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The impact of the NSW Driver Licence Disqualification Reforms on sentencing and reoffending

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AIM To examine the impact of the NSW Driver Licence Disqualification Reforms on sentencing outcomes, reoffending, and monthly court finalisations.

METHOD We estimate the impact of the reforms using a difference-in-differences strategy. Outcomes for individuals who committed an unauthorised driving offence are compared to those who exceeded the prescribed content of alcohol while driving (PCA offences; which were unaffected by the reforms), before and after the reforms. This accounts for fixed differences between the two offence categories. We use this strategy to examine the impact of the reforms on the length and probability of licence disqualifications and prison sentences, the number of monthly court finalisations, and the probability and number of further unauthorised driving offences.

RESULTS The reforms reduced the average length of licence disqualifications and prison sentences imposed for unauthorised driving offences by 9.6 months (or 53%) and 1.7 months (or 28%), respectively. There was a substantial decline in the probability of imprisonment of 1.7 percentage points (or 37%), but no change in the probability of receiving a licence disqualification. The reforms did not meaningfully reduce the probability of an offender committing an unauthorised driving offence after their index offence or reduce the number of offenders appearing in court for an unauthorised driving offence. We find greater impacts of the reforms on Aboriginal offenders, especially in terms of the reduction in the probability of receiving a prison sentence.

CONCLUSION The NSW Driver Licence Disqualification Reforms resulted in significant reductions in the severity of penalties for unauthorised driving offences, particularly for Aboriginal offenders. There is no evidence of any impact of the reforms on court volumes or reoffending rates.

KEYWORDS

Aboriginal people

Local Court

Driving offences

Re-offending

Sentencing

INTRODUCTION

Unauthorised driving, which is defined as driving while never having been licensed, or driving with a licence that is disqualified, cancelled or suspended (Poynton & Leung, 2018), places a large burden on the caseload of the Local Court. In the 2019/20 financial year, 18,598 offenders appeared in the New South Wales (NSW) Local Court for an unauthorised driving offence. This surpasses the number of defendants in the Local Court charged with 'common assault' (N=15,042), 'possess illicit drugs' (N=16,764) and 'exceed the prescribed content of alcohol' (N=10,333) over the same period (NSW Bureau of Crime Statistics and Research, 2020).

A 2013 report from the NSW Parliamentary Committee on Law and Safety concluded that penalties for unauthorised driving offences in NSW were burdensome and disproportionate to the seriousness of the offence (NSW Parliamentary Law and Safety Committee, 2013). The report highlighted that these offences attracted penalties which were similar to or greater in magnitude than those prescribed for more serious driving offences such as drink driving and certain dangerous driving offences. Furthermore, multiple disqualification periods were served cumulatively for unauthorised driving offences, while for many other road transport offences disqualification periods were served concurrently. Mandatory licence disqualification periods for unauthorised driving were identified as a particular area of concern. This was in contrast to other traffic offences, including drink driving offences, negligent driving occasioning death or grievous bodily harm, where the courts retained discretion when imposing licence disqualification periods. Finally, the Committee noted that the burden of lengthy disqualification periods was greater for vulnerable groups including Aboriginal communities, young people, and regional and remote communities, because these groups either were less likely to originally have a driver licence and therefore more likely to offend, or placed a greater value on driving. A NSW Auditor-General's report in the same year found that long licence disqualification periods made it difficult for Aboriginal people to break a cycle of driving offending (NSW Auditor General, 2013).

The Committee's report corroborates literature suggesting that Aboriginal people and individuals from lower socio-economic and regional areas are disproportionately affected by driver licence sanctions. Cullen, Clapham, Hunter, Treacy, and Ivers (2016) in their systematic literature review identified a range of barriers that Aboriginal people face in obtaining a licence. These include issues associated with the licence application process, such as a lack of identity documents, low rates of literacy and English as a second language, as well as barriers to obtaining enough driving hours to qualify for a licence, such as low rates of car ownership, a lack of drivers to act as supervisors, and the high cost of petrol and professional driving lessons (Cullen et al., 2016). These obstacles may deter some Aboriginal people from applying for a licence in the first place and therefore place them at greater risk of unauthorised driving. Additionally, Angell et al. (2018) found that individuals living in non-urban areas place a higher value on retaining their licence than urban residents. This finding suggests that sanctions on driving would have a greater impact on people residing in non-urban areas.

The NSW Driver Licence Disqualification Reforms

In 2017, the NSW government introduced the NSW Driver Licence Disqualification Reforms. A major component of the reform package was a significant reduction in the statutory penalties prescribed for unauthorised driving offences, including shorter licence disqualification periods and prison sentences. The reforms also introduced an incentive scheme which allowed drivers to apply to the Local Court to have disqualification periods lifted earlier if they had complied with their disqualification period for at least two years, and vehicle sanctions for certain repeat unauthorised drivers.¹

¹ The reforms also abolished the habitual traffic offender scheme which imposed an additional five-year licence disqualification on a driver who had been convicted of three or more serious driving offences in a five-year period.

The NSW government intended for these initiatives to return more offenders to lawful driving, thereby reducing offending and the volume of unauthorised driving offences coming before the Local Court. Specifically, the key objectives of these reforms were to:

1. Reduce Local Court volumes of drive while disqualified matters;
2. Reduce repeat disqualified driving;
3. Reduce imprisonment days for unauthorised driving offences;
4. Contribute to reducing overrepresentation of Aboriginal people in the criminal justice system; and
5. Contribute to increasing road safety and returning people to lawful driving

The reforms came into effect on the 28th of October 2017. The main changes introduced are summarised in Table 1. The reforms abolished mandatory penalties for unauthorised driving offences and replaced them with automatic and minimum licence disqualifications (Poynton & Leung, 2018). Automatic licence disqualification periods act, in practice, like a default period which unlike mandatory penalties can be varied "if the court that convicts the person thinks fit to order a shorter or longer period of disqualification" (s.205A(1)(b) *Road Transport Act 2013* (NSW)). However, a court cannot impose a penalty that is below the minimum penalty. The length of the new automatic periods was also significantly shorter than the previous mandatory disqualification periods for most offences targeted by the reforms. For example, for a first offence of driving while licence disqualified, cancelled, or suspended, the licence disqualification period was a mandatory 12 months before the reform, but this reduced to an automatic 6 months after the reforms commenced. Further, driver disqualifications would be served concurrently, unless otherwise ordered by the court, following the reforms, rather than consecutively as had been the case prior to the reforms.

The maximum imprisonment terms for unauthorised driving offences were also significantly reduced. For example, an offender who drove while their licence was cancelled or suspended due to fine default could receive a maximum prison sentence of 18 months for their first offence before the reforms but after the reforms prison could not be imposed for this offence.

Table 1. 2017 changes to statutory penalties for unauthorised driving offences

Offence type	First offence	Second & subsequent offences
<i>Disqualification penalties for unauthorised driving offences pre and post reforms</i>		
Drive while licence disqualified, cancelled, suspended	Pre reform: Disq: mandatory 12 months Post reform: Automatic 6 months, no less than 3 months	Pre reform: Disq: mandatory 2 years Post reform: Automatic 12 months, no less than 6 months
Drive while licence cancelled, suspended – fine default	Pre reform: Disq: mandatory 3 months Post reform: Automatic 3 months, no less than 1 month	Pre reform: Disq: mandatory 2 years Post reform: Automatic 12 months, no less than 3 months
Never licensed	Pre and post reform: No mandatory disqualification period	Pre reform: Disq: mandatory 3 years Post reform: Automatic 12 months, no less than 3 months
<i>Maximum imprisonment terms for unauthorised driving offences pre and post reforms</i>		
Drive while licence disqualified, cancelled, suspended	Pre reform: Max 18 months Post reform: Max 6 months	Pre reform: Max 2 years Post reform: Max 12 months
Drive while licence cancelled, suspended – fine default	Pre reform: Max 18 months Post reform: Nil	Pre reform: Max 2 years Post reform: Max 6 months
Never licensed	Pre and post reform: No statutory prison term	Pre reform: Max 18 months Post reform: Max 6 months

Past research

The Bureau of Crime Statistics and Research (BOCSAR) conducted an early evaluation of the effect of the Driver Licence Disqualification Reforms on sentencing during the first 18 months of the reforms (Poynton & Leung, 2018). Poynton and Leung (2018) tested for structural breaks in monthly time series data to determine whether the introduction of the reforms was associated with significant changes in penalties for unauthorised driving offences. They found that there was a 56% reduction in the average duration of licence disqualifications and a 24% reduction in average prison sentences imposed for unauthorised driving following the reform. However, there was no reduction in the percentage of proven court appearances that resulted in a licence disqualification or full-time prison sentence.² Although this is encouraging for our analysis, Poynton and Leung (2018) did not use a control group, which means we have no way of ascertaining whether the structural changes detected were due to the reforms or other causes. Further, there was insufficient follow-up time (only around 7 months) for Poynton and Leung (2018) to examine whether other aims of the reforms, such as reducing reoffending, had been achieved.

While the Driver Licence Disqualification Reforms were expected to lower rates of reoffending through reduced opportunities to offend, it is possible that the decrease in the severity of statutory penalties for unauthorised driving offences could diminish the deterrent effect of these sanctions. Becker's (1968) seminal theory of offending suggests that individuals weigh the costs of crime against its benefits when deciding whether to commit an offence. According to this model, the cost of crime is the product of the risk of apprehension and the severity of punishment for an offence. Reducing the severity of penalties for driving offences would therefore (according to Becker) result in a greater number of offences being committed because the cost of crime is lower, all else being equal. There is however little evidence that changes in the severity of punishment significantly affect offending behaviour. Chalfin and McCrary (2017), in their summary of the empirical literature published since 1980, found only a few recent exceptions. The following three papers were cited by Chalfin and McCrary (2017). Bell, Jaitman, and Machin (2014) found sizeable declines in rioting in the United Kingdom after harsher penalties were implemented for these offences following London's 2011 riots. Similarly, Drago, Galbiati, and Vertova (2009) analysed a policy in Italy that commuted the sentence of a group of prisoners under the condition that if they reoffended they would have to serve their remaining sentence in addition to their new sentence. This policy allowed the authors to analyse random variation in the expected sentence length to examine its impact on reoffending. Drago et al. (2009) found that an increase in the expected sentence of 50% reduced recidivism rates by about 35% in the first seven months following release. Finally, Helland and Tabarrok (2007), examining California's three-strikes regime, compared individuals convicted of a second 'strikeable' offence to those convicted of a lesser offence. They found that the policy reduced felony arrest rates by about 20% among individuals with two strikeable offences.

There are several reasons why these latter findings may not extend to unauthorised driving offences in NSW. First, long disqualification periods served consecutively may themselves contribute to cycles of reoffending and disqualification (NSW Auditor General, 2013; NSW Parliamentary Law and Safety Committee, 2013). Longer driver disqualifications may simply mean that offenders regularly drive unlicensed for longer periods of time and therefore have greater opportunity to be apprehended for an offence (Lenton, Fetherston, & Cercarelli, 2010). In addition, as offenders who drive while disqualified are already committing an offence, they may be more likely to commit other driving offences as the marginal penalty of each additional offence is reduced (Lenton et al., 2010).

A second reason is that offenders may respond differently to penalties associated with driving offences compared to the more serious offences that Chalfin and McCrary (2017) reviewed, such as rioting. Most of the deterrence literature focuses on the impact of prison penalties on offending, but imprisonment is a rare outcome for offenders convicted of driving offences. Fines and disqualifications are the most common penalties imposed for driving offences and it is possible that these types of sanctions have a smaller or no deterrent effect. Moffatt and Poynton (2007) when examining driving offences and penalties

² Although, Poynton and Leung (2018) find a reduction in the number of persons in custody with an unauthorised driving offence as their primary offence.

in NSW found no evidence to suggest that higher fines or longer driving disqualifications reduce the risk of subsequent offending, even when controlling for selection bias using a two-stage model.

A third, and related reason, is that the benefits offenders derive from driving unlicensed may outweigh the penalties, no matter how severe, because the risk of detection is very low. Lenton et al. (2010) conducted semi-structured interviews with 40 repeat drink drivers in Perth to investigate the reasons why individuals drive unlicensed. They found that licence sanctions are not effective deterrents amongst this high-risk group of drivers. Many of the repeat offenders interviewed reported driving while unlicensed, citing the low probability of detection and the significant social and economic benefits (including continued employment) as reasons why they drive unlawfully. Similarly, Ferrante (2003) in interviews with 27 drivers from Perth, who had at least one prior driver licence disqualification, identified two main reasons why drivers chose to drive while disqualified: (1) the low risk of detection and; (2) the disruption to a driver's family and personal life if they did not drive.

Studies that have sought to estimate the incidence of unlawful driving confirm the very high rate of driving while disqualified. For example, Malenfant, Houten, and Jonah (2002) estimated the rate of driving while disqualified by working with the police to set up roadblocks which stopped every car outside a town in Canada and checked their licence status. The authors calculated the degree to which offenders drive while disqualified by calculating the proportion of drivers stopped that were disqualified and dividing this by the actual proportion of disqualified drivers in the town. Using this method, Malefant et al. (2002) found the incidence of driving while disqualified was 57% compared with the actual representation of disqualified drivers. This suggests that either 57% of drivers drive while disqualified, all disqualified drivers drive 57% as much as licensed drivers, or some combination of these two extremes. Either way, this research suggests that many drivers continue to drive even when disqualified. Although this research may also suggest that at least some unauthorised drivers are reducing the amount they drive due to the risk of further sanctions.

The current study

This bulletin investigates the impact of the 2017 Driver Licence Disqualification Reforms on penalties, court volumes and repeat disqualified driving. This work extends the analysis by Poynton and Leung (2018), examining a longer post-policy period and comparing changes in sentencing patterns for unauthorised driving offences with a control group. Ours is also the first study to examine the impact of the reforms on court volumes and repeat unauthorised driving. The impact of these reforms on vulnerable populations who are disproportionately affected by driver licence sanctions, namely Aboriginal people, is also considered.

METHOD

Data source

An extract from BOCSAR's Reoffending Database (ROD) was used in this analysis. The ROD contains information relating to all criminal matters finalised in the NSW Children's Court, Local Court and District/Supreme Courts since 1994. Our sample was limited to matters with a finalisation date between the 28th of April 2015³ and the 30th of April 2020, and where the principal offence relating to that appearance had an ANZSOC⁴ code of either 1411 'Drive while disqualified or suspended' or 1412 'Drive without a licence' (our treatment group), or 1431 'Exceed the prescribed content of alcohol' (PCA) (our control group).

³ Beginning the sample at the end of April avoids a reform to PCA offences that would have impacted our results. On 1 February 2015 a mandatory interlock program was introduced for drivers convicted of the most serious PCA offences. This program influenced the length of driver disqualification periods for these offenders.

⁴ ANZSOC codes are used to group offences by type across Australian and New Zealand jurisdictions. Interested readers are directed to Australian Bureau of Statistics (2011a) for more information.

This represents 158,952 finalised cases in total. Of these, a further 32,380 PCA matters were excluded because they were marked as a 'Special range PCA' or 'Low range PCA' or the type of PCA offence was missing (N=250). We exclude 'special range' and 'low range' offences because significant changes were made to the penalties for these offences in May 2019 which could bias our estimates. We also excluded matters where an individual was charged with both unauthorised driving and PCA offences (N=5,705) to avoid contaminating our estimate of the treatment effect. Finally, for all penalty and reoffending outcomes, we exclude cases where the principal offence was not proven (N =2,369).

This leaves 118,248 finalised cases in the final dataset. We examine the following outcome variables:

1. **The length of the licence disqualification:** A variable indicating the length of the licence disqualification imposed (in months) for the index offence. The variable is missing if an offender did not receive a licence disqualification.
2. **The probability of a licence disqualification:** A variable coded one if the offender received a licence disqualification at their index appearance and zero otherwise.
3. **The length of a prison sentence:** A variable indicating the length of the prison sentence (non-parole; in months) imposed for the index offence. The variable is missing if an offender did not receive a prison sentence.
4. **The probability of a prison sentence:** A variable coded one if the offender received a prison sentence for their index offence and zero otherwise.
5. **The monthly number of finalised cases:** A variable comprising the monthly count of court finalisations for each offence type.
6. **Subsequent unauthorised driving offence within two years:** A variable coded one if an offender commits an offence with ANZSOC code 1411 or 1412 within two years of the index finalisation and zero otherwise.
7. **Subsequent unauthorised driving offence in the second year:** A variable coded one if an offender commits their first subsequent offence with ANZSOC code 1411 or 1412 in the second year after the index finalisation date and zero otherwise.
8. **The number of subsequent unauthorised driving offences within two years:** A variable indicating the number of unauthorised driving offences within two years of the index finalisation. The variable is missing if an offender did not reoffend within two years.
9. **The number of subsequent unauthorised driving offences in the second year:** A variable indicating the number of unauthorised driving offences in the second year after the index finalisation date. The variable is missing if an offender did not have their first reoffence in the second year after the index finalisation date.

A two-year reoffending period is selected because the average licence disqualification period before the reforms took effect was around 18 months. Two years is therefore required to analyse the full effects of the reforms. Outcomes 7 and 9 consider reoffending only in the second year after the index finalisation because, at 12 months, almost all offenders (98.6%) sentenced in the post reform period would have completed their initial disqualification period compared with just half (49%) of the offenders sentenced prior to the reforms. This allows us to better quantify any impact of the shortened disqualification periods on reoffending rates. For the reoffending outcomes, we only examine offenders whose offence was finalised on or before April 2018, to ensure that every offender has a two-year follow-up period.

We observe a wide range of offender demographics including their: gender; age; Aboriginality;⁵ the remoteness of their residential area; and the SEIFA⁶ percentile rank of their residential postcode.⁷ Information is also available about the current offence. This includes whether the offender had legal representation at the index appearance; and the ANZSOC code associated with the principal offence. The following variables measure the prior offending of the offender:

- The number of proven court appearances in the previous 5 years.
- The number of proven court appearances in the previous 5 years involving:
 - A licence disqualification
 - A PCA offence
 - An offence type from ANZSOC 1411
 - Any other traffic offence beginning with ANZSOC code 14.
- The number of proven court appearances in the previous 5 years that resulted in a prison sentence.

Further, we observe the Police Area Command (PAC) where the offence was committed and the code of the judicial officer that presided over the case.

Statistical analysis

Sentencing and reoffending outcomes

This study uses a difference-in-differences (DID) strategy to examine the impact of the 2017 Driver Licence Disqualification Reforms on sentencing and reoffending outcomes. Our strategy takes the following form:

$$Y_{itpm} = \beta_1 \text{UnauthorisedDriving}_i \times \text{PostReform}_t + \beta_2 \text{UnauthorisedDriving}_i + \beta_3 \text{PostReform}_t + \beta_4 X'_{it} + \alpha_p + \delta_m + \epsilon_{itpm} \quad (1)$$

Where Y_{itpm} refers to the outcome variables measured for case i , presided over by magistrate m at pre- or post-reform period t for an offender arrested in PAC p . $\text{UnauthorisedDriving}_i$ refers to a binary variable that equals one if an individual's principal offence is an unauthorised driving offence (ANZSOC 1411 or 1412) and zero if an individual's principal offence is a PCA offence (ANZSOC code 1431). PostReform_t is a binary variable equal to one in the post-reform period which began on the 28th October 2017 and zero prior to that date. X'_{it} refers to a vector of controls as described in the data source section, while α_p refers to PAC fixed effects which control for differences in police practices between PACs (such as the priority they place on enforcing driving offences) as well as general differences in geographic areas (including the car dependency and local labour market conditions of the PAC). δ_m refers to magistrate fixed effects which control for the average leniency and harshness of particular magistrates when giving penalties, and ϵ_{itpm} refers to the error term. We cluster our standard errors at the magistrate level.

β_1 is the estimate of the average treatment effect, or the impact of the disqualification reforms on our outcome variables. It measures the change in the outcome variable for defendants convicted of an unauthorised driving offence compared to those convicted of a PCA offence, accounting for any initial differences in the outcome variable between these two offences before the reforms. Generally, for β_1 to signify the causal impact of the 2017 reforms, the parallel trends assumption must be satisfied. That is, the trends in outcomes for unauthorised driving offences and PCA offences must be similar prior to the 2017 reforms, and these trends would have been expected to continue if not for the reforms being enacted in 2017.

⁵ Whether the police recorded the person as Aboriginal at the index offence or any prior or future offence.

⁶ SEIFA scores are a measure of socioeconomic disadvantage based on the defendant's postcode of residence at the time of finalisation. Lower scores indicate more disadvantage. Interested readers are directed to Australian Bureau of Statistics (2011b) for more information pertaining to SEIFA scores.

⁷ Both remoteness of area and SEIFA scores are measured at charge date but have a substantial number of missing observations. For missing observations, we take the remoteness area and SEIFA score at finalisation date. For observations that are both missing at charge and finalisation date, we create an indicator variable for these defendants to prevent them from dropping out of the regression.

There are three reasons to believe that the trends for unauthorised driving offences would be similar to the trends for PCA offences. Firstly, both offence types are largely driven by police activity. The probability of being caught with an unauthorised driving or PCA offence is low, and therefore trends in the number of individuals charged are normally driven by police enforcement strategies, like roadside random breath tests. If the police decide to prioritise the enforcement of driving offences, it is likely that both unauthorised driving offences and PCA offences would be impacted. Secondly, regarding the trends in court penalties, the opinions of magistrates and their propensity to give licence disqualifications and prison sentences for unauthorised driving offenders are likely similar (in their trends) to their opinions and propensities for PCA offences. In other words, it is likely that a magistrate who is harsh on unauthorised driving offences will also be harsh towards PCA offences, and any potential shocks to the severity of penalties like changes in public perception would impact both unauthorised driving and PCA offenders. Thirdly, the number of unauthorised driving (N=82,516) and PCA offences (N=44,275)⁸ brought before the courts is large, meaning their trends would be less susceptible to short-term spikes.

Court volumes

Our approach changes slightly in order to quantify the impact of the Driver Licence Disqualification Reforms on monthly finalisations. Namely, we aggregate the final dataset to construct a monthly panel of the number of PCA and unauthorised driving offences finalised each month. Additionally, we exclude observations for April 2020 due to the substantial disruption in Local Court finalisations caused by COVID-19.

Additionally, because we do not expect an immediate impact of the Driver Licence Disqualification Reforms on monthly finalisations, we estimate a panel event study. The reason that we do not expect any immediate impact on monthly finalisations is that any change in reoffending at the individual level, due to the new penalty regime, would take time to affect aggregate court volumes. Additionally, we expect that the incentive scheme, which was also introduced as part of the reforms, could impact court volumes. The incentive scheme allowed offenders to apply to the courts to remove their licence disqualifications following an offence-free period. If offenders were successful in doing so, this would have reduced their opportunity to reoffend and hence could have reduced court volumes. However, as applications to the courts were gradual, any impact of the scheme could also take a substantial amount of time to materialise.

A panel event study allows us to examine how the reforms have impacted our outcomes over time instead of simply comparing the effect for the entire post-policy period. It also allows us to formally test whether the trends between PCA offences and unauthorised driving offences were parallel before the reforms, thereby validating our identification strategy. Our panel event study takes the following form:

$$Volume_{os} = \alpha_1 + \sum_{j=2}^5 \beta_j (Lag\ j)_{os} + \sum_{k=0}^4 \gamma_k (Lead\ k)_{os} + \alpha_2 UnauthorisedDriving_o + \tau_s + \epsilon_{os} \quad (2)$$

Where $Volume_{os}$ refers to the monthly number of finalisations in offence-month O and 6-month period S . The impact of the reforms is measured in 6-month periods that begin at the date of reform. $Lag\ j$ is equal to one in the 6-month period j before the reforms and if the offence is a reform offence. Similarly, $Lead\ k$ is equal to one in the 6-month period k occurring after the reforms and if the offence is a reform offence. $UnauthorisedDriving_o$ is a binary variable equal to 1 if the principal offence is an unauthorised driving offence, and α_2 measures the baseline difference in the outcome between unauthorised driving offences and PCA offences, where the baseline is defined as the six months immediately prior to the reforms. τ_s refers to our time-period fixed effects, which adjust for seasonal differences common to both groups (e.g., state-wide crime rates and unemployment). Robust standard errors are employed.

$\gamma_0 \dots \gamma_4$ refers to our estimate of the average treatment effect for the respective 6-month period (i.e., the impact of the disqualification reforms on monthly court finalisations for a respective 6-month period). For our coefficients to have a causal interpretation the same assumptions must be satisfied as the previous section, namely the parallel trends assumption.

⁸ Excluding Low range PCA and Special range PCA offences.

RESULTS

Descriptive results

Table 2 shows the characteristics of the sample of offenders who had an unauthorised driving offence as their principal offence, as well as the sample of offenders who had a PCA offence as their principal offence. Among unauthorised driving offenders, 24% were women and 19% were recorded as Aboriginal on at least one police contact. 34% of offenders were aged between 25 and 34 years, 36% resided in an area in the highest SEIFA quartile of disadvantage, and 71% resided in a major city. In terms of prior criminal history, the majority of offenders had no prior traffic offences (77%), no prior driving while disqualified offences (67%) and no prior PCA offences (88%). However, 67% of offenders had at least one prior court appearance for any offence, 12% had a prior prison sentence and just under half had at least one court-imposed driver licence disqualification (44%) in the previous five years. At the index court appearance, 63% of offenders received a licence disqualification with an average duration of 12.5 months and 4% of offenders received a prison sentence with an average duration of 5.6 months. More than one-quarter of offenders (28%) reoffended within 24 months.⁹

Table 2. Descriptive statistics, unauthorised driving offenders and PCA offenders

	Unauthorised driving offence (treatment)			PCA offence (control)		
	Proportion	SD	Count (Non-missing)	Proportion	SD	Count (Non-missing)
Panel A: Demographics						
Female	0.24	0.42	76,497	0.21	0.41	41,743
Aboriginality						
Aboriginal	0.19	0.39	76,504	0.06	0.25	41,744
Non-Aboriginal	0.66	0.48	76,504	0.64	0.48	41,744
Unknown	0.16	0.37	76,504	0.30	0.46	41,744
Age						
<18	0.02	0.14	76,472	0.00	0.07	41,727
18 – 24	0.29	0.45	76,472	0.18	0.38	41,727
25 – 34	0.34	0.47	76,472	0.29	0.45	41,727
35 – 44	0.20	0.40	76,472	0.23	0.42	41,727
>45	0.15	0.36	76,472	0.30	0.46	41,727
SEIFA						
Q1 (Most disadvantaged)	0.36	0.48	76,504	0.22	0.41	41,744
Q2	0.27	0.44	76,504	0.29	0.45	41,744
Q3	0.24	0.43	76,504	0.26	0.44	41,744
Q4 (Least disadvantaged)	0.11	0.31	76,504	0.21	0.41	41,744
Unknown	0.02	0.14	76,504	0.03	0.18	41,744
Remoteness Area						
Major City	0.71	0.45	76,504	0.61	0.49	41,744
Inner regional	0.20	0.40	76,504	0.27	0.44	41,744
Outer Regional/ Remote/ Very Remote	0.08	0.27	76,504	0.09	0.29	41,744
Missing	0.02	0.13	76,504	0.03	0.17	41,744

⁹ This figure is based on the full sample.

Table 2. Descriptive statistics, unauthorised driving offenders and PCA offenders - continued

	Unauthorised driving offence (treatment)			PCA offence (control)		
	Proportion	SD	Count (Non-missing)	Proportion	SD	Count (Non-missing)
Panel B: Offending Characteristics						
Legally Represented	0.39	0.49	76,324	0.68	0.47	41,376
Prior Prison > 0	0.12	0.32	76,504	0.01	0.12	41,744
Traffic offence (exc. PCA & DWD)						
0	0.77	0.42	76,504	0.98	0.14	41,744
1	0.16	0.37	76,504	0.02	0.14	41,744
2+	0.07	0.25	76,504	0.00	0.04	41,744
Prior DWD offence						
0	0.67	0.47	76,504	0.97	0.16	41,744
1	0.19	0.39	76,504	0.02	0.15	41,744
2+	0.13	0.34	76,504	0.00	0.05	41,744
Prior PCA offence						
0	0.88	0.33	76,504	0.87	0.33	41,744
1	0.11	0.31	76,504	0.12	0.32	41,744
2+	0.02	0.12	76,504	0.01	0.08	41,744
Prior Disqualification						
0	0.56	0.50	76,504	0.88	0.32	41,744
1	0.25	0.43	76,504	0.11	0.31	41,744
2+	0.19	0.39	76,504	0.01	0.09	41,744
Prior court appearance						
0	0.33	0.47	76,504	0.74	0.44	41,744
1	0.21	0.41	76,504	0.17	0.38	41,744
2+	0.46	0.50	76,504	0.08	0.28	41,744
Panel C: Outcome variables						
Disqualification	0.63	0.48	76,504	0.88	0.33	41,744
Prison	0.04	0.20	76,504	0.01	0.10	41,744
Months of disqualification (mean)	12.51	10.83	47,891	7.20	4.32	36,723
Months of prison (mean)	5.58	2.86	3,174	5.67	2.51	412
Unauthorised driving reoffence	0.28	0.45	76,504	0.04	0.20	41,744

Note: Months of licence disqualification and months of prison are only shown for defendants that received a licence disqualification or prison sentence, respectively.
SD - Standard Deviation, Q - Quartile, PCA - Prescribed Content of Alcohol, DWD - Driving While Disqualified

The same statistics are shown for PCA offenders. Notable differences include a much smaller proportion (6%) of Aboriginal offenders and a smaller proportion of offenders with a prior offending history. For example, the proportion of PCA offenders with no prior court appearances was 74%, compared with 33% for unauthorised driving offenders. A test of equality of the proportions for PCA offences and unauthorised driving offences is not included, because our statistical strategy does not require PCA offenders and unauthorised driving offenders to have similar characteristics.

Trends in outcomes

Figures in this section examine trends in the following outcome variables: the length and likelihood of licence disqualification; the length and likelihood of prison; the total number of monthly cases; and the likelihood and number of repeat unauthorised driving offences. Monthly trends in these outcomes are shown for both unauthorised driving offences and PCA offences. This allows us to visually examine the impact of the Driver Licence Disqualification Reforms on our outcomes by comparing trends for unauthorised driving offences before and after the reforms with those observed for PCA offences which were not affected by the reforms. The figures also provide some evidence for the parallel trends assumption. If we find the trend lines are parallel for unauthorised driving offences and PCA offences in the period before the reforms, we can assume it is likely that these trends would have continued if the reforms had not been enacted. Thus, we can more confidently attribute any change in the trend line for unauthorised driving offences to the 2017 Driver Licence Disqualification Reforms.

Figure 1. Trends in length of licence disqualification for unauthorised driving and PCA offences

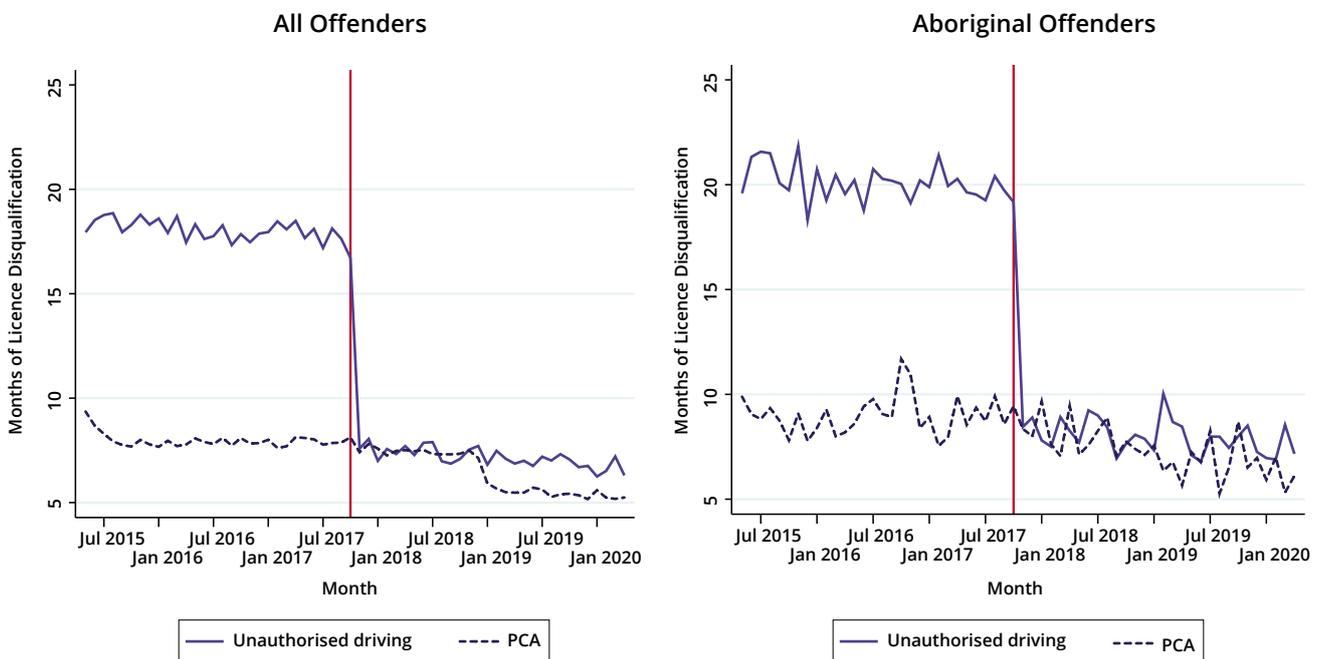


Figure 1 plots the average length (in months) of licence disqualifications imposed for proven unauthorised driving offences and PCA offences by month of finalisation. The left panel shows the average licence disqualification lengths for all offenders, while the right panel shows this information just for Aboriginal offenders. Both figures clearly show a large drop in the length of disqualification periods for unauthorised driving offences coinciding with the reforms (denoted by the vertical red line). No such decline is evident for PCA offences. Conversely, from Figure 2, we see that the probability of receiving a licence disqualification remains relatively stable across the entire time period for both unauthorised driving and PCA offences. This suggests the reforms did not reduce the likelihood that a defendant received a licence disqualification.

Figure 2. Trends in the probability of receiving a licence disqualification for unauthorised driving and PCA offences

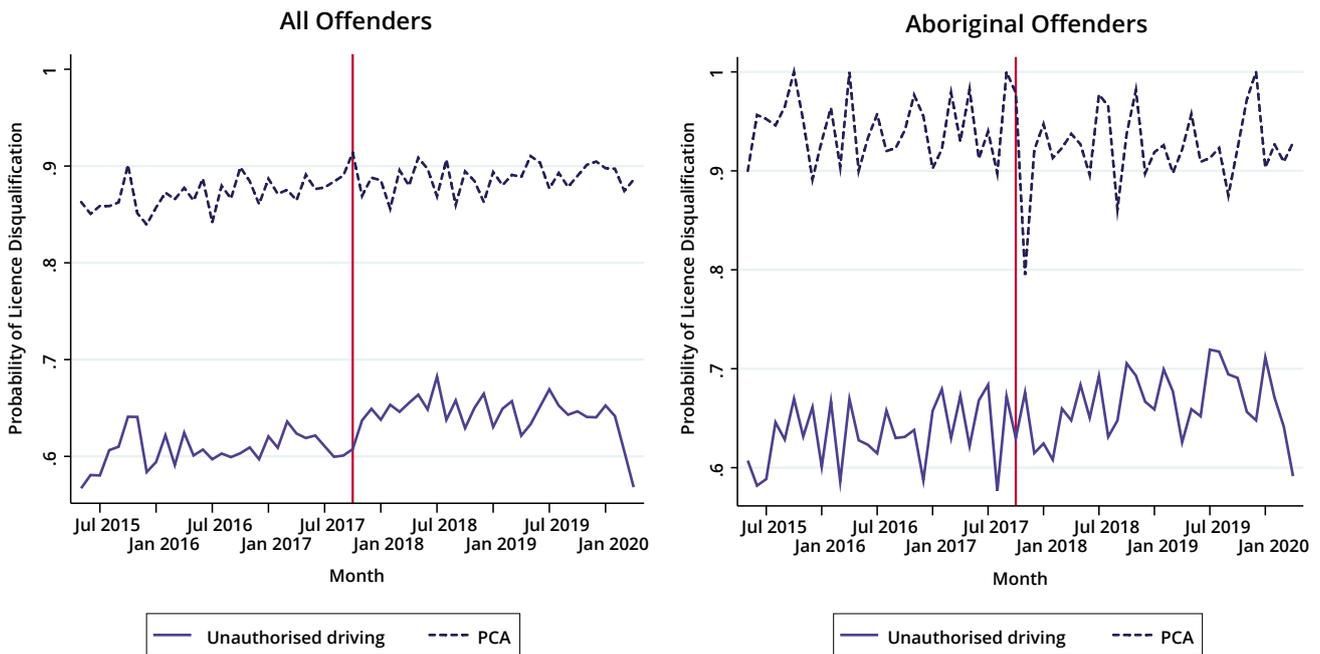


Figure 3 plots the average length (in months) of prison sentences imposed for our two offence categories. Data is shown separately for all offenders and for the subset of Aboriginal offenders. The series for PCA offences shows strong variation due to the low number of offenders sentenced to prison for this offence in a given month. For example, in May 2015 there were only ten offenders sentenced to prison for a PCA offence. From Figure 3, it is evident that there has been a general decline in average prison sentences for unauthorised driving offences, but a small increase in the average prison length for PCA offences. Figure 4 examines the probability of a prison sentence as the outcome. When examining all defendants, we see a strong decline in the probability of a prison sentence. A similar, though less prominent, downward trend in the probability of a prison sentence is also apparent for Aboriginal offenders. Meanwhile, the probability of prison for PCA offences stays constant throughout the entire period.

Figure 3. Trends in the length of prison sentences for unauthorised driving and PCA offences

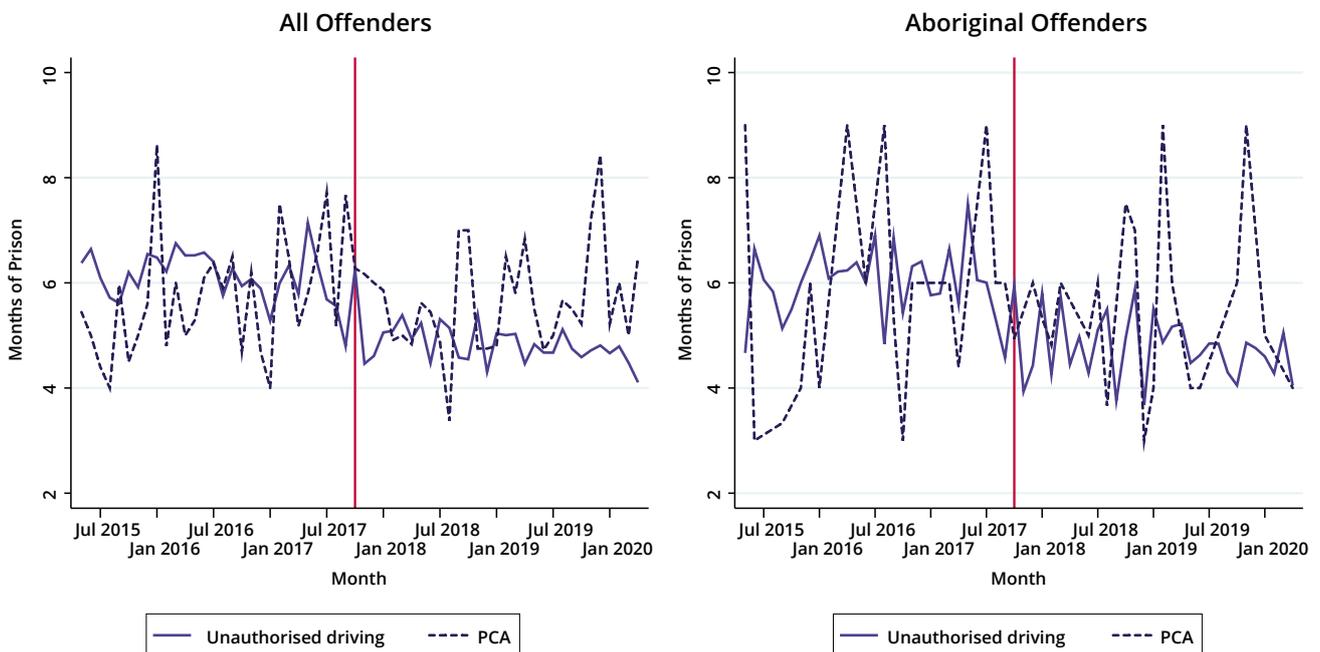


Figure 4. Trends in the probability of receiving a prison sentence for unauthorised driving and PCA offences

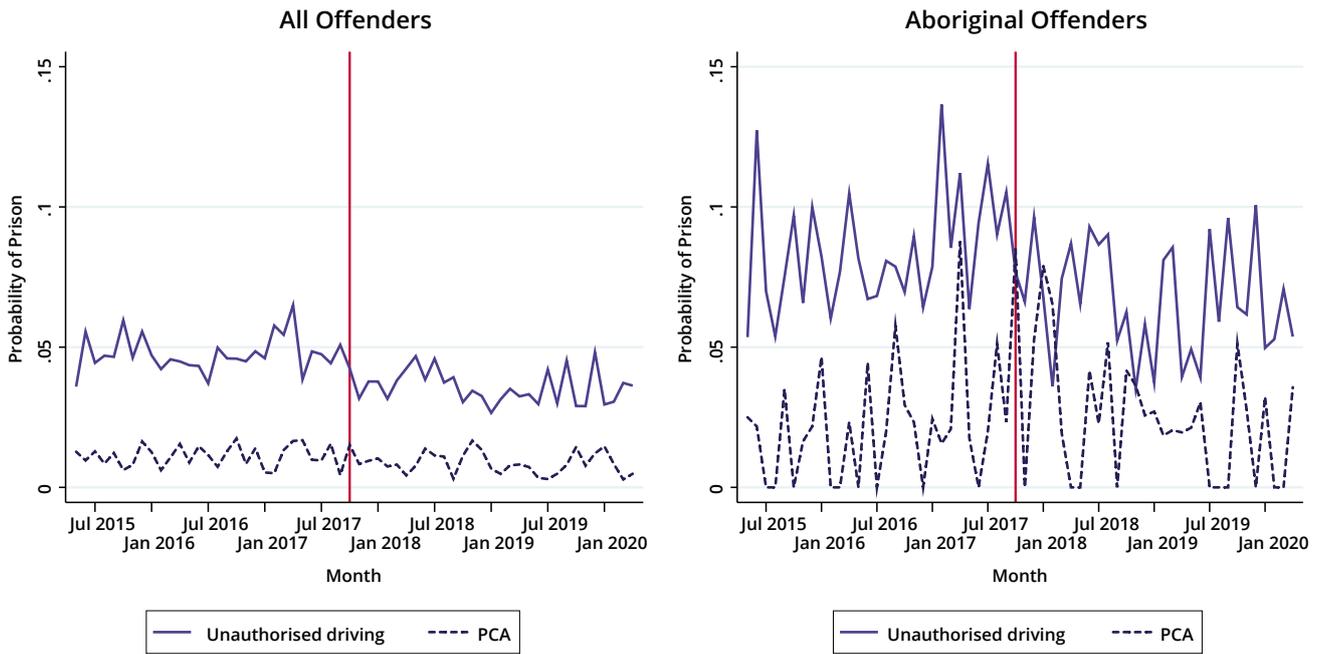


Figure 5 shows the proportion of offenders that reoffend with a proven unauthorised driving offence within two years of the index court appearance. The monthly proportion reoffending within two years is stable for both offence types throughout the entire sample period. This is true for both the full sample and the subset of Aboriginal offenders.

Figure 5. Trends in the probability of committing a further unauthorised driving offence for unauthorised driving and PCA offences

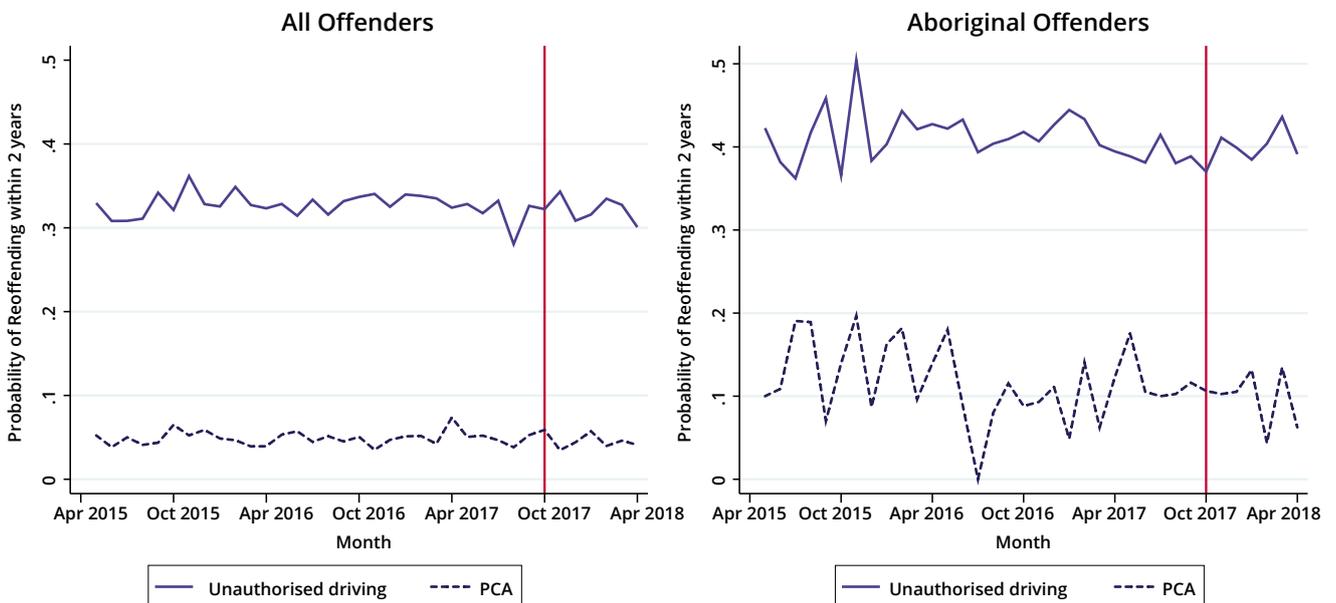
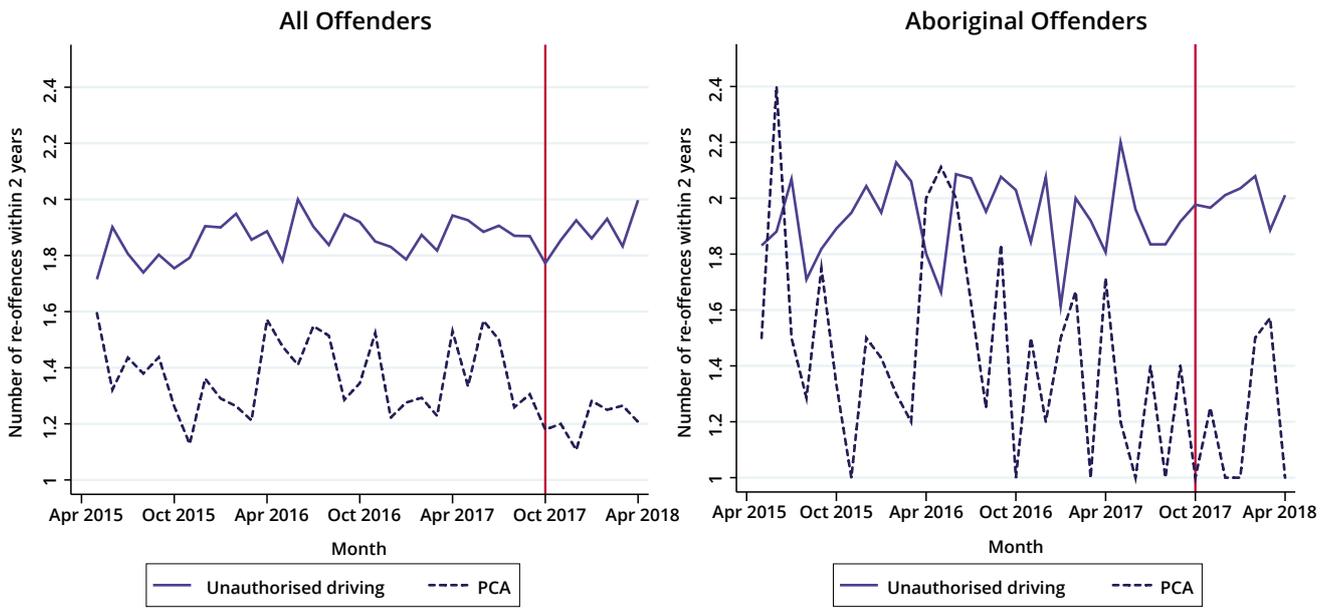


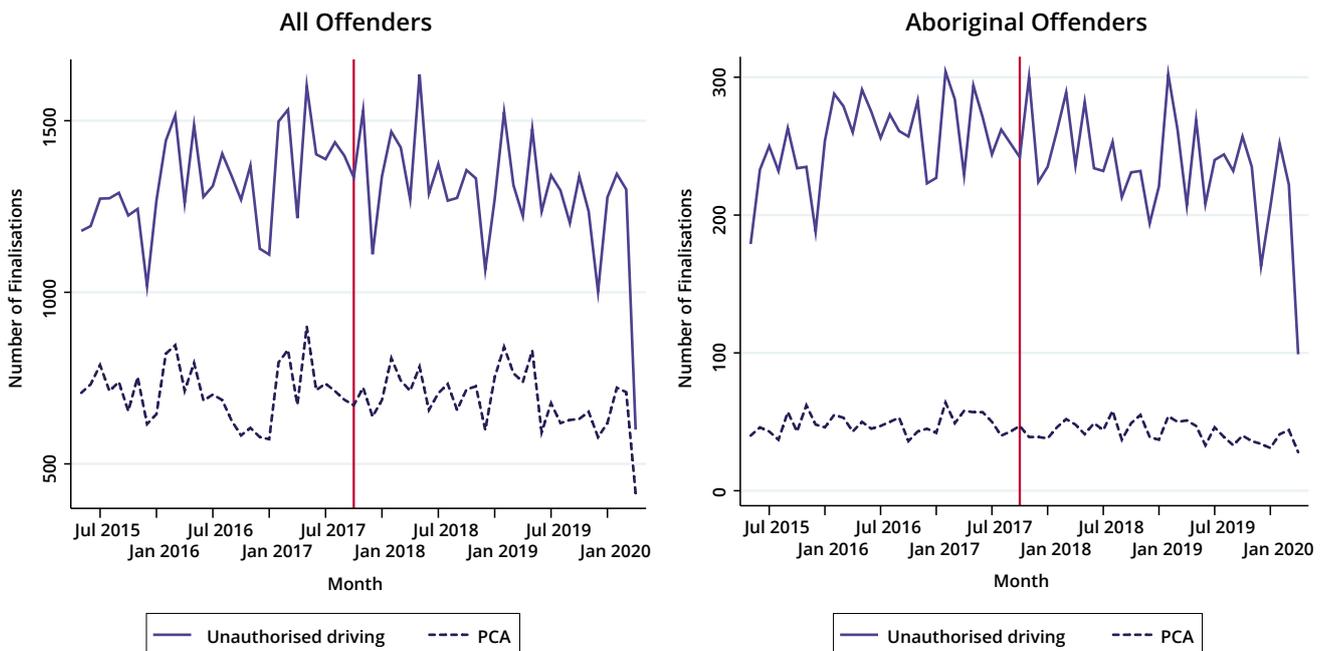
Figure 6 examines the number of proven unauthorised driving offences committed within two years of the index court appearance for offenders that reoffended. Although there is substantial variation in the average number of reoffences each month for the full sample, the pre-reform monthly trend remains relatively stable for both PCA and unauthorised driving offences. However, after the reforms there appears to be a slight decline in the average number of reoffences among offenders with a PCA offence, which is not seen among offenders with an unauthorised driving offence. Regarding Aboriginal offenders, the significant variation in the number of reoffences for offenders with a PCA offence, makes it difficult to ascertain how trends have changed over time.

Figure 6. Trends in the number of re-offences for unauthorised driving and PCA offences



Finally, Figure 7 examines the total number of unauthorised driving and PCA appearances finalised each month. For the full sample, the monthly number of unauthorised driving and PCA charges is stable throughout the entire period suggesting that the reforms have not impacted court volumes. However, for Aboriginal offenders there seems to be a slight downward trend in the monthly number of finalised appearances for unauthorised driving offences which is not evident for PCA offences, suggesting that the reforms may have had an impact for Aboriginal offenders. The sharp reduction in cases in April 2020 was due to the substantial disruption to Local Court processes due to COVID-19. Therefore, we exclude April 2020 from our difference-in-difference results in the next section.

Figure 7. Trends in the number of monthly finalisations for unauthorised driving and PCA offences



Importantly, for most outcomes shown in Figures 1-7 the trend lines in the period before the reforms look similar for unauthorised driving offences and PCA offences, suggesting the parallel trends assumption may hold. We undertake a more formal test of this assumption later in the paper by examining the event-study plots.

Difference-in-differences results

The previous section examined trends in unauthorised driving and PCA offences before and after the 2017 reforms. This section will formally estimate the impact of the 2017 reforms on our outcomes, using a difference-in-differences strategy. Our difference-in-differences (DID) estimate compares the changes in outcomes for unauthorised driving offences to changes in outcomes for PCA offences. We assume that any differences in the trends of these two outcomes are attributable to the 2017 reforms, as the reforms affected unauthorised driving offences but not PCA offences.

Table 3 presents our DID estimates from equation 1 for the four sentencing outcomes for the full sample. The coefficient on '*Unauthorised driving x post-reform*' gives our best causal estimate of the impact of the 2017 reforms. Column 1 shows that there was a significant reduction in the length of licence disqualification penalties for unauthorised driving offences after the reforms commenced of 9.2 months. When we control for demographic and offending characteristics and include fixed effects, the magnitude of the reduction increases to 9.6 months. The treatment estimate shown in column 3 also suggests an increase in the probability of an offender receiving a licence disqualification for unauthorised driving after the reforms, however this effect is no longer statistically significant once controls are added (see column 4). Turning to column 6 we see that the length of prison sentences for unauthorised driving decreased by 1.7 months following the reforms, while column 8 indicates that unauthorised drivers were 1.7 percentage points (p.p.) less likely to receive a prison sentence following the reforms.

Table 3. DID estimates for sentencing outcomes – All offenders

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Licence Disqualification				Prison			
	Months		Probability		Months		Probability	
Unauthorised driving x Post-reform	-9.244*** (0.160)	-9.610*** (0.139)	0.023** (0.010)	-0.001 (0.009)	-1.142*** (0.235)	-1.686*** (0.220)	-0.009*** (0.002)	-0.017*** (0.002)
Unauthorised driving	9.785*** (0.173)	6.692*** (0.148)	-0.265*** (0.011)	-0.408*** (0.012)	0.321 (0.253)	0.049 (0.218)	0.036*** (0.002)	0.019*** (0.002)
Post-reform	-1.590*** (0.087)	-1.394*** (0.080)	0.015* (0.008)	0.015** (0.007)	-0.148 (0.226)	0.281 (0.198)	-0.003** (0.001)	0.000 (0.002)
Demographic controls	No	Yes	No	Yes	No	Yes	No	Yes
Offending controls	No	Yes	No	Yes	No	Yes	No	Yes
PAC FEs	No	Yes	No	Yes	No	Yes	No	Yes
Magistrate FEs	No	Yes	No	Yes	No	Yes	No	Yes
R squared	0.38	0.51	0.07	0.22	0.05	0.29	0.01	0.19
Observations	84,486	83,558	118,079	116,254	3,539	3,482	118,079	116,254

Standard errors in parentheses. PAC - Police Area Command, FE - Fixed Effect.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 4 replicates Table 3 but only examines results for Aboriginal offenders. The impact of the reforms on sentencing seems to be slightly larger for Aboriginal offenders compared with the full sample of offenders. For example, column 2 shows that the length of licence disqualifications for unauthorised driving imposed on Aboriginal offenders reduced by 10.9 months following the reforms, compared to 9.6 months for all offenders. Similarly, the probability of an Aboriginal offender receiving a prison penalty for an unauthorised driving offence declined by 3.7 p.p. after the reforms compared to 1.7 p.p. for all defendants. However, the reduction in the length of prison sentences post-reform is comparable for both groups. Although the reductions in some of our outcomes are greater for Aboriginal offenders, it must be noted that before the reforms, they received harsher penalties, on average. Even so, the greater reductions for Aboriginal offenders have helped to bring these outcomes more in line with those of non-Aboriginal offenders.

Table 4. DID estimates for sentencing outcomes – Aboriginal offenders

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Licence Disqualification				Prison			
	Months		Probability		Months		Probability	
Unauthorised driving x Post-reform	-10.360*** (0.322)	-10.859*** (0.322)	0.049*** (0.013)	0.018 (0.014)	-1.291** (0.513)	-1.622*** (0.559)	-0.018** (0.008)	-0.037*** (0.007)
Unauthorised driving	10.824*** (0.325)	7.724*** (0.325)	-0.309*** (0.013)	-0.443*** (0.015)	0.520 (0.436)	0.120 (0.547)	0.060*** (0.007)	0.027*** (0.007)
Post-reform	-1.655*** (0.268)	-1.470*** (0.292)	-0.018 (0.013)	-0.024* (0.012)	0.041 (0.445)	0.368 (0.501)	0.001 (0.005)	0.007 (0.006)
Demographic controls	No	Yes	No	Yes	No	Yes	No	Yes
Offending controls	No	Yes	No	Yes	No	Yes	No	Yes
PAC FEs	No	Yes	No	Yes	No	Yes	No	Yes
Magistrate FEs	No	Yes	No	Yes	No	Yes	No	Yes
R squared	0.39	0.50	0.05	0.27	0.05	0.40	0.01	0.23
Observations	11748	11618	16895	16719	1134	1084	16895	16719

Standard errors in parentheses. PAC - Police Area Command, FE - Fixed Effect.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Reoffending results

Table 5 shows the reoffending DID results. As our outcome variables measure reoffending within two-years, we only examine offenders whose offence was finalised on or before April 2018 (i.e., the first six months of our post-reform period). The coefficient on '*Unauthorised driving x post-reform*' provides us with the DID estimate, that is, our estimate of the impact of the 2017 reforms on reoffending rates. The treatment estimates shown in the first two columns of Table 5 are close to zero, suggesting that there was no impact of the reforms on the probability of committing an unauthorised driving offence within 2 years of the index court appearance. The next two columns examine the number of unauthorised driving offences committed within two years of the index court appearance for the offenders who recorded a new offence. Our adjusted estimate in column 4 shows that the 2017 reforms were associated with an increase in the average number of reoffences committed of 0.19 extra offences.

The last four columns of Table 5 examine reoffending in the second year after the index court appearance. It is expected that the reforms would have a greater effect on reoffending in the second year of follow-up because most offenders sentenced before the reforms would still be serving their index licence disqualification period compared with only 1.4% of the offenders sentenced after the reforms. This is largely reflected in our results with column 6 showing an estimated reduction of 0.8 p.p. in the probability of a first reoffence occurring in the second year (compared to a first reoffence in the first year or no reoffence at all). However, column 8 shows that there is no change in the number of further unauthorised driving offences occurring in the second year. The results for the frequency of offending, particularly in columns 3 and 4, should be interpreted with caution. As can be seen from Figure 6, the trend in the number of reoffences among unauthorised driving offences was relatively stable over the entire period. The result in Table 5 appears to be an artefact of a reduction in the offending frequency of offenders in our control group (i.e., offenders charged with PCA offences).

Table 5. DID estimates for reoffending – All offenders

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Reoffences within 2 years				Reoffences beginning in the 2nd year			
	Probability		Number		Probability		Number	
Unauthorised driving x Post-reform	0.000 (0.007)	-0.002 (0.007)	0.194*** (0.059)	0.186*** (0.061)	-0.006* (0.004)	-0.008** (0.004)	0.030 (0.082)	-0.002 (0.099)
Unauthorised driving	0.278*** (0.005)	0.158*** (0.005)	0.488*** (0.029)	0.383*** (0.031)	0.067*** (0.002)	0.040*** (0.002)	0.217*** (0.040)	0.194*** (0.047)
Post-reform	-0.005 (0.003)	-0.003 (0.004)	-0.150*** (0.048)	-0.132** (0.051)	-0.001 (0.002)	-0.002 (0.002)	-0.091 (0.071)	-0.058 (0.091)
Demographic controls	No	Yes	No	Yes	No	Yes	No	Yes
Offending controls	No	Yes	No	Yes	No	Yes	No	Yes
PAC FEs	No	Yes	No	Yes	No	Yes	No	Yes
Magistrate FEs	No	Yes	No	Yes	No	Yes	No	Yes
R squared	0.10	0.15	0.01	0.04	0.02	0.04	0.00	0.07
Observations	72,039	70,860	16,406	16,220	72,039	70,860	4,066	4,010

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 6 presents the same estimates as in Table 5 but for the subset of Aboriginal offenders included in our sample. There are no statistically significant coefficients for our adjusted treatment estimates suggesting no change in rates of unauthorised driving after the 2017 reforms. However, the magnitude and direction of our estimates follow a similar pattern to the corresponding estimates for the full sample. The lack of statistical significance may be due to the lower sample size for Aboriginal offenders.

Table 6. DID estimates for reoffending – Aboriginal offenders

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Reoffences within 2 years				Reoffences beginning in the 2nd year			
	Probability		Number		Probability		Number	
Unauthorised driving x Post-reform	0.018 (0.024)	0.022 (0.025)	0.280* (0.151)	0.242 (0.195)	-0.009 (0.015)	-0.013 (0.016)	0.071 (0.251)	-0.376 (0.379)
Unauthorised driving	0.292*** (0.012)	0.182*** (0.014)	0.484*** (0.080)	0.388*** (0.079)	0.069*** (0.007)	0.051*** (0.008)	0.137 (0.092)	0.220 (0.137)
Post-reform	-0.022 (0.017)	-0.019 (0.019)	-0.210 (0.135)	-0.216 (0.172)	-0.006 (0.012)	-0.005 (0.014)	-0.157 (0.240)	0.191 (0.366)
Demographic controls	No	Yes	No	Yes	No	Yes	No	Yes
Offending controls	No	Yes	No	Yes	No	Yes	No	Yes
PAC FEs	No	Yes	No	Yes	No	Yes	No	Yes
Magistrate FEs	No	Yes	No	Yes	No	Yes	No	Yes
R squared	0.05	0.11	0.01	0.095	0.01	0.04	0.00	0.20
Observations	10,551	10,436	3,818	3,768	10,551	10,436	1,011	973

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Court volume results

In this section, we examine how the 2017 reforms impacted the number of monthly finalisations for unauthorised driving offences. We use event study plots to examine this. The event study plots show how the reforms have impacted monthly finalisations in 6-month periods from October 2017, the beginning of the reforms, to March 2020, 2.5 years after the reforms (we exclude April 2020 from this analysis due to the substantial disruption in Local Court finalisations as a result of COVID-19). Our comparison time period is the 6 months directly prior to the reforms. This allows us to examine whether and in what way the impact of these reforms changed over time. This is particularly important for court finalisations as we expect a lagged effect of the reforms on this outcome. Additionally, the plots allow us to formally test whether unauthorised driving offences and PCA offences followed the same trends before the reforms, thereby validating our identification strategy. If the pre-reform trends are similar, our event study estimates would centre around zero prior to the reforms. Event study plots are also examined for our other outcomes in the Appendix.

Figure 8. Six-monthly change in the number of Local Court finalisations for unauthorised driving offences, all offenders

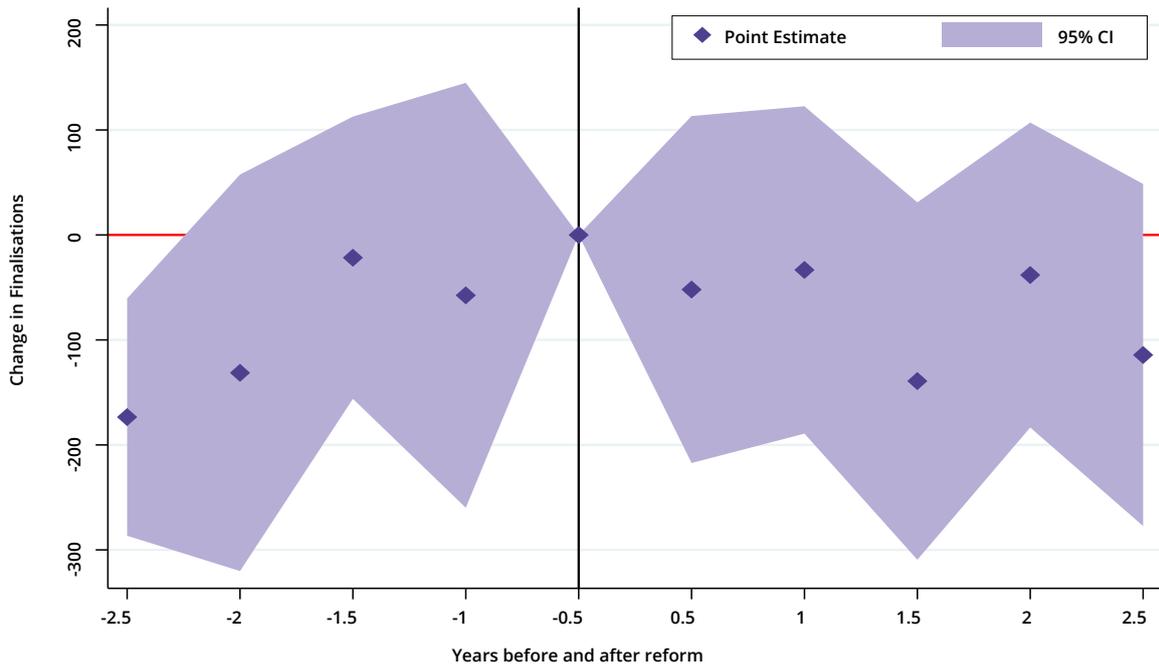
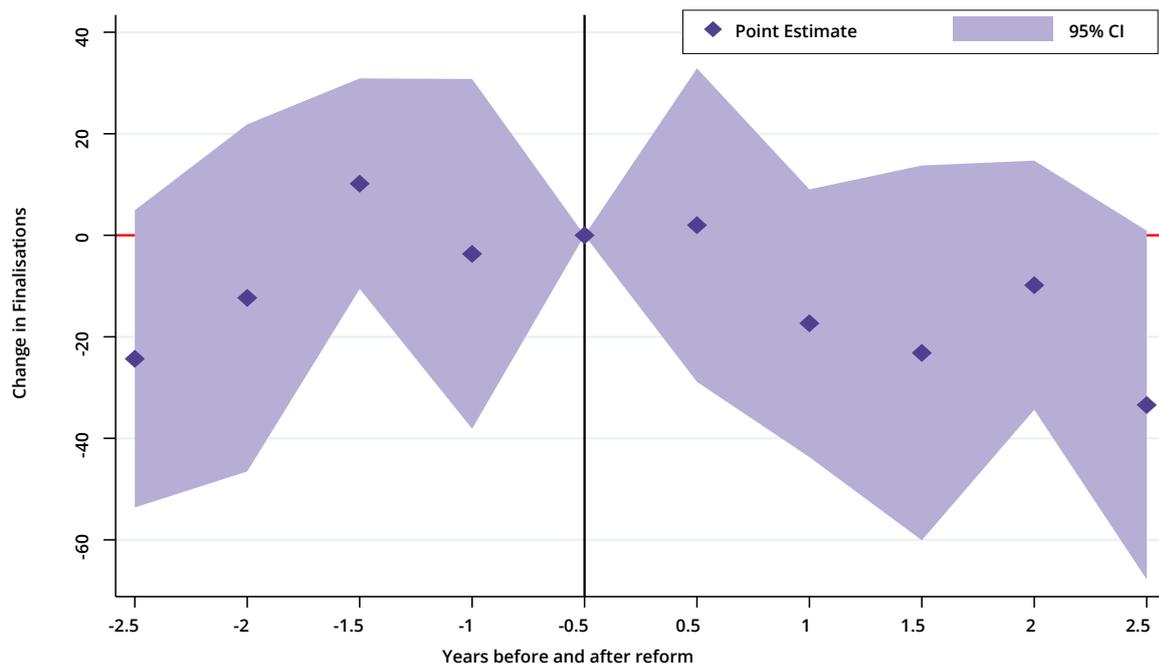


Figure 8 shows the event study plot for the change in finalisations for unauthorised driving offences. Although, there is perhaps a slight downward trend in finalisations after the reforms, there are no statistically significant differences after the reforms. When examining the same plot for the subset of Aboriginal offenders in Figure 9, we also find no significant change in finalisations after the reforms.

Figure 9. Six-monthly change in the number of Local Court finalisations for unauthorised driving offences, Aboriginal offenders



DISCUSSION

This bulletin examined the impact of the 2017 Driver Licence Disqualification Reforms on sentencing, reoffending, and court volume outcomes. We found that the reforms significantly reduced the severity of penalties imposed for unauthorised driving offences. The average length of licence disqualifications fell by 9.6 months and the average prison sentence fell by 1.7 months after the reforms. The probability of a prison sentence also declined by 1.7 p.p. but there was no significant change in the probability of receiving a licence disqualification following the reforms. The declines in the duration of licence disqualifications and prison sentences found in our study are similar to those reported by Poynton and Leung (2018). The 9.6 month decline in licence disqualification lengths found here corresponds to a 53% decline and the 1.7 month decrease in prison sentences corresponds to a 28% decrease. Poynton and Leung (2018) reported a 56% and 24% decline, respectively.

Importantly, the magnitude of the policy effects on sentencing outcomes was, in most cases, found to be larger for Aboriginal offenders. Notably, the likelihood of an Aboriginal offender being sentenced to prison for an unauthorised driving offence declined by 3.7 p.p. after the reforms (compared to 1.7 p.p. for the full sample of offenders). In relative terms, this equates to a reduction of 44% (compared to 37% for the full sample). Aboriginal offenders remain more likely to be imprisoned for an unauthorised driving offence than non-Aboriginal offenders, but the difference between imprisonment rates for Aboriginal and non-Aboriginal offenders has narrowed since the commencement of the reforms.

Turning to court volume, we found no significant change in monthly finalisations for unauthorised driving in any six-month period following the reforms. This is consistent with our finding that reoffending rates did not change significantly after the reforms, except for a small decrease in the probability of an offender's first reoffence being committed in the second year after the reforms. We also found an increase after the reforms in the number of unauthorised driving offences committed by repeat offenders within two years of the index appearance, but this was driven by a decrease in the number of reoffences committed by our comparison group (i.e., PCA offenders) rather than any notable increase in reoffences committed by our treatment group (i.e., unauthorised driving offenders).

Our reoffending results are not consistent with deterrence theory. Recall that classical deterrence theory posits that individuals are less likely to commit crimes that have severe punishments and a high risk of apprehension. Despite the significant reduction in the severity of penalties for unauthorised driving offences, there was no evidence for a rise in the probability of a subsequent offence or in the number of offenders appearing in court for unauthorised driving. However, the alternative hypothesis, that reducing disqualification periods and returning more offenders to lawful driving sooner would reduce rates of offending, is not fully borne out by our results either.

There are two possible explanations for the null results in terms of reoffending and court volume. Firstly, the vast majority of unauthorised drivers commit their first reoffence soon after their index court appearance. In the pre-reform period, of all the offenders that committed a new unauthorised driving offence within 2 years of the index court appearance, 75% committed the offence within the first 12 months and 53% offended within the first six months. Halving the licence disqualification periods from 2 years to 12 months or from 12 months to 6 months, as was achieved by the reforms, would therefore have had little impact on most repeat offenders. A second, and related reason, is that previous studies of unauthorised driving suggest that unauthorised drivers are generally not responsive to changes in the severity of penalties. Both Ferrante (2003) and Lenton et al. (2010), for example, found that the main reasons people drive unlicensed is the low probability of detection and the substantial social and economic benefits they derive from driving. The leniency or harshness of penalties do not seem to factor as much into their decision. Deterrence theorists would argue that this is because many drivers place greater weight on the immediate benefits that could be gained from committing the crime rather than any future costs threatened by the criminal justice system (for example, see Nagin & Pogarsky, 2001).

This discounting of future contingencies by potential offenders might also suggest that the incentive scheme introduced at the same time as the changes to statutory penalties would have limited impact on our outcomes. Under the scheme, a driver must remain offence-free for 2 to 4 years (depending on the offence committed and the length of disqualification served) before they can apply to a court for their licence to be reinstated. This lengthy delay could reduce the present value of the benefits offered by the scheme, meaning that the immediate social and economic benefits associated with driving unlawfully (e.g., meeting with friends, getting to work) would feature more prominently in the decision to offend. The limited impact of the scheme is also shown in the relatively low number of applications for licence reinstatement. From the commencement of the reforms to 1st July 2020, only 3,050 applications were received by the courts, of which 2,651 were successful.

Our results are subject to some limitations. Firstly, our follow-up period of two and a half years may be too short to adequately assess the impacts of the 2017 reforms. This is not an issue for our analysis of court-imposed penalties because we would expect that the reforms would have an immediate impact on sentencing outcomes. However, any changes in reoffending and/or court volumes may take some time to emerge. Secondly, we had limited information on the licence sanctions being served by offenders included in our sample. BOCSAR's reoffending database contained information about the length of the licence disqualification period imposed for the index penalty and the number of prior court-imposed licence disqualifications, but we were unable to observe administrative licence sanctions such as licence suspensions for reaching or exceeding demerit limits or police issued suspensions for penalty notice offences. It is possible that some proportion of offenders in our cohort were serving longer periods of disqualification than we report here, which may have served to undermine any benefits of the reduced penalty severity for the index offence. Finally, the primary purpose of driving offences (and their penalties) is to facilitate safe driving. Given the relatively short follow-up period, the current research did not consider how the reforms impacted traffic crashes and fatalities. Future research should examine these additional outcomes with a view to providing more definitive conclusions about the effectiveness of the reforms.

The 2017 Driver Licence Disqualification Reforms have in many cases *halved* the penalties for unauthorised driving offences. Such a large reduction in criminal penalties is rare and therefore our evaluation of these reforms has important policy implications. Firstly, our research suggests that it is possible to reduce burdensome penalties without increasing reoffending rates or court volumes. Particularly noteworthy is the reduced disparity between Aboriginal and non-Aboriginal offenders in rates of incarceration which resulted from the reforms. Reducing prison penalties for offences where there are a large number of Aboriginal offenders could be an important step in any attempt to address the significant over-representation of Aboriginal people in the criminal justice system. Secondly, our, and others (Ferrante, 2003; Lenton et al., 2010; Nagin & Pogarsky, 2001), research has shown that drivers are not particularly responsive to changes in the sanctions for unauthorised driving offences. If we are serious about reducing rates of unlawful driving, continued investment in strategies that increase the perceived risk of being arrested, such as high-visibility policing, is needed. Additionally, policies that make it physically difficult to drive unlawfully, including vehicle sanctions and alcohol interlock devices, may also reduce the rates of unauthorised driving.

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APPENDIX

Event study plots

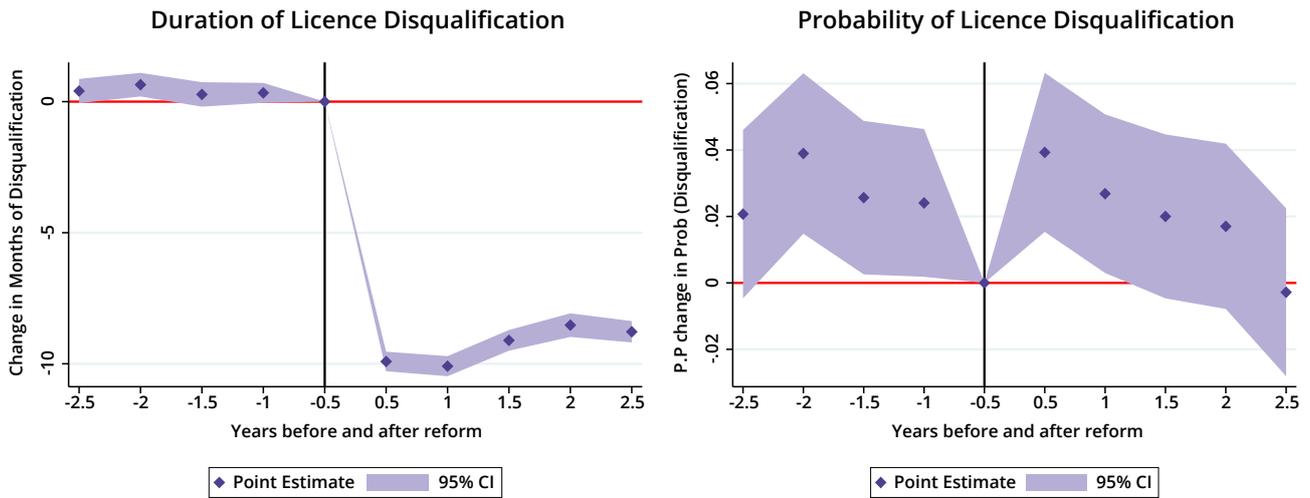
Event study plots are shown in Figures A1 to A3. The event study plots show how the reforms have impacted our outcome variables in each 6-month period from October 2017 (the beginning of the reforms) to April 2020 (2.5 years after the reforms). Our comparison time period is the 6 months immediately prior to the reforms. These event study plots are constructed in a similar way to Figures 8 and 9 but include all the controls and fixed effects that are included in equation 1.

The event study plots add to the DID results in the main text in two ways. Firstly, they allow us to examine whether and in what way the impact of these reforms changed over time. For example, whether the significant drop in sentence lengths are sustained over the longer term. Secondly, the plots allow us to formally test whether unauthorised driving offences and PCA offences followed the same trends before the reforms, thereby validating our identification strategy. If the pre-reform trends are similar, our event study estimates would centre around zero prior to the reforms.

The left panel of Figure A1 shows the event study plot for the change in the length of licence disqualifications over our study period. There is a statistically significant decrease in the length of licence disqualifications following the reforms of around 10 months. This effect persists for the entire 2.5-year period following the reforms. Further, nearly all of the estimates prior to the reforms are near zero, suggesting that the decline in licence disqualification length is due to the 2017 reforms.

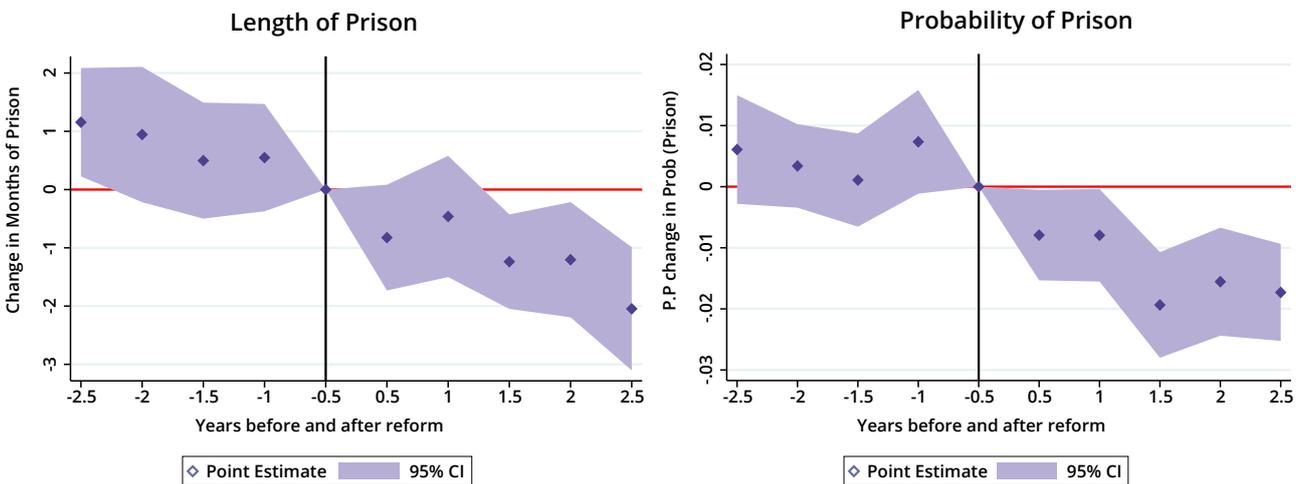
The right panel of Figure A1 shows the event study plot for the change in the probability of receiving a licence disqualification over our study period. The figure shows a jump in the probability of receiving a licence disqualification of almost 4 p.p. in the 6-month period after the reforms compared to the 6-month period before reforms. This increase remains statistically significant for a year after the reforms. However, Figure A1 suggests that the 6-month period before the reforms may have been an outlier with respect to the probability of receiving a licence disqualification, with the three preceding periods also having a statistically significantly higher probability of receiving a licence disqualification. The rise in the probability of licence disqualifications in the 6-month period following the reforms is comparable to the higher probability in the 2-year period prior to the reforms. This suggests that the change observed is unlikely to be due to the 2017 driver licence reforms.

Figure A1. Event study plots for licence disqualification outcomes



The left panel of Figure A2 shows the change in the average length of prison sentences for unauthorised driving offenders who received a prison sentence. There is a small decrease of one month on average in the 6 months following the reforms, which grows in magnitude to a decrease of 2 months in the two and a half years following the reforms. The right panel of Figure A2 examines the change in the probability of receiving a custodial sentence. The left and right panels of Figure A2 follow similar patterns. There is a slight decrease of 1 p.p. in the probability of a custodial sentence in the first six months following the reforms, which rises to almost a 2 p.p. reduction 1.5 years following the reforms. Every period prior to the reforms has a coefficient that is not statistically different from zero, which increases our confidence that the reduction in the probability of a custodial sentence is due to the 2017 reforms.

Figure A2. Event study plots of prison outcomes



The corresponding figures for Aboriginal offenders follow similar patterns, though our estimates are more imprecise due to the relatively small number of Aboriginal offenders in the sample. Some estimates are, however, higher for Aboriginal offenders. For example, the change in the probability of prison for Aboriginal offenders was 5 p.p. at its highest point compared to 2 p.p. for non-Aboriginal offenders. There were also larger reductions for Aboriginal defendants for the average length of a licence disqualification.

Figure A3. Event study plots for Aboriginal offenders

