Outcome Evaluation of Call-in Meetings
Conducted in Maryland
under Project Safe Neighborhoods

UNIVERSITY OF MARYLAND

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INSTITUTE FOR
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**Outcome Evaluation of Call-in Meetings Conducted in Maryland
under Project Safe Neighborhoods**

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Table of Contents

Acknowledgements

Outcome Evaluation of Call-In Meetings

Conducted by IGSR in partnership with the U.S. Attorney's Office, District of Maryland, and the Governor's Office of Crime Control and Prevention, the research reported here builds on a prior IGSR report, *Process Evaluation of Call-in Meetings Conducted in Maryland under Project Safe Neighborhoods*. The purpose of this outcome evaluation is to assess the impact of call-in meetings held in five Maryland jurisdictions on the recidivism of participants attending the meetings. Targeting newly-released parolees with histories of gun-related and violent offenses, the call-in meetings are described in detail on pages 20-33 of the process evaluation report. The outcome study employs a quasi-experimental design and compares call-in participants' rearrest, reconviction, and reincarceration outcomes with those of a group of persons with similar criminal histories who did not attend the meetings. The call-in sample includes participants of 18 call-in meetings held in the City of Annapolis, Baltimore City, and the City of Frederick and in Anne Arundel and Prince George's Counties. Reviewed on pages 7 through 13 of the process evaluation report, the few studies that have examined recidivism among participants of call-in meetings have yielded mixed results. This research will contribute to our understanding of the effectiveness of call-in meetings for reducing crime among violent offenders.

Research Questions and Hypotheses

Research questions and hypotheses for the outcome evaluation were focused in three areas:

1. Recidivism of call-in participants
   a. What percentage of participants are rearrested, reconvicted, and reincarcerated for up to three years following participation in the meetings? What is their frequency of rearrest and reconviction during the follow-up period? What are the types and severity of charges among those recidivating?
   b. Of those recidivating, what is the time between participation and rearrest and reconviction?
2. Recidivism reduction comparisons between study groups

a. *Hypothesis: The percentage of call-in participants recidivating will be lower than that of comparison group offenders with similar demographics and criminal histories.*

   b. *Hypothesis: Of those recidivating in both groups, the time to first rearrest and reconviction will be longer than that of comparison group offenders.*

   c. *Hypothesis: Of those recidivating in both groups, call-in participants will be less likely to be arrested and convicted for violent offenses than comparison group offenders.*

3. Factors affecting recidivism and recidivism reduction comparisons between study groups

   a. What is the relationship between background factors (demographics, criminal histories) and recidivism in both study groups?

   b. *Hypothesis: Lower recidivism rates among call-in participants relative to comparison group subjects will be observed controlling statistically for group differences in demographics and criminal histories.*

Methods: Samples, Measures, and Analyses Plans

Strict protocols were used to ensure the confidentiality and privacy of study participants, and all research methods were in compliance with federal human subjects guidelines and reviewed and approved by the Institutional Review Board of the University of Maryland, College Park.

Call-In Participant Sample. All persons with identifying information (names, state criminal identification numbers) recorded on lists of meeting participants provided by the U.S. Attorney's Office, District of Maryland (USAO Maryland) were targeted for inclusion in the call-in study sample. The USAO identified dates and locations of 37 call-in meetings held between September 2009 and February 2015. More than half of these meeting (19) were held in Prince George's County, seven of the meetings were held in Anne Arundel County, four each were held in Baltimore City and the City of Frederick, and three meetings were held in the City of Annapolis (see Table 1). Information on the number of persons invited to meetings, and on the identities of those attending the meetings varied considerably. Participant data were not retained for any of the first 11 meetings held in Prince George's County through early 2013 (most of which were small meetings with fewer than 14 invitees). In general, participant information was more likely to be

2

retained in sites from 2014 on. Overall, participant identifiers could be provided by USAO Maryland for 18 of the 37 meetings on a total of 596 persons.

Table 1: Call-in Meetings and Available Invitee and Participant Data by Jurisdiction

Jurisdiction	Meetings Held	Meetings with Participant Information	Participants on Lists Provided by USAO to IGSR	Participants with Complete CJIS History Data	Participants in Final Study Sample (after propensity matching)
City of Annapolis	3	3	65	62	62
Anne Arundel County	7	3	200	175	172
Baltimore City	4	2	83	83	82
City of Frederick	4	4	62	62	62
Prince George's County	19	6	196	157	151
TOTAL	37	18	596	539	529

Other than sites neglecting to retain records on participants (and in some cases, invitees) in the early years of the initiative, and some sites (Frederick and Annapolis in particular) being more consistent than others in recording and keeping this information for all meetings, there appears to be no notable patterns in the presence or absence of participant data. There is no reason to believe that the call-in participants with identifying information are different in any way from the participants whose identities were not retained and are unknown – that is, the participants whose identities are known and were included in the call-in sample pool are likely representative of all call-in participants. Additionally, while the available data on persons invited and persons participating in the meetings are incomplete, the nature of the invitation to the meetings precludes the likelihood of self-selection biasing the intended effects of participation and the study outcomes. Virtually everyone invited to attend was on parole or probation supervision and were asked to participate by their supervising officer, who was informed about meeting attendance; in

many cases, attendance was explicitly mandated. A small number of call-in participants attended more than one meeting. Of those with reliable data on number of meetings attended, 3.8 percent attended two meetings and 1.9 percent attended three meetings.

Under an agreement with the Maryland Department of Public Safety and Correctional Services (DPSCS), identifying data on 593 participants with identifiers were submitted to the Department for purposes of obtaining both criminal history data and any record of post-meeting recidivism (the names of three persons on the lists totaling 596 participants were illegible). Of these 54 were subsequently excluded from the comparative analysis, including 30 who could not be matched with the state Criminal Justice Information System (CJIS) database and 22 whose names were on a list of potential participants in Anne Arundel County but were not actually invited to take part in a call-in meeting.[1] The returned CJIS data included dates and charge information for all arrests, convictions, and sentences, including the amount of time sentenced to correctional institutions, through January 12, 2016, when the CJIS data retrieval was conducted. For analyses purposes, arrests (and all case outcomes related to the arrest) that occurred prior to the date the individual attended their first call-in meeting were considered criminal history, and post-meeting arrests (and related outcomes) were considered recidivism. Demographic information (race, date of birth, gender) came from data provided by the USAO Maryland, CJIS data from DPSCS, or from the Maryland Judiciary Case Search database.

Comparison Sample. Also under the agreement with DPSCS, a CJIS dataset available from a previous study that included all persons released from prison between mid-2008 and mid-2014 (N=36,058) was used to identify a matched comparison sample of individuals. Jurisdictional data were not available on these cases, so the comparison pool was a statewide release cohort. A two-

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[1] Of the 30 without CJIS data, 15 were not in the CJIS system (probably due to having misspelled names or incorrect birthdates on the participant list) and 15 did not have enough identifying information to yield a match. Two others were also dropped, one of whom was deceased and one who had no record of any arrests prior to the date he attended the call-in meeting.

stage process was employed to ensure the comparison sample was as closely matched to the call-in treatment group as possible. After eliminating comparison pool members who were known to be call-in participants, criteria were applied to approximate the protocol used to select call-in invitees, and include only persons with at least one prior felony weapons, person, or sex charge listed as seriousness category I, II, or III in the Maryland Sentencing Guidelines. To further improve the match with the call-in group, an age criteria was also applied, omitting persons over 34 years of age.

At this stage 20 percent of the remaining comparison pool was selected at random and subjected to a widely-used statistical procedure, propensity score matching (PSM), to ensure the final comparison sample was similar to the call-in treatment group on race, age, gender, and criminal history. Detailed in Appendix A, this procedure generates a propensity score for each person in the comparison group which reflects their probability for inclusion in the treatment group (had they been available), and adjusts statistically for any differences with the treatment group on the selected matching factors. In the final step of PSM, treatment group members are analyzed to identify outliers who negatively affect the comparability of the samples; ten persons were dropped as a result, yielding a final study sample of 2,549 persons, including 529 call-in participants and 2,020 comparison group subjects.

Descriptive information on the study sample, including demographic and criminal history of the two groups, is provided in Table 2. The typical study participant was a 26 year-old male African-American. Just 3.4 percent of the sample were women (only 6 of the 259 call-in participants were women). Whites accounted for 18.7 percent of the sample, and together Whites

Table 2: Demographics and Criminal History of Study Sample

Descriptive Variable	Call-In Participants (N=529)		Comparison Group (N=2020)		Total Sample (N=2549)	
	N or Mean	Percent (or sd)	N or Mean	Percent (or sd)	N or Mean	Percent (or sd)
Demographics						
Age ($\bar{x}$)	26.8	(6.2)	25.8	(3.6)	26.0	(4.3)
Gender						
Male	523	98.9	1939	96.0	2462	96.6
Female	6	1.1	81	4.0	87	3.4
Race						
African American	430	81.3	1598	78.8	2028	79.6
White	85	18.0	380	18.9	475	18.7
Other	20	0.4	8	0.3	10	0.4
Unknown	2	0.4	28	1.4	30	1.2
Criminal History						
Number of Prior Arrests ($\bar{x}$)	7.4	(6.2)	6.3	(5.0)	6.6	(5.3)
Number of Prior Arrests with a Conviction ($\bar{x}$)	3.8	(3.1)	3.4	(2.4)	3.5	(2.5)
Number of Prior Charges ($\bar{x}$)	25.7	(18.2)	25.3	(18.9)	25.4	(18.0)
Number of Prior Charges with a Conviction ($\bar{x}$)	5.2	(4.0)	5.2	(3.8)	5.2	(3.8)
Person Charges ($\bar{x}$)						
Number of Prior Charges	10.1	(9.7)	11.2	(10.5)	11.0	(10.3)
Number of Prior Charges with Conviction	1.5	(1.5)	1.7	(1.5)	1.7	(1.5)
Person Charges with Weapons Involved ($\bar{x}$)						
Number of Prior Charges	2.9	(3.7)	2.9	(3.7)	2.9	(3.7)
Number of Prior Charges with Conviction	.35	(.62)	.38	(.73)	.37	(.71)
Drug Charges ($\bar{x}$)						
Number of Prior Charges	7.7	(9.8)	6.5	(8.7)	6.7	(9.0)
Number of Prior Charges with Conviction	1.8	(2.2)	1.5	(2.0)	1.6	(2.0)
Property Charges ($\bar{x}$)						
Number of Prior Charges	5.7	(7.9)	5.1	(7.1)	5.2	(7.3)
Number of Prior Charges with Conviction	1.1	(2.0)	.79	(1.6)	.85	(1.7)
Violations of Probation/Parole ($\bar{x}$)						
Number of Prior Charges	.90	(1.3)	1.1	(1.8)	1.1	(1.7)
Number of Prior Charges with Conviction	.76	(1.1)	.95	(1.6)	.91	(1.6)
Length of Criminal Career ($\bar{x}$ years from first arrest to call-in meeting/prison release date)	8.6	(5.8)	8.7	(4.2)	8.7	(4.6)
Number of Prior Sentences with Incarceration Time ($\bar{x}$)	2.8	(2.5)	2.6	(1.9)	2.6	(2.0)
Total Sentence Time Imposed ($\bar{x}$ years)	16.3	(14.8)	18.7	(21.2)	18.2	(20.0)

and African Americans comprised 98.3 percent of the study participants (ethnicity data were not available). Defined as the time period between the participant's first adult arrest and attendance at the call-in meeting (for the treatment group) or release (for comparisons), the criminal career of these individuals averaged 8.7 years. They had an average of 6.6 prior arrests and (since multiple offenses were typically charged for each arrest event) 25.4 charges during this time. Reflective of the target criteria for call-in participants, offenses against persons was by far the most common charge type (mean=11.0) in the overall sample, and they averaged almost three prior weapons-related charges; drug (mean=6.7) and property (mean=5.2) charges were less frequent. Overall, the history data showed arrest events led to an average of 3.5 convictions, and 5.2 of all charges resulted in a conviction.

Indicating the effects of the propensity score matching used to identify the final analytic samples, the data in Table 2 for the two groups shows them to be very similar on demographic and criminal history characteristics. While still a minimal proportion of the overall sample, the percentage of women in the comparison sample (4.0) is slightly higher than the call-in treatment sample (1.1). The treatment group averaged slightly more arrests altogether (7.4 vs. 6.3), while comparison subjects averaged slightly more person offense charges (11.2 vs. 10.1). Other differences appear negligible. Recall that the propensity scores derived for each participant, entered along with demographic and criminal history variables in statistical analyses (see below), effectively adjust for any differences between the groups on these factors when comparing recidivism outcomes.

Outcome Measures and Analysis Plan. As noted above, all data used in planned statistical analyses were obtained from the USAO Maryland, the state's official criminal record system, CJIS, or the Maryland Judiciary Case Search. The recidivism follow-up period for the treatment group was defined as the time from the person's attendance at the call-in meeting to the closure of

CJIS data collection for analyses purposes (January 12, 2016), a period ranging from 11.2 months (for those who attended relatively recent meetings) to 6.3 years (those attending the first meetings scheduled in 2009). For the comparison group, the follow-up tracking period was from the person's prison release date to the closure date; these ranged from 1.7 years to 7.5 years. Given the varying durations, the first set of outcome analyses was planned to ensure equivalent follow-up time frames of 1, 2, and 3 year periods. To be included in the one-year analyses, all subjects had to have had at least one full year of post-program/release follow-up time (2,511 of the total sample of 2,549, including 491 of the 521 call-in participants and all comparison subjects, met this criterion and were available for this analysis). Those in the two-year analyses had to have had at least two years of tracking time since the meeting or prison release (N=2,234; treatment N=219, comparison N=2,015) and likewise the three-year analyses (N=1,871; treatment N=108, comparison N=1,763).

This first set of analyses comparing the two groups' post-meeting/release recidivism employed logistic regression, which tests for differences on a dichotomous outcome while adjusting for other variables entered into the model (known as covariates, these are also thought to affect the outcome, such as prior criminal record or age). Specifically, separate logistic regressions were conducted to test for the occurrence of any arrest, conviction, and incarceration sentence over the 1, 2, and 3-year tracking periods. Another commonly-used multivariate statistical test, Cox regression, also known as survival or hazard analysis, was used in a second set of analyses to compare the treatment and comparison groups on their desistance from recidivism ("survival") or "time to failure" – the days to arrest, days to arrest leading to a conviction, and days to arrest leading to a sentence of incarceration – following the meeting or release. Cox modeling has the advantage of employing all the available data, as it accounts for different follow-up starting points and varying tracking durations.

Results

Recidivism outcomes for the two groups are shown in Table 3. At the one-year follow-up, just under one-third (32.7 percent) of the call-in treatment group had been rearrested – a slightly lower percentage than the comparison group (36.8 percent). The differences between the two study groups on rearrest rates was smaller at the two and three-year follow-up points, with the call-in group showing a negligibly smaller proportion rearrested than comparisons at two years, and a higher proportion at three years. It bears repeating that there were many fewer call-in participants included in these latter analyses, with less than half the treatment sample having a post-meeting tracking period of at least two years, and only about one-fifth eligible for inclusion in the three-year outcome analyses.

Table 3: Descriptive Recidivism Outcomes

Time Period and Outcome Measure	Call-In Participants		Comparison Group		Total Sample	
	N	Percent	N	Percent	N	Percent
One Year Follow-Up	(N=491)		(N=2020)		(N=2511)	
Arrest	160	32.7	744	36.8	904	36.0
Conviction	67	13.6	412	20.4	479	19.1
Incarceration	58	11.8	336	16.6	394	15.7
Two Year Follow-Up	(N=219)		(N=2015)		(N=2234)	
Arrest	110	50.2	1066	52.9	1176	52.6
Conviction	62	28.3	658	32.7	720	32.2
Incarceration	52	23.7	556	27.6	608	27.2
Three Year Follow-Up	(N=108)		(N=1763)		(N=1871)	
Arrest	68	63.0	1076	61.0	1144	61.1
Conviction	51	47.2	716	40.6	767	41.0
Incarceration	41	38.0	612	34.7	653	34.9
Most Serious Charge Level, 1st Follow-Up Arrest	(N=233)		(N=1341)		(N=1574)	
Misdemeanor	164	70.4	730	54.4	894	56.8
Felony	69	29.6	611	45.6	680	43.2
Most Serious Charge Type, 1st Follow-Up Arrest	(N=233)		(N=1341)		(N=1574)	
Person	143	61.4	976	72.8	1119	71.1
Drug	63	27.0	261	19.5	324	20.6

Group differences in the proportion convicted and incarcerated for committing a new crime during the one-year follow-up were more substantial. One-third fewer of the call-in participants were reconvicted (13.6 percent) and 28.9 percent fewer were reincarcerated (11.8 percent) relative to comparisons (20.4 percent and 16.6 percent, respectively). Again, the group differences on reconviction and reincarceration were smaller at the two and three-year points, with somewhat lower rates at two years and relatively higher rates on both recidivism measures for the treatment group at the three-year follow-up.

These generally positive findings for call-in participation, particularly during the first year of follow-up, were also in evidence on two other recidivism measures shown in Table 3. Among those in both groups who were rearrested, members of the call-in sample were more likely to have been charged with a misdemeanor at their first post-meeting arrest (70.4 percent). Almost half (45.6 percent) of the comparison subjects' first post-release arrest involved a felony charge. The anti-violence focus of the call-in meetings was also favorably reflected in the first rearrest offense types, with a smaller proportion of call-in participants charged with a person offense (61.4 percent) than comparisons (72.8 percent). The second most common offense type for both groups, drug charges, was more prevalent among the treatment group than the comparison group.

Logistic Regression. Multivariate analyses were conducted to assess whether the group differences on recidivism were statistically significant controlling for other possible factors that may influence these outcomes. Results of the logistic regressions on arrest, conviction, and incarceration within the first year of follow-up are shown in Table 4. This analysis confirmed that the call-in group showed significantly lower recidivism than the comparison group on all three measures controlling for other variables in the model. Generated by the regression model, the odds-ratios displayed in the first row show that the odds of call-in participants being rearrested are .67 as great as the odds of comparison group members being arrested, with the other variables held

constant. Similarly, the treatment group has lower odds of being convicted (.44) and incarcerated (.51) at the one-year follow-up. Odd-ratios (ORs) can also be mathematically converted to be expressed as probabilities. Again, controlling for the covariates in the model, meeting participation reduces the probability of arrest in the first year by 9 percent relative to comparisons; the probability of being convicted is reduced by 10 percent, and being sentenced to incarceration by 7 percent. The effect of call-in attendance in all three logistic models is statistically significant at $p<.01$, meaning there is less than a one percent probability the finding was due to chance.

Most of the other variables in the logistic model were also significantly related to each of the recidivism outcomes. With ORs significantly below 1.0, age was negatively associated with arrest, conviction, and incarceration at the one-year follow-up – that is, older study participants were less likely to recidivate – while ORs higher than 1 on the race variable meant Blacks were more likely to recidivate than non-Blacks. Findings on the criminal history variables were inconsistent. Persons in either group with more extensive histories of prior convictions and felony charges were significantly less likely to recidivate, while a history of drug convictions and numerous incarcerations were positively associated with all three recidivism outcomes.

Table 4: Logistic Regression of Recidivism at One-Year Follow-Up

Variable Entered in the Model	Arrest odds ratio# (z score)	Conviction odds ratio# (z score)	Incarceration Sentence odds ratio# (z score)
Call-In Participation (=1; comparison group= 0)	.67*** (-3.0)	.44*** (-4.7)	.51*** (-3.6)
Age	.89*** (-8.5)	.86*** (-8.4)	.85*** (-8.5)
Race (Black=1; non-Black=0)	1.54*** (3.5)	1.29* (1.7)	1.47** (2.3)
Prior Conviction Rate	.23*** (-7.6)	.28*** (-5.5)	.29*** (-5.0)
Prior Drug Convictions	1.08** (2.5)	1.07** (2.1)	1.07* (1.9)
Prior Property Convictions	1.01 (0.3)	1.04 (1.1)	1.03 (0.7)
Prior Times Incarcerated (1 day or more)	1.21*** (5.3)	1.16*** (3.6)	1.17*** (3.4)
Prior Sentence Days Imposed (maximum sentence time)	1.00** (-2.2)	1.00 (-1.1)	1.00 (-.3)
Percentage of Prior Charges that were Felonies	.55** (-2.0)	.17*** (-4.7)	.19*** (-4.2)
Follow-Up Duration	1.00 (-1.6)	1.00 (-1.4)	1.00 (-1.2)
Constant	18.40*** (6.7)	26.24*** (6.0)	22.70*** (5.3)
Model Statistics			
Observations	2,475	2,475	2,475
Pseudo R-Square	.074	.074	.071
Log Likelihood	-1498.59	-1117.74	-998.52

#Odds ratios with values above 1 indicate a positive association (or higher odds of the outcome occurring), values below 1 indicate a negative association (or lower odds of the outcome occurring).
*** p<.01 **p<.05 *p<.1

Table 5: Logistic Regression of Recidivism at Two-Year Follow-Up

Variable Entered in the Model	Arrest odds ratio[#] (z score)	Conviction odds ratio[#] (z score)	Incarceration Sentence odds ratio[#] (z score)
Call-In Participation (=1; comparison group= 0)	.77*** (-1.7)	.70*** (-2.1)	.70*** (-2.0)
Age	.90*** (-7.5)	.88*** (-8.5)	.86*** (-9.2)
Race (Black=1; non-Black=0)	1.57*** (3.6)	1.16 (1.1)	1.20 (1.3)
Prior Conviction Rate	.22*** (-7.9)	.36*** (-5.0)	.34*** (-5.2)
Prior Drug Convictions	1.14*** (3.9)	1.10*** (2.9)	1.08** (2.3)
Prior Property Convictions	1.04 (1.0)	1.00 (.2)	.99 (-0.2)
Prior Times Incarcerated (1 day or more)	1.18*** (4.3)	1.18*** (4.3)	1.22*** (4.8)
Prior Sentence Days Imposed (maximum sentence time)	1.00 (-1.4)	1.00 (-1.6)	1.00 (-.8)
Percentage of Prior Charges that were Felonies	0.47** (-2.5)	0.26*** (-4.1)	0.24*** (-4.0)
Follow-Up Duration	1.00 (-1.5)	1.00 (-1.6)	1.00 (-1.8)
Constant	28.23*** (7.3)	27.66*** (6.7)	37.19*** (6.9)
Model Statistics			
Observations	2,199	2,199	2,199
Pseudo R-Square	.082	.065	.071
Log Likelihood	-1396.20	-1292.53	-1195.70

[#]Odds ratios with values above 1 indicate a positive association (or higher odds of the outcome occurring), values below 1 indicate a negative association (or lower odds of the outcome occurring).
*** p<.01 **p<.05 *p<.1

Table 5 shows logistic regression results on the same set of recidivism measures for the two-year follow-up period. With few exceptions, these mirror the one-year results including confirming that the treatment group had significantly lower odds of being arrested, convicted, or incarcerated for a new crime over the two years following participation in the call-in meetings than comparison subjects over the two years following release from prison. One difference was that race was not related to the conviction and incarceration outcomes, showing no differences on these measures at two years for Blacks and those of other races. As in the one-year analysis, prior drug convictions and incarcerations were positively associated with recidivism, while conviction rate overall showed a negative association.

Logistic regression was also conducted on the same recidivism measures at the three-year follow-up. There was no significant effect found for the group variable in this analysis, indicating that call-in participants and comparison subjects were statistically equivalent in regard to new arrests, convictions, and incarceration sentences at this point following meeting attendance or prison release (the complete three-year logistic regression results table is shown in Appendix B).

Cox Regression Results. The key logistic regression results were reinforced in Cox regression analyses, which showed the call-in group with significantly longer times to first follow-up arrest, conviction, and incarceration sentence than comparison subjects ($p < .01$ for the group effect in all three models). The Cox hazard ratios (see Table 6) can be interpreted as reflecting risk. Specifically, the hazard ratio (HR) for the arrest outcome (.75) indicates that the risk of rearrest is decreased by 25 percent for call-in participants relative to the comparison group. Similarly, the HRs for conviction (.47) and incarceration (.46) reflect a reduced risk of 53 and 54 percent, respectively, in a new conviction and sentence of incarceration occurring in the treatment group relative to comparisons.

Table 6: Cox Regression on Time to Follow-Up Arrest

Variable Entered in the Model	Time to First Arrest hazard ratio (standard error)	Time to First Arrest leading to Conviction hazard ratio (standard error)	Time to First Arrest leading to Incarceration Sentence hazard ratio (standard error)
Call-In Participation (=1; comparison group= 0)	.75*** (.07)	.47*** (.10)	.46*** (.11)
Age	.93*** (.01)	.91*** (.01)	.90*** (.01)
Race (Black=1; non-Black=0)	1.43*** (.07)	1.21** (.09)	1.22** (.10)
Prior Conviction Rate	.37*** (.11)	.39*** (.14)	.41*** (.15)
Prior Drug Convictions	1.04*** (.02)	1.05** (.02)	1.06** (.02)
Prior Property Convictions	1.03 (.02)	1.02 (.02)	1.03 (.02)
Prior Times Incarcerated (1 day or more)	1.12*** (.02)	1.13*** (.03)	1.14*** (.03)
Prior Sentence Days Imposed (maximum sentence time)	1.00*** (.00)	1.00*** (.00)	1.00* (.00)
Percentage of Prior Charges that were Felonies	.40*** (.17)	.35*** (.22)	.29*** (.24)
Model Statistics			
Observations	2,513	2,513	2,513
Log Likelihood	-11149.96	-7306.71	-6162.57

*** p<.01   **p<.05   *p<.1

It is also possible with Cox regression modeling to generate graphs depicting survival curves for study groups showing the proportion in each group surviving – in this case remaining in the community *without* a rearrest, an arrest leading to a reconviction, or an arrest leading to reincarceration – over the full follow-up tracking period. Summary statistics from the six survival curves (for the two groups on the three recidivism measures) are shown in Table 7 (the complete

survival figures are provided in Appendix C). Comparisons subjects show greater failure rates at all three points in time on each of the outcomes, with group differences ranging from 7 to 20 percentage points, with the greatest differences evident on reconviction and reincarceration at two and three years following the meeting or prison release.

Table 7: Survival on Three Recidivism Measures at 1, 2 and 3 Years Follow-Up

Recidivism Outcome	At 1 Year		At 2 Years		At 3 Years	
	Treatment Group	Comparison Group	Treatment Group	Comparison Group	Treatment Group	Comparison Group
Arrest	71%	64%	59%	47%	49%	38%
Conviction	87%	74%	83%	63%	80%	60%
Incarceration Sentence	89%	78%	86%	69%	83%	66%

Summary and Discussion

Employing a quasi-experimental study design, this evaluation of call-in meetings in Maryland under Project Safe Neighborhoods provides promising evidence of their effectiveness in reducing recidivism among serious felony offenders. The study tracked participants of 18 meetings held by prosecutors in the cities of Annapolis and Frederick, Anne Arundel and Prince George's Counties, and Baltimore City between September 2009 and February 2015. Compared to a sample of persons released from state prison over a similar period with matched demographics and criminal history, participants of call-in meetings showed a lower probability of any rearrest, and a rearrest for charges that led to a conviction or to a sentence of incarceration over a two-year follow-up period. While the observed differences in the groups were modest (from 4.1 percentage points on rearrest to 6.8 points on reconviction at the one-year follow-up), the probability of recidivating was lower by 7 to 10 percent among call-in participants when controlling for demographics and criminal history in both groups, a statistically significant difference.

16

The study's findings and research design, where propensity score matching was used to identify comparison subjects and control for group differences on background factors, contributes to the emerging and largely equivocal evaluation literature on offender call-in programs. The results align with the few studies that have shown recidivism reduction impacts, including the call-in programs in Chicago studied by Papachristos and colleagues.[2] As in Chicago, the Maryland program specifically targeted recent prison releasees with weapons and violent offense histories. Other similarities included conveying a message to participants that the law enforcement response to recidivism would be certain, consistent, and legitimate, and the involvement of service providers at the meetings to help participants address vocational and educational needs.

Limitations. As with any evaluation that is not a controlled trial, there are caveats to the present findings, which should be viewed with some caution. There were no participant lists for 19 of the 37 call-in meetings that were held through February 2015, and it is possible some attendees of these meetings were included in the comparison group. Any effect from this, however, would tend to favor the comparison group and reduce recidivism differences with the treatment group. There also may be characteristics of either group which make them more or less prone to recidivism for which there were no data available for matching or control purposes. Since information on county of residence was not available for the comparison selection pool, it was not possible to select or match on this factor, and thus comparison subjects comprise a statewide sample. This too, though, might tend to favor the comparison group, since the call-in meetings were targeted to persons residing in the state's most populous and urbanized areas, where crime

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[2] Papachristos, A.V., Wallace, D., Meares, T., & Fagan, J. (2013, March). *Desistance and legitimacy: The impact of offender notification meetings on recidivism among high risk offenders* (Paper No. 13-343). New York: Columbia Law School Public Law & Legal Theory Working Paper Group. Retrieved January 9, 2015, from http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2240232

rates are generally higher. Another factor that may have advantaged comparison over treatment subjects was the close monitoring that came with being identified by the USAO and local prosecutors as a call-in program candidate.

One difference that would tend to benefit treatment group outcomes concerns the follow-up tracking period. Persons released from prison as far back as July 2008 were included in the comparison sample, while the tracking time frame for the treatment group began in September 2009, and for 80 percent of this group, tracking began following participation in meetings held in 2013 and later.[3] Although the use of one, two, and three-year follow-up periods in the recidivism analyses evens the playing field with regard to length of the tracking period, proportionally more in the treatment group were assessed for recidivism during recent years, when crime rates have been dropping incrementally.[4] Another caveat arises from the fact that the recidivism data, drawn from the state's CJIS database, does not include information on cases processed by federal prosecutors and courts. While federal cases account for a very small portion of all criminal case processing both in Maryland and nationally, this may be relevant given that the call-in meetings involved U.S. Attorneys who explicitly cautioned participants about federal prosecution. If proportionally more in the treatment group were subject to federal prosecution (as suggested to call-in meeting participants), the reconviction and reincarceration measures could be undercounted for this group. Notably, this would have not affect the arrest recidivism data, which would appear in CJIS with the very rare exception of arrests being made by federal law enforcement.

Conclusion. These study limitations, together with the promising findings of the evaluation, underscore the need for further research on the effects of call-in programs in Maryland. Conditions are such that a definitive study using a controlled, random assignment design would be timely,

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[3] More than 80 percent of the treatment group was tracked following participation in meetings held in 2013 and later. Of the 18 call-in meetings for which there were participant lists, 5 meetings with a total of 96 participants were held prior to 2013.

[4] http://www.goccp.maryland.gov/msac/crime-statistics.php

feasible, and potentially of much value. There is a sizable flow of persons being released from state prisons who meet the program target criteria, the meetings are low cost, and much knowledge and experience has already been gained on these programs by both practitioners and researchers. Prospective studies should also be undertaken to examine the effects of different program elements and participant characteristics, and to assess additional outcomes including service follow-up, employment, and further measures of recidivism. While these are important next steps, there is an urgent, immediate need to implement systematic collection of information on all meetings, invitees, and participants. The findings also support the continuation of call-in meetings under Project Safe Neighborhoods and where practical, their expansion.

Appendix A: Propensity Matching Technical Report

Random assignment to the treatment condition is considered the scientific "gold standard." This is because when individuals are assigned to treatment by chance, it can be assumed that variations between those in the comparison and the treatment groups are random and should not influence or bias the outcomes of the study.

In many instances, random assignment is not feasible, so it is possible that those participating in a program that selected (or self-selected) into the treatment condition were substantially different than those who would be randomly assigned to treatment. One way to overcome this selection bias is to create a comparison group by calculating a propensity score using logistic regression to estimate the probability that, had this intervention employed random assignment, the individual would have been assigned to the treatment group.[5]

One source of data was utilized to create the propensity score between the treatment and comparison group -- data for matching were obtained through summated variables from the standard state Criminal Justice Information System (CJIS) criminal history.

The objective of the propensity score analysis is to obtain "covariate balance … [where] the observed covariates x and the treatment Z are *conditionally independent* within the matched sets" of individuals.[6] The selection of the variables to be included in the propensity score calculation were more of a "kitchen sink" approach where all theoretically relevant factors believed to influence either someone's participation in the treatment and/or the outcome of a post-release arrest were included in the model. In this case, virtually every variable available was considered. The final set of 24 variables that were included in the propensity score for the final comparison group are listed in Table A1.

Using StataSE 13, logistic regression was conducted. While a number of variables were examined, several variables originally considered were dropped from the model because it was not possible to "balance" the treatment and comparison groups when these variables where included (e.g., number of days since release or the call-in meeting was dropped). Ultimately, 24 variables derived from the CJIS criminal history files were included (see Figure 4).

Figure A1 includes the output table reflecting each variable in the propensity score calculation, coefficients, standard errors, and t values. After matching, 4 variables which remain statistically different post matching – gender, career arrest conviction rate, if the least serious charge in their career was a felony or a misdemeanor, and of all prior convictions, the average which were felony charges. Consequently, these variables, as well as several other theoretically relevant variables that could not be included given the balancing constraints (e.g., age of participants and days since the first meeting (treatment group) and from release (comparison group), were considered in the outcome models to account for these differences.

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[5] Rosenbaum, P.R., & D.B. Rubin (1985). Constructing a Comparison Group Using Multivariate Matched Sampling Methods that Incorporate the Propensity Score. *The American Statistician, 39, (1)*, 33-38.

[6] Loughran, T. (2007). Causal Inference Using Propensity Scores. Presentation at the American Society of Criminology Workshop, November 13, 2007.

Once the propensity scores were calculated, the comparison group was matched to the treatment sample by requesting two comparison cases who were the "nearest neighbor" to the treatment case based on the propensity score. Of the initial 2,630 cases in the propensity match pool, 2,549 cases were matched and included in the final sample. Of those 2,549, 2,020 were in the comparison group, matched to 529 in the treatment group. Refer to Figure A2 for a graphical display (box plots) of the area of common support (i.e., the overlap) between the comparison group and treatment group (referred to in these appendices as "PSN" for the call-in meetings under Project Safe Neighborhoods).

Table A1: Variables Used to Calculate Propensity Score

Variable Name	Explanation
Male	Gender is Male (1=Male; 0=Female)
N_arrconv	Total Prior Arrests Convicted
actualsum	Prior Summed Time Imposed in Days
incarcer	Ever Sentenced 1 or more Days to Incarceration (1=Yes)
Sentimp	Prior Prison SUMMED Sentence Imposed into Days
person_sum	Prior Total Person Charges
Sex_sum	Prior Total Sex Charges
drug_sum	Prior Total Drug Charges
sercat_min	Prior Career Min Seriousness Category - Charges
sercat_max	Prior Career Max Seriousness Category - Charges
sercat_mean	Prior Average Seriousness Category - Charges
offtype_last	Least Serious Offense Type
sercat_first	Prior Most Serious Offense Category
sercat_last	Prior Least Serious Offense Category
misfel_first	Prior Most Serious Charge Felony or Misdemeanor
misfel_last	Prior Least Serious Charge Felony or Misdemeanor
Offclass	Offender Class Based on Prior Seriousness - Conviction
convperson_sum	Prior Total Person Convictions
convsex_sum	Prior Total Sex Convictions
convdrug_sum	Prior Total Drug Convictions
convproperty_sum	Prior Total Property Convictions
convsercat_min	Prior Career Min Seriousness Category – Convictions
convsercat_max	Prior Career Max Seriousness Category – Convictions
convmisfel_mean	Prior Career - Average of Felony Convictions

Figure A1: Propensity Score Variable Coefficients, Standard Errors & t-values

```
*******************************************************
Algorithm to estimate the propensity score
*******************************************************


The treatment is tx

 Tx or CTRL |      Freq.      Percent       Cum.
------------+-----------------------------------
       ctrl |      2,091        79.51       79.51
        psn |        539        20.49      100.00
------------+-----------------------------------
      Total |      2,630       100.00



Estimation of the propensity score

Iteration 0:   log likelihood = -1310.9178
Iteration 1:   log likelihood = -1234.4145
Iteration 2:   log likelihood = -1230.8169
Iteration 3:   log likelihood = -1230.5541
Iteration 4:   log likelihood = -1230.5509
Iteration 5:   log likelihood = -1230.5509

Probit regression                               Number of obs   =        2589
                                                LR chi2(23)     =      160.73
                                                Prob > chi2     =      0.0000
Log likelihood = -1230.5509                     Pseudo R2       =      0.0613


--------------------------------------------------------------------------------
          tx |      Coef.    Std. Err.       z     P>|z|     [95% Conf. Interval]
-------------+------------------------------------------------------------------
        male |   .7911666    .2147525     3.68    0.000      .3702594    1.212074
  arrconvrate |  -.2724715     .142255    -1.92    0.055     -.5512862    .0063431
     incarcer |  -.5907295    .1406765    -4.20    0.000     -.8664505   -.3150086
      sentimp |  -5.12e-07    5.21e-06    -0.10    0.922     -.0000107    9.70e-06
  person_sum |    .002913    .0040075     0.73    0.467     -.0049415    .0107675
     sex_sum |   -.062105    .0414947    -1.50    0.134     -.1434332    .0192231
    drug_sum |   .0058039    .0057299     1.01    0.311     -.0054265    .0170342
  convperson~m |  -.0305685    .0293467    -1.04    0.298     -.0880869    .0269499
  convsex_sum |  -.3947908    .2131456    -1.85    0.064     -.8125484    .0229669
  convdrug_sum |   .0056417    .0250726     0.23    0.822     -.0434996     .054783
  convproper~m |   .0244878    .0194982     1.26    0.209     -.0137279    .0627035
    sercat_min |  -.0973763    .1069937    -0.91    0.363       -.30708    .1123274
    sercat_max |  -.0748412     .038306    -1.95    0.051     -.1499196    .0002371
   sercat_mean |  -.1055245    .0780075    -1.35    0.176     -.2584163    .0473673
      offclass |  -.0535175    .0439626    -1.22    0.223     -.1396826    .0326477
  offtype_last |   .0174218    .0320658     0.54    0.587      -.045426    .0802696
   sercat_first |  -.0842482    .0630155    -1.34    0.181     -.2077563    .0392598
    sercat_last |  -.1500094    .0934024    -1.61    0.108     -.3330748     .033056
   misfel_first |   .2150948     .135098     1.59    0.111     -.0496925    .4798821
   misfel_last |   .4172773    .2006253     2.08    0.038       .024059    .8104956
  convserca~in |   .1717301    .0885637     1.94    0.052     -.0018515    .3453117
  convsercat~x |   .0893248    .0644503     1.39    0.166     -.0369955    .2156452
  convmisfel~n |  -.8234888    .2678774    -3.07    0.002     -1.348519   -.2984587
        _cons |   .0513004     .319298     0.16    0.872     -.5745122     .677113
--------------------------------------------------------------------------------



Note: the common support option has been selected
The region of common support is [.01674768, .64076768]
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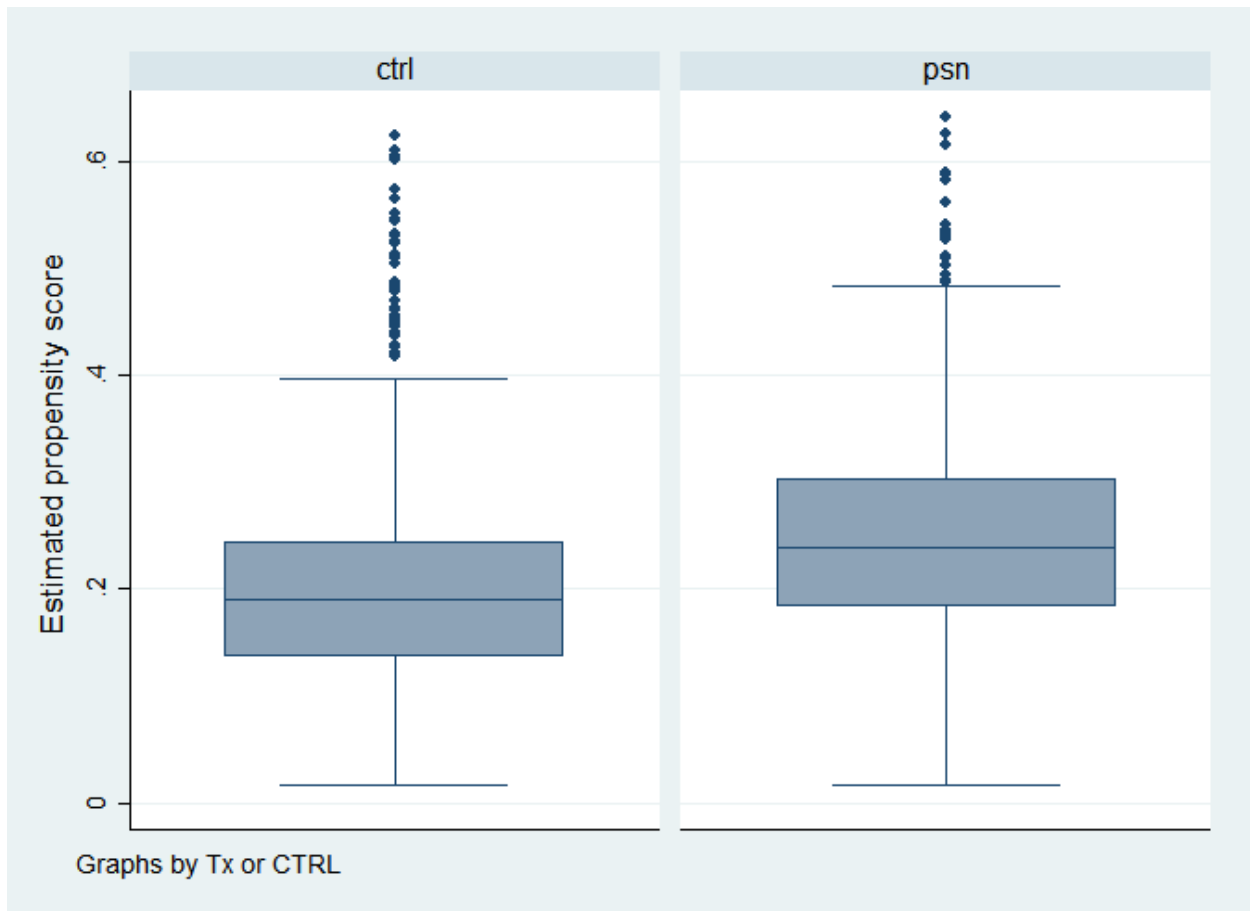
22

Figure A2: PSN and Comparison Box Plot N=2,549

Graphs by Tx or CTRL

Finally, it is important also to remember that the propensity score is *not* matching each of the different variables one by one within the comparison group to the treatment cases. What the propensity score does is calculate an *overall* score that allows these different factors to play a role in context with the other attributes. While using this statistical method made it possible to create a well matched comparison group, it is important to note that this is matched on *observed* characteristics of these individuals (e.g., age, criminal history). There could be additional *unobserved* factors that we cannot account for in this process that also likely influence the outcomes of recidivism.

We attempt to address this limitation by including as many variables as possible in the model, but this limitation remains. Nonetheless, the rigor of the propensity score method, if used appropriately, has advanced the ability of social scientists who work primarily in a non-laboratory setting, to assess and evaluate treatment using these matching techniques.

Appendix B: Additional Logistic Regression Results

Table B1: Logistic Regression, Year One: Conversion Hazard Rates to Relative Risk

ARREST	Odds Ratio	Reduction in odds	Change in Prob 0 to 1	Change into %		
PSN	0.668	-33%	-0.087	-9%	Probability those in PSN arrested in	
Days from Mtg/Release	1.000	0%	0.000	0%	first year is reduced by 9%	
Age	0.889	-11%	-0.009	-1%	obs	2475
Race	1.543	54%	0.094	9%	LL	-1498.59
Arrest Conv. Rate	0.234	-77%	-0.333	-33%		
Drug Conv. Total	1.079	8%	0.017	2%	pseudo r2	0.074 7%
Prop. Conv. Total	1.011	1%	0.002	0%		
Times Incarcerated	1.211	21%	0.037	4%	Prob TX Arrest	28% psn=1
Max Days Imposed	1.000	0%	0.000	0%	Prob CT Arrest	36% ctrl=0
Avg % Felony Charges	0.548	-45%	-0.128	-13%		

CONVICTION						
PSN	0.443	-56%	-0.095	-10%	Probability those in PSN convicted in	
Days from Mtg/Release	1.000	0%	0.000	0%	first year is reduced by 10%	
Age	0.860	-14%	-0.013	-1%	obs	2475
Race	1.291	29%	0.033	3%	LL	-1117.74
Arrest Conv. Rate	0.278	-72%	-0.197	-20%		
Drug Conv. Total	1.074	7%	0.009	1%	pseudo r2	0.0742 7%
Prop. Conv. Total	1.042	4%	0.006	1%		
Times Incarcerated	1.163	16%	0.017	2%	Prob TX Convict	9% psn=1
Max Days Imposed	1.000	0%	0.000	0%	Prob CT Convict	19% ctrl=0
Avg % Felony Charges	0.172	-83%	-0.185	-19%		

INCARCERATION						
PSN	0.510	-49%	-0.067	-7%	Probability those in PSN Sentenced in	
Days from Mtg/Release	1.000	0%	0.000	0%	first year is reduced by 7%	
Age	0.848	-15%	-0.013	-1%	obs	2475
Race	1.473	47%	0.041	4%	LL	-998.527
Arrest Conv. Rate	0.285	-72%	-0.164	-16%		
Drug Conv. Total	1.072	7%	0.008	1%	pseudo r2	0.071 7%
Prop. Conv. Total	1.030	3%	0.003	0%		
Times Incarcerated	1.166	17%	0.014	1%	Prob TX Sentenced	8% psn=1
Max Days Imposed	1.000	0%	0.000	0%	Prob CT Sentenced	15% ctrl=0
Avg % Felony Charges	0.186	-81%	-0.148	-15%		

Table B2: Logistic Regression, Year Two: Conversion of Odds Ratios to Probabilities

ARREST	Odds Ratio	Reduction in odds	Change in Prob 0 to 1	Change into %			
PSN*	0.770	-23%	-0.065	-7%	Probability those in PSN arrested within 2 years is reduced by 7%		
Days from Mtg/Release	1.000	0%	0.000	0%			
Age	0.899	-10%	-0.006	-1%	obs		2199
Race	1.566	57%	0.112	11%	LL		-1396.2
Arrest Conv. Rate	0.218	-78%	-0.356	-36%			
Drug Conv. Total	1.139	14%	0.033	3%	pseudo r2		0.0821	8%
Prop. Conv. Total	1.038	4%	0.009	1%			
Times Incarcerated	1.182	18%	0.041	4%	Prob TX Arrest	47%	psn=1
Max Days Imposed	1.000	0%	0.000	0%	Prob CT Arrest	54%	ctrl=0
Avg % Felony Charges	0.469	-53%	-0.187	-19%			

*Marginally Significant at p<.10

CONVICTION							
PSN	0.700	-30%	-0.071	-7%	Probability those in PSN convicted within 2 years is reduced by 7%		
Days from Mtg/Release	1.000	0%	0.000	0%			
Age	0.875	-13%	-0.009	-1%	obs		2199
Race	1.160	16%	0.031	3%	LL		-1292.54
Arrest Conv. Rate	0.357	-64%	-0.226	-23%			
Drug Conv. Total	1.097	10%	0.019	2%	pseudo r2		0.0742	7%
Prop. Conv. Total	1.007	1%	0.002	0%			
Times Incarcerated	1.184	18%	0.030	3%	Prob TX Convict	24%	psn=1
Max Days Imposed	1.000	0%	0.000	0%	Prob CT Convict	31%	ctrl=0
Avg % Felony Charges	0.255	-74%	-0.247	-25%			

INCARCERATION							
PSN	0.701	-30%	-0.062	-6%	Probability those in PSN Sentenced within 2 years is reduced by 6%		
Days from Mtg/Release	1.000	0%	0.000	0%			
Age	0.856	-14%	-0.008	-1%	obs		2199
Race	1.199	20%	0.033	3%	LL		-1195.7
Arrest Conv. Rate	0.325	-67%	-0.223	-22%			
Drug Conv. Total	1.082	8%	0.014	1%	pseudo r2		0.0708	7%
Prop. Conv. Total	0.993	-1%	-0.001	0%			
Times Incarcerated	1.218	22%	0.029	3%	Prob TX Sentenced	20%	psn=1
Max Days Imposed	1.000	0%	0.000	0%	Prob CT Sentenced	26%	ctrl=0
Avg % Felony Charges	0.243	-76%	-0.220	-22%			

Table B3: Logistic Regression of Recidivism at Three-Year Follow-Up

Variable Entered in the Model	Arrest odds ratio[#] (z score)	Conviction odds ratio[#] (z score)	Incarceration Sentence odds ratio[#] (z score)
Call-In Participation (=1; comparison group= 0)	.90 (-1.7)	1.15 (.67)	.99 (-.04)
Age	.88*** (-7.6)	.87*** (-8.4)	.85*** (-9.1)
Race (Black=1; non-Black=0)	1.86*** (4.7)	1.28* (1.8)	1.24 (1.5)
Prior Conviction Rate	.22*** (-7.0)	.29*** (-5.8)	.29*** (-5.5)
Prior Drug Convictions	1.14*** (3.5)	1.13*** (3.7)	1.12*** (3.3)
Prior Property Convictions	1.05 (1.2)	1.04 (.96)	1.03 (.84)
Prior Times Incarcerated (1 day or more)	1.18*** (3.7)	1.12*** (2.7)	1.17*** (3.8)
Prior Sentence Days Imposed (maximum sentence time)	1.00 (-1.4)	1.00** (-2.3)	1.00 (-1.3)
Percentage of Prior Charges that were Felonies	0.30*** (-3.5)	0.20*** (-4.6)	0.18*** (-4.6)
Follow-Up Duration	1.00* (-1.8)	1.00* (-1.8)	1.00* (-1.8)
Constant	72.55*** (7.8)	66.13*** (7.7)	76.91*** (7.7)
Model Statistics			
Observations	1,844	1,844	1,844
Pseudo R-Square	.097	.080	.083
Log Likelihood	-1112.10	-1148.91	-1092.17

[#]Odds ratios with values above 1 indicate a positive association (or higher odds of the outcome occurring), values below 1 indicate a negative association (or lower odds of the outcome occurring).
*** p<.01   **p<.05   *p<.1

Appendix C: Additional Cox Regression Results

Table C1: Cox Regression: Conversion Hazard Rates to Relative Risk

ARREST	Exp(B) Hazard Rate	Relative Risk	
PSN	.748	-25%	The risk of arrest for those who
Age	.931	-7%	participate in PSN is reduced by 25%
Race	1.431	43%	compared to those in the Comparison
Arrest Conv. Rate	.374	-63%	Group, with all other values held
Drug Conv. Total	1.045	5%	constant.
Prop. Conv. Total	1.027	3%	
Times Incarcerated	1.117	12%	
Max Days Imposed	1.000	0%	
Avg % Felony Charges	.555	-44%	

CONVICT	Exp(B) Hazard Rate	Relative Risk	
PSN	.465	-53%	The risk of an arrest leading to a
Age	.910	-9%	conviction for those who participate
Race	1.206	21%	in PSN is reduced by 53% compared
Arrest Conv. Rate	.394	-61%	to those in the Comparison Group,
Drug Conv. Total	1.046	5%	with all other values held constant.
Prop. Conv. Total	1.023	2%	
Times Incarcerated	1.133	13%	
Max Days Imposed	1.000	0%	
Avg % Felony Charges	.345	-66%	

INCARCERATE	Exp(B) Hazard Rate	Relative Risk	
PSN	.457	-54%	The risk of an arrest leading to a
Age	.897	-10%	conviction for those who participate
Race	1.218	22%	in PSN is reduced by 54% compared
Arrest Conv. Rate	.414	-59%	to those in the Comparison Group,
Drug Conv. Total	1.055	6%	with all other values held constant.
Prop. Conv. Total	1.028	3%	
Times Incarcerated	1.138	14%	
Max Days Imposed	1.000	0%	
Avg % Felony Charges	.292	-71%	

Figure C1: Survival Plot: Days to First Arrest

Survival Function at mean of covariates
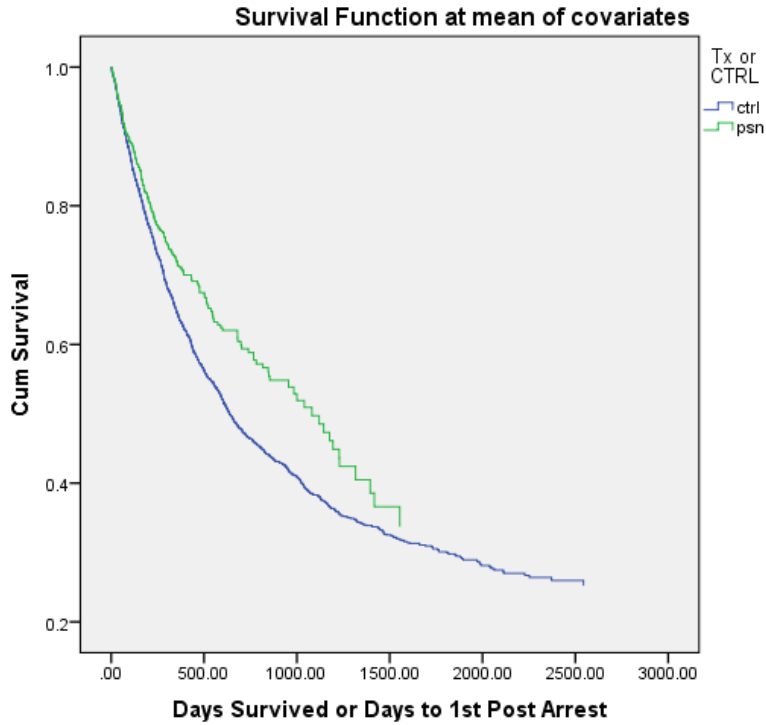
Figure C2: Survival Plot: Days to First Arrest to Conviction

Survival Function at mean of covariates
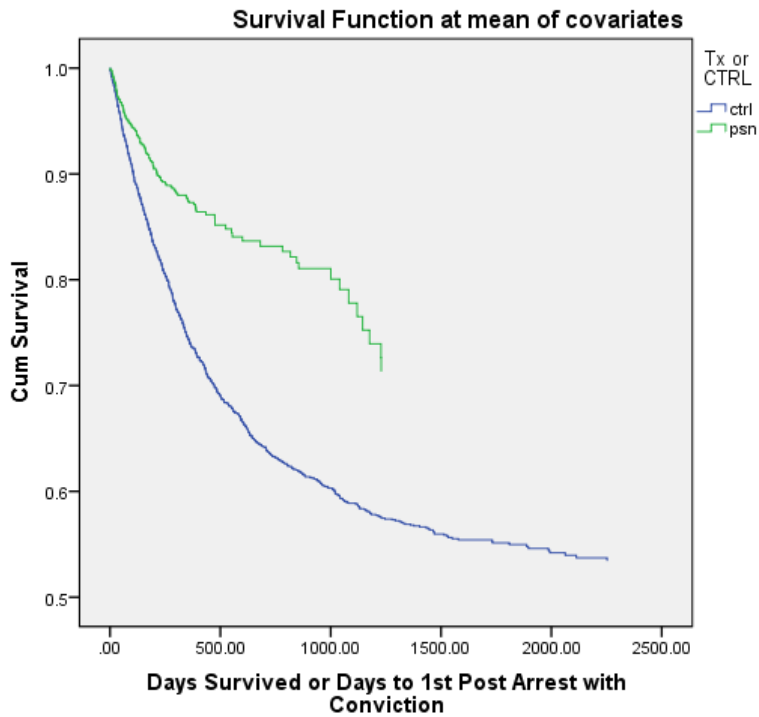
Figure C3: Survival Plot: Days to First Arrest to Incarceration

Survival Function at mean of covariates
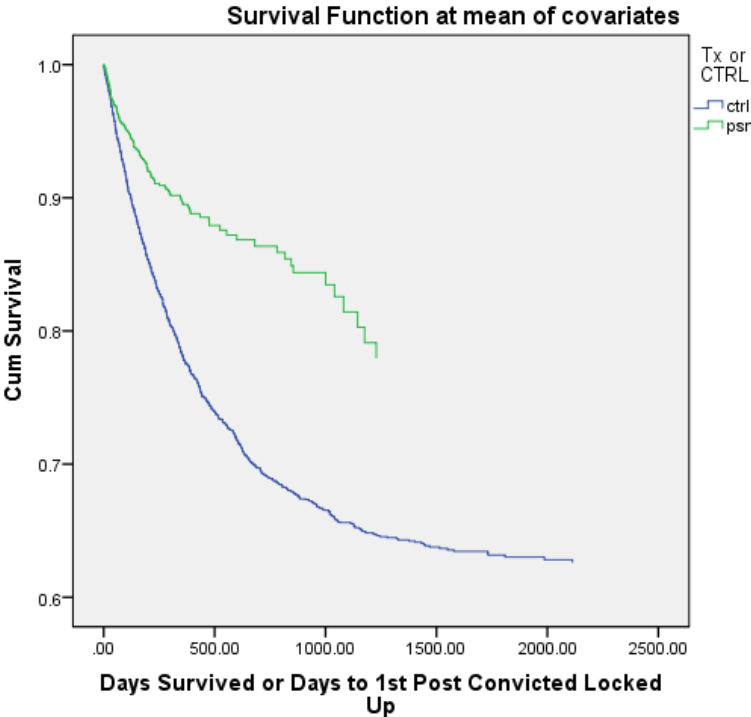
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