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The impact of the Practice Guide for Intervention (PGI) on recidivism among offenders serving a community-based order

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AIM

To investigate the impact of the Practice Guide for Intervention (PGI) on re-offending and imprisonment among supervised offenders serving a community-based order in New South Wales (NSW), specifically, either a good behaviour bond or a suspended sentence.

METHOD

Introduced in June 2016, PGI led to a substantial overhaul in the delivery of supervision services by NSW Community Corrections Officers (CCOs). Using a difference-in-differences (DiD) strategy, we compare re-offending (imprisonment) between supervised and unsupervised offenders serving a good behaviour bond (suspended sentence) before and after the introduction of PGI. Re-offending (imprisonment) is measured as the probability of committing a new and proven offence (being imprisoned) within 12 months of index court finalisation. The pre-PGI period includes offenders with a finalised court appearance between June and December 2014. There are two post-PGI periods. The first post-PGI period includes offenders with a finalised court appearance between June and December 2016 (the first six months after PGI was introduced). The second post-PGI period includes offenders with a finalised court appearance between June and December 2017, when the use of PGI across NSW was approaching its peak.

RESULTS

Among supervised offenders serving a good behaviour bond, the DiD estimates indicate a small 1 to 2 percentage point increase in re-offending after the introduction of PGI compared with unsupervised offenders. However, the difference is not statistically significant. For supervised offenders sentenced to a suspended sentence, we also find a slight increase in the probability of imprisonment, but the increase is not statistically significant.

CONCLUSION

Overall, we do not find evidence that the introduction of PGI led to a reduction in re-offending among supervised offenders sentenced to a good behaviour bond, nor do we find a reduction in the probability of imprisonment among supervised offenders serving a suspended sentence.

KEYWORDS

Practice Guide for Intervention (PGI)

risk-need-responsivity (RNR)

cognitive behavioural therapy (CBT)

community supervision

recidivism

INTRODUCTION

The Practice Guide for Intervention (PGI) is a major component of the 'Enhanced Community Supervision' reforms introduced in NSW in 2016. This was one element of the NSW government's strategy to reduce adult re-offending by 5 percentage points by 2019. To contribute to this policy goal, PGI shifts the focus of supervision toward a rehabilitative approach where Community Corrections Officers (CCOs) proactively assist offenders to address the factors that contribute to their offending behaviour (that is, their 'criminogenic needs').

This represented a significant departure from the historical model of community supervision in NSW, which had focused primarily on ensuring offenders comply with the specific conditions of their order (Tran, Thaler, Chong, & Howard, 2019). PGI is a CBT-based tool designed to be used by CCOs who supervise offenders in the community.¹ PGI can be undertaken with the offender during any community supervision interview ('contact') and can also be used with offenders prior to their release from custody.²

In practice, PGI is composed of a series of 13 modules, where each module is designed to address a specific criminogenic need. The topics range from 'Managing Stress and Anger', 'Managing Cravings', to 'Conflict Resolution'.³ There are between three to six worksheet activities within each of these modules that the CCOs can use with the offender during supervision, but every supervised offender must, at a minimum, undertake exercises '1.1 Supervision Expectations' and '1.2 Offence Mapping and Intervention Planning' from module 1. These CBT-based brief interventions are delivered by CCOs with the aim to generate long-lasting and persistent behavioural change. PGI can also be used in conjunction with other offender rehabilitation programs delivered in the community, such as the 'Explore, Question, Understand, Investigate, Practise, Success' (EQUIPS) suite of programs (Howard & Chong, 2019).

PGI was developed according to the principles of the Risk-Need-Responsivity (RNR) model of offender rehabilitation (Bonta & Andrews, 2007). These are:

1. 'Risk' principle: the level of program intensity should be matched to the offender's risk of re-offending. In other words, higher (lower) levels of service should be reserved for high (low)-risk offenders;
2. 'Need' principle: target specific offender needs that are related to criminality, and;
3. 'Responsivity' principle: provide CBT-based treatment that is tailored to complement the offender's learning style and abilities.

As per the 'risk' principle, PGI is targeted toward offenders who have a relatively higher risk of re-offending. It is mandatory for offenders serving a community supervision order(s) who are assessed at medium, medium-high, or high on the Level of Service Inventory – Revised (LSI-R).⁴ While PGI can be used with offenders who have a medium-low or low LSI-R score, it is not compulsory and only minimum intervention is recommended.⁵

The implementation of PGI

PGI was implemented in three distinct stages, which are summarised in Table 1 (Thaler, Chong, Raudino, & Howard, 2019). A staged roll-out was planned in order to train all CCOs across NSW in the delivery of PGI and to allow sufficient time for them to become familiar with the content before performance measures were introduced.

1 CBT techniques are designed to focus on modifying the thought processes that can lead an offender to commit a crime. CBT encourages offenders to understand their thinking, attitudes, and beliefs that led to past criminal activity, and ultimately, produce behavioural change.

2 At the time of the study, the community supervision orders include bail supervision, good behaviour bonds, intensive correction orders (ICOs), home detention orders, parole, and extended supervision orders.

3 The complete list of PGI modules are: 1) Assessment and planning, 2) Achieving goals, 3) Dealing with setbacks, 4) Managing stress and anger, 5) Managing impulsivity, 6) Managing environment, 7) Managing cravings, 8) Interpersonal relationships, 9) Communication, 10) Conflict resolution, 11) Self-awareness, 12) Prosocial lifestyle, and 13) General skills.

4 However, it is not recommended to use the LSI-R with sex offenders.

5 Please see Ooi (2020) for a more detailed discussion of the principles of RNR and prior research on the effectiveness of RNR-based programs on offender rehabilitation.

Table 1. The three stages of PGI implementation

Stage 1	June 2016 to December 2016	PGI introduced across NSW Use of PGI during supervision not compulsory No KPIs
Stage 2	January 2017 to May 2017	Exercises 1.1 and 1.2 became compulsory KPIs introduced to measure use of exercises 1.1 and 1.2
Stage 3	June 2017 onwards	70 per cent of contacts with offenders must involve PGI Full KPIs introduced

Note. The compulsory exercises in stage 2 are '1.1 Supervision Expectations', and '1.2 Offence Mapping and Intervention Planning'.

During stage 1, which spanned from June to December 2016, PGI was not compulsory for CCOs to use during supervision contacts with offenders. As a result, only a small proportion of offenders received PGI during this period (Howard & Chong, 2019).

Stage 2 of PGI implementation occurred between January and May 2017. During this period, exercises 1.1 'Supervision Expectations' and 1.2 'Offence Mapping and Intervention Planning' from module 1 became compulsory for offenders with an LSI-R score of medium or above. Furthermore, Community Corrections NSW introduced key performance indicators (KPIs) to monitor the use of these mandatory exercises.

Stage 3 began in June 2017. Further KPIs were introduced to encourage increased use of PGI (or, 'PGI activity') among supervised offenders, and especially, to encourage CCOs to incorporate the non-compulsory modules that address criminogenic factors into supervision. Specifically, Community Corrections set a target that at least 70 per cent of all supervision contacts with offenders involve PGI-related activities. Consequently, the proportion of supervised offenders who received PGI increased dramatically in stage 3. Howard and Chong (2019) (pp. 14) note that, "...growth in the number of PGI sessions delivered and reach to the target population was observed to accelerate following transition from an introductory phase of discretionary use to operational phases of mandatory use and associated KPIs."

Current study

Previous research by the NSW Bureau of Crime Statistics and Research (BOCSAR) considered the impact of PGI on recidivism among high-risk parolees. This study compared re-offending rates of parolees before and after the introduction of PGI with re-offending rates of offenders released from prison unconditionally (who did not receive PGI after June 2016). There was a slight reduction in parolee recidivism, but the difference was not statistically significant (Ooi, 2020). Although this analysis suggested that the introduction of PGI did not have a statistically significant impact on recidivism rates, the results may not necessarily generalise to other less risky offenders serving non-custodial community supervision orders.

Therefore, the aim of the current study is to investigate the impact of PGI on recidivism among offenders serving a community-based order; specifically, supervised good behaviour bonds or suspended sentences. Put simply, a good behaviour bond is a community-based order imposed by the Court that requires an offender to adhere to strict conditions for a specified period (up to a maximum of five years). We also study the impact of PGI on imprisonment rates among supervised offenders serving a suspended sentence. In brief, suspended sentences were an alternative to incarceration available in NSW from 1999 to 2018. In cases where a sentencing judge or magistrate determined imprisonment (of up to 2 years) to be appropriate, the judicial officer had the discretion to 'suspend' the prison sentence and allow the offender to serve their suspended sentence in the community under certain conditions. If an offender serving a suspended sentence breached the condition(s) of their order, the suspended sentence would likely be revoked and the offender required to serve the term of imprisonment (unless the Court is satisfied that the breach was sufficiently serious or that the offender has good reasons for failing to comply).⁶

⁶ Incarceration represents a sizeable ongoing cost to the NSW government. According to the Report on Government Services (2020), the cost to NSW for incarcerating an offender was \$197.45 per day.

To investigate the impact of PGI on recidivism, we compare changes in re-offending and imprisonment rates before and after the implementation of PGI for supervised offenders sentenced to a good behaviour bond or a suspended sentence with offenders sentenced to the same order but without a supervision condition imposed by the Court. Offenders without any supervision condition on their order would not have received PGI during the post-reform period, and therefore, form a natural comparison group.

METHOD

Data

The main dataset is from BOCSAR's Re-offending Database (ROD), which contains records for every offender sentenced in NSW. The ROD offender-level data relates to all adult offenders sentenced to a good behaviour bond or a suspended sentence between 2014 and 2018. The dataset contains details of each offenders' historical criminal record, including the number of prior offences committed, previous criminal court appearances (both as a juvenile and adult), and all prior custodial episodes. The data also includes demographic information (such as Aboriginality, date of birth, and gender), court finalisation date, most recent LSI-R score prior to court finalisation, and whether a community supervision condition was imposed by the Court.

To compare recidivism outcomes between supervised and unsupervised offenders sentenced to a good behaviour bond, we also obtain data on new offences committed after the index court finalisation, including details on the type of re-offence(s), re-offence date, whether or not the offence was proven, and the sentence imposed by the Court for the new offence. Among offenders serving a suspended sentence, the data also includes imprisonment as it is a measure of relatively more serious re-offending. The dataset includes all new offences finalised in court and the first new custodial episode after the index court finalisation up until June 2019.

We also obtain offender-level data from NSW Corrections Research Evaluation and Statistics (CRES). The data from CRES includes every offender who served a supervision order between December 2013 and August 2018 in NSW, and the monthly number of PGI sessions completed by every supervised offender.

Empirical approach: Difference-in-Differences

To measure the impact of the PGI reforms on recidivism among supervised offenders serving a community-based order, we estimate the following difference-in-differences (DiD) model pre and post the implementation of PGI ($t=1,2$):

$$R_{it} = \alpha_0 + \alpha_1 S_i + \alpha_2 P_t + \alpha_3 (S_i \times P_t) + \alpha_4 X_i' + \tau_t + \varepsilon_{it} \quad (1)$$

where S_i is a binary variable equal to one for offenders sentenced to a community-based order with supervision, and zero for offenders sentenced to a community-based order without supervision. Community-based orders include both good behaviour bonds (with conviction) or suspended sentences

R_{it} is the outcome of interest for offender i period t . Among offenders serving a good behaviour bond, R_{it} is a binary variable equal to one if offender i commits a new and proven offence within 12 months from index court finalisation in period t and zero otherwise. When measuring new and proven offences, we exclude breach of order offences.⁷ For offenders sentenced to a suspended sentence, the outcome of interest, R_{it} , is the probability that offender i is imprisoned within 12 months of the index court finalisation in period t .⁸

⁷ Breach of order offences are based on the Australian and New Zealand Standard Offence Classification (ANZSOC) 2011 and are excluded as they are typically influenced by policing intensity.

⁸ If an offender breaches a suspended sentence, for example, by committing a new offence, this will typically result in a Court revoking the suspended sentence. And, as a result, the offender would be imprisoned to serve the remainder of the sentence in custody. When measuring imprisonment, we do not exclude any specific offence types. Also, the dataset does not include custodial episodes that are less than one day in duration.

P_t is a binary variable equal to one for the post-PGI period, and zero for the pre-PGI period. The pre-PGI period includes offenders with a court finalisation date between June and December 2014, which is prior to the introduction of PGI across NSW. We include offenders with a court finalisation date in the second half of 2014 to measure recidivism with a 12 month follow up before the implementation of PGI.

We include two distinct 'post' periods in the study. The first 'post' period (hereafter, 'post-PGI period 1') includes offenders with a court finalisation date between June and December 2016. This period coincides with stage 1 of the implementation of PGI, where PGI contacts were comparatively minimal.

The second 'post' period (hereafter, 'post-PGI period 2') includes offenders with a court finalisation date between June and December 2017. This period comprises stage 3 of the rollout of PGI, and was when PGI was at its historical peak, as discussed in greater detail below. In this study, the main pre and post comparison of interest is between post-PGI period 2 and the pre-PGI period.

The coefficient of interest in equation (1) is α_3 , which measures the change in the likelihood of re-offending or imprisonment, R_{it} , before-and-after the introduction of PGI between supervised and unsupervised offenders. The coefficient α_3 can be interpreted as the causal effect of PGI on re-offending or imprisonment if the 'parallel' or 'common' trends assumption is satisfied. The parallel trends assumption is met if the trend in re-offending (or imprisonment) among unsupervised offenders approximates the trend in re-offending (or imprisonment) among supervised offenders before the introduction of PGI. If so, this indicates that unsupervised offenders are a valid counterfactual for supervised offenders if PGI had not been introduced.

Equation (1) also includes a vector of offender characteristics, represented by (X_i') , which includes the number of prior prison sentences, the number of prior finalised criminal court appearances for each offender, and a dummy variable for any criminal justice contacts as a juvenile. Also included in X_i' are offender demographics (age at finalisation, gender, and Aboriginality). We will also include a fixed effect for month and year of court finalisation (τ_t).

PGI activity

The DiD model outlined in equation (1) measures the recidivism of supervised offenders serving a community-based order in post-PGI periods 1 and 2. In this section, we briefly describe the level of PGI activity during these post-PGI periods, as well as the different types of PGI modules being completed by offenders.

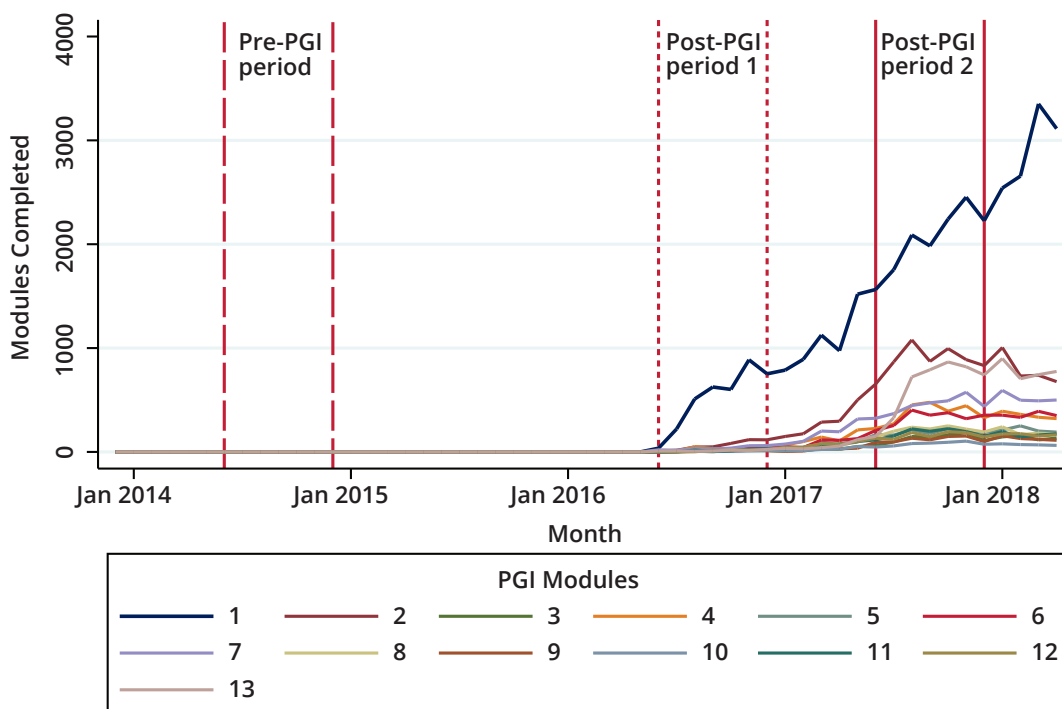
Completed PGI modules over time

Figure 1 displays the number of PGI modules completed by all offenders serving a supervision order between January 2014 and July 2018 across NSW. In the figure, the pre-PGI period is represented by the long-dash vertical lines. The first post-PGI period (stage 1) is represented by the short-dash vertical lines, while the second post-PGI period (stage 3) is represented by the solid vertical lines.

As expected, the monthly number of PGI modules completed is zero prior to its introduction in June 2016. After its introduction, it is clear that the number of completed modules increases steadily with time, particularly for module 1. During stage 1 (post-PGI period 1), there is a comparatively low number of PGI modules completed, and nearly all PGI modules completed were activities from module 1 'Assessment and Planning'.

However, the use of PGI increased markedly in stage 3 (post-PGI period 2), when full KPIs were introduced. There is a demonstrable rise in the use of some of the non-compulsory PGI modules. This increase indicates that the PGI material designed to address criminogenic factors was increasingly being used with offenders in post-PGI period 2. However, as indicated in Figure 1, the majority of sessions using PGI during post-PGI period 2 continue to be from module 1.

Figure 1. The monthly number of PGI modules completed between 2014 and 2018



Note. Each trend line in the figure represents the usage of each of the various PGI modules, respectively. The pre-PGI period is represented by the long-dash vertical lines. Post-PGI period 1 (post-PGI period 2) is represented by the short-dash (solid) vertical lines. PGI was first introduced across NSW in June 2016, which is represented by the first short-dash vertical line.

The PGI modules are: 1) Assessment and planning, 2) Achieving goals, 3) Dealing with setbacks, 4) Managing stress and anger, 5) Managing impulsivity, 6) Managing environment, 7) Managing cravings, 8) Interpersonal relationships, 9) Communication, 10) Conflict resolution, 11) Self-awareness, 12) Prosocial lifestyle, and 13) General skills.

Compulsory and non-compulsory PGI modules among supervised offenders serving a community-based order

In this section, we discuss the use of the compulsory and non-compulsory PGI modules among supervised offenders serving a community-based order. Table 2 displays the percentage of all supervised offenders and those serving community-based orders with an LSI-R score of medium or above who completed compulsory or non-compulsory PGI modules during supervision. Column 1 includes the percentage of supervised offenders who completed the compulsory module, and Column 2 includes the percentage who completed at least one of the non-compulsory modules.

Table 2. Percentage of offenders who completed compulsory or non-compulsory modules during supervision

	Compulsory module (1)	Non-compulsory modules (2)
<i>Panel A. Post-PGI period 1</i>		
All supervised offenders	66.40	53.47
Community-based orders	47.53	37.88
<i>Panel B. Post-PGI period 2</i>		
All supervised offenders	94.38	87.92
Community-based orders	100.00	74.65

Note. Post-PGI period 1 (post-PGI period 2) includes offenders who began supervision between June and December 2016 (2017). The Table includes offenders with an LSI-R score of medium, medium-high, and high.

Panel A contains the percentage of offenders who begin supervision in post-PGI period 1 (that is, between June and December 2016). Among supervised offenders serving a community-based order, 47.53 per cent and 37.88 per cent complete the compulsory and non-compulsory modules, respectively. However, as indicated in Panel B of Table 2, this rises considerably in post-PGI period 2. Every supervised offender serving a community-based order in post-PGI period 2 completes the compulsory module during supervision.

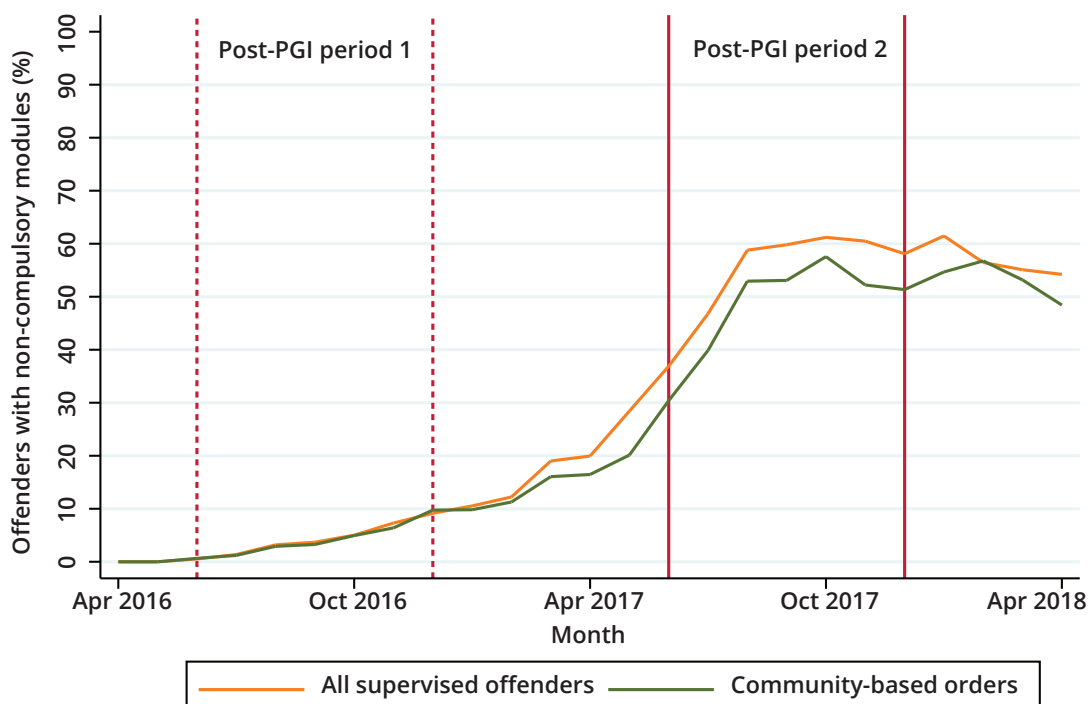
Furthermore, a substantially greater proportion of these offenders complete non-compulsory modules in post-PGI period 2, with roughly three-quarters of supervised offenders serving a community-based order completing non-compulsory modules during this period. This indicates that the majority of supervised offenders sentenced to a community-based order between June and December 2017, which is the main post-PGI period of interest, receive PGI modules designed to address criminogenic factors during supervision.

To show the frequency of the use of the non-compulsory modules during supervision, in Figure 2, we plot the monthly percentage of supervised offenders who complete non-compulsory modules after the implementation of PGI. Figure 2 includes only offenders with an LSI-R score of medium and above. The orange line represents all supervised offenders, and the green line represents offenders serving a community-based order. Post-PGI period 1 is indicated by the two dashed vertical lines, while post-PGI period 2 is indicated by the two solid vertical lines.

During post-PGI period 1, the non-compulsory modules were used sporadically; a relatively low proportion of supervised offenders serving a community-based order complete the non-compulsory PGI modules each month. However, activity increases substantially over time; in post-PGI period 2, between 50 to 60 per cent of supervised offenders serving a community-based order per month complete non-compulsory modules during supervision. This compares with less than 10 per cent in post-PGI period 1, and consequently, it appears that the non-compulsory modules were used regularly in post-PGI period 2.

In summary, based on Table 2 and Figures 1 and 2, it appears that there was a high level of PGI activity in post-PGI period 2, which is our main post-PGI period of interest, and a higher proportion of supervised offenders complete non-compulsory modules.

Figure 2. The monthly percentage of offenders who completed non-compulsory PGI modules



Note. The Figure includes offenders with an LSI-R score of medium, medium-high, and high.

RESULTS: GOOD BEHAVIOUR BONDS

This section presents the re-offending results for supervised offenders serving a good behaviour bond. We start by describing the sample of offenders serving a good behaviour bond and then present the DiD estimates.

Descriptive statistics

Table 3 displays the number of offenders sentenced to a good behaviour bond, and the proportion who received a supervision condition, in the three time periods included in the analysis. There was a total of 11,317 offenders with a good behaviour bond in the pre-PGI period, 12,771 offenders with a good behaviour bond in post-PGI period 1, and 13,562 offenders with a good behaviour bond in post-PGI period 2. It is apparent that the number of offenders sentenced to a good behaviour bond is increasing across the study period, but the proportion of offenders who are placed under community supervision remains stable at roughly one-third.

Table 3. Number of offenders sentenced to a good behaviour bond in the pre and post PGI periods

	Pre-PGI period (1)	Post-PGI period 1 (2)	Post-PGI period 2 (3)
Supervised	0.329	0.331	0.323
Total	11,317	12,771	13,562

Note. PGI was introduced across NSW in June 2016. The pre-period is June and December 2014. Post-PGI period 1 is June to December 2016, and post-PGI period 2 covers June and December 2017.

Table 4 presents the descriptive statistics for offenders serving a good behaviour bond. Each panel includes offenders finalised in the pre and post PGI periods. Column 1 includes the full sample, while columns 2 and 3 separate supervised and unsupervised offenders, respectively. Column 4 calculates the difference for each characteristic between supervised and unsupervised offenders.

Panel A includes offenders with a sentence finalised in the pre-PGI period only. In comparison with unsupervised offenders, those being supervised are more likely to be Aboriginal, female, and are younger at finalisation. Supervised offenders also possess a relatively more extensive criminal history. On average, they have more prior criminal court appearances and prior prison sentences and are also more likely to have a prior juvenile court appearance. Supervised offenders are also more likely to have committed a prior violent, property, and a domestic violence (DV) offence in the previous five years compared to unsupervised offenders. In the pre-PGI period, approximately 25 (18) per cent of supervised (unsupervised) good behaviour bond offenders re-offend within 12 months of the index court finalisation.

Panels B and C of Table 4 present the same set of comparisons for good behaviour bond offenders in each of the post-PGI periods. In general, the pattern of differences between supervised and unsupervised offenders remain consistent across the pre and post periods. That is, in both of the post-PGI periods, supervised offenders sentenced to a good behaviour bond are more likely to be Aboriginal, female, younger, and possess a more extensive criminal history than unsupervised offenders. In post-PGI period 1, the recidivism rate for supervised (unsupervised) good behaviour bond offenders is roughly 29 (21) per cent. And, in post-PGI period 2, the 12-month recidivism rate for supervised (unsupervised) good behaviour bond offenders is approximately 30 (21) per cent.

Table 4. Descriptive statistics: Offenders sentenced to a good behaviour bond in the pre and post PGI periods

	Full sample (1)	Supervised (2)	Unsupervised (3)	Difference (4)
<i>Panel A. Pre-PGI period</i>				
Aboriginal	0.239 (0.004)	0.303 (0.007)	0.208 (0.005)	0.095**
Female	0.200 (0.004)	0.219 (0.007)	0.191 (0.004)	0.028**
Age at finalisation	34.544 (0.111)	33.440 (0.179)	35.087 (0.141)	-1.647**
Number of prior court appearances	4.585 (0.051)	5.851 (0.098)	3.964 (0.058)	1.887**
Number of prior prison sentences	0.621 (0.018)	0.841 (0.036)	0.513 (0.021)	0.328**
Prior juvenile court appearance	0.071 (0.002)	0.107 (0.005)	0.053 (0.003)	0.054**
Prior violent offence past 5 years	0.276 (0.004)	0.390 (0.008)	0.220 (0.004)	0.170**
Prior property offence past 5 years	0.194 (0.003)	0.269 (0.007)	0.156 (0.004)	0.113**
Prior domestic violence offence past 5 years	0.191 (0.004)	0.272 (0.007)	0.152 (0.004)	0.120**
Re-offend within 12 months	0.202 (0.004)	0.249 (0.007)	0.179 (0.004)	0.070**
<i>N</i>	11,317	3,729	7,588	
<i>Panel B. Post-PGI period 1</i>				
Aboriginal	0.226 (0.003)	0.300 (0.007)	0.190 (0.004)	0.110**
Female	0.210 (0.003)	0.228 (0.006)	0.201 (0.004)	0.027**
Age at finalisation	34.521 (0.102)	33.341 (0.161)	35.105 (0.129)	-1.764**
Number of prior court appearances	4.872 (0.052)	6.128 (0.094)	4.251 (0.061)	1.877**
Number of prior prison sentences	0.656 (0.017)	0.843 (0.033)	0.563 (0.020)	0.280**
Prior juvenile court appearance	0.072 (0.002)	0.109 (0.004)	0.053 (0.002)	0.056**
Prior violent offence past 5 years	0.268 (0.003)	0.370 (0.007)	0.218 (0.004)	0.152**
Prior property offence past 5 years	0.193 (0.003)	0.281 (0.006)	0.149 (0.004)	0.132**
Prior domestic violence offence past 5 years	0.209 (0.004)	0.294 (0.007)	0.167 (0.004)	0.127**
Re-offend within 12 months	0.235 (0.004)	0.291 (0.007)	0.207 (0.004)	0.084**
<i>N</i>	12,771	4,230	8,541	

Table 4. Descriptive statistics: Offenders sentenced to a good behaviour bond in the pre and post PGI periods - continued

	Full sample (1)	Supervised (2)	Unsupervised (3)	Difference (4)
<i>Panel C. Post-PGI period 2</i>				
Aboriginal	0.228 (0.003)	0.303 (0.006)	0.193 (0.004)	0.110**
Female	0.216 (0.003)	0.239 (0.006)	0.205 (0.004)	0.034**
Age at finalisation	35.079 (0.102)	33.928 (0.161)	35.628 (0.129)	-1.700**
Number of prior court appearances	5.031 (0.051)	6.397 (0.097)	4.380 (0.059)	2.017**
Number of prior prison sentences	0.674 (0.017)	0.922 (0.036)	0.554 (0.018)	0.368**
Prior juvenile court appearance	0.073 (0.002)	0.101 (0.005)	0.060 (0.002)	0.041**
Prior violent offence past 5 years	0.274 (0.003)	0.386 (0.007)	0.220 (0.004)	0.166**
Prior property offence past 5 years	0.202 (0.003)	0.287 (0.006)	0.162 (0.003)	0.125**
Prior domestic violence offence past 5 years	0.218 (0.004)	0.313 (0.007)	0.174 (0.004)	0.139**
Re-offend within 12 months	0.236 (0.003)	0.298 (0.006)	0.206 (0.004)	0.092**
<i>N</i>	13,562	4,384	9,178	

Standard errors presented in parentheses.

** $p < .01$, * $p < .05$

Descriptive statistics: Recidivism rates for supervised offenders serving a good behaviour bond before and after the introduction of PGI

Before we report the results from the DiD analysis, we provide descriptive evidence of the change in the probability of committing a new and proven offence within 12 months of court finalisation before and after the introduction of PGI among supervised good behaviour bonds only. We estimate the following linear probability model (LPM):

$$Pr(R_{it}) = c + \delta P_{it} + \beta X_i' + \tau_t + \varepsilon_{it} \quad (2)$$

where P_{it} is a binary variable equal to one for supervised offender i released in post-PGI period 2 (between June and December 2017), and zero for supervised offender i released in the pre-PGI period (between June and December 2014). We also calculate estimates where P_{it} is equal to one for post-PGI period 1 (between June and December 2016), and zero for the pre-PGI period. Consequently, δ estimates the change in the probability of re-offending among supervised offenders sentenced to a good behaviour bond before and after the introduction of PGI, after controlling for offender characteristics (X_i'). The outcome, R_{it} , is a binary variable equal to one if a new and proven offence (not including breaches) is committed within 12 months of index court finalisation and zero otherwise.

The estimates are displayed in Table 5. There are two comparisons: 1) the change in recidivism among supervised offenders sentenced to a good behaviour bond between the post-PGI period 2 and the pre-PGI period, and 2) the change in recidivism among supervised offenders between the post-PGI period 1 and the pre-PGI period.

Table 5. Descriptive statistics: Recidivism for supervised offenders sentenced to a good behaviour bond before and after PGI

	Without controls (1)	With controls (2)
Post-PGI period 2 vs Pre-PGI	0.050** (0.010)	0.085** (0.025)
<i>N</i>	8,113	8,113
Post-PGI period 1 vs Pre-PGI	0.042** (0.009)	0.076** (0.026)
<i>N</i>	7,959	7,959
Controls		
Demographics	No	Yes
Prior offending history	No	Yes

Robust standard errors presented in parentheses.

** $p < .01$, * $p < .05$

Column 1 displays the naïve estimate without including any controls and Column 2 displays the adjusted estimates. From this comparison, it appears that supervised offenders serving a good behaviour bond are between 5 and 8.5 percentage points more likely in the post-PGI period to commit a new and proven offence within 12 months compared with the pre-PGI period. And, the increase is statistically significant.

In the bottom half of Table 5, we also compare recidivism rates between post-PGI period 1 and pre-PGI. The estimates indicate that the likelihood of committing a new and proven offence increased between roughly 4 to 8 percentage points among offenders who are serving a supervised good behaviour bond. Again, the coefficients are highly statistically significant.

These simple before and after comparisons suggest that recidivism among supervised offenders sentenced to good behaviour bonds increased after the introduction of PGI. However, these coefficients should be interpreted as descriptive as it is possible that offenders sentenced to a supervised good behaviour bond before and after the introduction of PGI may not be comparable on unobserved offender characteristics or that unobserved factors are influencing re-offending in the post-PGI period.

Difference-in-differences results

Before we turn to the results from the DiD model, we first compare the trends in re-offending behaviour for supervised and unsupervised offenders serving a good behaviour bond between 2014 and 2018. To consistently measure the impact of PGI on recidivism among supervised offenders using a DiD specification, it is important that the comparative trends in re-offending between supervised and unsupervised offenders are similar prior to the introduction of PGI.

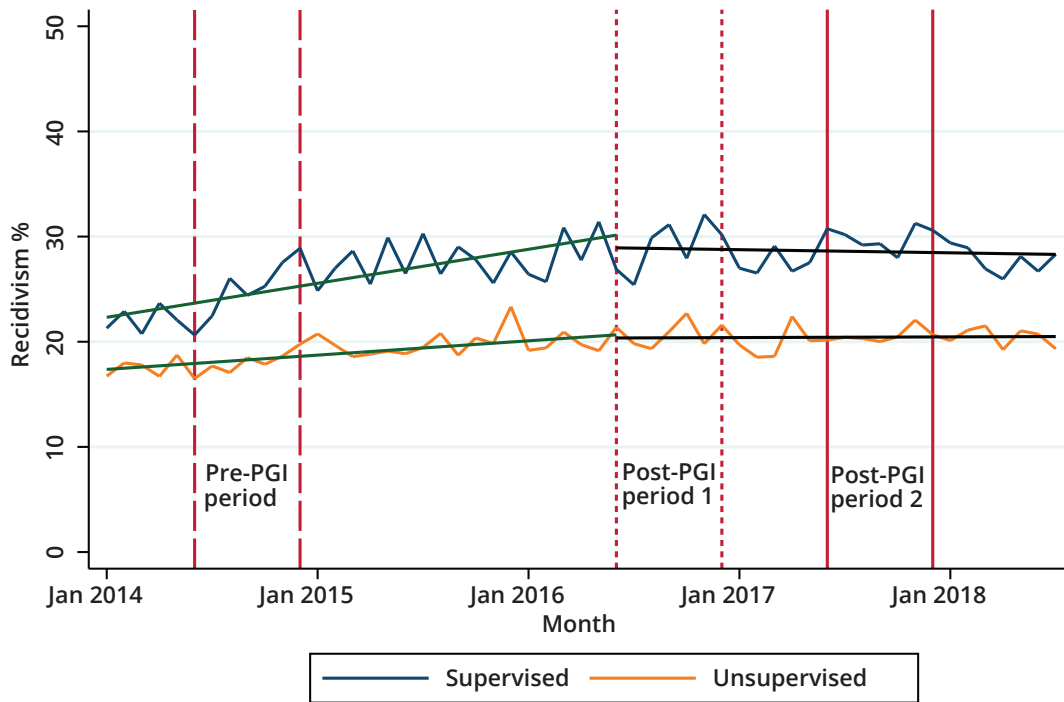
Recidivism trends between 2014 and 2018

Figure 3 displays the 12-month re-offending rates, by month of finalisation, for offenders serving a good behaviour bond between January 2014 and July 2018. The monthly re-offending trend is presented separately for supervised and unsupervised offenders. For each trend, we overlay a fitted trend line for the period before the introduction of PGI, and for the period after the introduction of PGI.

Overall, it is apparent from Figure 3 that offenders sentenced to a supervised good behaviour bond have a higher recidivism rate compared to unsupervised offenders. The first short-dash red line represents the initial introduction of PGI across NSW in June 2016. Prior to the introduction of PGI, the trends in

re-offending for supervised and unsupervised offenders appear to be comparable, particularly in the pre-PGI period. In other words, the change in the average recidivism rate among unsupervised offenders sentenced to a good behaviour bond is a valid counterfactual for the recidivism behaviour of supervised offenders in the absence of PGI. Figure 3 suggests that the parallel trend assumption is satisfied and validates the use of a DiD approach to measure the causal impact of PGI on re-offending among supervised offenders sentenced to a good behaviour bond.

Figure 3. 12 month recidivism trends for supervised and unsupervised offenders sentenced to a good behaviour bond between 2014 and 2018



Note. The pre-PGI period is represented by the long-dash vertical lines. Post-PGI period 1 (post-PGI period 2) is represented by the short-dash (solid) vertical lines.

DiD estimates: Recidivism within 12 months of index court finalisation

Table 6 contains the DiD estimates for the probability of committing a new and proven offence within 12 months of index court finalisation for offenders serving a good behaviour bond. The estimates displayed in Column 1 do not include any control variables. The set of controls are added to the DiD specification in Column 2. If PGI leads to a reduction in recidivism, we would expect to observe a larger reduction after the introduction of PGI amongst supervised offenders compared with unsupervised offenders. Given PGI activity was higher during post-PGI period 2 and a much greater proportion of supervised offenders completed non-compulsory modules, an even larger effect would be expected for this period.

The first set of results compares the post-PGI period 2 (or stage 3) with the pre-PGI period. Without any controls included in the model, we estimate a 2.3 percentage point increase in the probability of committing a new and proven offence after PGI was introduced for supervised offenders serving a good behaviour bond. The increase in recidivism is statistically significant. However, once controls are added to the specification, the estimate attenuates slightly to a 1.7 percentage point increase in recidivism and the coefficient is no longer statistically significant.

Table 6. DiD estimates: Recidivism between supervised and unsupervised offenders sentenced to a good behaviour bond

	Without controls (1)	With controls (2)
Post-PGI period 2 vs Pre-PGI	0.023* (0.012)	0.017 (0.011)
<i>N</i>	24,879	24,879
Post-PGI period 1 vs Pre-PGI	0.014 (0.012)	0.009 (0.011)
<i>N</i>	24,088	24,088
Controls		
Demographics	No	Yes
Prior offending history	No	Yes

Robust standard errors presented in parentheses.

** $p < .01$, * $p < .05$

The estimates reported in the bottom half of Table 6 compare post-PGI period 1 with the pre-PGI period. Again, the coefficient is positive indicating that the probability of re-offending was higher (between 1 to 1.4 percentage points) after PGI was introduced for supervised offenders serving good behaviour bonds. However, none of the estimates are statistically significant.⁹ In summary, we do not find evidence that the introduction of PGI led to a reduction in the probability of re-offending or return to custody among supervised offenders sentenced to a good behaviour bond.

The results reported in Table 6 include all offenders serving a good behaviour bond during the study time periods. Although PGI is only compulsory for offenders under community supervision with an LSI-R rating of medium and above, we do not limit the sample to these offenders serving a good behaviour bond. Instead, to study the impact of PGI on 'high-risk' offenders serving a good behaviour bond, we re-perform the analysis but for good behaviour bond offenders with at least 5 prior finalised criminal court appearances. We present the full results in the appendix. In general, the findings are similar to the main results; we do not find a statistically significant change in the re-offending after the introduction of PGI among supervised offenders sentenced to a good behaviour bond with at least 5 prior finalised criminal court appearances.

RESULTS: SUSPENDED SENTENCES

Here, we discuss the results for supervised offenders serving a suspended sentence. We begin by providing descriptive statistics of the sample followed by the DiD estimates.

Descriptive statistics

Table 7 displays the number and proportion of offenders sentenced to a suspended sentence in the pre and post PGI periods. In the pre-PGI period (Column 1), 2,888 offenders were sentenced to a suspended sentence. The number of offenders sentenced to a suspended sentence was substantially higher in both post-PGI period 1 (3,694) and post-PGI period 2 (3,437). However, the proportion of suspended sentences with a supervision condition has remained stable, at roughly 55 per cent.

⁹ We re-estimate the DiD specification with three different recidivism outcomes. Within 12 months of index court finalisation, these additional outcomes are: the probability of committing a new and proven personal, property, or serious drug offence, the percentage change in re-offending days, and the probability of committing a new and proven offence based on 'free time'. Free time accounts for any time spent in custody following the index court finalisation. The results are described in the appendix. In brief, we find a pattern of results among the additional measures of recidivism that is consistent with the main findings. That is, overall, we find a slight increase in re-offending among supervised offenders after the introduction of PGI. However, none of the estimates for these additional measures of recidivism are statistically significant.

Table 7. Number of offenders sentenced to a suspended sentence in the pre and post PGI periods

	Pre-PGI period (1)	Post-PGI period 1 (2)	Post-PGI period 2 (3)
Supervised	0.570	0.555	0.554
Total	2,888	3,694	3,437

Note. PGI was introduced across NSW in June 2016. The pre-period spans between June and December 2014. Post-PGI Period 1 is defined as June to December 2016, and Post-PGI Period 2 covers June and December 2017.

Table 8 presents the descriptive statistics for the sample of supervised and unsupervised offenders serving a suspended sentence. Column 1 includes details of the characteristics of the full sample, while columns 2 and 3 display the characteristics of the supervised and unsupervised offenders, respectively. Column 4 calculates the difference between the supervised and unsupervised offenders for each characteristic. Each panel includes offenders with sentences finalised in the pre and post periods.

In the pre-PGI period, supervised offenders are more likely to be Aboriginal, younger at finalisation, and possess a more extensive criminal record, than unsupervised offenders. Supervised offenders are also more likely to have committed a proven violent, property, and DV offence in the previous five years. In the pre-PGI period, approximately 24 (19) per cent of supervised (unsupervised) offenders serving a suspended sentence are imprisoned within 12 months of index court finalisation, and the difference is statistically significant.

Table 8. Descriptive statistics: Offenders sentenced to a suspended sentence in the pre and post PGI periods

	Full sample (1)	Supervised (2)	Unsupervised (3)	Difference (4)
<i>Panel A. Pre-PGI period</i>				
Aboriginal	0.280 (0.008)	0.297 (0.011)	0.256 (0.012)	0.041*
Female	0.175 (0.007)	0.167 (0.009)	0.187 (0.011)	-0.020
Age at finalisation	34.606 (0.215)	34.135 (0.276)	35.229 (0.343)	-1.094*
Number of prior court appearances	6.486 (0.114)	6.730 (0.153)	6.163 (0.171)	0.567*
Number of prior prison sentences	0.968 (0.041)	1.015 (0.054)	0.905 (0.063)	0.110
Prior juvenile court appearance	0.108 (0.006)	0.116 (0.007)	0.096 (0.008)	0.020
Prior violent offence past 5 years	0.360 (0.008)	0.392 (0.012)	0.318 (0.013)	0.074**
Prior property offence past 5 years	0.275 (0.008)	0.285 (0.011)	0.261 (0.012)	0.024
Prior domestic violence offence past 5 years	0.252 (0.008)	0.286 (0.011)	0.207 (0.011)	0.079**
Imprisoned within 12 months	0.220 (0.007)	0.242 (0.010)	0.191 (0.011)	0.051**
N	2,888	1,645	1,243	

Table 8. Descriptive statistics: Offenders sentenced to a suspended sentence in the pre and post PGI periods - continued

	Full sample (1)	Supervised (2)	Unsupervised (3)	Difference (4)
<i>Panel B. Post-PGI period 1</i>				
Aboriginal	0.280 (0.007)	0.317 (0.010)	0.233 (0.010)	0.084**
Female	0.183 (0.006)	0.192 (0.008)	0.170 (0.009)	0.022
Age at finalisation	35.511 (0.191)	34.701 (0.248)	36.520 (0.297)	-1.819**
Number of prior court appearances	6.762 (0.108)	7.148 (0.146)	6.281 (0.162)	0.867**
Number of prior prison sentences	1.032 (0.042)	1.090 (0.058)	0.959 (0.062)	0.131
Prior juvenile court appearance	0.096 (0.004)	0.114 (0.007)	0.072 (0.006)	0.042**
Prior violent offence past 5 years	0.350 (0.007)	0.403 (0.010)	0.284 (0.011)	0.119**
Prior property offence past 5 years	0.266 (0.007)	0.288 (0.010)	0.238 (0.010)	0.050**
Prior domestic violence offence past 5 years	0.280 (0.007)	0.326 (0.010)	0.224 (0.010)	0.102**
Imprisoned within 12 months	0.234 (0.007)	0.274 (0.010)	0.185 (0.010)	0.089**
<i>N</i>	3,694	2,049	1,645	
<i>Panel C. Post-PGI period 2</i>				
Aboriginal	0.270 (0.008)	0.310 (0.010)	0.220 (0.011)	0.090**
Female	0.190 (0.007)	0.199 (0.009)	0.176 (0.009)	0.023
Age at finalisation	35.606 (0.197)	34.913 (0.254)	36.468 (0.309)	-1.555**
Number of prior court appearances	6.858 (0.111)	7.119 (0.149)	6.532 (0.169)	0.587**
Number of prior prison sentences	1.051 (0.043)	1.065 (0.056)	1.033 (0.065)	0.032
Prior juvenile court appearance	0.090 (0.005)	0.105 (0.007)	0.071 (0.007)	0.034**
Prior violent offence past 5 years	0.382 (0.008)	0.444 (0.011)	0.305 (0.011)	0.139**
Prior property offence past 5 years	0.274 (0.007)	0.282 (0.010)	0.266 (0.011)	0.016
Prior domestic violence offence past 5 years	0.313 (0.007)	0.361 (0.011)	0.253 (0.011)	0.108**
Imprisoned within 12 months	0.246 (0.007)	0.278 (0.010)	0.205 (0.010)	0.073**
<i>N</i>	3,437	1,905	1,532	

Standard errors presented in parentheses.

** $p < .01$, * $p < .05$

Panels B and C of Table 8 present the descriptive statistics for the post-PGI periods. In general, we find a consistent pattern across the pre and post PGI periods. Supervised offenders are more likely to be Aboriginal and younger at finalisation than unsupervised offenders. Supervised offenders also possess longer criminal histories than unsupervised offenders.¹⁰ In post-PGI period 1, the imprisonment rate for supervised (unsupervised) suspended sentence offenders was roughly 27 (19) per cent. And, in post-PGI period 2, the 12-month imprisonment rate for supervised (unsupervised) suspended sentence offenders was approximately 28 (21) per cent.

Descriptive statistics: Imprisonment among supervised offenders sentenced to a suspended sentence before and after the introduction of PGI

The estimates displayed in Table 9 are from equation (2) but for the probability of imprisonment among supervised offenders serving a suspended sentence only. Without including any controls, the probability of imprisonment increases by 3.6 percentage points between post-PGI period 2 and the pre-PGI period and is statistically significant. Once controls are added, the coefficient increases to 7.1 percentage points, and is statistically significant.

When comparing post-PGI period 1 and the pre-PGI period, we find that the likelihood of imprisonment among supervised offenders increases between approximately 3 and 4 percentage points, but the increase is not statistically significant once controls are added to the specification. This simple pre/post comparison indicates that supervised offenders serving a suspended sentence were more likely to be imprisoned after the introduction of PGI. Again, these coefficients should be interpreted as descriptive as unobserved factors may be influencing imprisonment rates.

Table 9. Descriptive statistics: Imprisonment among supervised offenders sentenced to a suspended sentence before and after PGI

	Without controls (1)	With controls (2)
Post-PGI period 2 vs Pre-PGI	0.036* (0.014)	0.071* (0.036)
<i>N</i>	3,550	3,550
Post-PGI period 1 vs Pre-PGI	0.031* (0.014)	0.040 (0.033)
<i>N</i>	3,694	3,694
Controls		
Demographics	No	Yes
Prior offending history	No	Yes

Robust standard errors presented in parentheses.

** $p < .01$, * $p < .05$

Difference-in-differences results

Imprisonment trends between 2014 and 2018

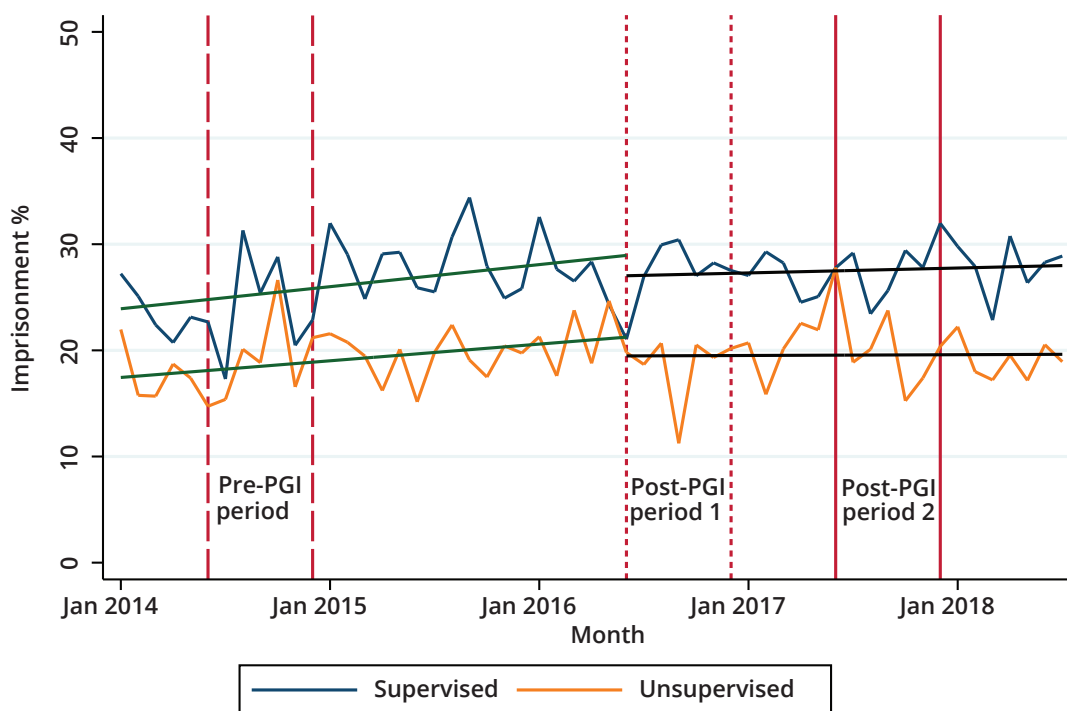
Figure 4 displays the comparative 12-month trends in imprisonment, by month of finalisation for both supervised and unsupervised offenders serving suspended sentences. Among those sentenced to a suspended sentence, supervised offenders are imprisoned at a higher rate than unsupervised offenders.

If we compare the trend in imprisonment for supervised and unsupervised offenders before the introduction of PGI, we find that the trends are quite similar. Although there is considerable overall

¹⁰ Included in the appendix are additional descriptive statistics that compare supervised or unsupervised suspended sentence offenders across the pre and post PGI periods. Overall, the characteristics of both supervised and unsupervised offenders remained relatively stable throughout the study period. While there are some exceptions, these differences are small.

volatility in imprisonment rates, the individual trends are comparable over time, particularly in the pre-PGI period indicated in Figure 4. This suggests that the parallel trends assumption in the DiD specification is satisfied. In other words, the trend in imprisonment of supervised offenders in the absence of PGI is approximated by the trend in imprisonment of unsupervised offenders during the study period.¹¹

Figure 4. 12 month imprisonment trends between supervised and unsupervised offenders serving a suspended sentence between 2014 and 2018



Note. The pre-PGI period is represented by the long-dash vertical lines. Post-PGI period 1 (post-PGI period 2) is represented by the short-dash (solid) vertical lines.

DiD estimates: Imprisonment within 12 months of index court finalisation

Table 10 contains the DiD estimates from equation (1) for the probability of imprisonment within 12 months of index court finalisation among offenders serving a suspended sentence. Beginning with post-PGI period 2, we find that the probability of imprisonment increases by 1 to 2 percentage points for supervised offenders compared with unsupervised offenders. However, the coefficients are not statistically significant.

If we compare post-PGI period 1 with the pre-PGI period, we find a 2 to 4 percentage point increase in the probability of imprisonment for supervised offenders serving suspended sentences, but again, the estimates are not statistically significant.

In summary, the DiD results shown in Table 10 indicate that among supervised suspended sentence offenders, the likelihood of imprisonment slightly increased after the introduction of PGI, however, the increase is not statistically significant.

¹¹ We also compared the trends in re-offending between supervised and unsupervised offenders serving a suspended sentence but found that they did not satisfy the required parallel trends assumption.

Table 10. DiD estimates: Imprisonment between supervised and unsupervised offenders sentenced to a suspended sentence

	Without controls (1)	With controls (2)
Post-PGI period 2 vs Pre-PGI	0.021 (0.021)	0.016 (0.020)
<i>N</i>	6,325	6,325
Post-PGI period 1 vs Pre-PGI	0.037 (0.021)	0.023 (0.019)
<i>N</i>	6,582	6,582
Controls		
Demographics	No	Yes
Prior offending history	No	Yes

Robust standard errors presented in parentheses.

** $p < .01$, * $p < .05$

DISCUSSION

The introduction of PGI in 2016 resulted in a significant shift in the way community supervision is delivered in NSW. It provided CCO's with CBT-based tools and training to deliver brief interventions targeting offenders' criminogenic needs, and in so doing, sought to achieve enduring behavioural change amongst this high-risk offender group. In this study, we measure the impact of the introduction of PGI on recidivism rates among supervised offenders serving a good behaviour bond or a suspended sentence.

To estimate the impact of PGI, we compare the probability of re-offending (imprisonment) of supervised and unsupervised offenders serving a good behaviour bond (suspended sentence) before and after the introduction of PGI. Re-offending (imprisonment) is measured as the probability of committing a new and proven offence (being incarcerated) within 12 months of the index court finalisation. There are two post-PGI periods. The first post-PGI period includes offenders with a finalised court appearance between June and December 2016, which coincides with stage 1 of the rollout of PGI. The second post-PGI period includes offenders with a finalised court appearance between June and December 2017 (i.e. stage 3). For comparison, the pre-PGI period includes offenders with a finalised court appearance between June and December 2014. The pre-PGI period is comprised of the second half of 2014 to allow for 12 months of follow up.

Among supervised offenders serving a good behaviour bond, the DiD estimates reveal a slight increase in the probability of re-offending after the introduction of PGI. However, these estimates are not statistically significant. For supervised offenders serving a suspended sentence, we find a slight increase in the probability of imprisonment, but again, the increase is not statistically significant.

Overall, the pattern of results reported here is consistent with those reported in another BOCSAR study which examined the impact of PGI on parolee recidivism (Ooi, 2020). That is, there is no evidence for a statistically significant reduction in recidivism after the introduction of PGI.

As discussed by the authors of the related study, there are two possible reasons why we do not detect a statistically significant change in recidivism following the introduction of PGI. Firstly, Thorburn (2018) found that CCOs only have a small impact on the likelihood of re-offending among parolees in NSW once other relevant factors are taken into account. It is possible that the marginal effect of CCOs on re-offending rates for offenders serving community-based orders is also small and as such, PGI alone is insufficient to substantially impact recidivism. Instead, combining PGI with other rehabilitation programs designed to address criminogenic needs may be necessary to have a beneficial effect on offender rehabilitation. For example, PGI can be used in conjunction with the EQUIPS suite of programs and receiving both

interventions together may have an interactive effect on recidivism (Howard & Chong, 2019). While this could not be considered in the current study, it is certainly worthy of further investigation in future research. In a similar vein, an implicit assumption of the RNR approach to offender rehabilitation is that greater use of PGI amongst higher risk offenders will lead to larger reductions in recidivism. However, measuring the impact of PGI activity on recidivism is empirically challenging because of the inherent difficulties in engaging high-risk offenders with program content during supervision. And, separating the analysis by different levels of offender engagement, for example with varying rates of PGI module completion, is likely to introduce selection bias as engaged offenders are also more likely to be motivated to successfully rehabilitate.

It is useful to bear in mind four caveats when interpreting the results reported in this study. First, while the post-PGI period 2 corresponded with the period where the use of PGI was at its highest across NSW, we were unable to measure CCOs' adherence to RNR principles and whether CBT techniques were used effectively when delivering PGI. It is argued that the correct application of both the RNR principles and CBT techniques will, in theory, lead to persistent behaviour change in offenders. While nearly three-quarters of supervised offenders sentencing to a community-based order completed non-compulsory PGI modules during the main post-PGI period, it is possible that the 'quality' of PGI delivered by CCOs was not at a sufficient level to expect any impact on the measures of re-offending used in this study. However, some qualitative evidence bearing on this issue is provided by Tran et al. (2019) in their earlier process evaluation of PGI. These authors interviewed 43 CCOs and report that, in general, CCOs welcomed the use of PGI to assist in generating behaviour change and agreed that it resulted in increased emphasis being placed on offender rehabilitation. Community Corrections NSW has since introduced several measures to promote high-quality delivery of PGI. Nevertheless, further evaluative work should be undertaken to assess whether these improvements in delivery have reduced rates of re-offending.

Second, we include all offenders sentenced to a good behaviour bond or suspended sentences in the analysis, regardless of whether or not they received PGI. We do not limit the sample to only supervised offenders with an LSI-R of medium or above, for whom PGI is compulsory, because a large proportion of offenders sentenced to community-based orders (particularly those without a supervision condition) do not have a valid LSI-R score or their LSI-R score is missing. It is possible that including supervised offenders who do not receive PGI could conceal any reduction in recidivism. However, even when we restrict the analysis to a group of 'high-risk' offenders who have at least 5 prior court appearances, the results are consistent with those reported here.

Third, it is worth noting that the comparison in this study is the model of supervision that existed prior to June 2016. Therefore, our results suggest that PGI does not produce any additional benefit over what was previously delivered by CCOs, rather than demonstrating that PGI is ineffective in addressing recidivism. It is quite possible that many CCOs were already applying the RNR principles and CBT-based interventions during supervision before PGI was introduced, and therefore, standardising supervision practice had no further measurable impact on re-offending. Indeed, Tran et al. (2019) report that CCOs of varying experience already regarded themselves as change agents who have a pivotal role in offender rehabilitation prior to the introduction of the PGI reforms.

The fourth caveat to consider when interpreting the results is the possibility that supervised offenders attract more intensive policing, and consequently, were more likely to be caught re-offending than unsupervised offenders in the post-PGI period. For example, supervised offenders may receive greater scrutiny under NSW police initiatives such as the Suspect Targeting Management Plan (STMP), which was introduced in 2000. In brief, under STMP, the police identify and target repeat offenders to disrupt re-offending. Greater police scrutiny of supervised offenders could be reflected in the increase in re-offending reported in the post-PGI periods studied here. However, this is unlikely given that the impact of policing is likely to be greater in post-PGI period 2 (June to December 2017) due to greater police surveillance over time, but despite this, we report relatively small increases in recidivism.

From a policy perspective, it is important to note that the influence of greater police surveillance on the interpretation of these results (and other environmental confounders) would not be a concern if PGI

had been initially implemented at a smaller scale with several randomly selected treatment units to be compared with an otherwise equivalent control group. Conducting a trial(s) of a new program with the evaluator(s) before it is implemented should be seriously considered in future policy reform to avoid confounding effects, but also, to increase the likelihood that a program will be delivered as intended when it is introduced.

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APPENDIX

Descriptive statistics

Comparing offenders serving a good behaviour bond between pre and post PGI periods

Table A1 contains descriptive statistics that compare offenders serving a good behaviour bond between the pre and post PGI periods. Panel A (Panel B) compares supervised (unsupervised) offenders sentenced to a good behaviour bond between the time periods of interest. Column 1 includes offenders serving a good behaviour bond in the pre-PGI period, while columns 2 and 3 include offenders serving a good behaviour bond in the post-PGI periods, respectively. Column 4 calculates the difference between post-PGI period 1 and the pre-PGI period (i.e.: the difference between columns 2 and 1), and column 5 calculates the difference between post-PGI period 2 and the pre-PGI period (i.e.: the difference between columns 3 and 1).

Beginning in Panel A, overall, the characteristics of supervised offenders sentenced to a good behaviour bond has remained relatively stable across time. However, there are some exceptions. For instance, while supervised offenders in both of the post-PGI periods are more likely to have a prior DV offence in the past 5 years, the difference is small.

Panel B compares unsupervised offenders serving a good behaviour bond between the pre and post PGI periods. Again, their characteristics remain relatively stable through time. There are some exceptions; for instance, unsupervised offenders in the post-PGI periods have slightly more prior court appearances and are more likely to have a prior proven DV offence in the past 5 years. However, these differences are negligible.

Table A1. Descriptive statistics: Offenders sentenced to a good behaviour bond across the pre and post PGI periods

	Pre-PGI period (1)	Post-PGI period 1 (2)	Post-PGI period 2 (3)	Difference (2) - (1) (4)	Difference (3) - (1) (5)
<i>Panel A. Supervised offenders sentenced to a good behaviour bond</i>					
Aboriginal	0.303 (0.007)	0.300 (0.007)	0.303 (0.006)	-0.003	0
Female	0.219 (0.007)	0.228 (0.006)	0.239 (0.006)	0.009	0.020*
Age at finalisation	33.440 (0.179)	33.341 (0.161)	33.928 (0.161)	-0.099	0.488*
Number of prior court appearances	5.851 (0.098)	6.128 (0.094)	6.397 (0.097)	0.277*	0.546**
Number of prior prison sentences	0.841 (0.036)	0.843 (0.033)	0.922 (0.036)	0.002	0.081
Prior juvenile court appearance	0.107 (0.005)	0.109 (0.004)	0.101 (0.005)	0.002	-0.006
Prior violent offence past 5 years	0.390 (0.008)	0.370 (0.007)	0.386 (0.007)	-0.020	-0.004
Prior property offence past 5 years	0.269 (0.007)	0.281 (0.006)	0.287 (0.006)	0.012	0.018
Prior domestic violence offence past 5 years	0.272 (0.007)	0.294 (0.007)	0.313 (0.007)	0.022*	0.041**
<i>N</i>	3,729	4,230	4,384		
<i>Panel B. Unsupervised offenders sentenced to a good behaviour bond</i>					
Aboriginal	0.208 (0.005)	0.190 (0.004)	0.193 (0.004)	-0.018**	-0.015*
Female	0.191 (0.004)	0.201 (0.004)	0.205 (0.004)	0.010	0.014*
Age at finalisation	35.087 (0.141)	35.105 (0.129)	35.628 (0.129)	0.018	0.541**
Number of prior court appearances	3.964 (0.058)	4.251 (0.061)	4.380 (0.059)	0.287**	0.416**
Number of prior prison sentences	0.513 (0.021)	0.563 (0.020)	0.554 (0.018)	0.050	0.041
Prior juvenile court appearance	0.053 (0.003)	0.053 (0.002)	0.060 (0.002)	0	0.007
Prior violent offence past 5 years	0.220 (0.004)	0.218 (0.004)	0.220 (0.004)	-0.002	0
Prior property offence past 5 years	0.156 (0.004)	0.149 (0.004)	0.162 (0.003)	-0.007	0.006
Prior domestic violence offence past 5 years	0.152 (0.004)	0.167 (0.004)	0.174 (0.004)	0.015**	0.022**
<i>N</i>	7,588	8,541	9,178		

Standard errors presented in parentheses.

** $p < .01$, * $p < .05$

Comparing offenders serving a suspended sentence between pre and post PGI periods

Table A2 contains descriptive statistics that compare offenders serving a suspended sentence between the pre and post PGI periods. Panel A (Panel B) compares supervised (unsupervised) offenders between the time periods of interest. Column 1 includes offenders serving a suspended sentence in the pre-PGI period, while columns 2 and 3 include offenders in the post-PGI periods. Column 4 calculates the difference between post-PGI period 1 and the pre-PGI period (i.e.: the difference between columns 2 and 1), and column 5 calculates the difference between post-PGI period 2 and the pre-PGI period (i.e.: the difference between columns 3 and 1).

Panel A displays the characteristics of supervised offenders sentenced to a suspended sentence across time. Overall, we find that their characteristics are relatively stable between the pre and post PGI periods. While there are some exceptions (for example, supervised offenders finalised in the post-PGI periods are more likely to have a prior proven DV offence), these differences are small.

Panel B compares unsupervised offenders serving a suspended sentence between the pre and post PGI periods. Once more, we find that, overall, their characteristics remain steady over time. Although there are exceptions (e.g.: those in the post-PGI periods are slightly older at finalisation), the differences are negligible.

Table A2. Descriptive statistics: Offenders sentenced to a suspended sentence across the pre and post PGI periods

	Pre-PGI period (1)	Post-PGI period 1 (2)	Post-PGI period 2 (3)	Difference (2) - (1) (4)	Difference (3) - (1) (5)
<i>Panel A. Supervised offenders sentenced to a suspended sentence</i>					
Aboriginal	0.297 (0.011)	0.317 (0.010)	0.310 (0.010)	0.020	0.013
Female	0.167 (0.009)	0.192 (0.008)	0.199 (0.009)	0.025*	0.032*
Age at finalisation	34.135 (0.276)	34.701 (0.248)	34.913 (0.254)	0.566	0.778*
Number of prior court appearances	6.730 (0.153)	7.148 (0.146)	7.119 (0.149)	0.418	0.389
Number of prior prison sentences	1.015 (0.054)	1.090 (0.058)	1.065 (0.056)	0.075	0.050
Prior juvenile court appearance	0.116 (0.007)	0.114 (0.007)	0.105 (0.007)	0.002	-0.011
Prior violent offence past 5 years	0.392 (0.012)	0.403 (0.010)	0.444 (0.011)	0.011	0.052**
Prior property offence past 5 years	0.285 (0.011)	0.288 (0.010)	0.282 (0.010)	0.003	-0.003
Prior domestic violence offence past 5 years	0.286 (0.011)	0.326 (0.010)	0.361 (0.011)	0.040*	0.075**
<i>N</i>	1,645	2,049	1,905		
<i>Panel B. Unsupervised offenders sentenced to a suspended sentence</i>					
Aboriginal	0.256 (0.012)	0.233 (0.010)	0.220 (0.011)	-0.023	-0.036*
Female	0.187 (0.011)	0.170 (0.009)	0.176 (0.009)	-0.017	-0.011
Age at finalisation	35.229 (0.343)	36.520 (0.297)	36.468 (0.309)	1.291**	1.239**
Number of prior court appearances	6.163 (0.171)	6.281 (0.162)	6.532 (0.169)	0.118	0.369
Number of prior prison sentences	0.905 (0.063)	0.959 (0.062)	1.033 (0.065)	0.054	0.128
Prior juvenile court appearance	0.096 (0.008)	0.072 (0.006)	0.071 (0.007)	-0.024*	-0.025*
Prior violent offence past 5 years	0.318 (0.013)	0.284 (0.011)	0.305 (0.011)	-0.034	-0.013
Prior property offence past 5 years	0.261 (0.012)	0.238 (0.010)	0.266 (0.011)	-0.023	0.005
Prior domestic violence offence past 5 years	0.207 (0.011)	0.224 (0.010)	0.253 (0.011)	0.017	0.046**
<i>N</i>	1,243	1,645	1,532		

Standard errors presented in parentheses.
 ** $p < .01$, * $p < .05$

DiD estimates: Other recidivism outcomes among offenders sentenced to a good behaviour bond

In the main results, we do not find a meaningful reduction in the probability of committing a new and proven within 12 months of court finalisation between supervised and unsupervised offenders sentenced to a good behaviour bond. Here, we re-estimate the DiD model from equation (1) with three different re-offending outcomes.¹²

The first outcome we consider is the probability of committing a new and proven personal, property, or serious drug offence within 12 months of index court finalisation.¹³ The results are presented in Panel A of Table A3. Overall, the estimates indicate that supervised offenders are slightly more likely to commit a new and proven personal, property, or serious drug offence after the introduction of PGI; but, the coefficients are a small and not statistically significant at 1 or 5 per cent.

Table A3. DiD estimates: Recidivism between supervised and unsupervised offenders sentenced to a good behaviour bond

	Without controls (1)	With controls (2)
<i>Panel A. New and proven personal, property, or serious drug offence</i>		
Post-PGI period 2 vs pre-PGI	0.019 (0.011)	0.013 (0.010)
<i>N</i>	24,879	24,879
Post-PGI period 1 vs pre-PGI	0.020 (0.011)	0.015 (0.010)
<i>N</i>	24,088	24,088
<i>Panel B. Log (number of re-offending days)</i>		
Post-PGI period 2 vs pre-PGI	0.047 (0.038)	0.020 (0.035)
<i>N</i>	24,879	24,879
Post-PGI period 1 vs pre-PGI	0.068 (0.039)	0.047 (0.036)
<i>N</i>	24,088	24,088
<i>Panel C. New and proven offence (free time)</i>		
Post-PGI period 2 vs pre-PGI	0.017 (0.013)	0.008 (0.012)
<i>N</i>	24,593	24,593
Post-PGI period 1 vs pre-PGI	0.023 (0.013)	0.016 (0.012)
<i>N</i>	23,874	23,874
Controls		
Demographics	No	Yes
Prior offending history	No	Yes

Robust standard errors presented in parentheses.

** $p < .01$, * $p < .05$

¹² Beach of order offences are excluded from these re-offending outcomes.

¹³ The NSW government has set a target to reduce re-offending in these offence types by five per cent by 2023 among adult ex-prisoners. Based on the Australian and New Zealand Standard Offence Classification (ANZSOC) 2011 classification, a personal, property, or serious drug offence includes the following: 01 Homicide and related offences, 02 Acts Intended to Cause Injury, 03 Sexual Assault and Related Offences, 051 Abduction and Kidnapping, 06 Robbery, Extortion, and Related Offences, 07 Unlawful Entry with Intent/Burglary, Break and Enter, 08 Theft and Related Offences, 09 Fraud, Deception and Related Offences, 101 Import or Export Illicit Drugs, 102 Deal or Traffic in Illicit Drugs, and 103 Manufacture or Cultivate Illicit Drugs.

The second re-offending outcome we consider is the percentage change in the number of re-offending days after the introduction of PGI, which is defined as the number of days where one or more proven offences occurred within 12 months of court finalisation.¹⁴ The findings are presented in Panel B. After including the full set of controls in Column 2, we find that re-offending days increased by approximately 2 per cent among supervised offenders when comparing post-PGI period 2 with the pre-PGI period.¹⁵ Although this suggests that re-offending days increased, the change is not statistically significant. Similarly, when comparing post-PGI period 1 with the pre-PGI period, we find a small increase in re-offending days, but once more, the change is not statistically significant.

The third re-offending outcome we consider for offenders serving a good behaviour bond is the probability of committing a new and proven offence within 12 months of 'free time' post-release. Free time includes only offenders that have had 12 months in the community, not including time spent in custody after release from gaol.

These estimates are displayed in Panel C of Table A3. The coefficients throughout Panel C are positive, which indicates that supervised offenders are more likely to re-offend; but once again, the coefficients are small and not statistically significant at 1 or 5 per cent.

Overall, the results based on three different measures are consistent with those presented in the main study. Hence, across a range of re-offending measures, we do not find a meaningful reduction in recidivism among supervised offenders serving a good behaviour bond after the introduction of PGI. On the contrary, the range of estimates across the different outcomes indicates a slight increase in re-offending among supervised offenders.

DiD estimates: 'High-risk' offenders sentenced to a good behaviour bond

Although the PGI is compulsory for offenders being supervised in the community with an LSI-R score medium or above, we do not limit the sample in the main analysis to the compulsory offenders. This is because LSI-R score is missing for approximately 74 per cent of those serving a good behaviour bond in our sample. Instead, to measure the impact of PGI on 'high-risk' offenders serving a good behaviour bond, we re-estimate the DiD model from equation (1) but limiting the sample to those with at least 5 prior finalised court appearances.

Table A4. DiD estimates: Recidivism between 'high-risk' supervised and unsupervised offenders sentenced to a good behaviour bond

	Without controls (1)	With controls (2)
Post-PGI period 2 vs Pre-PGI	0.022 (0.020)	0.021 (0.019)
<i>N</i>	9,266	9,266
Post-PGI period 1 vs Pre-PGI	-0.011 (0.020)	-0.010 (0.020)
<i>N</i>	8,837	8,837
Controls		
Demographics	No	Yes
Prior offending history	No	Yes

Robust standard errors presented in parentheses.

** $p < .01$, * $p < .05$

¹⁴ To calculate the log, we add a small positive amount in the dataset due to some offenders who have zero re-offending days.

¹⁵ $100 \times (e^{0.02} - 1) = 2.020$

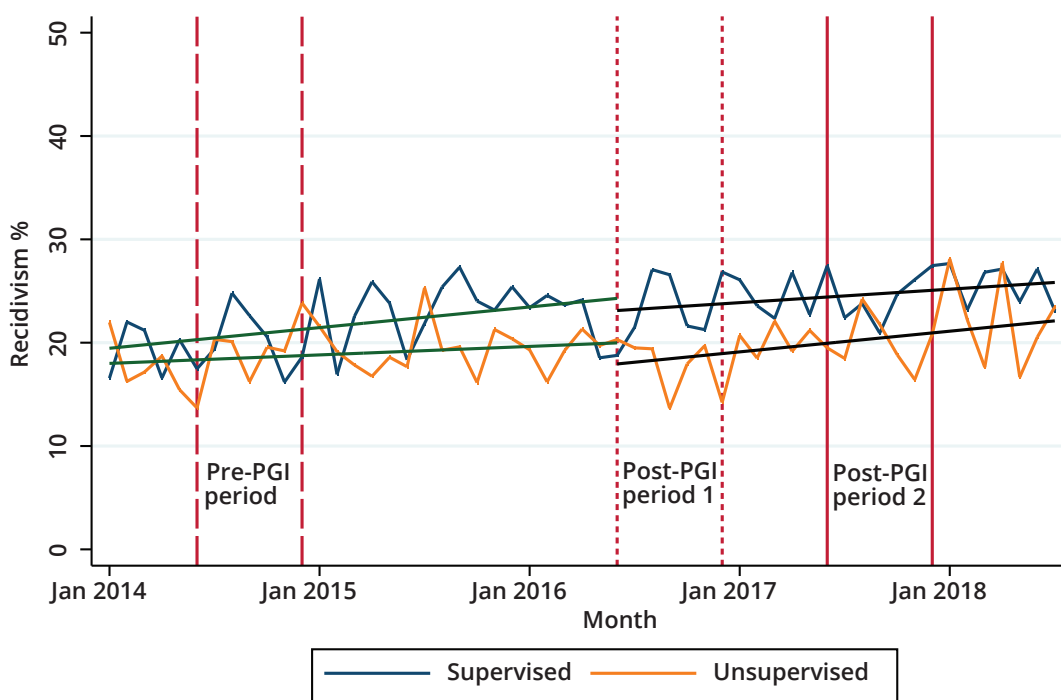
As reported in the descriptive statistics in the main study, in each study period, the average number of prior court appearances is slightly less than five among offenders sentenced to a good behaviour bond during the study period. Consequently, we are limiting the sample to those who have a relatively longer 'criminal history', as measured by the higher than average number of prior court appearances.

Table A4 presents the findings. The estimates throughout the table are small and not statistically significant. If we compare post-PGI period 2 with the pre-PGI period, we find that re-offending within 12 months of index court finalisation increased by roughly 2 percentage points, but the coefficient is not statistically significant. Conversely, in post-PGI period 1, we find a slight decrease in re-offending, but the reduction is not statistically significant.

Suspended sentences: Recidivism trends between 2014 and 2018

In this section, we present the comparative trend in recidivism among supervised and unsupervised offenders sentenced to a suspended sentence between 2014 and 2018. The trends are displayed in Figure A1. It is evident that, prior to the introduction of PGI in June 2016, supervised and unsupervised suspended offenders do not share a common trend in re-offending. Without a common trend, it is not possible to attribute a change in re-offending entirely to PGI.

Figure A1. 12 month recidivism trends between supervised and unsupervised offenders sentenced to a suspended sentence between 2014 and 2018



Note. The pre-PGI period is represented by the long-dash vertical lines. Post-PGI period 1 (post-PGI period 2) is represented by the short-dash (solid) vertical lines.