulting "service" bundle (or bundles) on outcomes basically yielded no results—there was no effect of larger numbers of services on outcomes.

Part of the explanation for this was revealed once we restructured the analyses to adapt the approach whose findings are presented here. Looking at the effect of specific items, we found that some were deleterious. Looking at the effect of specific types of items (i.e., **PSB** for the adult males), we found that they were either ineffective or deleterious. Simply counting services when some have positive effects and some have negative effects will not yield a very useful scale. Although this seems obvious now, initially we did not consider that some of the services we were examining actually could have deleterious effects on outcomes. Thus, there were two problems with our

simple counting approach. The first, which we had been aware of since the beginning, was that all services counted equally—receiving educational services was the same as receiving employment services (or AOD treatment or, in our earlier analyses, getting help with transportation). This uniformity assumption meant that we were introducing error into the measure that was linked to the (unknown) differences in importance of the various services. More importantly now, we see the second problem: some services are associated with deleterious effects. With this problem, the bundle score needed to take into account not only how many but which items were received by an individual. We addressed this issue partly in the current analyses by the adaption of the two smaller bundles, which also conform to current discussion in the literature about the relative effectiveness of "practical services" compared with "individual change" services. Nonetheless, our findings reveal considerable heterogeneity in the impact of individual services with these two types of service bundles.

The implementation and possible impact of reentry-focused services in improving post-release outcomes is likely to be highly variable across sites.

We know from our earlier work (e.g., see Lattimore & Visher, 2009) that the delivery of reentry-focused services varied across the SVORI program sites. (We also know that the delivery of services under the treatment-as-usual approach differed across sites, such that treatment as usual in one site exceeded SVORI services in another.) We collected extensive information before selecting the sites that were included in the impact evaluation. These sites were ones that appeared, a priori, to have the best chance of successfully implementing the reentry programs they had proposed. From this perspective, it seems unlikely that the services delivered by these programs could have been *worse* than similar programs implemented in prisons and juvenile detention facilities from 2003 to 2005. Thus, although we have no concrete measures of implementation fidelity, we believe that our findings should have external validity.

We included site measures in the multivariate models to control for site-level differences. These differences would be multifold, representing the culture of the implementing organizations, state laws and policies, and the economic and cultural environment to which released prisoners were returning. In many cases, these indicator variables were statistically significant, although we did not discuss the implications here because the findings with respect to the key variables of interest here—service items and SVORI program participation—were largely the same in models estimated with and without the site-level indicators.

There is a need for ongoing evaluation and research.

Departments of correction who are developing reentry programs with a component involving delivery of services before release are urged to collaborate with local researchers who can systematically evaluate the impact of reentry services as they are delivered in the particular site. In particular, although understanding of reentry programming has advanced in the past decade, additional work is needed. In particular, the emerging discussion of whether practical services are useful or individual change services are most beneficial is particularly important, and we believe our analyses and findings contribute to this discussion.

What is the appropriate length of follow-up?

Two years is considered something of a gold standard for studies of post-program recidivism. These new analyses which included additional recidivism data, allowed us to look beyond the initial period following release to determine whether there were long-term effects of SVORI program participation. Prison release may be accompanied by circumstances that assure a high likelihood of failure after release—supervision conditions, for example. Release may also be followed by relapsing behavior that again results in a high likelihood of failure, particularly for high-risk former prisoners. Under these circumstances, a longer follow-up period may be necessary

to observe short-term failure followed by long-term success. Because we had only the original 15-month post-release interview data, we could make no assessments of the impact of services and SVORI on the other outcomes of interest to this Initiative.

LIMITATIONS

The present analyses reflect considerable data, analytical exploration, and attention to control for those things that can be controlled. As with most studies, limitations remain.

- Subjects were randomly assigned to SVORI and non-SVORI conditions in only two of the adult sites. Careful attention was paid in the design of the original multi-site evaluation to identify comparison populations similar to those targeted for the SVORI initiative. Propensity score methods were used and appear to have been successful in controlling for observed differences between the treatment and comparison groups.
- As with most longitudinal studies, there was attrition at the three follow-up waves. Interviews were pursued at each wave regardless of whether previous interviews were completed successfully. This resulted in at least one follow-up interview with more than 80% of each demographic group. Analyses conducted during the early multi-site evaluation suggested that once group assignment was controlled for, there were no residual differences due to attrition and no additional controls were imposed on the model.
- The numbers of subjects in the adult female and juvenile male samples was small—particularly when we examined post-release interview outcomes. In many cases, we had fewer than 200 observations and as few as 100 or so when looking at conditional outcomes such as formal pay or benefits associated with employment. We recognize that many of these multivariate outcome models included too many independent variables; however, more parsimonious models that included, for example, only service items yielded similar results, so we presented the results of the full models. With limited numbers of observations, however, parameter estimates were imprecise and statistical significance was elusive.
- We do not have detailed information on the nature and implementation of the SVORI programs and the specific services, classes, and programs provided as part of the SVORI programs and the treatment as usual. The original evaluation was explicitly not a process evaluation, but we took pains to gather basic information on what the program directors planned and the study participants believed they received. These latter measures of service receipt, which were relied upon here, are admittedly flawed. They contain error associated with individuals misreporting because they forgot that they received specific services, believed that they had received services they did not receive, did not understand that they had in fact received a service, or simply lied. These measures provide no measure of dosage—one substance abuse education class would count the same as residential treatment (or one session would count the same as 100 sessions). Additionally, the measures provide no measure of quality. We attempted to address these last two issues by examining how helpful respondents felt a service was. Measures taking into account how helpful a service was were correlated greater than 0.9 with the simple measure indicating service receipt.

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