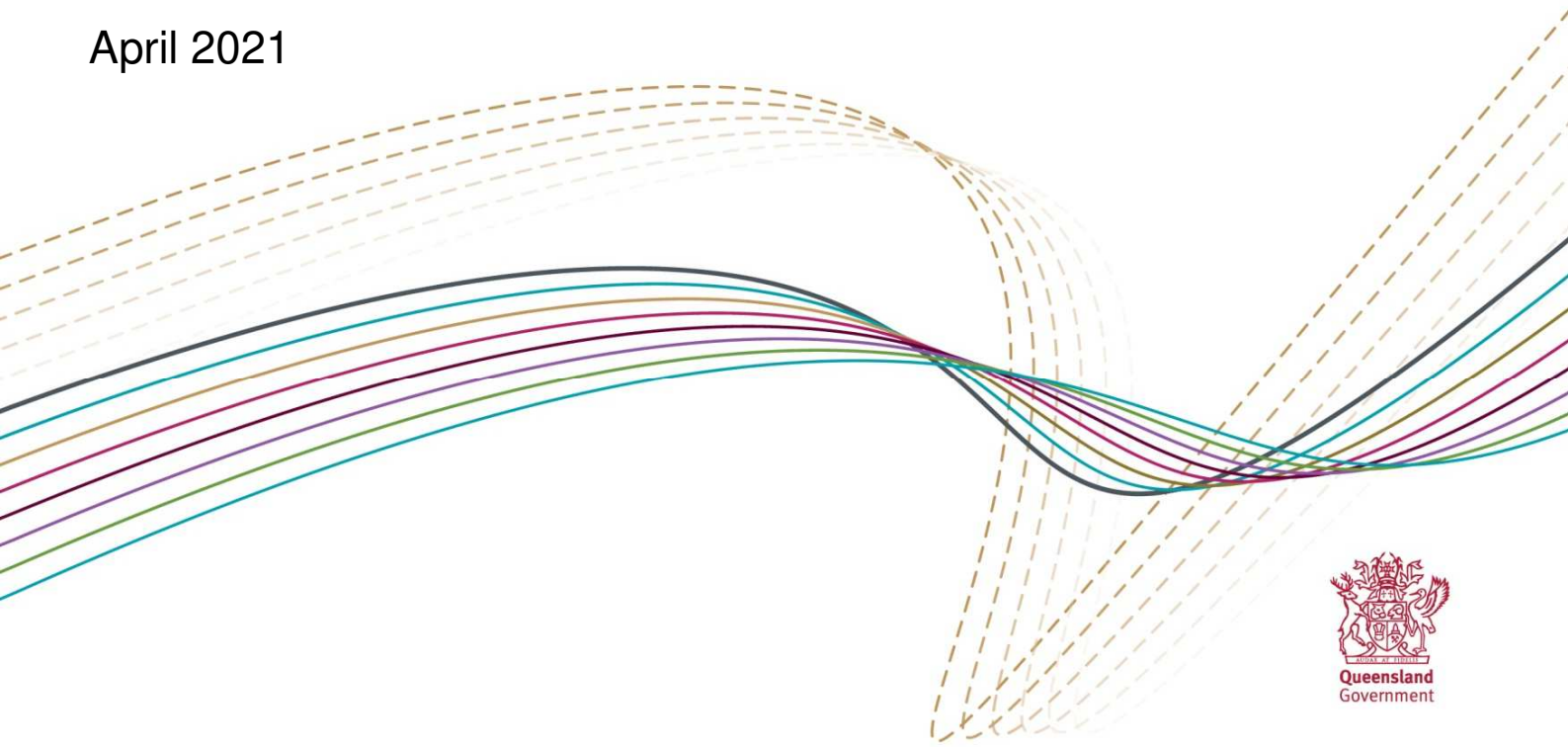
QUEENSLAND TREASURY

Spatial and temporal distribution of reported offences in Queensland

Research report

April 2021



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Acronyms

ABS	Australian Bureau of Statistics
ERP	estimated resident population
IRSAD	Index of Relative Social-Economic Advantage and Disadvantage
ORR	offence rate ratio
QGSO	Queensland Government Statistician's Office
QPRIME	Queensland Police Records and Information Management Exchange
QPS	Queensland Police Service
SA2	statistical area level 2
SA3	statistical area level 3
SEIFA	Socio-Economic Indexes for Areas

Summary

The *Spatial and temporal distribution of reported offences in Queensland* research report forms part of a broader suite of research products developed as part of the *Patterns of crime and victimisation in Queensland* research project being progressed by the Queensland Government Statistician's Office.

Two key research questions are addressed in this report:

1. Where is crime concentrated within locations in Queensland?
2. To what extent have patterns of crime concentration changed over time?

Quantitative research methods were used to analyse police administrative data to investigate the distribution of offences across SA2 locations between 2008–09 and 2017–18. Offence distributions were examined for total offences, and for five categories of offences. Multiple statistical methods were used to examine:

- how concentrated offences were within SA2 locations in Queensland
- whether offences tended to predominantly occur within locations based on the socio-economic characteristics of the area
- how stable offence distribution patterns were over time
- whether there has been an increasing gap in the amount of crime that occurs in the most disadvantaged locations compared with the most advantaged locations.

The research is subject to limitations which are important to understand when interpreting the research findings presented in this report (see section 3.3 for further information on this). It is important to note that not all offences reported to (or detected by) police are proven in a court of law, and that the project's focus on reported offences means that the results do not show where offenders reside.

Much like the existing literature on crime and place (for example, see Lee et al. 2017; Sherman, Gartin and Buerger 1989; Weisburd 2015), the findings from this research demonstrated that offences in Queensland were clustered in a small number of geographic areas, which were often characterised by social disadvantage or offering greater opportunities for crime (such as retail and entertainment precincts). There were also slight changes in the distribution of crime over time. The findings showed:

- variation in crime rates within locations across time; some locations, despite having some of the highest offence rates within Queensland, have displayed a downward trend in offence rates over time. These locations include Fortitude Valley, Brisbane City, Surfers Paradise, South Brisbane and Eagle Farm–Pinkenba. In contrast, four locations (Mackay, Carpentaria, Aitkenvale and Berserker) experienced consistent increases in the offence rate across reference periods, and overall for the period.
- locations with an overall high crime rate experienced high offence rates across multiple offence types. There were seven locations (Fortitude Valley, Rockhampton City, Mackay, Brisbane City, Cairns City, Ipswich–Central, and Bundaberg) with high rates for all offence categories.
- that while the total number of offences reported in 2008–09 compared with 2017–18 increased by about 25%, there was only slight variation in the distribution of offences within Queensland. One-quarter of all offences were reported in 6.8% of Queensland SA2 locations in 2008–09 compared with 9.9% of Queensland locations in 2017–18. This suggests that crime has become slightly less concentrated in terms of geographical distribution in recent years, which was confirmed by analyses using the Gini coefficient as a measure of concentration. Analyses by offence type showed that, contrary to other offence categories, drug offences have not become less concentrated. Good order offences showed the highest level of geographical concentration when compared with other offence categories.
- that when aggregated, the most disadvantaged communities consistently experienced higher levels of crime than the most advantaged locations across the reporting period.[1] Almost one-third of all offences in Queensland

[1] The most disadvantaged communities are locations classified as being in areas with the lowest quintile (lowest 20% of scores) on a socio-economic index. All areas are attributed a score based on a range of socio-economic variables, and quintiles are created based on the ordering of these scores from lowest to highest. Quintile one is comprised of the lowest 20% of areas (the most disadvantaged locations), while quintile five contains the highest 20% of areas (the most advantaged locations). Each quintile contains approximately 20% of the population.

occurred in the most disadvantaged communities. There was also evidence to suggest that the proportion of crime experienced by disadvantaged locations had increased. In 2008–09, the most disadvantaged locations (containing approximately 20% of the total population) experienced 29.5% of all offences compared with 31.4% in 2017–18. The one exception to this was for offences against the person, where the proportion of offences experienced by the most disadvantaged locations was similar in 2017–18 (35.2%), when compared with 2008–09 (35.3%). While these figures change when examining specific offence categories, the most disadvantaged locations continue to experience the greatest proportion of crime.

- there is an increasing gap between the offence rates in the most disadvantaged locations in Queensland, relative to the offence rates in the most advantaged locations, as evidenced in analyses using the offence rate ratio. In 2008–09, the offence rate in the most disadvantaged locations was 1.75 times greater than the offence rate within advantaged locations. This increased to 2.34 in 2017–18.[2]

The research findings highlight the possible benefits of implementing further place-based approaches to crime reduction.[3] These strategies could take an integrated-system approach, informed by local contexts and social, situational and risk management models of crime prevention (Bjørgo 2016).

[2] The offence rate ratio is a comparison of the offence rate in the most disadvantaged communities, relative to the offence rate in the most advantaged communities. As such, this figure is impacted by a change in the numbers of offences or population change. This is discussed further in Chapter 4.

[3] Place-based initiatives are interventions designed and delivered with the intention of targeting specific geographic locations and population groups in response to complex social problems.

1.0 Introduction

The *Patterns of crime and victimisation in Queensland* research project (the project) aims to explore crime trends to identify the ways in which crime, offenders and victims of crime have changed over time, determine if certain locations in Queensland experience a higher prevalence of crime and victimisation than others, and to examine whether offending patterns have changed over time. The *Spatial and temporal distribution of reported offences in Queensland* research report presents the first component of the project and is focused on examining locations within Queensland where offences concentrate. The second component of the project will examine changes in offending patterns in Queensland over time, and the third component will investigate the extent to which people have been victims of personal crime on more than one occasion.

Working towards keeping communities safe is a key objective of the Queensland Government, which has introduced a range of strategies and reform activities to reduce offending behaviour and victimisation. The identification of locations that may benefit most from place–based crime reduction strategies to support the Queensland Government's efforts to keep communities safe is the focus of this research report.

Following this introduction, the report provides information to position the research presented in this report within international and local crime trends, and previous literature examining the concentration of crime. The research methods used to respond to the report's key research questions and the results of analyses are then described, followed by a summary and discussion of research findings.

The information presented in this report may vary from data published elsewhere by QGSO and others, due to the dynamic nature of the data and depending on the dates data were extracted. Readers are therefore urged to exercise caution when making comparison between publications.

2.0 Background

Various examinations of crime trends over time have shown an overall decline in crime, albeit with variation occurring within offence categories. This chapter describes these trends and refers to the so-called law of crime concentration which suggests that crime tends to be concentrated in certain locations despite the changing nature of overall crime trends. Research showing how crime tends to be concentrated in locations characterised by social disadvantage and the project's research objectives are then described.

2.1. The international crime decline

Despite the common perception that crime is ever-rising (Davis and Dossetor 2010), over the past few decades crime rates have generally declined. While an overall decline in crime (according to police–recorded crime and victim surveys) has been an international phenomenon, the timing and magnitude of the decline have varied between countries, and for different types of crime. Crime began to decline in the United States in the late 1980s, while declines in crime have been experienced in many other countries at later points in time, such as during the 1990s in Canada, the United Kingdom and some European countries, and from the early 2000s in some Asian countries (Farrell, Tilley and Tseloni 2014; Sidebottom et al. 2018; van Dijk, Tseloni and Farrell 2012).

Within Australia, a decline in crime occurred after the turn of the millennium, although this varies by offence type (Goh and Ramsey 2019; Weatherburn, Halstead and Ramsey 2016). In contrast to the United States and United Kingdom which experienced falls in the rate of violent offences, the reduction in crime in Australia has predominantly been driven by the reduction in the rate of property offences. According to Weatherburn, Halstead and Ramsey (2016), between 2000 and 2014, the recorded rates of robbery (63%), burglary (69%), motor vehicle theft (62%) and all other forms of theft (37%) in Australia declined. In contrast, the recorded rates for assault and sexual assault offences have not followed the same large decline evident within property offences. While there is evidence of a slow decline in recorded assault, the recorded rate of sexual assault offences appears to have been relatively constant (Weatherburn, Halstead and Ramsey 2016).

Just as the fall in crime was experienced differently between countries, it is likely that there have been different experiences of the decline in crime between Australian jurisdictions. However, different counting rules employed across jurisdictions make comparisons difficult, especially by different types of offences (Weatherburn, Halstead and Ramsey 2016). While there has been a recent examination of long–term offence trends within New South Wales (Goh and Ramsey 2019), there is limited information for other jurisdictions.

2.1.1. The Queensland experience of the crime decline

Figure 1 shows the rate of reported offences for Queensland between 1999–2000 and 2018–19.[4] These statistics show that Queensland experienced an overall crime drop when examining the 20-year period. However, reductions in crime were not consistent across offence categories, and there have been increases in certain types of crime in more recent years.[5]

The long-term trend for property offence rates in Queensland displays a large decline (41.3%) in the overall rate of property offences across the 20-year timeframe. However, this absolute decline obscures a recent rate increase. Rates of reported property offences consistently decreased from 2000–01 to 2009–10 (47.6% decline). Between 2010–11 and 2018–19, property offence rates have fluctuated, with a consistent increase evident between 2014–15 and 2018–19.

The rate of other offences showed an overall increase of 56.6% over the 20-year period, from 2,897 to 4,536 crimes per 100,000 population. The trend for the rates of other offences was best represented as a consistent increase.

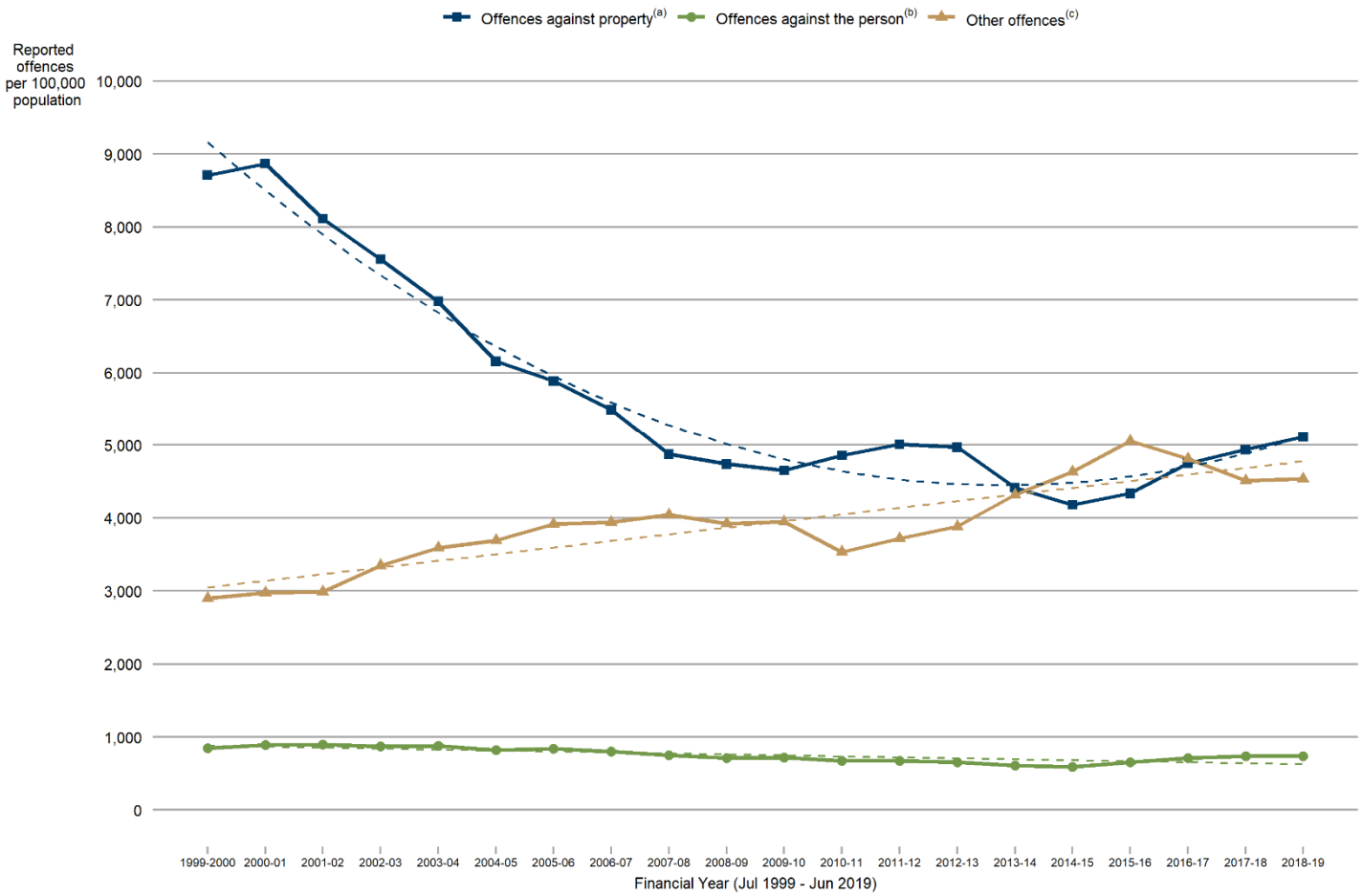
Offences against the person have decreased by 13.4% when comparing 1999–2000 with 2018–19, with consistent decreases occurring from 1999–2000 to 2014–15. However, from 2014–15 to 2018–19, person offence rates rose from 594 to 735 offences per 100,000 population, representing a 24.0% increase over the period. Despite this, the overall trend for person offence rates over the 20-year period is best represented as a significant absolute decline.

[4] These rates were calculated using reported offence data published by the Queensland Police Service and estimated residential population data published by the Australian Bureau of Statistics (2019). Reported offence data can be accessed at: https://www.police.qld.gov.au/sites/default/files/2019-08/QLD_Reported_Offences_Number.csv.

[5] Queensland's crime drop is somewhat consistent with crime trends occurring in other Australian jurisdictions. However, the timing of Queensland's crime drop is different to that taking place in other Western countries such as the United Kingdom and United States (Mayhew 2012).

It is important to note that the above provides a high-level examination of broad offence categories, not of the specific offences that comprise the categories. There may be considerable variation in long-term trends between and within individual types of offences within broader categories. For example, the long-term trends for sexual offences are diverse, with increased rates of rape and attempted rape while rates of other sexual offences have decreased over the 20-year period.

Figure 1 Long-term trends for rates of offences in Queensland, 1999–2000 to 2018–19



(a) Quadratic trend, R^2 = .97, p <.001.
(b) Cubic trend, R^2 = .95, p <.001.
(c) Linear trend, R^2 = .79, p <.001.

Source: ABS 3101.0, *Australian Demographic Statistics*, Dec 2018; QPS reported offences number.

Overall, these figures indicate that Queensland has experienced a decline in crime, especially for property offences and some violent offences. However, the available data also show increases in rates of reported offences for some types of crime within offence categories in recent years.[6]

[6] The dynamic nature of reported crime and the range of criminal justice reform activities currently taking place in Queensland means that further time-series data are required to determine if indications of crime increase is a steady trend.

2.2. The law of crime concentration

While crime is a dynamic phenomenon that varies over time and across place, research consistently shows that crime often tends to concentrate in small geographic areas (Brantingham and Brantingham 1999; Lee et al. 2017; Weisburd et al. 2004). These concentrations of crime at geographic locations, relative to the distribution of crime in an entire region are known as 'hot spots of crime' (Sherman, Gartin and Buerger 1989, p. 37). Because these findings have been consistently found across different cities, this pattern of clustering has been coined the 'law of crime concentration' (Weisburd 2015, p. 138).

Crime tends to concentrate at particular places for reasons that can be explained in relation to victims and offenders coming together within locations, and where there are greater opportunities to commit crime (Brantingham and Brantingham 1984; Cohen and Felson 1979). Thus, crime may become concentrated in small geographic areas, and while these areas are often characterised by social disadvantage, such as high rates of unemployment, residential instability and economic stress (Schwartz 2010; Weatherburn and Lind 2000), crime may also be concentrated in areas of social advantage (Curman, Andresen and Brantingham 2015). Indeed, different types of crime are likely to be concentrated in different ways and in different locations, while some locations may have multiple types of crime concentrated within the area.

2.3. The stability of crime concentration over time

In addition to varying across place, international research has indicated that the concentration of crime appears to be stable, both across time and within locations. The clustering of crime tends to remain consistent from year to year at places, even where there has been a significant decline in crime during the same period (Andresen, Curman and Linning 2017; Groff, Weisburd and Yang 2010; Levin, Rosenfeld and Deckard 2017; Weisburd et al. 2004). During these declines in overall crime, crime may remain concentrated because crime in these areas declines at lower rates than in the surrounding broader area. This implies that not all locations will benefit from overall reductions of crime in a broader area, and that research examining locations of enduring crime concentration could help inform place–based crime reduction strategies.

Examining the concentration of crime over a period of time is important because, if the patterns fluctuate, this may indicate that the factors related to crime and offending may be time-specific to the period under analysis (Andresen and Malleson 2010). Consequently, this may also impact on the utility of place-based interventions directed at the location.

2.4. Crime concentration and disadvantage

Research has long found a relationship between social and economic disadvantage (the comparative lack of social and economic resources) and crime. While studies have identified the link between poverty and crime (Bjerk 2007; Hipp and Yates 2011; Kingston and Webster 2015; Wright et al. 1999), clear evidence about this relationship is difficult to establish. Specifically, it is difficult to ascertain whether there is a direct or indirect relationship between poverty and crime. Thus, rather than viewing poverty and financial need as the sole motivators of criminality, it is likely that these play a role in crime through other individual-level factors such as disrupted family processes (including family breakdown and conflict within families), school and educational outcomes, substance misuse, and deviant peers (Dunaway et al. 2000; Duncan, Magnuson and Votruba-Drzal 2017; Sampson and Laub 1995; Valdez, Kaplan and Curtis 2007; Wright et al. 1999), and community-level factors such as residential instability, ethnic or racial diversity, and single parent households (Boggess and Hipp 2010; Demuth and Brown 2004; Henry et al. 1996; Hipp 2007; Rountree and Warner 1999).

Regardless of the specific mechanisms linking social disadvantage and crime, locations characterised by social disadvantage continue to experience disproportionately high levels of crime, especially violent crime (Pare and Felson 2014; Peterson and Krivo 2010). Despite an evidenced period of overall declining crime rates across many North American and European countries since the 1980s, there are suggestions from the limited literature that these reductions in crime have not benefitted disadvantaged communities (Grove, Tseloni and Tilley 2012; Hunter and Tseloni 2016; Nilsson, Estrada and Bäckman 2016; Papachristos, Brazil and Cheng 2018; Peterson and Krivo 2010; Thacher 2004). To date, there does not appear to be any Australian research that has examined whether there is a differential experience of crime between advantaged and disadvantaged communities in the amount of crime that occurs in those locations, relative to the resident population. Further, there is little information about whether any potential gap in the experiences of crime between these communities has changed over time.

2.5. Research objectives

The *Spatial and temporal distribution of reported offences in Queensland* research report builds on the existing literature on crime concentration which indicate that there are a small number of locations where a disproportionate amount of crime occurs, that different types of offences may cluster in different locations, and that locations of crime concentration endure over time.

The research questions addressed in this research report are:

1. Where is crime concentrated within locations in Queensland?
2. To what extent have patterns of crime concentration changed over time?

Within each of these two overarching research questions, a range of sub-questions is addressed, to examine whether crime distribution patterns change depending on the type of offence, and the extent to which there is a differential amount of crime experienced between the most advantaged and most disadvantaged locations. The methods used to address these research questions are outlined in the following chapter.

3.0 Methods

This chapter provides information on the data and statistical techniques used as part of the research to assess the concentration and stability of crime in Queensland.

3.1. Data

The data used in this project were obtained from Queensland Police Service (QPS) and the Australian Bureau of Statistics (ABS). The characteristics and use of these data are described in more detail below.

3.1.1. Offence-based information

Administrative data from QPS form the basis of the quantitative analyses presented in this publication. These data were derived from available official crime reports recorded in Queensland Police Records and Information Management Exchange (QPRIME) and related to offences recorded by police between 2008–09 and 2017–18.[7] Instances where offences were initially reported to police but then found not to have occurred following a process of investigation (unsubstantiated), were excluded from the data set used by the project.

For the purpose of this report, offences were coded into five broad categories: (1) offences against the person, (2) property offences, (3) other offences, (4) drug offences, and (5) good order offences.[8] Examples of the offences included in, but not limited to, each of the five offence categories are displayed in Table 1.

Table 1 Classification of offences into five offence categories

Offence category	Offences included in the category
Offences against the person	Abduction, kidnapping and deprivation of liberty; assault offences; blackmail and extortion; child neglect; dangerous and negligent acts; defamation and libel; driving causing death or bodily harm; going armed to cause fear; homicide offences; indecent treatment of a child; manslaughter; murder; other acts intended to cause injury; other dangerous or negligent acts; robbery offences; sexual assault; stalking; wilful exposure; wounding.
Property offences	Arson; break and enter; fraud, deception and other offences; graffiti; property damage; receiving or handling proceeds of crime; receiving or handling stolen property; stealing from dwellings or other buildings; theft and related offences; unlawful entry with intent.
Other offences	Breach of domestic violence order; breach of justice order; bribery involving government officials; child pornography; dangerous driving; drink driving offences; driving while licence cancelled or suspended; false complaint to police; gaming, racing and betting offences; liquor (excluding drunkenness) offences; offences against justice procedures; prostitution offences; stock-related offences; trespassing and vagrancy; Weapons Act offences.
Drug offences	Deal or traffic in illicit drugs–commercial quantity; deal or traffic in illicit drugs–non-commercial quantity; illicit drug offences (remainder); import or export illicit drugs; manufacture or cultivate illicit drugs; permitting use of premises for illicit drug offences; possess and/or use illicit drugs; possession of drug utensils; proceeds of drug offences.
Good order offences	Consorting; disobey move on direction; disorderly conduct (remainder); fare evasion; offensive behaviour; offensive language; public nuisance; regulated public order offences; resist arrest, incite, hinder, obstruct police.

[7] The information presented in this report may vary from data published elsewhere by QGSO and others, due to the dynamic nature of the data and depending on the dates data were extracted. Readers are therefore urged to exercise caution when making comparison between publications.

[8] Offences are often categorised into one of three categories of offences against the person, property offences and other offences. In this report, drug offences and good order offences are separated from "other offences" into their own categories. This is because drug offences and good order offences are especially susceptible to increases resulting from proactive policing strategies.

3.1.2. Locational information

The offence-based data from QPS contains information about where the incident occurred, and this was supplemented with information from the ABS Census of Population and Housing (the Census) including the estimated residential population (ERP), and the broad socio-economic conditions of the area.[9] Adding this data allows the calculation of offence rates, rather than relying on offence counts, and to make comparisons of locations based on socio-economic categories.

Information about the location of offences within QPS data is provided at multiple levels of statistical geographic areas provided within the 2016 Australian Statistical Geography Standard (Australian Bureau of Statistics 2016). For the purposes of the current research, analysis is conducted at the statistical area level 2 (SA2) level. The SA2s are a general-purpose medium-sized area and their aim is to represent a community that interacts together socially and economically (Australian Bureau of Statistics 2016).

There is a total of 530 SA2 locations that cover Queensland without gaps or overlaps. These SA2 locations range in area from 1.21 km^2 (Highgate Hill SA2, which is a suburb in inner-Brisbane) to 271,279.2 km^2 (Far Central West SA2, which covers an area west of Longreach to the border with the Northern Territory, and extends towards Mount Isa), resulting in an average size 3,276.8 km^2. One-in-five SA2 locations (21.6%) has an area of less than 5 km^2, while half of all SA2 locations (50.8%) are smaller than 15 km^2 in area.

Not all SA2 locations in Queensland were included in the analyses. Locations with an ERP of less than 250 people were excluded from analyses, because of the impact that small changes in absolute numbers of offences could have on the overall offence rate per 1,000 population. Consequently, 18 SA2 locations were removed (Table 2), and analyses are based on the remaining 512 SA2 locations. The average ERP for the remaining 512 SA2 locations was 9,627 people, with a minimum ERP of 550 people (Mackay Harbour SA2) and a maximum ERP of 33,527 people (Upper Coomera–Willow Vale SA2).

Table 2 SA2 locations removed from analysis

SA2 Code	SA2 Name	SA3 Name	2017 ERP [(a)]	Area (km^2)
301031014	Brisbane Port–Lytton	Wynnum–Manly	9	32.8
302031036	Brisbane Airport	Nundah	200	45.5
304041099	Enoggera Reservoir	The Gap–Enoggera	26	37.7
304041102	Mount Coot-tha	The Gap–Enoggera	0	14.6
306021150	Lamb Range	Cairns–South	0	212.6
306031162	Wooroonooran	Innisfail–Cassowary Coast	3	754.3
308031221	Shoalwater Bay	Rockhampton	16	3,177.0
308051532	Callemondah	Gladstone	20	32.7
308051537	South Trees	Gladstone	0	24.1
310021279	Lake Manchester–England Creek	Ipswich Hinterland	3	112.8
310041298	Carole Park	Springfield–Redbank	4	4.0
310041301	New Chum	Springfield–Redbank	0	6.0
311031315	Greenbank Military Camp	Browns Plains	0	40.6
312021345	Eungella Hinterland	Mackay	16	2,048.8
312031360	Cape Conway	Whitsunday	0	295.4
319021510	North Burnett	Burnett	8	289.5
397979799	Migratory–Offshore–Shipping (Qld)	Migratory–Offshore–Shipping (Qld)	0	0.0
399999499	No usual address (Qld)	No usual address (Qld)	0	0.0

(a) ERP as at 30 June 2017.

Source: ABS 3218.0, *Regional Population Growth, Australia*, 2016–17.

[9] The ERP figures used to calculate offence rates in this report have since been revised and released. Therefore, offence rates provided in this report may differ slightly to offence rates reported elsewhere. Readers are therefore urged to exercise caution when making comparisons between publications. ERP figures are available from https://www.qgso.qld.gov.au/statistics/theme/population/population-estimates/regions#current-release-estimated-resident-population

In addition to information related to an area's population size, it is possible to access information related to the broader socio-economic characteristics of each SA2 location. The ABS has developed the Socio-Economic Indexes for Areas (SEIFA), which is comprised of four separate measures related to socio-economic advantage and disadvantage (Australian Bureau of Statistics 2018). Of the four available indexes, the Index of Relative Socio-economic Advantage and Disadvantage (IRSAD) was used as it provides a ranking of locations from the most disadvantaged to most advantaged. This index summarises information about the economic and social conditions of people and households within an area, including both relative advantage and disadvantage measures (Australian Bureau of Statistics 2018). The IRSAD is based on responses to questions in a range of dimensions, including related to income, education levels, unemployment, occupation types, housing, and other variables such as the proportion of occupied private dwellings with no internet connection or no vehicle, which may be considered measures of disadvantage (Australian Bureau of Statistics 2018).

While these indexes can be used to rank SA2 locations based on their broader socio-economic characteristics, they can similarly be used to classify locations into categories. For the purpose of analyses described in this report, the IRSAD was used to aggregate SA2 locations based on their classification into five equal groups (or quintiles) based on their level of relative advantage or disadvantage.[10,11] In this report, comparisons are made between locations in all five groups, and comparisons made between the most disadvantaged and most advantaged locations.

As SEIFA indexes are created from data collected during the Census, they provide a measure of the socio-economic characteristics of locations at the point of data collection. The variables used to create the indexes change over time, so it is difficult to make comparisons between the indexes created from different Census collections. That is, the broad socio-economic conditions for some locations had changed over time, and therefore so had their classification into different quintiles. Thus, any comparison between the most disadvantaged and most advantaged locations between reference points might not include the same number of locations and impact on the utility of the comparison. Consequently, the decision was made to use the IRSAD from the 2016 SEIFA edition for each reference point, as the basis for categorising locations. While this information may be dated for the older reference periods, and locations have changed quintiles it ensured that a consistent measure was used across the reporting period to classify locations into quintiles based on their score.

3.2. Measuring the distribution and concentration of crime over time

Despite a large body of research examining the spatial distribution of crime, there is currently no consistent approach or standard methodology for measuring and reporting the distribution and concentration of crime (Bernasco and Steenbeek 2017; Prieto Curiel, Collignon Delmar and Bishop 2018). Similarly, there is little consensus in how to best assess for change in the distribution of crime over time. In this report, the concentration of offences is examined using three different techniques. These techniques, plus the approaches used to assess the temporal stability of offence distributions, are discussed below.

3.2.1. Exploring locations with high rates of offences

The simplest starting point to examine the distribution of offences within Queensland is to explore locations where the largest number of offences occurred. However, this raw number of offences ignores the differential experiences of locations to offences because of the number of people who live in, or travel through that location. While we are unable to control for the non-residential, mobile population in an area, or *ambient population*, it is possible to control for the differences in the number of people who reside in particular areas.[12]

The first technique to examine the distribution of offences within Queensland involved examining SA2 locations that experienced the highest offence rates per 1,000 of the ERP.[13] Given that crime and offence data can fluctuate over adjacent time periods because of a range of reasons including proactive policing strategies, reporting habits or changing

[10] In statistics, a quintile is where a population can be divided into five equal groups (20% in each group) according to the distribution of a variable. In this instance, SA2 locations can be classified into five groups based on the SEIFA index score for that location, where the lowest 20% of scores (1% to 20%) represent the most disadvantaged quintile of locations, and the highest 20% of scores (81% to 100%) represent the most advantaged quintile of locations.

[11] This project uses population–weighted SEIFA data that were developed by QGSO for SA2 locations. The weighted method divides the data into even groups, where each group has the same population. These data are available from the QGSO website: http://www.qgso.qld.gov.au/products/tables/seifa/index.php

[12] While we are unable to additionally control for the ambient population (people that spend time in a location but without residing there, such as shopping and entertainment precincts), accounting for the ERP through offence rates provides a more rigorous methodology than relying on offence counts.

[13] While offence rates are commonly provided per 100,000 population, in this report the offence rate is provided per 1,000 due to the average population within SA2 locations.

demographics, a simple moving average of the offence rate over a three-year period is used. The average rate works to smoothe the fluctuations across the data points, while maintaining an overall trend across the period. However, it is a lagging indicator as it is calculated by averaging the offence rate of the past three years.

Using this technique, the temporal stability of SA2 locations is examined simply through comparing the three–year moving average offence rate between reference points. As an example, the first reference point of 2011–12 used in the tables examining locations with high offence rates is calculated by taking the average offence rate for the 2009–10, 2010–11 and 2011–12 financial years. The data are sorted in descending order by three–year moving average at the 2017–18 reference point. The resulting rate changes provide the opportunity to examine for trends across SA2 locations with high offence rates over time.

Due to size constraints, only the first 25 SA2 locations with the highest offence rates are presented. Given there are 512 SA2 locations (with an ERP greater than 250 people) that cover Queensland, each list represents approximately 5% of all locations.

3.2.2. Cumulative proportions

The second technique to examine offence concentration is to use the cumulative proportion of offences, relative to the proportion of the population who are exposed to the offences. Specifically, this technique assesses what proportion of total offences is concentrated within a certain proportion of locations (e.g. *X*% of offences occur in *Y*% of locations), or impact upon a certain proportion of the population (*X*% of offences impact upon *Z*% of the population). While this technique is used extensively within the literature (Andresen, Linning and Malleson 2017; Braga, Papachristos and Hureau 2010; Levin, Rosenfeld and Deckard 2017; Weisburd 2015), there is no consensus as to what proportions should be investigated, and this metric does not lend itself to comparisons between different studies (Bernasco and Steenbeek 2017; Prieto Curiel, Collignon Delmar and Bishop 2018).

The temporal stability of any concentration can be assessed by examining the change over time in the proportions of the population impacted by the offences. By using consistent cut-offs for the proportions of all offences that occur (e.g. 25%, 50% and 75% of all offences), any change in the proportion of population impacted over time can provide useful information as to whether offences are becoming more or less concentrated between reference points.

The technique of using cumulative proportions can also be used to examine the distribution of offences and relative population that might be impacted within categories. For example, as the IRSAD provides the ability to classify SA2 locations based on their broad socio-economic characteristics, it is possible to examine the proportion of offences that impact on locations within IRSAD quintiles to examine if there is a differential distribution of offences across locations based on their relative advantage or disadvantage.

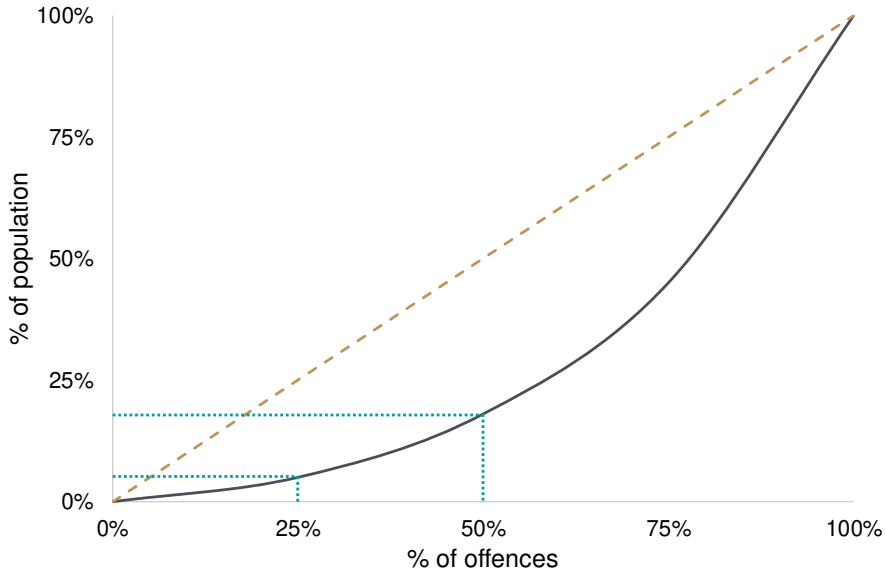
The categorisation of locations based on the IRSAD provides the ability to assess whether there is stability in the exposure to offences between the most disadvantaged and most advantaged locations. This can be examined by aggregating all locations categorised as being the most disadvantaged (i.e. through being classified in the lowest IRSAD quintile) and comparing this with the aggregation of locations categorised as being the most advantaged (those classified in the highest IRSAD quintile).

3.2.3. Lorenz curve and Gini coefficient as a measure of equal distribution

A third technique builds on the use of specific values of cumulative proportions (such as the use of 25%, 50% and 75% cut-offs), by plotting all cumulative proportions related to the distribution of offences. The resulting figure is a Lorenz curve, which was initially designed to highlight inequality in distributions of income, but has since been used in broader contexts, including the distribution of crime and offences (Bernasco and Steenbeek 2017; Fox and Tracy 1988; Hardyns, Snaphaan and Pauwels 2018). For the purpose of analyses described in this report, when applied to the distribution of crime, the Lorenz curve plots the cumulative proportion of offences on the horizontal axis, against the cumulative proportion of the ERP within SA2 locations exposed to those offences on the vertical axis.

An example Lorenz curve is provided in Figure 2, using fabricated data to demonstrate how they can be interpreted. The dashed line running at a 45-degree angle represents the line of equality; that is, if the offences in Queensland were distributed evenly across the population, where for example, 25% of all offences impacted upon 25% of the population. However, offences are not equally distributed and tend to be concentrated within a small proportion of the population. In the example figure, the black line represents how offences may be distributed relative to the population. The deviation of the curve from the dashed line of equality demonstrates that offences are differentially distributed across the population. The dotted lines represent how concentrated the top 25% and 50% of all offences are, relative to the population. That is, in this example, 25% of all offences are concentrated in locations that impact on 5% of the population, while 50% of offences impact on 18% of the population.

Figure 2 Example of a Lorenz curve plotting the distribution of offences



While the use of cumulative proportions provides a simple technique to assess how concentrated crime may be across locations, it does not provide a measure of the magnitude of how equal or unequal the distribution is. A measure to assess this magnitude can be provided by the Gini coefficient, which complements the descriptive nature of cumulative proportions and has been used to examine the distribution of offences (Bernasco and Steenbeek 2017; Prieto Curiel, Collignon Delmar and Bishop 2018). The Gini coefficient provides a summary measure of the inequality shown in the Lorenz plot, defined as the ratio of the area between the line of equality and the observed concentration (Lorenz) curve (Bernasco and Steenbeek 2017). The Gini coefficient can take a numeric value ranging between 0 and 1, where a value of 0 represents the equal distribution of offences across places, and a value of 1 represents the maximal concentration of all offences occurring in a single place.

The calculation of the Gini coefficient provides a metric by which the temporal stability of the offence distribution across SA2 locations in Queensland may be examined. That is, by comparing the Gini coefficient at different reference points provides an indication of whether crime has become more, or less, concentrated over time. An increase in the Gini coefficient between two reference points indicates that crime is less equally distributed (i.e. more concentrated). In contrast, a reduction in the Gini coefficient indicates that crime has become more equally distributed, and therefore less concentrated in fewer locations.

3.2.4. The offence rate ratio (ORR)

While the above methods provide the ability to examine the distribution of offences, another measure allows comparing one location (or group of locations), relative to another (Low and Low 2006). A relative measure to assess the differential experience of offences, can be constructed in the form of a ratio of offence rates for the most disadvantaged locations, relative to the most advantaged locations. This ratio can be used to observe for any change in the differential experience of crime between the most disadvantaged and most advantaged groups over time.

In this report, the differential experience of locations to crime based on socio-economic status is explored by calculating the offence rate ratio (ORR). The ORR compares the offence rate within the most disadvantaged communities with the offence rate within the most advantaged communities in Queensland.[14] An ORR of 1 indicates that the offence rate is the same between the most disadvantaged and most advantaged areas, while any deviation indicates a differential experience to crime between the groups. A ratio greater than one indicates that the offence rate for the most disadvantaged communities is greater than the most advantaged communities, while a rate less than one indicates that the most disadvantaged locations experience a lower offence rate than the most advantaged communities. For example, an ORR of two indicates that the offence rate within the most disadvantaged locations is double the offence rate of the

[14] An aggregate offence rate for the most disadvantaged communities is calculated by dividing the total offences occurring within locations in the IRSAD quintile one, by the total ERP for those locations. Similarly, the aggregate offence rate for the most advantaged communities is calculated by dividing the offences within communities in IRSAD quintile five, by the relevant ERP. The 'most disadvantaged' offence rate is then divided by the 'most advantaged' offence rate to produce the offence rate ratio.

most advantaged locations, indicating a differential experience of crime between locations. The ratio can be calculated at different reference periods to allow a comparison to examine whether the gap in offence rates, and therefore, differential experience to offences, changes over time.

The range of measures outlined in this section is used throughout the report to examine the distribution and concentration of offences in different ways. A summary of these measures, including how they are calculated, and how they are best interpreted, is provided in Table 3.

3.3. Limitations

There are three main limitations to the findings presented in this report. First, the data used in this project relate to reported offences (including those detected by police), and therefore these data cannot provide an accurate and true measure of all offending within Queensland. This is because not all offending is reported to, or detected by police, a concept often referred to as the 'dark figure of crime' (Biderman and Reiss 1967), and because not all offences reported to police are proven in a court of law. Similarly, the recent increase in recorded crime figures in Queensland (Queensland Government Statistician's Office 2019) could also be attributed to other factors besides an actual increase in crime. For example, there has been an increased campaign of awareness for previously under–reported crime types, such as domestic and sexual abuse, which may have resulted in victims being increasingly willing and supported to report such crimes. The use of offences, rather than offenders, as the key unit of analyses means that research findings should not be interpreted as showing the concentration of offenders in various location across Queensland.

Second, the data used for population figures within this report are estimates of the number of residents for locations and communities. As highlighted by key theoretical explanations for the spatial patterning of crime, most crimes are opportunistic and the likelihood of an offence occurring at any given place or time is largely a function of motivated offenders and suitable targets coming together in locations in the absence of capable guardians (Cohen and Felson 1979), and that in the course of their regular travel paths, potential offenders gain local knowledge that might then help them select targets (Brantingham and Brantingham 1984). However, population estimates based on the number of residents cannot account for the mobility of the population during their everyday activities, such as during their daily commute to work or through travelling to or from school.

Table 3 Summary measures of the distribution and concentration of offences used in the report

Measure	Utility	Calculation	Interpretation for this report
Offence rates (using a three–year simple moving average)	The use of rates per population enables comparisons across geographical areas and time, since the size of the population is used in the calculation. It is possible to also calculate the percent change in rates between two different reference periods. To account for fluctuations that can occur between yearly crime data due to proactive policing strategies, a three–year simple moving average is less sensitive to fluctuations and is a lagging indicator as it is based on past offences.	The offence rate is calculated by dividing the total number of offences within a SA2 location by the corresponding number of people who reside in that area, and then multiplying by a number to have an offence rate per that population size. In this report, the number of offences is divided by the ERP for that location and then multiplied by 1,000 to provide the offence rate per 1,000 people. This figure was selected due to the average population size of SA2 locations in Queensland. A three–year simple moving average takes the offence rate for the last three years and divides it by three (e.g. the 2011–12 offence rate is calculated by averaging the offence rate for 2009–10, 2010–11 and 2011–12).	Ordering locations in descending order allows a way to examine the locations with the highest offence rates (averaged over three years) per 1,000 people.

Cumulative proportions	Provides a measure that is commonly used to indicate how concentrated one variable is in relation to another (e.g. *X*% of offences occur in *Y*% of locations). In this report, this is used to demonstrate how concentrated the top 25% of a variable is. It can be used to provide a broad measure of change over time.	Data are sorted in descending order by locations with the largest number of offences, and therefore, the largest proportion of all offences. The cumulative proportion of offences is calculated and once a threshold is reached (e.g. 25%, 50% and 75% of all offences), the relative proportion of the second variable (i.e. total locations or total population) is provided.	The measure provides a broad measure to examine how concentrated one variable is in relation to another. If the top 25% of all offences occur in 5% of locations, this indicates that offences are disproportionately concentrated in locations. Changes over time can be compared, although interpretation can be limited as the same locations may not be used at each reference period.
Lorenz curve	Provides the ability to pictorially represent "how equal" some concept is distributed. While commonly used to show how equal income is distributed across a population, it can also be used to demonstrate the distribution of offences across SA2 locations in Queensland.	The cumulative proportion of offences is plotted against the cumulative proportion of the ERP, after first ordering SA2 locations in descending order by the total number of offences.	The farther that the curve deviates from the line of equality (the 45-degree or diagonal line), the more unequal the distribution of offences across SA2 locations. In this instance, this would signify that a disproportionally large number of offences is concentrated within a small proportion of SA2 locations, and therefore, a small proportion of the total population.
Gini coefficient	Provides a summary measure of the magnitude of inequality shown in the Lorenz curve. It can be used to compare distributions from other locations, and with the coefficient from other reference periods to assess whether inequality is increasing or decreasing.	The Gini coefficient is calculated by dividing the area between the observed concentration (Lorenz curve) and the line of equality (the 45-degree line) by the total area under the line of equality. The equation used is provided in the Glossary and explanatory notes section.	The value of the Gini coefficient can take a value between 0 and 1. A value of 0 corresponds to perfect equality (i.e. all SA2 locations have the same number of offences) and 1 corresponds to perfect inequality (i.e. all offences occur in one SA2 location, while all other SA2 locations experience zero offences).
Offence rate ratio (ORR)	Compares the offence rate between the most disadvantaged and most advantaged areas.	Divides the aggregate offence rate for locations within the most disadvantaged by the aggregate offence rate for locations within the most advantaged areas. The equation used is provided in the Glossary and explanatory notes section.	A ratio greater than one indicates that the offence rate for the most disadvantaged communities is greater than for the most advantaged communities.

The use of ERP counts instead of an ambient population count has two implications for findings. First, the rates provided in this report cannot provide a completely accurate figure of the population exposed to an offence. Second, some locations draw a larger ambient population than their resident population[15], and will therefore likely have an inflated offence rate.

Third, by focusing on the distribution of offences aggregated to the SA2 level, analyses will be unable to identify patterns of concentration at smaller units of spatial measurement. The existing research indicates that the smaller the spatial unit under examination, the more likely that it would be subject to spatial concentration of offending, such as at the street segment level (Andresen and Malleson 2010; Groff, Weisburd and Yang 2010; Weisburd 2015). For example, there will be some locations within a SA2 where crime is concentrated, while there will be others that experience few offences. Thus, by examining spatial concentration at an aggregate level, it is not possible to make any inference about concentration at the smaller units used in the aggregation; such inferences would be invalid and constitute an ecological fallacy (Robinson 1950). Similarly, while a SA2 area may show an increase in offence rate, not all the smaller areas within that SA2 may be experiencing an increase, or the area of concentration may have moved to another location within the same SA2 location. It may be possible that multiple areas have shown small decreases, while another demonstrated a large increase and therefore the aggregate result would indicate an increase in crime for the larger SA2 area. Similarly, when using the IRSAD to classify locations based on socio-economic status, it is important to understand that Census-based information may not be representative of the entire population within an area.

[15] For example, some locations are characterised by temporal changes in population given that they are places of employment, retail, leisure and/or entertainment.

4.0 Results

The overarching aim of the *Spatial and temporal distribution of reported offences in Queensland* research was to examine distribution of offences within Queensland. Specifically, the research sought to address two main questions:

1. Where is crime concentrated within locations in Queensland?
2. To what extent have patterns of crime concentration changed over time?

This chapter presents the research findings in relation to the above research questions and the three statistical techniques described in Chapter 3. First, information on Queensland's more recent crime trends is shown to provide context to the results that follow. Second, locations with relatively high offence rates are identified. Third, the concentration of offences, examined through the proportion of the population that is exposed to the top 25%, 50% and 75% of offences and the calculation of a Gini coefficient is discussed. This information assesses whether offences have become more concentrated, or less, across Queensland locations over time. Finally, results regarding the stability of offence concentration in relation to social disadvantage are shown.

4.1. Recent crime trends in Queensland, 2008–09 to 2017–18

A brief discussion of the crime decline in Queensland was provided in section 2.1.1. The available data suggested there was an overall decline in the crime rates (property offences especially) during the 1990s and 2000s, however crime rates have tended to increase in recent years.

The crime trends apparent in the 2008–09 to 2017–18 data used in this project, both overall and for each broad category of offences, are described in this section. This period captures the end of the decline in crime for some offence categories and provides a more current context for crime rates in Queensland.

The number of offences and the offence rate per 1,000 population for each offence type over this 10-year period is provided in Table 4.[16] Between 2008–09 and 2017–18, the total number of offences increased by one-quarter (25.7%) from 400,741 offences in 2008–09, to 503,720 in 2017–18. However, this increase in offence numbers was not steady across the period, but tended to have periods of stability, followed by increases. The largest increase in offence numbers has been experienced in the last three years since 2014–15. This pattern is evident when examining data by offence types, with offences against the person and property offences being stable for the same period, before a period of increasing numbers in recent years. Between 2008–09 and 2017–18, the largest proportional increase in offence numbers was for drug offences (77.1%), followed by other offences (23.0%), property offences (20.9%), offences against the person (19.4%) and good order offences (6.8%).

As the increase in offence numbers may in part be a function of an increased population, the offence rate per 1,000 persons in Queensland was calculated. Like the number of offences, the offence rate has experienced an overall increase (8.2%) between 2008–09 and 2017–18. However, the offence rate has fluctuated over this period, with decreases and increases over time. When examining the offence rate for individual offence types, the rates of property offences, other offences, and good order offences have fluctuated. The rate of offences against the person steadily decreased until 2014–15, and then increased over the past three years. Finally, the rate of drug offences initially decreased until 2010–11, before increasing over the next five years, before decreasing for the past two years.

[16] The data displayed in Table 4 represent all offences reported by police, and before data exclusions for locations with small resident populations were applied.

Table 4 Number and rate per 1,000 persons of offences, by type of offence, 2008–2018

	2008–09	2009–10	2010–11	2011–12	2012–13	2013–14	2014–15	2015–16	2016–17	2017–18
Offence category	– Number –									
Offences against the person	30,576	31,500	29,905	30,436	30,229	28,607	28,182	31,313	34,585	36,493
Offences against the property	202,482	203,068	215,553	226,503	229,020	206,639	198,345	208,509	231,686	244,751
Other offences	71,826	76,300	65,866	68,333	72,013	78,967	78,839	92,413	90,344	88,368
Drug offences	45,098	43,314	43,073	47,879	54,870	65,453	80,849	88,749	84,905	79,882
Good order offences	50,759	52,677	47,979	51,759	52,087	57,828	60,320	61,790	59,616	54,226
Total offences	**400,741**	**406,859**	**402,376**	**424,910**	**438,219**	**437,494**	**446,535**	**482,774**	**501,136**	**503,720**
	– Rate per 1,000 persons –									
Offences against the person	7.2	7.2	6.7	6.7	6.6	6.1	5.9	6.5	7.1	7.3
Offences against the property	47.4	46.5	48.5	50.1	49.7	44.1	41.8	43.3	47.4	49.3
Other offences	16.8	17.5	14.8	15.1	15.6	16.9	16.6	19.2	18.5	17.8
Drug offences	10.6	9.9	9.7	10.6	11.9	14.0	17.0	18.4	17.4	16.1
Good order offences	11.9	12.1	10.8	11.4	11.3	12.3	12.7	12.8	12.2	10.9
Total offences	**93.8**	**93.2**	**90.6**	**93.9**	**95.0**	**93.4**	**94.0**	**100.3**	**102.5**	**101.4**

Source: ABS 3218.0, *Regional Population Growth, Australia*; QGSO, unpublished QPS data.

4.2. SA2 locations in Queensland with high offence rates

A starting point to examine the concentration of offences within Queensland is to rank locations by the number of offences that occurred there. However, this ranking using absolute offence numbers cannot account for the increased risk for offending opportunities across locations due to the number of people who enter that location. As discussed in the limitations (Chapter 3, section 3.3), without a measure for the ambient population within an area, a measure of the number of usual residents is used. Therefore, locations are ranked by the offence rate for the location, to account for the ERP of the area.

The SA2 locations in Queensland with the highest overall crime rate per 1,000 population is provided in Table 5, while the locations with the highest offence rates are also provided for each of the five offence categories: offences against the person (Table 6), property offences (Table 7), other offences (Table 8), drug offences (Table 9) and good order offences (Table 10). Within each table, the SA2 locations are listed in descending order by the offence rate per 1,000 persons for 2017–18. The corresponding offence rates for the other three reference periods (2008–09, 2011–12 and 2014–15), along with the rate change between adjacent reference periods, and the rate change overall (between 2011–12 and 2017–18) are provided for each listed location. Symbols are used to help indicate whether these trends have been stable (changed by less than 2.5%), or either increased or decreased by more than 2.5% between the two relevant points in time.

4.2.1. SA2 locations in Queensland with the highest overall offence rate

The SA2 locations in Queensland with the highest offence rates are listed in Table 5. Overall, the SA2 location with the highest rate of total offences was Fortitude Valley (886 per 1,000 persons), followed by Rockhampton City (878 per 1,000 persons), Mackay (868 per 1,000 persons), Brisbane City (866 per 1,000 persons) and Aurukun (775 per 1,000 persons). Overall, there was very little separating the rates for the four locations with the highest offence rate.

The locations that experienced the greatest overall increases in offence rates when comparing 2011–12 with 2017–18 were Kowanyama–Pormpuraaw (68.6%), followed by Aitkenvale (62.9%), Mount Isa (49.5%), Ipswich–Central (48.4%) and Berserker (35.0%). In contrast, the locations that experienced the greatest overall decreases in rates when comparing 2011–12 with 2017–18, were Eagle Farm–Pinkenba (–58.7%), Townsville City–North Ward (–27.4%), Fortitude Valley (–25.8%), Surfers Paradise (–21.3%) and Brisbane City (–17.0%).

There are some locations that consistently appear in the top locations despite displaying a downward trend in offence rates over time. For example, five SA2 locations (Fortitude Valley, Brisbane City, Surfers Paradise, South Brisbane and Eagle Farm–Pinkenba) have experienced reductions in the offence rate across each reference period. In contrast, there are four SA2 locations (Mackay, Carpentaria, Aitkenvale and Berserker) that have experienced consistent increases in the offence rate across reference periods, and overall for the 10-year period.

It is important to note that some SA2 locations with high offence rates are areas that comprise the central business district for some locations (such as Brisbane City, Rockhampton City, Mackay, Ipswich–Central and Toowoomba–Central). This type of location often has a small number of usual residents and offers greater opportunities for crime. Therefore, the offence rate for these locations may be inflated by a small absolute increase in offence numbers.

4.2.2. SA2 locations in Queensland with high offence rates by offence type

While the above section examined the SA2 locations in Queensland with the highest offence rates overall, those results may mask variation by offence categories. In this section, the locations with the highest offence rates for each of the five different offence categories are discussed.

It is important to note that offence counts may be impacted by a range of factors, including changes in policy and operational practice, increased community awareness, and better victim support. This is particularly the case for certain categories of offences, such as drug offences and good order offences, where in some instances an offender is charged with multiple offences. For example, some drug users may be charged with two offences: the possession of drugs and the possession of a utensil to consume the drug, while those charged with supplying often face multiple counts, and may also be charged with the possession of the proceeds of drugs. Similarly, there are a range of good order offences that tend to accompany other charges, including being a public nuisance, the use of offensive language, disobeying a move on direction and resisting arrest.

4.2.2.1. Offences against the person

Offences against the person includes offences such as acts intended to cause injury, robbery, sexual assault and wounding. See Table 1 for further information.

Overall, the rates for offences against the person for SA2 locations in Queensland are the lowest, relative to the other offence types. The SA2 locations in Queensland with the highest rates of offences against the person are provided in Table 6. Of the locations with the highest rates, four were in the Far North (Aurukun, Kowanyama–Pormpuraaw, Cape York and Torres Strait Islands), four were in Townsville (Belgian Gardens–Pallarenda, Garbutt–West End, Townsville City–North Ward and Aitkenvale) and three were in Outback–North (Carpentaria, Mount Isa and Mount Isa Region).

The locations that experienced the greatest overall decreases in offence rates when comparing 2011–12 with 2017–18 were Yarrabah (down 52.3%), Fortitude Valley (down 38.7%), Brisbane City (down 29.2%), Palm Island (down 24.6%) and Bundaberg (down 20.4%). In contrast, the locations that experienced the greatest overall increases in rates when comparing 2011–12 with 2017–18 were Belgian Gardens–Pallarenda (up 219.9%), followed by Garbutt–West End (up 88.6%), Aitkenvale (up 86.5%), Carpentaria (up 83.9%) and Wacol (up 79.1%).

Two SA2 locations experienced a downward trend in offence rates over the period: Fortitude Valley and Brisbane City. In contrast, four locations experienced an overall increase in offence rates, and across each reference period, including Carpentaria, Belgian Gardens–Pallarenda, Central Highlands–East and Aitkenvale.

Table 5 Queensland SA2 locations with the highest rates of total offences in 2017–18

		Three–year moving average rate[a] of total offences				Rate change			Overall rate change
		2011–12	2013–14	2015–16	2017–18	2011–12 to 2013–14	2013–14 to 2015–16	2015–16 to 2017–18	2011–12 to 2017–18
SA2	SA3	— per 1,000 persons —				— % —			— % —
Fortitude Valley	Brisbane Inner	1,194.7	1,108.9	1,035.5	886.1	–7.2 ▼	–6.6 ▼	–14.4 ▼	–25.8 ▼
Rockhampton City	Rockhampton	897.7	944.6	859.6	878.3	5.2 ▲	–9.0 ▼	2.2 ▶	–2.2 ▶
Mackay	Mackay	672.8	724.4	783.1	868.3	7.7 ▲	8.1 ▲	10.9 ▲	29.1 ▲
Brisbane City	Brisbane Inner	1,043.6	906.2	869.4	865.8	–13.2 ▼	–4.1 ▼	–0.4 ▶	–17.0 ▼
Aurukun	Far North	608.5	607.6	714.9	774.9	–0.1 ▶	17.7 ▲	8.4 ▲	27.3 ▲
Kowanyama–Pormpuraaw	Far North	383.4	520.6	765.3	646.7	35.8 ▲	47.0 ▲	–15.5 ▼	68.6 ▲
Cairns City	Cairns–South	639.3	598.3	578.0	582.7	–6.4 ▼	–3.4 ▼	0.8 ▶	–8.8 ▼
Ipswich–Central	Ipswich Inner	384.2	369.9	395.9	570.3	–3.7 ▼	7.0 ▲	44.1 ▲	48.4 ▲
Carpentaria	Outback–North	417.8	442.3	536.4	557.5	5.9 ▲	21.3 ▲	3.9 ▲	33.4 ▲
Logan Central	Springwood–Kingston	421.9	507.2	522.8	512.2	20.2 ▲	3.1 ▲	–2.0 ▶	21.4 ▲
Palm Island	Charters Towers–Ayr–Ingham	519.4	518.2	529.1	465.8	–0.2 ▶	2.1 ▶	–12.0 ▼	–10.3 ▼
Bundaberg	Bundaberg	464.2	412.8	410.2	437.6	–11.1 ▼	–0.6 ▶	6.7 ▲	–5.7 ▼
Toowoomba–Central	Toowoomba	326.9	323.4	335.8	401.5	–1.0 ▶	3.8 ▲	19.5 ▲	22.8 ▲
Townsville City–North Ward	Townsville	551.3	412.6	394.7	400.0	–25.1 ▼	–4.3 ▼	1.3 ▶	–27.4 ▼
Aitkenvale	Townsville	214.3	244.0	288.0	349.2	13.8 ▲	18.0 ▲	21.3 ▲	62.9 ▲
Garbutt–West End	Townsville	288.8	292.1	291.5	339.9	1.1 ▶	–0.2 ▶	16.6 ▲	17.7 ▲
Beenleigh	Beenleigh	254.2	305.2	328.8	323.8	20.1 ▲	7.7 ▲	–1.5 ▶	27.4 ▲
Surfers Paradise	Surfers Paradise	403.0	377.3	364.2	317.3	–6.4 ▼	–3.5 ▼	–12.9 ▼	–21.3 ▼
Manunda	Cairns–South	252.0	263.5	251.6	310.5	4.6 ▲	–4.5 ▼	23.4 ▲	23.2 ▲
South Brisbane	Brisbane Inner	368.1	332.2	332.3	309.3	–9.8 ▼	0.0 ▶	–6.9 ▼	–16.0 ▼
Mount Isa	Outback–North	206.2	203.7	246.5	308.3	–1.2 ▶	21.0 ▲	25.1 ▲	49.5 ▲
Gladstone	Gladstone	278.6	345.4	336.9	300.9	24.0 ▲	–2.5 ▶	–10.7 ▼	8.0 ▲
Cape York	Far North	290.8	270.1	278.8	284.1	–7.1 ▼	3.2 ▲	1.9 ▶	–2.3 ▶
Eagle Farm–Pinkenba	Nundah	676.1	538.0	324.0	279.1	–20.4 ▼	–39.8 ▼	–13.8 ▼	–58.7 ▼
Berserker	Rockhampton	206.0	223.2	251.8	278.1	8.4 ▲	12.8 ▲	10.4 ▲	35.0 ▲

(a) Three–year simple moving average; the rate for each listed reference period is the average offence rate for that year and the two previous years.
Source: ABS 3218.0, *Regional Population Growth, Australia*; QGSO, unpublished QPS data.

Note: 18 SA2 locations with an ERP less than 250 were excluded because of the impact that small offence numbers had on the rate per 1,000 population. Only the first 25 locations are listed due to size constraints.

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Table 6 Queensland SA2 locations with the highest rates of offences against the person in 2017–18

		Three–year moving average rate[a] of offences against the person				Rate change			Overall rate change
		2011–12	2013–14	2015–16	2017–18	2011–12 to 2013–14	2013–14 to 2015–16	2015–16 to 2017–18	2011–12 to 2017–18
SA2	SA3	— per 1,000 persons —				— % —			— % —
Aurukun	Far North	82.3	98.6	142.0	126.4	19.8 ▲	44.0 ▲	–11.0 ▼	53.5 ▲
Kowanyama–Pormpuraaw	Far North	71.1	89.0	124.3	103.6	25.1 ▲	39.7 ▲	–16.6 ▼	45.7 ▲
Palm Island	Charters Towers–Ayr–Ingham	115.4	122.0	111.3	87.1	5.7 ▲	–8.8 ▼	–21.8 ▼	–24.6 ▼
Carpentaria	Outback–North	47.1	51.8	70.8	86.5	10.0 ▲	36.7 ▲	22.3 ▲	83.9 ▲
Fortitude Valley	Brisbane Inner	102.6	85.5	72.7	62.8	–16.7 ▼	–15.0 ▼	–13.5 ▼	–38.7 ▼
Rockhampton City	Rockhampton	67.9	68.1	57.7	56.0	0.3 ▶	–15.4 ▼	–2.9 ▼	–17.6 ▼
Brisbane City	Brisbane Inner	71.8	57.0	53.2	50.8	–20.6 ▼	–6.7 ▼	–4.4 ▼	–29.2 ▼
Mackay	Mackay	41.9	46.7	40.4	46.9	11.5 ▲	–13.5 ▼	16.2 ▲	12.0 ▲
Yarrabah	Innisfail–Cassowary Coast	86.9	104.2	53.3	41.4	19.9 ▲	–48.8 ▼	–22.3 ▼	–52.3 ▼
Cairns City	Cairns–South	48.1	44.8	40.6	40.7	–6.8 ▼	–9.5 ▼	0.3 ▶	–15.4 ▼
Wacol	Forest Lake–Oxley	22.2	22.8	21.2	39.7	3.0 ▲	–7.3 ▼	87.5 ▲	79.1 ▲
Belgian Gardens–Ilarenda	Townsville	11.2	18.4	25.1	35.9	64.1 ▲	35.9 ▲	43.5 ▲	219.9 ▲
Mount Isa	Outback–North	19.5	18.0	21.9	33.5	–7.5 ▼	21.2 ▲	53.5 ▲	72.2 ▲
Cape York	Far North	35.1	31.2	31.4	30.4	–11.2 ▼	0.7 ▶	–3.2 ▼	–13.5 ▼
Garbutt–West End	Townsville	15.1	14.7	24.8	28.5	–2.8 ▼	69.0 ▲	14.8 ▲	88.6 ▲
Bundaberg	Bundaberg	35.4	30.4	26.9	28.2	–14.1 ▼	–11.5 ▼	4.7 ▲	–20.4 ▼
Mount Isa Region	Outback–North	19.5	21.1	20.6	28.2	7.9 ▲	–2.2 ▶	36.8 ▲	44.5 ▲
Logan Central	Springwood–Kingston	25.9	25.4	25.2	27.6	–2.0 ▶	–0.6 ▶	9.5 ▲	6.6 ▲
Townsville City–North Ward	Townsville	33.0	27.6	25.4	27.6	–16.5 ▼	–7.7 ▼	8.3 ▲	–16.5 ▼
Ipswich–Central	Ipswich Inner	32.3	27.3	24.7	26.9	–15.5 ▼	–9.7 ▼	9.2 ▲	–16.7 ▼
Far South West	Outback–South	20.5	22.4	18.7	24.8	8.9 ▲	–16.2 ▼	32.5 ▲	21.0 ▲
Central Highlands–East	Central Highlands (Qld)	20.9	21.4	22.6	24.5	2.4 ▶	5.6 ▲	8.7 ▲	17.5 ▲
Torres Strait Islands	Far North	26.6	21.8	20.6	24.4	–18.0 ▼	–5.6 ▼	18.4 ▲	–8.3 ▼
Manunda	Cairns–South	21.4	20.7	20.1	23.6	–2.9 ▼	–3.2 ▼	17.7 ▲	10.6 ▲
Aitkenvale	Townsville	12.6	13.8	15.0	23.4	9.6 ▲	8.8 ▲	56.4 ▲	86.5 ▲

(a) Three–year simple moving average; the rate for each listed reference period is the average offence rate for that year and the two previous years.
Source: ABS 3218.0, *Regional Population Growth, Australia*; QGSO, unpublished QPS data.

Note: 18 SA2 locations with an ERP less than 250 were excluded because of the impact that small offence numbers had on the rate per 1,000 population. Only the first 25 locations are listed due to size constraints.

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Table 7 Queensland SA2 locations with the highest rates of property offences in 2017–18

		Three–year moving average rate[a] of property offences				Rate change			Overall rate change
		2011–12	2013–14	2015–16	2017–18	2011–12 to 2013–14	2013–14 to 2015–16	2015–16 to 2017–18	2011–12 to 2017–18
SA2	SA3	— per 1,000 persons—				— % —			— % —
Brisbane City	Brisbane Inner	515.8	441.8	409.3	380.9	–14.4 ▼	–7.3 ▼	–6.9 ▼	–26.2 ▼
Mackay	Mackay	258.1	296.8	304.0	359.8	15.0 ▲	2.4 ▶	18.4 ▲	39.4 ▲
Rockhampton City	Rockhampton	315.0	279.1	234.8	291.2	–11.4 ▼	–15.9 ▼	24.0 ▲	–7.6 ▼
Cairns City	Cairns–South	269.7	255.0	241.6	252.9	–5.5 ▼	–5.2 ▼	4.7 ▲	–6.2 ▼
Fortitude Valley	Brisbane Inner	394.9	371.6	247.5	225.0	–5.9 ▼	–33.4 ▼	–9.1 ▼	–43.0 ▼
Logan Central	Springwood–Kingston	167.8	203.7	181.5	202.2	21.4 ▲	–10.9 ▼	11.4 ▲	20.5 ▲
Aitkenvale	Townsville	150.7	160.2	168.6	193.8	6.3 ▲	5.2 ▲	14.9 ▲	28.6 ▲
Bundaberg	Bundaberg	192.5	165.0	161.3	184.6	–14.3 ▼	–2.3 ▶	14.5 ▲	–4.1 ▼
Eagle Farm–Pinkenba	Nundah	527.9	411.6	217.3	170.8	–22.0 ▼	–47.2 ▼	–21.4 ▼	–67.7 ▼
Browns Plains	Browns Plains	203.2	214.4	182.6	163.2	5.5 ▲	–14.8 ▼	–10.6 ▼	–19.7 ▼
Manunda	Cairns–South	143.0	142.4	133.3	160.4	–0.4 ▶	–6.4 ▼	20.3 ▲	12.2 ▲
Ipswich–Central	Ipswich Inner	158.0	167.4	149.9	158.3	5.9 ▲	–10.4 ▼	5.6 ▲	0.2 ▶
Garbutt–West End	Townsville	153.5	152.0	135.8	155.8	–1.0 ▶	–10.7 ▼	14.7 ▲	1.5 ▶
Aurukun	Far North	162.8	232.6	233.1	153.9	42.8 ▲	0.2 ▶	–34.0 ▼	–5.5 ▼
Beenleigh	Beenleigh	161.4	175.1	154.5	153.8	8.5 ▲	–11.8 ▼	–0.4 ▶	–4.7 ▼
South Brisbane	Brisbane Inner	177.0	163.3	143.1	147.5	–7.7 ▼	–12.4 ▼	3.1 ▲	–16.7 ▼
Westcourt–Bungalow	Cairns–South	128.1	132.7	128.0	143.6	3.6 ▲	–3.5 ▼	12.2 ▲	12.1 ▲
Mackay Harbour	Mackay	123.1	148.3	136.9	142.7	20.5 ▲	–7.7 ▼	4.3 ▲	15.9 ▲
North Ipswich–Tivoli	Ipswich Inner	111.8	118.4	120.4	141.7	5.9 ▲	1.7 ▶	17.7 ▲	26.8 ▲
Park Avenue	Rockhampton	152.0	122.8	103.7	134.4	–19.2 ▼	–15.5 ▼	29.6 ▲	–11.6 ▼
Southport–North	Southport	138.6	120.6	113.6	133.4	–13.0 ▼	–5.9 ▼	17.5 ▲	–3.8 ▼
Chermside	Chermside	181.2	157.6	138.7	130.6	–13.0 ▼	–11.9 ▼	–5.8 ▼	–27.9 ▼
Toowoomba–Central	Toowoomba	131.4	121.1	105.7	129.1	–7.9 ▼	–12.7 ▼	22.1 ▲	–1.8 ▶
Hyde Park–Pimlico	Townsville	129.1	129.4	106.1	126.8	0.3 ▶	–18.0 ▼	19.5 ▲	–1.8 ▶
Upper Mount Gravatt	Mt Gravatt	104.6	92.2	96.3	126.7	–11.9 ▼	4.5 ▲	31.6 ▲	21.1 ▲

(a) Three–year simple moving average; the rate for each listed reference period is the average offence rate for that year and the two previous years.
Source: ABS 3218.0, *Regional Population Growth, Australia*; QGSO, unpublished QPS data.

Note: 18 SA2 locations with an ERP less than 250 were excluded because of the impact that small offence numbers had on the rate per 1,000 population. Only the first 25 locations are listed due to size constraints.

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Table 8 Queensland SA2 locations with the highest rates of "other offences" in 2017–18

		Three–year moving average rate[a] of other offences				Rate change			Overall rate change
		2011–12	2013–14	2015–16	2017–18	2011–12 to 2013–14	2013–14 to 2015–16	2015–16 to 2017–18	2011–12 to 2017–18
SA2	SA3	— per 1,000 persons—				— % —			— % —
Kowanyama–Pormpuraaw	Far North	132.6	214.6	341.5	258.0	61.8 ▲	59.2 ▲	–24.5 ▼	94.5 ▲
Aurukun	Far North	191.2	120.7	164.1	254.3	–36.9 ▼	35.9 ▲	55.0 ▲	33.0 ▲
Carpentaria	Outback–North	155.3	175.6	217.0	187.6	13.1 ▲	23.6 ▲	–13.5 ▼	20.8 ▲
Palm Island	Charters Towers–Ayr–Ingham	180.8	181.0	183.4	173.9	0.1 ▶	1.3 ▶	–5.2 ▼	–3.8 ▼
Rockhampton City	Rockhampton	171.2	168.2	161.9	150.3	–1.7 ▶	–3.7 ▼	–7.2 ▼	–12.2 ▼
Cape York	Far North	117.9	104.4	116.2	120.7	–11.5 ▼	11.2 ▲	3.9 ▲	2.3 ▶
Mackay	Mackay	105.6	113.2	118.0	120.3	7.2 ▲	4.2 ▲	1.9 ▶	13.9 ▲
Brisbane City	Brisbane Inner	137.8	120.0	118.0	118.4	–12.9 ▼	–1.7 ▶	0.3 ▶	–14.1 ▼
Yarrabah	Innisfail–Cassowary Coast	124.8	148.6	160.5	112.9	19.1 ▲	8.0 ▲	–29.7 ▼	–9.5 ▼
Fortitude Valley	Brisbane Inner	155.2	133.0	129.9	93.8	–14.3 ▼	–2.3 ▶	–27.8 ▼	–39.6 ▼
Cairns City	Cairns–South	117.7	104.4	95.9	91.2	–11.3 ▼	–8.2 ▼	–4.9 ▼	–22.5 ▼
Bundaberg	Bundaberg	81.2	71.5	75.1	83.8	–12.0 ▼	5.1 ▲	11.6 ▲	3.2 ▲
Kingaroy Region–North	Burnett	93.6	72.2	75.8	76.0	–22.9 ▼	4.9 ▲	0.3 ▶	–18.9 ▼
Mount Isa	Outback–North	43.5	47.0	57.6	73.6	8.0 ▲	22.6 ▲	27.8 ▲	69.1 ▲
Toowoomba–Central	Toowoomba	42.8	46.8	51.1	68.9	9.3 ▲	9.2 ▲	34.9 ▲	61.0 ▲
Central Highlands–East	Central Highlands (Qld)	66.0	68.9	80.2	66.9	4.5 ▲	16.3 ▲	–16.6 ▼	1.4 ▶
Townsville City–North Ward	Townsville	130.9	72.5	76.8	64.4	–44.6 ▼	5.8 ▲	–16.1 ▼	–50.8 ▼
Gladstone	Gladstone	44.3	58.4	67.8	64.1	31.8 ▲	16.0 ▲	–5.4 ▼	44.7 ▲
Aitkenvale	Townsville	20.8	25.0	52.5	62.9	20.2 ▲	110.0 ▲	19.9 ▲	202.5 ▲
South Townsville–Railway Estate	Townsville	130.7	140.6	120.8	61.1	7.6 ▲	–14.1 ▼	–49.4 ▼	–53.2 ▼
Mount Isa Region	Outback–North	55.5	59.8	59.8	59.7	7.7 ▲	0.0 ▶	–0.1 ▶	7.6 ▲
Wacol	Forest Lake–Oxley	37.6	46.5	48.9	59.5	23.7 ▲	5.2 ▲	21.9 ▲	58.5 ▲
Ipswich–Central	Ipswich Inner	49.9	48.3	50.1	59.3	–3.3 ▼	3.9 ▲	18.3 ▲	18.8 ▲
Eagle Farm–Pinkenba	Nundah	101.7	81.4	59.5	58.9	–19.9 ▼	–26.9 ▼	–1.1 ▶	–42.1 ▼
Northern Peninsula	Far North	75.6	60.4	67.6	58.3	–20.0 ▼	11.9 ▲	–13.7 ▼	–22.8 ▼

(a) Three–year simple moving average; the rate for each listed reference period is the average offence rate for that year and the two previous years.
Source: ABS 3218.0, *Regional Population Growth, Australia*; QGSO, unpublished QPS data.

Note: 18 SA2 locations with an ERP less than 250 were excluded because of the impact that small offence numbers had on the rate per 1,000 population. Only the first 25 locations are listed due to size constraints.

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Table 9 Queensland SA2 locations with the highest rates of drug offences in 2017–18

		Three–year moving average rate[a] of drug offences				Rate change			Overall rate change
		2011–12	2013–14	2015–16	2017–18	2011–12 to 2013–14	2013–14 to 2015–16	2015–16 to 2017–18	2011–12 to 2017–18
SA2	SA3	— per 1,000 persons—				— % —			— % —
Fortitude Valley	Brisbane Inner	135.5	159.3	206.5	193.4	17.6 ▲	29.6 ▲	–6.4 ▼	42.7 ▲
Ipswich–Central	Ipswich Inner	24.7	27.4	46.1	169.4	10.8 ▲	68.4 ▲	267.1 ▲	584.9 ▲
Brisbane City	Brisbane Inner	91.0	111.9	103.1	132.7	22.9 ▲	–7.9 ▼	28.8 ▲	45.8 ▲
Rockhampton City	Rockhampton	57.6	100.7	108.5	118.8	74.8 ▲	7.8 ▲	9.5 ▲	106.3 ▲
Mackay	Mackay	53.9	65.5	97.8	91.4	21.5 ▲	49.4 ▲	–6.6 ▼	69.4 ▲
Roma	Darling Downs (West)–Maranoa	30.2	40.2	62.3	72.7	33.0 ▲	54.8 ▲	16.8 ▲	140.4 ▲
North Toowoomba–Harlaxton	Toowoomba	20.9	27.6	50.8	63.2	31.8 ▲	84.0 ▲	24.4 ▲	201.8 ▲
Balonne	Darling Downs (West)–Maranoa	17.2	16.5	34.8	63.1	–4.5 ▼	111.6 ▲	81.2 ▲	265.9 ▲
Berserker	Rockhampton	25.8	40.9	59.7	62.1	58.2 ▲	46.0 ▲	4.0 ▲	140.2 ▲
Newtown (Qld)	Toowoomba	13.2	19.6	45.4	60.7	49.0 ▲	131.4 ▲	33.7 ▲	361.0 ▲
Cairns City	Cairns–South	42.1	45.6	53.3	60.1	8.2 ▲	16.8 ▲	12.7 ▲	42.5 ▲
Spring Hill	Brisbane Inner	37.6	35.1	43.6	59.5	–6.8 ▼	24.4 ▲	36.4 ▲	58.2 ▲
Logan Central	Springwood–Kingston	26.4	36.3	48.5	56.8	37.8 ▲	33.5 ▲	17.1 ▲	115.4 ▲
Garbutt–West End	Townsville	26.7	30.0	41.5	56.2	12.3 ▲	38.1 ▲	35.5 ▲	110.2 ▲
Toowoomba–Central	Toowoomba	25.0	25.5	42.0	55.9	2.0 ▶	64.4 ▲	33.2 ▲	123.4 ▲
Surfers Paradise	Surfers Paradise	48.9	55.7	63.5	55.4	14.0 ▲	14.1 ▲	–12.9 ▼	13.3 ▲
Bundaberg	Bundaberg	35.9	44.7	49.2	53.6	24.3 ▲	10.0 ▲	9.1 ▲	49.2 ▲
Newstead–Bowen Hills	Brisbane Inner–North	26.8	36.7	58.3	50.9	36.6 ▲	59.1 ▲	–12.8 ▼	89.5 ▲
South Brisbane	Brisbane Inner	37.2	39.2	54.3	48.6	5.2 ▲	38.6 ▲	–10.5 ▼	30.6 ▲
Innisfail	Innisfail–Cassowary Coast	23.5	30.3	46.1	48.5	28.8 ▲	52.4 ▲	5.2 ▲	106.5 ▲
Gulliver–Currajong–Vincent	Townsville	21.8	25.1	38.1	48.0	15.4 ▲	51.6 ▲	26.1 ▲	120.7 ▲
Beenleigh	Beenleigh	19.8	32.2	46.2	46.4	62.7 ▲	43.6 ▲	0.3 ▶	134.3 ▲
Townsville City–North Ward	Townsville	33.8	29.6	37.4	46.3	–12.3 ▼	26.4 ▲	23.7 ▲	37.2 ▲
Caboolture	Caboolture	18.7	28.0	46.8	46.1	49.5 ▲	67.3 ▲	–1.6 ▶	146.2 ▲
Kingaroy Region–North	Burnett	33.1	26.2	34.4	45.4	–21.0 ▼	31.4 ▲	32.1 ▲	37.1 ▲

(a) Three–year simple moving average; the rate for each listed reference period is the average offence rate for that year and the two previous years.
Source: ABS 3218.0, *Regional Population Growth, Australia*; QGSO, unpublished QPS data.

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Table 10 Queensland SA2 locations with the highest rates of good order offences in 2017–18

		Three–year moving average rate[a] of good order offences				Rate change			Overall rate change
		2011–12	2013–14	2015–16	2017–18	2011–12 to 2013–14	2013–14 to 2015–16	2015–16 to 2017–18	2011–12 to 2017–18
SA2	SA3	— per 1,000 persons—				— % —			— % —
Fortitude Valley	Brisbane Inner	406.6	359.6	378.9	311.0	–11.6 ▼	5.4 ▲	–17.9 ▼	–23.5 ▼
Rockhampton City	Rockhampton	286.0	328.5	296.7	262.0	14.8 ▲	–9.7 ▼	–11.7 ▼	–8.4 ▼
Mackay	Mackay	213.3	202.3	222.8	249.9	–5.2 ▼	10.2 ▲	12.2 ▲	17.1 ▲
Aurukun	Far North	156.4	136.3	140.6	198.9	–12.9 ▼	3.2 ▲	41.5 ▲	27.2 ▲
Brisbane City	Brisbane Inner	227.2	175.6	185.8	183.0	–22.7 ▼	5.8 ▲	–1.5 ▶	–19.5 ▼
Logan Central	Springwood–Kingston	154.8	187.5	210.4	169.0	21.1 ▲	12.2 ▲	–19.7 ▼	9.2 ▲
Ipswich–Central	Ipswich Inner	119.2	99.5	125.0	156.3	–16.5 ▼	25.6 ▲	25.1 ▲	31.2 ▲
Kowanyama–Pormpuraaw	Far North	91.5	120.4	165.9	146.8	31.6 ▲	37.8 ▲	–11.5 ▼	60.5 ▲
Townsville City–North Ward	Townsville	214.9	163.3	150.8	144.8	–24.0 ▼	–7.7 ▼	–4.0 ▼	–32.6 ▼
Cairns City	Cairns–South	161.6	148.5	146.7	137.9	–8.1 ▼	–1.3 ▶	–6.0 ▼	–14.6 ▼
Toowoomba–Central	Toowoomba	104.8	109.7	121.0	130.8	4.7 ▲	10.3 ▲	8.1 ▲	24.8 ▲
Carpentaria	Outback–North	112.6	104.6	114.1	121.4	–7.1 ▼	9.1 ▲	6.4 ▲	7.8 ▲
Fairfield–Dutton Park	Holland Park–Yeronga	24.6	32.0	57.5	88.2	30.2 ▲	79.7 ▲	53.2 ▲	258.5 ▲
Bundaberg	Bundaberg	119.1	101.2	97.7	87.4	–15.1 ▼	–3.4 ▼	–10.6 ▼	–26.7 ▼
Noosa Heads	Noosa	114.3	73.0	96.0	83.5	–36.1 ▼	31.5 ▲	–13.0 ▼	–26.9 ▼
Surfers Paradise	Surfers Paradise	131.5	124.9	117.1	80.0	–5.0 ▼	–6.3 ▼	–31.6 ▼	–39.1 ▼
Mount Isa	Outback–North	52.6	47.6	63.9	75.3	–9.5 ▼	34.2 ▲	17.8 ▲	43.1 ▲
Gladstone	Gladstone	84.4	135.6	110.5	65.9	60.7 ▲	–18.5 ▼	–40.4 ▼	–21.9 ▼
Palm Island	Charters Towers–Ayr–Ingham	49.3	55.8	80.8	63.8	13.2 ▲	44.8 ▲	–21.1 ▼	29.3 ▲
Beenleigh	Beenleigh	27.2	44.3	64.7	61.2	62.8 ▲	45.8 ▲	–5.3 ▼	124.8 ▲
South Brisbane	Brisbane Inner	92.5	73.2	77.9	60.8	–20.8 ▼	6.4 ▲	–22.0 ▼	–34.3 ▼
Coolangatta	Coolangatta	88.0	60.9	60.1	54.3	–30.9 ▼	–1.2 ▶	–9.7 ▼	–38.4 ▼
South Townsville–Railway Estate	Townsville	59.3	71.5	63.5	52.3	20.7 ▲	–11.3 ▼	–17.6 ▼	–11.8 ▼
Redcliffe	Redcliffe	56.7	60.1	59.8	50.5	6.0 ▲	–0.6 ▶	–15.5 ▼	–11.0 ▼
Central Highlands–East	Central Highlands (Qld)	33.9	41.3	64.9	49.4	21.8 ▲	57.1 ▲	–23.9 ▼	45.6 ▲

(a) Three–year simple moving average; the rate for each listed reference period is the average offence rate for that year and the two previous years.
Source: ABS 3218.0, *Regional Population Growth, Australia*; QGSO, unpublished QPS data.

Note: 18 SA2 locations with an ERP less than 250 were excluded because of the impact that small offence numbers had on the rate per 1,000 population. Only the first 25 locations are listed due to size constraints.

▼ represents a decreasing rate change of 2.5% or more ▲ represents an increasing rate change of 2.5% or more ▶ represents a stable rate that changed by less than 2.5%.

4.2.2.2. Property offences

Property offences includes offences such as theft, property damage, fraud and break and enter. See Table 1 for further information.

The SA2 locations in Queensland with the highest rates for property offences are provided in Table 7. The locations that experienced the greatest overall decreases in offence rates when comparing 2011–12 with 2017–18 were Eagle Farm–Pinkenba (down 67.7%), Fortitude Valley (down 43.0%), Chermside (down 27.9%), Brisbane City (down 26.2%) and Browns Plains (down 19.7%). In contrast, the locations that experienced the greatest overall increases in rates when comparing 2011–12 with 2017–18 were Mackay (up 39.4%), followed by Aitkenvale (up 28.6%), North Ipswich–Tivoli (up 26.8%), Upper Mount Gravatt (up 21.1%) and Logan Central (up 20.5%).

Four locations (Brisbane City, Fortitude Valley, Eagle Farm–Pinkenba and Chermside) trended downwards for each reference period, while conversely, three locations (Mackay, Aitkenvale and North Ipswich–Tivoli) experienced an increase in rates for property offences at every reference point. Most of the locations with the highest offence rates align with central business districts (e.g. Mackay, Brisbane City, Rockhampton City, Cairns City) or major shopping precincts (e.g. Chermside, Toowoomba–Central and Upper Mount Gravatt), reflecting locations with a greater opportunity for potential offenders. These locations (at least in metropolitan areas) also tend to be well connected by, or act as hubs for, public transport.

4.2.2.3. Other offences

"Other offences" include offences such as breach of domestic violence order, driving offences, prostitution, trespassing and vagrancy, and Weapons Act offences. See Table 1 for further information.

The SA2 locations in Queensland with the highest rates for other offences are provided in Table 8. The locations that experienced the greatest overall decreases in offence rates when comparing 2011–12 with 2017–18 were South Townsville–Railway Estate (down 53.2%), Townsville City–North Ward (down 50.8%), Eagle Farm–Pinkenba (down 42.1%), Fortitude Valley (down 39.6%) and Northern Peninsula (down 22.8%). Conversely, the locations that experienced the greatest overall increases in rates when comparing 2011–12 with 2017–18 were Aitkenvale (up 202.5%), followed by Kowanyama–Pormpuraaw (up 94.5%), Mount Isa (up 69.1%), Toowoomba–Central (up 61.0%) and Wacol (up 58.5%).

Four locations (Rockhampton City, Fortitude Valley, Cairns City and Eagle Farm–Pinkenba) experienced downward trends across all reference points. In contrast, five locations experienced consistent increases in offence rates (Mackay, Mount Isa, Toowoomba–Central, Aitkenvale and Wacol).

4.2.2.4. Drug offences

Drug offences include offences such as dealing, trafficking, manufacturing or cultivating illicit drugs; possess and/or use illicit drugs; possession of drug utensils; and having the proceeds of drug offences. See Table 1 for further information.[17, 18]

Of the 512 SA2 locations in Queensland, 45 (8.8%) experienced an overall decrease in rates of drug offences when comparing 2011–12 with 2017–18. It is this category of offences where the largest overall increases in crime rates have been observed, and the SA2 locations in Queensland with the highest drug offence rates are provided in Table 9. The locations that experienced the greatest overall increases in offence rates when comparing 2011–12 with 2017–18 were Ipswich–Central (up 584.9%), followed by Newtown (up 361.0%), Balonne (up 265.9%), North Toowoomba–Harlaxton (up 201.8%) and Caboolture (up 146.2%).

[17] Most drug offences relate to possession and/or use of illicit drugs and possession of drug utensils (Freiburg et al. 2016, p. 81)

[18] An offender may be charged for multiple, but related offences at the same drug offence event. For example, further analysis of police data showed that in 2017–18, where an offender was charged with a drug offence, they were also charged with an additional type of drug offence in approximately 40% of instances. This was most commonly the combination of being charged with the possession and/or use of a dangerous drug, and the charge of possessing things for use, or used in the administration, consumption, or smoking of a dangerous drug.

4.2.2.5. Good order offences

Good order offences include offences such as disobey move on direction; disorderly conduct; fare evasion; offensive language or behaviour; public nuisance; and resist arrest, incite, hinder, obstruct police. See Table 1 for further information.

The SA2 locations with the highest offence rates for good order offences are provided in Table 10. There are five locations that have tended to trend downwards during all reference periods and overall (Townsville City–North Ward, Cairns City, Bundaberg, Surfers Paradise and Coolangatta), while two locations experienced increases across all reference periods (including Toowoomba–Central and Fairfield–Dutton Park).

The locations that experienced the greatest overall decreases in offence rates when comparing 2011–12 with 2017–18 were Surfers Paradise (down 39.1%), Coolangatta (down 38.4%), South Brisbane (down 34.3%), Townsville City–North Ward (down 32.6%) and Noosa Heads (down 26.9%). Conversely, the locations that experienced the greatest overall increases in rates when comparing 2011–12 with 2017–18 were Fairfield–Dutton Park (up 258.5%), followed by Beenleigh (up 124.8%) Kowanyama–Pormpuraaw (up 60.5%), Central Highlands–East (up 45.6%) and Mount Isa (up 43.1%).

4.2.3. Locations with a high overall offence rate and for multiple offence types

In section 4.2.1, the SA2 locations that experienced the highest offence rates were identified. The extent to which some locations experience high rates of multiple types of crimes is examined in this section. This provides a way to identify locations with relatively high offence rates across all types of crime and those locations with relatively high offences rates driven by certain types of crime only. The SA2 locations in Queensland that experienced the highest offence rates per 1,000 people in 2017–18, plus any of the five offence categories where they were listed as a location with the highest offence rates, are provided in Table 11. Seven of the SA2 locations with the highest overall offence rate also had high offence rates for each offence category: Fortitude Valley, Rockhampton City, Mackay, Brisbane City, Cairns City, Ipswich–Central and Bundaberg. Four locations had some of the highest offence rates in the state for four different offence categories, a further eight locations were included in the highest rates for three offence categories, and five locations were included in two offence categories. One location (Berserker) had one of the highest offence rates in the state overall, but only experienced a high rate for one offence category.

4.3. Concentration of offences and its stability in Queensland locations

The previous section identified locations experiencing the highest offence rates in Queensland in 2017–18, both overall and within categories of offences. In this section, the distribution of offences is analysed by exploring how equally crime is distributed across locations, including the proportion of the population exposed to the offences, and the stability of these patterns over time.

As discussed in Chapter 3 (see sections 3.2.2 and 3.2.3), a measure of concentration that is often used to assess the distribution of offences is the proportion of the population impacted by a certain proportion of all offending. This distribution of crime against the population can be represented by a Lorenz curve, which demonstrates how equal the distribution is, while the magnitude of this can be assessed using the Gini coefficient summary measure.

The results show that a large proportion of all crime is concentrated within a small number of locations (when examining crime at the SA2 level) and that this concentration has changed slightly over time.

Table 11 Queensland SA2 locations with highest overall offence rate in 2017–18 and high offence rates within offence categories

	Offence category with high offence rate					
SA2 Name	**Person**	**Property**	**Other**	**Drug**	**Good order**	**Total**
Fortitude Valley	✓	✓	✓	✓	✓	5
Rockhampton City	✓	✓	✓	✓	✓	5
Mackay	✓	✓	✓	✓	✓	5
Brisbane City	✓	✓	✓	✓	✓	5
Cairns City	✓	✓	✓	✓	✓	5
Ipswich–Central	✓	✓	✓	✓	✓	5
Bundaberg	✓	✓	✓	✓	✓	5
Aurukun	✓	✓	✓		✓	4
Logan Central	✓	✓		✓	✓	4
Toowoomba–Central		✓	✓	✓	✓	4
Townsville City–North Ward	✓		✓	✓	✓	4
Kowanyama–Pormpuraaw	✓		✓		✓	3
Carpentaria	✓		✓		✓	3
Palm Island	✓		✓		✓	3
Aitkenvale	✓	✓	✓			3
Garbutt–West End	✓	✓		✓		3
Beenleigh		✓		✓	✓	3
South Brisbane		✓		✓	✓	3
Mount Isa	✓		✓		✓	3
Surfers Paradise				✓	✓	2
Manunda	✓	✓				2
Gladstone			✓		✓	2
Cape York	✓		✓			2
Eagle Farm–Pinkenba		✓	✓			2
Berserker				✓		1

Source: ABS 3218.0, *Regional Population Growth, Australia*; QGSO, unpublished QPS data.

4.3.1. Concentration of all offences within SA2 locations in Queensland

While the total number of offences reported in 2008–09 compared with 2017–18 increased by 25%, there was only slight variation in the concentration of offences within Queensland. Table 12 shows that the percentage of SA2s accounting for 25% of all offences grew slightly from 5.3% in 2008–09 compared with 6.4% in 2017–18. This meant that 6.8% of Queensland's population was exposed to 25% of all offences in 2008–09 compared with 9.9% in 2017–18. The value of the Gini coefficient also changed from .34 in 2008–09 to .32 in 2017–18. These data indicate a slight decrease in crime concentration when comparing the two reference periods (Figure A1, page 45). A test statistic employed to test the magnitude of this change in Gini from 2008–09 to 2017–18, indicated that the difference between the coefficients was not statistically significant ($\tau = 0.71$, $p = .24$).

Table 12 Concentration of total offences within SA2 locations, 2008–09 to 2017–18

	2008–09		2011–12		2014–15		2017–18	
	SA2	Population	SA2	Population	SA2	Population	SA2	Population
Offences	— % —							
25% of all offences	5.3	6.8	6.1	8.3	5.9	8.3	6.4	9.9
50% of all offences	19.1	25.7	19.9	26.7	19.5	26.9	19.7	27.7
75% of all offences	43.6	54.3	43.7	55.0	43.6	55.7	43.2	55.5
Total [(a)]		**397,808**		**420,919**		**443,629**		**498,901**
Gini coefficient		**.34**		**.33**		**.33**		**.32**

(a) Total offences for SA2 locations with an ERP greater than 250 people. The totals in this table do not match the figures provided in Table 4.
Source: ABS 3218.0, *Regional Population Growth, Australia*; QGSO, unpublished QPS data.

While the data indicate that crime has become slightly less concentrated and more equally distributed over the 10-year period, the aggregation of all offences may mask differences in trends for different types of offences. Thus, it is important to examine the distribution of crime for each category of offences and the temporal stability of the concentration.

4.3.2. Concentration of offences within SA2 locations in Queensland by offence type

Consistent with previous research, the results in this section show that there are certain locations in Queensland where certain types of offences tend to be concentrated. Even when examining the distribution of offences at a broad statistical level, these patterns are evident. However, there appears to be some variation in the stability of these patterns over time, when examining different offence types. Except for drug offences, each offence category appears to have become less concentrated over time.

The cumulative proportion of all offences against the person, relative to the proportion of population exposed to these offences, is provided in Table 13. These data, and the related Lorenz curve (Figure A2, page 46), indicate that offences against the person have become less concentrated over time. The proportion of the population impacted by the top 25% of all offences against the person has increased consistently from 6.5% in 2008–09, to 9.0% in 2017–18, while the Gini coefficient decreased from .39 in 2008–09 to .35 in 2017–18 indicating a decrease in concentration over time. However, this change in the Gini coefficient from 2008–09 to 2017–18 was not statistically significant ($\tau = 1.11$, $p = .13$).

Table 13 Concentration of offences against the person within SA2 locations, 2008–09 to 2017–18

	2008–09		2011–12		2014–15		2017–18	
	SA2	Population	SA2	Population	SA2	Population	SA2	Population
Offences	— % —							
25% of all offences	5.3	6.5	5.3	6.9	5.5	7.1	6.1	9.0
50% of all offences	18.0	22.8	18.2	23.1	18.4	23.5	18.8	24.9
75% of all offences	40.9	49.7	40.8	49.7	40.4	49.7	41.8	51.7
Total [(a)]		**30,362**		**30,192**		**28,006**		**36,275**
Gini coefficient		**.39**		**.39**		**.39**		**.35**

(a) Total offences for SA2 locations with an ERP greater than 250 people. The totals in this table do not match the figures provided in Table 4.
Source: ABS 3218.0, *Regional Population Growth, Australia*; QGSO, unpublished QPS data.

When examining the distribution of property offences, the summary measure provided by the Gini coefficient fluctuated slightly, from .31 in 2008–09 to .30 in 2017–18 (Figure A3, page 47). This change in Gini coefficients from to 2017–18 was not statistically significant ($\tau = 0.49$, $p = .31$). While the Gini indicated that the overall distribution of property offences has remained stable, the top 25% of all property offences has become more concentrated within a smaller number of SA2 locations. In 2008–09 the top 25% of property offences impacted 9.1% of the population, while in 2017–18 this figure was 12.0% (Table 14). In contrast, the concentration within the top 50% and 75% of all offences remained stable.

Table 14 Concentration of property offences within SA2 locations, 2008–09 to 2017–18

	2008–09		2011–12		2014–15		2017–18	
	SA2	Population	SA2	Population	SA2	Population	SA2	Population
Offences	— % —							
25% of all offences	6.4	9.1	7.2	11.2	6.6	10.7	7.0	12.0
50% of all offences	20.5	28.4	20.9	28.6	20.5	29.5	20.3	29.0
75% of all offences	43.6	55.8	43.9	56.3	43.9	56.8	42.8	56.2
Total [(a)]		**200,776**		**223,973**		**196,767**		**241,334**
Gini coefficient		**.31**		**.30**		**.30**		**.30**

(a) Total offences for SA2 locations with an ERP greater than 250 people. The totals in this table do not match the figures provided in Table 4.
Source: ABS 3218.0, *Regional Population Growth, Australia*; QGSO, unpublished QPS data.

The Gini coefficient summarising the concentration of "other offences" has consistently decreased, from .38 in 2008–09 to .33 in 2017–18 (Figure A4, page 48). This change in Gini from 2008–09 to 2017–18 represents a statistically significant change at an alpha level of 0.1, but not at the 0.05 level ($\tau = 1.59$, $p = .056$). The results in Table 15 show that the top 25% of all other offences has become less concentrated by impacting a greater proportion of population over time, ranging from 5.2% in 2008–09, to 9.6% in 2017–18. This pattern of decreasing concentration is also evident among the top 50% and 75% of offences.

Table 15 Concentration of other offences within SA2 locations, 2008–09 to 2017–18

	2008–09		2011–12		2014–15		2017–18	
	SA2	Population	SA2	Population	SA2	Population	SA2	Population
Offences	— % —							
25% of all offences	4.7	5.2	5.7	7.5	6.1	7.4	6.8	9.6
50% of all offences	18.2	23.3	19.3	25.9	20.1	26.5	20.1	27.3
75% of all offences	42.8	52.0	43.6	52.7	44.1	53.2	43.9	53.2
Total [(a)]		**71,393**		**67,765**		**78,462**		**87,965**
Gini coefficient		**.38**		**.35**		**.34**		**.33**

(a) Total offences for SA2 locations with an ERP greater than 250 people. The totals in this table do not match the figures provided in Table 4.
Source: ABS 3218.0, *Regional Population Growth, Australia*; QGSO, unpublished QPS data.

In contrast to other categories of offences, the results show that drug offences have become slightly more concentrated. In 2008–09, the top 25% of drug offences impacted 8.9% of the total population, and in 2017–18, the proportion of the population had decreased to 8.1% (Table 16). This pattern of increasing concentration is also evident among the top 50% and 75% of offences. Although fluctuating overtime, the Gini coefficient increased from .35 in 2008–09 compared with .37 in 2017–18, indicating that the overall distribution of drug offences has become less equal across location (Figure A5, page 49). However, this change in Gini was not statistically significant ($\tau = -0.72$, $p = .24$).

Table 16 Concentration of drug offences within SA2 locations, 2008–09 to 2017–18

	2008–09		2011–12		2014–15		2017–18	
	SA2	Population	SA2	Population	SA2	Population	SA2	Population
Offences	— % —							
25% of all offences	6.1	8.9	6.1	9.5	6.3	9.8	5.3	8.1
50% of all offences	20.1	26.2	19.5	26.0	19.7	27.5	17.8	24.1
75% of all offences	43.4	52.9	42.4	53.3	42.4	53.4	40.6	50.5
Total [(a)]		**44,735**		**47,446**		**80,222**		**79,335**
Gini coefficient		**.35**		**.34**		**.33**		**.37**

(a) Total offences for SA2 locations with an ERP greater than 250 people. The totals in this table do not match the figures provided in Table 4.
Source: ABS 3218.0, *Regional Population Growth, Australia*; QGSO, unpublished QPS data.

The data indicates that the category of good order offences is the most concentrated within Queensland. This is evidenced by the distribution for good order offences producing the largest Gini coefficient in 2017–18 (.63) when compared with all other offence categories. However, the results indicate that the distribution is becoming less concentrated over time, with a consistently decreasing Gini value at each of the reference periods, ranging from .69 in 2008–09 to .63 in 2017–18 (Figure A6, page 50). This change in Gini from 2008–09 to 2017–18 represents a statistically significant change at an alpha level of 0.1, but not at the 0.05 level ($\tau = 1.49$, $p = .069$).

This trend is also reflected in the increasing proportion of the population impacted by the top 25% all good order offences; in 2008–09 the top 25% of all good order offences impacted 1.6% of the population while this figure was 2.7% in 2017–18 (Table 17). This pattern of decreasing concentration is also evident among the top 50% and 75% of offences.

Table 17 Concentration of good order offences within SA2 locations, 2008–09 to 2017–18

	2008–09		2011–12		2014–15		2017–18	
	SA2	Population	SA2	Population	SA2	Population	SA2	Population
Offences	— % —							
25% of all offences	1.2	1.6	1.4	1.6	1.8	2.2	1.8	2.7
50% of all offences	4.9	5.6	5.9	6.8	6.4	8.0	7.4	8.7
75% of all offences	18.9	22.7	20.5	23.8	21.5	25.2	23.4	28.0
Total [(a)]		**50,542**		**51,543**		**60,172**		**53,992**
Gini coefficient		**.69**		**.66**		**.65**		**.63**

(a) Total offences for SA2 locations with an ERP greater than 250 people. The totals in this table do not match the figures provided in Table 4.
Source: ABS 3218.0, *Regional Population Growth, Australia*; QGSO, unpublished QPS data.

As discussed in Chapter 3 (section 3.3), there are limitations to the findings presented above. These figures are based only on offences that have been recorded by the police, and therefore cannot capture the true amount of crime. The population figures are based on the ERP, rather than being able to capture the actual number of people that pass through a location, and therefore might have been exposed to an offence. In addition, these analyses do not account for the demographic characteristics of the population that reside in a location. However, given the links between social disadvantage and crime shown in previous research, it is important to consider the broader socio-economic conditions of area.

4.4. Prevalence of offences among different socio-economic locations

In this section, the distribution of offences within locations is examined through the lens of the broader socio-economic characteristics of the SA2 locations. Thus, offences are aggregated into categories based on the level of disadvantage of offence locations. The resulting analyses therefore compare the proportion of all offences that occur in locations classified by IRSAD quintiles.[19] These proportions allow the examination of the prevalence of offences within locations categorised by socio-economic characteristics over time.

The proportion of all offences that occurred in locations within each quintile of the IRSAD is provided in Table 18. Given that each quintile contains approximately 20% of the population, if crime was equally distributed, it would be expected that each quintile would be exposed to approximately 20% of all offences. These results indicate a differential distribution, with more crime occurring in the most disadvantaged locations. For example, almost one-third (31.4%) of all offences that were reported to police in Queensland during 2017–18 occurred in the most disadvantaged locations which exposed approximately 20% of the total ERP to offences. In contrast, the most advantaged locations experienced disproportionately less crime (14.2% of all offences) in 2017–18.

While there have been fluctuations in the proportion of offences experienced across the reference periods, the most disadvantaged locations have consistently experienced a greater proportion of all offences when compared with other IRSAD quintiles. In 2008–09, the most disadvantaged quintile experienced 29.5% of all offences, while in 2017–18 this was 31.4%. Conversely, the most advantaged quintile has experienced a consistent decrease in the proportion of all offences in those locations at each reference period; in 2008–09, 16.7% of all offences occurred in the most advantaged quintile, while in 2017–18 this was 14.2%.

[19] As highlighted in an earlier footnote, locations can be grouped into categories based on their classification according to a broad measure of socio-economic characteristics of an area. A common way to create categories is through quintiles, or five equal groups with 20% in each group.

Table 18 Concentration of total offences within IRSAD quintiles, 2008–09 to 2017–18

		Total offences							
		2008–09		2011–12		2014–15		2017–18	
IRSAD Quintile		— *n* —	— % —	— *n* —	— % —	— *n* —	— % —	— *n* —	— % —
1	(Most disadvantaged)	117,210	29.5	128,731	30.6	142,001	32.0	156,804	31.4
2		89,032	22.4	91,844	21.8	99,799	22.5	116,273	23.3
3		63,514	16.0	67,666	16.1	70,162	15.8	77,167	15.5
4		61,642	15.5	66,260	15.7	66,415	15.0	77,926	15.6
5	(Most advantaged)	66,410	16.7	66,418	15.8	65,252	14.7	70,731	14.2
Total number of offences		**397,808**	**100.0**	**420,919**	**100.0**	**443,629**	**100.0**	**498,901**	**100.0**

Source: ABS 2033.0.55.001*, Census of Population and Housing: Socio-Economic Indexes for Areas (SEIFA), Australia*; QGSO, unpublished QPS data.

4.4.1. By offence type

The previous section showed that the proportion of offences that occurred in the more disadvantaged locations have increased when comparing 2008–09 with 2017–18. In this section, offences are disaggregated into categories to examine whether these patterns of increased offences within the most disadvantaged communities are consistent by offence type.

The proportion of offences against the person that occurred in locations by socio-economic classification is provided in Table 19. Despite fluctuating slightly over time, the proportion of offences against the person that occurred in the most disadvantaged locations in 2008–09 (35.3%) was almost identical to the proportion in 2017–18 (35.2%). However, the proportion of offences against the person that occurred in the most advantaged locations in 2017–18 (12.0%) was slightly smaller than the proportion in 2008–09 (13.8%) suggesting a small decline in the prevalence of offences against the person committed in the most advantaged locations. In contrast, the proportion of offences within quintile 3 in 2017–18 (15.8%) was slightly greater than the proportion in 2008–09 (14.4%).

Table 19 Concentration of offences against the person within IRSAD quintiles, 2008–09 to 2017–18

		Offences against the person							
		2008–09		2011–12		2014–15		2017–18	
IRSAD Quintile		— *n* —	— % —	— *n* —	— % —	— *n* —	— % —	— *n* —	— % —
1	(Most disadvantaged)	10,719	35.3	11,103	36.8	10,396	37.1	12,783	35.2
2		7,194	23.7	7,019	23.2	6,605	23.6	8,617	23.8
3		4,358	14.4	4,295	14.2	3,899	13.9	5,747	15.8
4		3,894	12.8	3,907	12.9	3,732	13.3	4,785	13.2
5	(Most advantaged)	4,197	13.8	3,868	12.8	3,374	12.0	4,343	12.0
Total number of offences		**30,362**	**100.0**	**30,192**	**100.0**	**28,006**	**100.0**	**36,275**	**100.0**

Source: ABS 2033.0.55.001*, Census of Population and Housing: Socio-Economic Indexes for Areas (SEIFA), Australia*; QGSO, unpublished QPS data.

When examining the distribution of property offences within IRSAD quintiles, the data indicate that the distribution has become less equal over time (Table 20). When comparing 2008–09 with 2017–18, the most advantaged locations have experienced a slight reduction in the proportion of offences they have been exposed to, while the most disadvantaged locations have experienced a corresponding increase.

Table 20 Concentration of property offences within IRSAD quintiles, 2008–09 to 2017–18

	Property offences							
	2008–09		2011–12		2014–15		2017–18	
IRSAD Quintile	— *n* —	— % —	— *n* —	— % —	— *n* —	— % —	— *n* —	— % —
1 (Most disadvantaged)	53,169	26.5	62,047	27.7	57,502	29.2	68,616	28.4
2	42,639	21.2	46,021	20.5	42,033	21.4	51,066	21.2
3	31,601	15.7	36,407	16.3	31,055	15.8	38,386	15.9
4	35,956	17.9	40,110	17.9	34,115	17.3	44,948	18.6
5 (Most advantaged)	37,411	18.6	39,388	17.6	32,062	16.3	38,318	15.9
Total number of offences	**200,776**	**100.0**	**223,973**	**100.0**	**196,767**	**100.0**	**241,334**	**100.0**

Source: ABS 2033.0.55.001*, Census of Population and Housing: Socio-Economic Indexes for Areas (SEIFA), Australia*; QGSO, unpublished QPS data.

Despite fluctuating over time, the proportion of property offences that occurred in the most disadvantaged locations in 2008–09 (26.5%) was smaller than the corresponding proportion in 2017–18 (28.4%). In contrast, the proportion of property offences that occurred in the most advantaged locations in 2008–09 (18.6%) was greater than the proportion in 2017–18 (15.9%).

The distribution of "other offences" within locations based on their socio-economic classification is provided in Table 21, and indicates that this distribution has become more unequal. When comparing 2008–09 with 2017–18, the most advantaged communities have experienced a reduction in the proportion of other offences that occurred in these locations, while conversely, the most disadvantaged communities, experienced an increase. The proportion of other offences that occurred in the most disadvantaged locations consistently increased, from 31.7% in 2008–09 to 36.1% in 2017–18. In contrast, the proportion of other offences experienced by the most advantaged locations consistently decreased over time, from 13.6% in 2008–09 to 10.2% in 2017–18.

Table 21 Concentration of other offences within IRSAD quintiles, 2008–09 to 2017–18

	Other offences							
	2008–09		2011–12		2014–15		2017–18	
IRSAD Quintile	— *n* —	— % —	— *n* —	— % —	— *n* —	— % —	— *n* —	— % —
1 (Most disadvantaged)	22,600	31.7	23,437	34.6	28,083	35.8	31,745	36.1
2	17,181	24.1	15,980	23.6	19,048	24.3	22,323	25.4
3	11,388	16.0	10,885	16.1	12,090	15.4	13,351	15.2
4	10,485	14.7	9,216	13.6	10,442	13.3	11,604	13.2
5 (Most advantaged)	9,739	13.6	8,247	12.2	8,799	11.2	8,942	10.2
Total number of offences	**71,393**	**100.0**	**67,765**	**100.0**	**78,462**	**100.0**	**87,965**	**100.0**

Source: ABS 2033.0.55.001*, Census of Population and Housing: Socio-Economic Indexes for Areas (SEIFA), Australia*; QGSO, unpublished QPS data.

The distribution of drug offences within locations based on their socio-economic classification is provided in Table 22, and indicates that this distribution has become slightly more unequal. Despite fluctuating over time, the proportion of all drug offences that occurred in the most disadvantaged locations in 2008–09 (31.3%) was smaller than the corresponding proportion in 2017–18 (32.3%). Similarly, 22.9% of offences occurred in quintile 2 in 2008–09, compared with 24.7% in 2017–18. In contrast, the proportion of all drug offences that occurred in the most advantaged locations in 2008–09 (15.5%) was greater than the proportion in 2017–18 (13.7%).

Table 22 Concentration of drug offences within IRSAD quintiles, 2008–09 to 2017–18

		Drug offences							
		2008–09		2011–12		2014–15		2017–18	
IRSAD Quintile		— *n* —	— % —	— *n* —	— % —	— *n* —	— % —	— *n* —	— % —
1	(Most disadvantaged)	14,021	31.3	14,712	31.0	25,035	31.2	25,656	32.3
2		10,223	22.9	10,305	21.7	17,600	21.9	19,616	24.7
3		7,647	17.1	8,693	18.3	14,902	18.6	12,879	16.2
4		5,929	13.3	6,727	14.2	11,167	13.9	10,332	13.0
5	(Most advantaged)	6,915	15.5	7,009	14.8	11,518	14.4	10,852	13.7
Total number of offences		**44,735**	**100.0**	**47,446**	**100.0**	**80,222**	**100.0**	**79,335**	**100.0**

Source: ABS 2033.0.55.001*, Census of Population and Housing: Socio-Economic Indexes for Areas (SEIFA), Australia*; QGSO, unpublished QPS data.

Despite fluctuating over time, the proportion of all good order offences that occurred in the most disadvantaged locations in 2008–09 (33.0%) was similar to the corresponding proportion in 2017–18 (33.3%), while the proportion that occurred in the most advantaged locations in 2008–09 (16.1%) was slightly greater than the proportion in 2017–18 (15.3%) (Table 23). In contrast, there was a shift in the proportion of offences that occurred in quintiles 2 and 3. The proportion of offences that occurred in locations in quintile 2 in 2008–09 (23.3%) was less than the proportion in 2017–18 (27.1%). In contrast, the proportion of offences that occurred in locations classified in quintile 3 in 2008–09 (16.9%) was greater than the proportion in 2017–18 (12.6%).

Table 23 Concentration of good order offences within IRSAD quintiles, 2008–09 to 2017–18

		Good order offences							
		2008–09		2011–12		2014–15		2017–18	
IRSAD Quintile		— *n* —	— % —	— *n* —	— % —	— *n* —	— % —	— *n* —	— % —
1	(Most disadvantaged)	16,701	33.0	17,432	33.8	20,985	34.9	18,004	33.3
2		11,795	23.3	12,519	24.3	14,513	24.1	14,651	27.1
3		8,520	16.9	7,386	14.3	8,216	13.7	6,804	12.6
4		5,378	10.6	6,300	12.2	6,959	11.6	6,257	11.6
5	(Most advantaged)	8,148	16.1	7,906	15.3	9,499	15.8	8,276	15.3
Total number of offences		**50,542**	**100.0**	**51,543**	**100.0**	**60,172**	**100.0**	**53,992**	**100.0**

Source: ABS 2033.0.55.001*, Census of Population and Housing: Socio-Economic Indexes for Areas (SEIFA), Australia*; QGSO, unpublished QPS data.

In summary, when examining the distribution of offences across locations categorised by a location's socio-economic characteristics, the available data highlight two key findings. First, the most disadvantaged locations in Queensland are those that disproportionately experience the most crime, overall and within each offence category. In 2017–18, almost one-third of all reported offences (31.4%) were within the most disadvantaged locations, and this trend was consistent across offence categories (except for property offences):

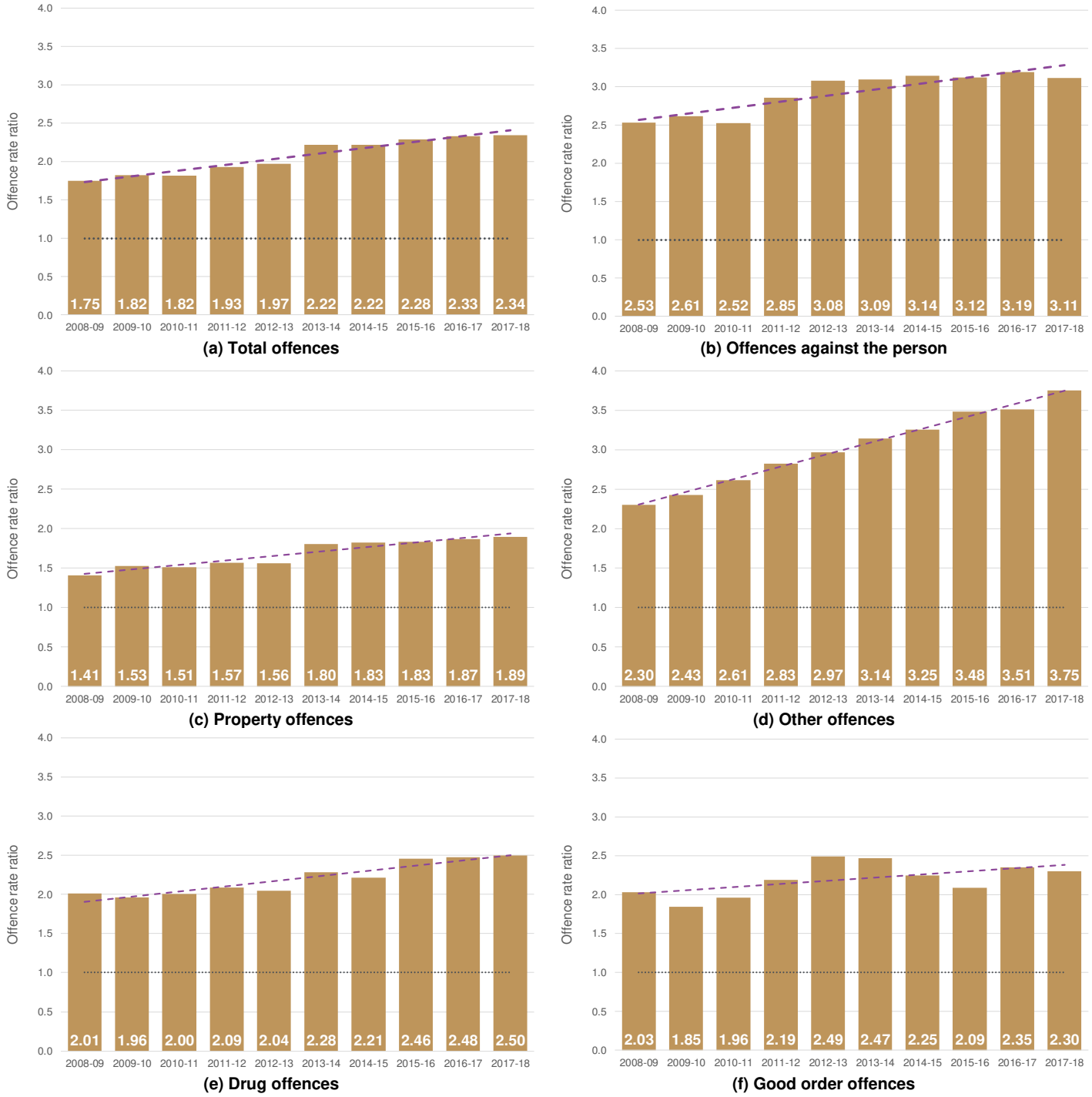
- offences against the person – 35.2% of all offences reported in the most disadvantaged locations
- property offences – 28.4% of all offences reported in the most disadvantaged locations
- other offences – 36.1% of all offences reported in the most disadvantaged locations
- drug offences – 32.3% of all offences reported in the most disadvantaged locations
- good order offences – 33.3% of all offences reported in the most disadvantaged locations.

The second key highlight in the findings is that the most disadvantaged locations tended to experience a greater proportion of all offences in 2017–18, when compared with 2008–09. The one exception to this was for offences against the person, where the proportion of offences experienced by the most disadvantaged locations was almost identical in 2017–18 (35.2%), when compared with 2008–09 (35.3%). In contrast, the most advantaged locations experienced a smaller proportion of all offences, regardless of the type of offence, in 2017–18 when compared with 2008–09. Based on these results, there appear to be indications that the gap in the amount of crime that the most disadvantaged locations are exposed to, relative to the most advantaged locations, is increasing.

4.5. Exploring the 'crime gap' between advantaged and disadvantaged communities

As discussed in Chapter 3 (section 3.2.4), the differential experience of locations to crime based on socio-economic status can be explored by calculating the offence rate ratio (ORR), which compares the offence rate of the most disadvantaged communities with that of the most advantaged communities in Queensland. The ORRs providing a measure of the differential experience of crime for communities based on socio-economic status are displayed in Figure 3. Six ORRs between the most disadvantaged and most advantaged communities in Queensland between 2008–09 and 2017–18 are plotted.

Figure 3 Offence rate ratios for offences, 2008–09 to 2017–18



Source: ABS 2033.0.55.001*, Census of Population and Housing: Socio-Economic Indexes for Areas (SEIFA), Australia*; QGSO, unpublished QPS data.

As indicated in Figure 3 (a), it appears there has been a differential experience of offences between the most disadvantaged and most advantaged communities over time, and that this gap is widening. In 2008–09, the offence rate in the most disadvantaged locations was 1.75 times greater than the offence rate in the most advantaged locations, while in 2017–18, the ORR was 2.34.

The ORR indicates that offences against the person are more prevalent in the most disadvantaged communities when compared with the most advantaged communities in Queensland (Figure 3 (b)). In 2008–09, the rate of offences against the person in the most disadvantaged locations was 2.53 times greater than the offence rate in the most advantaged locations, while in 2017–18, the ORR was 3.11.

The category of offences where there was the smallest gap in the exposure to crime between the most disadvantaged and most advantaged communities was property offences. In 2008–09, the rate of property offences in the most disadvantaged locations was 1.41 times greater than the offence rate in the most advantaged locations, while in 2017–18, the ORR was 1.89 (Figure 3 (c)).

As shown in Figure 3 (d), there have consistently been increases in the ORR for offences included in the "other offences" category. In 2008–09, the offence rate in the most disadvantaged locations was 2.30 times greater than the offence rate in the most advantaged locations, while in 2017–18, the ORR was 3.75.

In 2008–09, the rate of drug offences in the most disadvantaged communities was twice that of the most advantaged communities, and this remained stable until 2013–14, when there was an increase (Figure 3 (e)). In 2015–16, the ORR was 2.50 and has remained stable for the remainder of the 10-year reference period.

As shown in Figure 3 (f), the ORR for good order offences has fluctuated over the 10–year period. In 2008–09, the offence rate in the most disadvantaged locations was 2.03 times greater than the offence rate in the most advantaged locations. The ORR peaked at 2.49 in 2012–13, while in 2017–18, the offence rate was 2.30 times greater in the most disadvantaged communities when compared with the most advantaged communities.

While these results suggest a widening gap in the experiences of crime between the most disadvantaged and most advantaged communities in Queensland over time, this does not automatically indicate that the number of offences have increased in the most disadvantaged communities at a greater rate than in the most advantaged communities. Rather, a change in offence rate ratio might result from a range of factors. As the ORR is essentially a comparison of offence rates, a change in the numbers of offences or population change could impact the ratio. It is also possible that an increasing ORR might occur where the number of offences in the most advantaged communities decreases at a rate greater than a corresponding decrease in the most disadvantaged communities. Research has indicated that not all communities benefitted from drops in crime equally (Hunter and Tseloni 2016; McVie, Norris and Pillinger 2019; Nilsson, Estrada and Bäckman 2016; Papachristos, Brazil and Cheng 2018), and that such situations might result in an increasing ratio, despite the number of offences dropping overall.

An examination of the change in the number of offences and the population within the most disadvantaged and most advantaged locations in Queensland between 2008–09 and 2017–18 highlights that the widening of inequality of exposure to crime can be explained by a combination of these two factors (Table 24). First, there was a greater proportional increase in the population in the most advantaged communities (18.0%) than in the most disadvantaged communities (10.8%) when comparing 2008–09 with 2017–18. Had the offence numbers remained the same over the period, the offence rate ratio would have increased simply because of the greater increase in population in the most advantaged locations.

Second, in contrast to the increase in population, the most disadvantaged communities experienced a disproportionate increase in the number of offences that occurred in those locations than in the most advantaged communities, when comparing 2008–09 with 2017–18. In 2008–09, the total number of offences that occurred in the most disadvantaged locations was 117,210, while this figure had increased overall by 33.8% to 156,804 in 2017–18. In contrast, the number of offences that the most advantaged locations experienced had increased by 6.5% over this same period, from 66,410 in 2008–09 to 70,731 in 2017–18). Thus, the total number of offences increased at a greater rate in the most disadvantaged communities, when compared with the most advantaged communities.

Table 24 Offence rate ratio by socio-economic status and type of offence, 2008–09 and 2017–18

	2008–09		2017–18	
Offence type / IRSAD Quintile	Offence count	Rate per 1,000 persons [a]	Offence count	Rate per 1,000 persons [b]
Offences against the person				
Most disadvantaged	10,719	12.28	12,783	13.22
Most advantaged	4,197	4.85	4,343	4.25
Offence rate ratio		***2.53***		***3.11***
Property offences				
Most disadvantaged	53,169	60.91	68,616	70.97
Most advantaged	37,411	43.21	38,318	37.50
Offence rate ratio		***1.41***		***1.89***
Other offences				
Most disadvantaged	22,600	25.89	31,745	32.84
Most advantaged	9,739	11.25	8,942	8.75
Offence rate ratio		***2.30***		***3.75***
Drug offences				
Most disadvantaged	14,021	16.06	25,656	26.54
Most advantaged	6,915	7.99	10,852	10.62
Offence rate ratio		***2.01***		***2.50***
Good order offences				
Most disadvantaged	16,701	19.13	18,004	18.62
Most advantaged	8,148	9.41	8,276	8.10
Offence rate ratio		***2.03***		***2.30***
Total offences				
Most disadvantaged	117,210	134.28	156,804	162.19
Most advantaged	66,410	76.71	70,731	69.23
Offence rate ratio		***1.75***		***2.34***

Note: 18 SA2 locations with an ERP less than 250 were excluded because of the impact that changes in offence numbers have on rates.

(a) The mid-point ERPs for 2008–09 used in the calculation of the offence rates were: 872,846 for the most disadvantaged communities and 865,713 for the most advantaged communities.

(b) The mid-point ERPs for 2017–18 used in the calculation of the offence rates were: 966,776 for the most disadvantaged communities and 1,021,737 for the most advantaged communities.

Source: ABS 2033.0.55.001*, Census of Population and Housing: Socio-Economic Indexes for Areas (SEIFA), Australia*; ABS 3218.0*, Regional Population Growth, Australia*; QGSO, unpublished QPS data.

This pattern of a greater increase in offence rates within the most disadvantaged communities relative to the most advantaged communities, was evident across each of the five categories of offences:

- Between 2008–09 and 2017–18, the number of offences against the person experienced within the most disadvantaged communities had increased 19.3% overall, while it increased 3.5% overall in the most advantaged communities.
- Property offences in the most disadvantaged locations increased by 29.1% overall, compared with 2.4% in the most advantaged locations.
- The number of "other offences" decreased overall by 8.2% in the most advantaged communities, while the most disadvantaged communities experienced a 40.5% increase overall.
- Large overall increases in drug offences were recorded in both the most disadvantaged and most advantaged communities (83.0% and 57.0% respectively).
- Finally, the increases in good order offences in both communities was smaller than the overall increases in population within the respective communities, meaning that despite an increase in the number of offences, the offence rate per 1,000 people decreased overall between 2008–09 and 2017–18 for both communities.

5.0 Conclusion

This research report sought to examine whether there were locations within Queensland where offences tend to disproportionately concentrate, and whether these patterns have changed over time. Quantitative research methods were used to analyse police administrative data to examine the distribution of offences between 2008–09 and 2017–18 at the SA2 level. Multiple methods were applied to investigate how concentrated offences were within locations in Queensland, whether offences tended to concentrate within locations based on the socio-economic characteristics of the area, how stable these concentration patterns were over time, and whether there is an increasing inequality in the exposure to offences, between the most disadvantaged and most advantaged communities.

5.1. Key findings

Much like the existing literature on crime and place (Lee et al. 2017; Sherman, Gartin and Buerger 1989; Weisburd 2015), the research findings demonstrated that offences were clustered in a small number of geographic areas. The concentration of offences in Queensland, and the stability of these concentration patterns, have been examined in multiple ways within this report, including:

- by exploring SA2 locations with the highest offence rates per 1,000 population
- cumulative proportion of offences, relative to the proportion of population exposed to the crime
- the use of Lorenz curves and Gini coefficients to provide summary measures of equality in offence distributions
- offence rate ratios comparing offence rates in the most disadvantaged locations relative to the most advantaged communities.

The findings of the research report are summarised below.

5.1.1. Queensland locations with the highest offence rate

The SA2 locations that experienced the highest offence rates in 2017–18 in Queensland were explored, for total reported offences and by category of offence. These locations represent approximately 5% of all SA2 locations in Queensland with the highest rate of offences per population. For each of these tables, the rates for the other three reference points (2008–09, 2011–12 and 2014–15) were provided to allow the examination of trends over time.

The results indicate that, overall, very few places have trended consistently in either a downward or upward trajectory. Rather, the data indicate fluctuation in trends over time, for crime overall, and by offence category. An exception is provided when examining trends for locations with the highest rates of drug offences, where most locations displayed an overall increase over time.

In some instances, despite displaying high offence rates across all reference periods, some locations appear to be trending downwards. For example, the offence rate within the SA2 locations of Brisbane City, Fortitude Valley and Townsville City–North Ward have experienced overall decreases of between 32% and 46% over the 10–year reference period. Thus, while ranking locations based on the highest rates of offending can provide information at a snapshot in time, it is important to understand broader trends over time.

The results further highlighted that many of the locations with the highest overall offence rate in Queensland in 2017–18, were also more likely to have high offence rates across multiple offence categories. Seven SA2 locations experienced some of the highest offence rates for all offence categories, while a further seven had high rates of offences within four offence categories. This suggests that those locations that experience the highest rates of crime in Queensland tend to experience high rates of crime across multiple offence types.

5.1.2. Crime is becoming slightly less concentrated in locations (except for drug offences)

The concentration of offences was also examined through plotting cumulative proportions of offences (25%, 50% and 75% of all offences) with the relative proportion of the population that are impacted by those offences. This provides a measure of how concentrated offences are within locations, and also allows some examination of the temporal endurance of the concentration over time. The cumulative proportions were complemented with the use of Lorenz curves and an associated Gini coefficient, which provided a summary measure of how equal the offence distribution of offences was.

Overall, the results indicated that all offences had become slightly less concentrated within Queensland locations over time, as evidenced by the decreasing Gini coefficient values, and that the top 25%, 50% and 75% of offences have become more spread across locations, and therefore impact upon a larger proportion of the population.

The same pattern of offences becoming slightly less concentrated was evident for the distribution of four offence categories: offences against the person, property offences, other offences, and good order offences. In contrast to the other offence categories, the results indicated that drug offences had become slightly more concentrated over time, with the Gini coefficient increasing overall from .35 in 2008–09, to .37 in 2017–18. The cumulative proportion of the population that had been exposed to the top 25%, 50% and 75% of all drug offences had decreased when comparing 2008–09 with 2017–18, further indicating the increasing concentration of drug offences within locations. These results occur in a context of substantial increases in the number of drug-related offences between the two reference years. While increasing rates may be influenced by a range of factors, including police activities and the availability of illicit substances, slight increases in the concentration of drug offences could indicate that Queensland's illicit drug markets have not expanded in terms of geographical reach.[20]

5.1.3. Crime is becoming more prevalent in the most disadvantaged communities

The results indicated that the distribution of offences (except drug offences) had become less concentrated within locations over time. However, the analysis was unable to control for any of the characteristics of the areas in which offences occurred. Given the links between social disadvantage and crime, a third method was used to examine the distribution of offences. This method focused on the cumulative proportion of offences that occurred in locations categorised by their broad socio-economic conditions. The results demonstrated that, over time, the proportion of all offences that occurred in the most advantaged communities decreased slightly (from 16.7% in 2008–09 to 14.2% in 2017–18). In contrast, the proportion of all offences that occurred in the most disadvantaged communities increased slightly (from 29.5% in 2008–09 to 31.4% in 2017–18). This pattern, of an increased proportion of offences in the most disadvantaged communities and decreased proportion in the most advantaged communities, was evident across each offence category, but to differing magnitudes.

5.1.4. Increasing gap in the exposure to crime for the most disadvantaged communities

The findings also suggest that there is a widening gap in the exposure to crime between the most disadvantaged and most advantaged communities. In 2017–18, the offence rate in the most disadvantaged communities was more than double (ORR = 2.34) the offence rate within the most advantaged communities. The gap in offence rates was largest for the category of other offences (ORR = 3.75).

Between 2008–09 and 2017–18, the offence rate ratio increased overall for all offences and for each offence category. This increasing gap in the ORR for all offences has resulted from the combination of a greater increase in offences in the most disadvantaged communities compared with the most advantaged communities, coinciding with a greater proportional population increase within the most advantaged communities compared with disadvantaged communities.

5.2. Importance of the research

Despite analysing the concentration of offences in Queensland using a larger spatial area than is used to examine specific facilities or 'hot spots of crime', the findings align with the 'law of crime concentration' that there are some SA2 locations in Queensland where crime is particularly clustered. Further, the findings demonstrated that in some locations where crime was concentrated, these locations experienced high rates of crime across multiple offence types.

To date, little Australian research has examined the distribution of crime within locations, based on their socio-economic characteristics, nor how stable these patterns are over time. The findings highlighted that a greater proportion of crime is experienced in the most disadvantaged communities compared with the most advantaged communities in Queensland, with almost one-third (31.4%) of all offences reported to police in 2017–18 occurring in locations grouped within the lowest IRSAD quintile. Further, the proportion of crime that the most disadvantaged communities are exposed to has increased slightly over the past 10 years. When comparing the aggregate crime rates between the most advantaged and most disadvantaged communities, the data highlights a slight widening of the inequality to the exposure to crime, with the most disadvantaged communities experiencing a crime rate that is more than twice that of the most advantaged communities.

The relationship between the distribution of crime and social disadvantage, and the slightly higher exposure to crime experienced by Queensland locations characterised by social disadvantage highlights the importance of implementing crime reduction strategies that target individual, community and broader social issues. A model that supports an integrated-system approach that operates at multiple levels has been offered by Bjørgo (2016). This model brings together key elements of different crime prevention approaches (including the social, situational, and risk management

[20] Police operational task forces that focus on drugs can generate a large number of offences that can impact on the rates of offences.

models of crime prevention) and identifies nine crime prevention mechanisms intended to (a) prevent crime from occurring, (b) respond to crime once it has occurred and (c) prevent crime from happening again. The operationalisation of these mechanisms (reproduced below) clearly requires the involvement of all criminal justice agencies, however the participation of individuals, communities and other human service agencies is also apparent. They can be informed by local contexts, thereby supporting place-based responses to crime.[21, 22, 23]

Bjørgo's mechanisms for crime prevention

Mechanisms intended to prevent a criminal act occurring:

- building moral barriers
- reducing recruitment
- deterrence (general)
- incapacitation (proactive)
- disruption
- protecting vulnerable targets

Mechanisms once a criminal act has occurred:

- incapacitation (reactive)
- reducing harm

Mechanisms for preventing a criminal act occurring again:

- deterrence (specific)
- incapacitation (proactive)
- rehabilitation.

Source: Reproduced from (Bjørgo 2016, p.15).

[21] The *social crime prevention model* is based on developmental and life-course research that shows that certain experiences and social characteristics can be associated with crime. These experiences and characteristics are often referred to as criminogenic needs and can include issues such as poor school attainment, normative beliefs about violence, association with criminal peers, poor attachment to social institutions, inadequate behaviour management, substance misuse and adverse childhood experiences (National Crime Prevention 1999). The social crime prevention model advocates for addressing these issues as one of the best ways to prevent and respond to crime. For Aboriginal peoples and Torres Strait Islanders, this may also involve consideration of colonisation, loss of culture and discrimination (Richards 2015). Social crime prevention initiatives can be targeted at the micro (individual), meso (community and institutional) and macro (socio-economic structural) level (Bjørgo 2016, p. 11; Welsh and Farrington 2012).

[22] The *situational crime prevention model* focusses on removing opportunities for crime by changing the situations in which crimes occur. This may involve increasing the effort required to commit a crime, increasing the risk of being detected while committing a crime, reducing the benefits of crime, reducing provocations points that could trigger crime and removing the excuses for committing a crime (Bjørgo 2016, p. 12). Situational crime prevention has been criticised by some for not acknowledging the developmental and social factors that may contribute to crime (Wortley 2010).

[23] The *risk management crime prevention model* is similar to situational crime prevention and aims to reduce the threat of harmful events occurring to an acceptable level (Bjørgo 2016). These approaches have traditionally been used in relation to accidents or other unintentional incidents but are also relevant to certain types of security crimes (Bjørgo 2016).

5.3. Future research

The findings presented in the *Spatial and temporal distribution of reported offences in Queensland* highlighted areas that would benefit from further research in the Queensland context. These topics for future research build on some of the findings of the current research report and include:

- *Examining the distribution and concentration of crime at smaller spatial units*

  The aggregation of crime to large spatial units can mask patterns of concentration within the smaller spatial units that comprise the aggregate unit. That is, while a SA2 location may experience a large number of offences, within that unit there are likely to be smaller units that experience little or no crime, while others contribute a larger amount. Similarly, while the clustering of crime may change from one smaller unit to another, measures at the aggregated level would not change, and appear as though crime was stable over time. Because of the vastness of the area of Queensland, it was necessary to first examine the distribution of offences at a broad spatial unit. However, future research could use a more fine-grained approach by using a smaller spatial unit, and potentially specific areas, for examination.

- *Controlling for characteristics of the area that might impact on the offence rate*

  The analyses in this report were limited in the number of characteristics of the locations that could be controlled for, such as the broad socio-economic characteristics of the area obtained from the Census. Future research could control for more variables, including the demographics of the residents or people entering the area, understanding the social ecology or how land is used within the location, or how people interact with the environment. Specific land-use types that concentrate routine human activities in time and space have been found to act as major crime generators and attractors (Kimpton, Corcoran and Wickes 2016; Kinney et al. 2008).

- *Controlling for population mobility and ambient populations to better understand the distribution of crime and provide better accuracy for offence rates*

  Related to the previous point, future research may be able to use an estimate of the population within locations that account for how people move during their everyday activities (Malleson and Andresen 2016).

- *A better understanding of offenders' journey to offending, including the distance and mode of transport*

  Future research could benefit from understanding the distance that offenders travel to commit offences, and how they travelled to the location, such as the use of public transport (Ackerman and Rossmo 2015). This data might help inform prevention strategies and locations for place-based strategies, as offenders do not necessarily offend close to where they live.

- *Examining for differences in patterns of offence distribution between youth and adult offenders*

  The offence data used in this project are aggregated, regardless of the age of the offender. Given that existing research examining the crime drop in other locations found that declines in crime have, in part, been driven by a decrease in offending by young people (Griffiths and Norris 2019; Matthews and Minton 2018; Payne, Brown and Broadhurst 2018), understanding patterns of offence distribution by age may help identify targeted crime prevention interventions.

Glossary and explanatory notes

Glossary

Ambient population: refers to the non–resident, mobile population in an area. Some locations draw larger populations at various times of the day and week, due to people commuting or travelling between locations as part of their daily lives. This means that in some locations there is a larger population at exposure to crime than just those people who reside in that location.

Differential experience: refers to the amount of crime that different communities experience, relative to others. In this report, a specific focus is on whether communities experience a different volume of crime based on the socio-economic conditions of the location. See *offence rate ratio*.

Ecological fallacy: a type of faulty reasoning in the interpretation of aggregated data, when data that exist at a group or aggregate level are analysed and generalised as though they automatically apply at the level of the individuals who make up those groups.

Estimated resident population (ERP): the official measure of the population of Australia based on where people usually live. This figure is used as the denominator in the calculation of offence rates for locations. Calculations of the ERP for Queensland are published by Queensland Government Statistician's Office (QGSO).

Gini coefficient: is a numeric value ranging between 0 (perfect equality) and 1 (perfect inequality) that expresses the degree of concentration of a variable within a distribution. In this instance, a value of 0 indicates that that there is no concentration, and all offences are distributed equally across locations, while a value of 1 indicates that maximum concentration has occurred, and all offences occur in a single location.

Index of Relative Socio-economic Advantage and Disadvantage (IRSAD): an index that provides an indication of the relative socio-economic advantage or disadvantage of a location, ranking on a continuum from most disadvantaged to most advantaged. It was developed by the ABS as part of SEIFA that summarises variables collected from households during the Census. See *Socio-Economic Indexes for Areas (SEIFA)*.

Lorenz curve: a representation of the cumulative distribution of a variable compared with the cumulative distribution of units of analysis. It is often used to visualise inequality or the distribution of a variable. In this report, Lorenz curves plotted the number of reported offences compared with the proportion of the estimated resident population in the locations affected. This provides a visual representation of how offences are distributed across SA2 locations and the estimated resident population within those locations.

Offence rate ratio (ORR): a figure that represents the difference in the experiences of crime for one group, relative to another. In this report, the ORR is used to examine if there is a differential experience of crime for the most disadvantaged locations relative to the most advantaged locations, within Queensland. This rate ratio is calculated by dividing the aggregated offence rate for the most disadvantaged locations by the offence rate for the most advantaged locations.

Place-based initiatives: are interventions designed and delivered with the intention of targeting specific geographic locations and population groups in response to complex social problems.

Quintile: where a population is divided into five equal groups (with 20% in each group) according the distribution of a variable.

Reported offences: offences which have been reported to or detected by police. Also referred to as recorded offences.

Residential stability: refers to how long residents remain in the same location. Research has found links between residential instability (or people frequently moving in and out of an area) and decreases in informal social control (the degree to which there is conformity or shared beliefs among citizens to norms and laws). Neighbourhoods with greater residential stability may foster closely-knit communities that provide support to their fellow residents and promote shared feelings of attachment to the community.

Social disadvantage: while difficult to provide a clear definition of this term, social disadvantage refers to dimensions beyond the traditional factors associated with economic factors, such as low income and high levels of unemployment. Rather, this view adopts a broader conception that refers to the complex cluster of factors that make it difficult for people living in certain areas to achieve positive life outcomes. In this way, social disadvantage emerges out of the interplay between the characteristics of the residents in a community (e.g. employment, education levels, drug and alcohol use) and the effects of the social and environmental context in which they exist, such as weak social networks and a relative lack of opportunity (Price-Robertson 2011; Vinson et al. 2015).

Socio-Economic Indexes for Areas (SEIFA): a set of four indexes developed by the ABS that enables the ranking of locations in Australia relative to socio-economic advantage and disadvantage. Each index is based on information collected during the Census, focused on a specific aspect of socio-economic advantage and disadvantage. Of the four indexes, the IRSAD is used in this report to classify SA2 locations into quintiles. *See Index of Relative Socio-Economic Advantage and Disadvantage (IRSAD).*

Statistical area level 2 (SA2): a spatial unit of the Australian Statistical Geography Standard, devised by the ABS to commonly report values of data. While the area and population size of these units vary, their purpose is to represent a community that interacts together socially and economically.

Notes

Rates are calculated to show the frequency of an event (e.g. crime) occurring for a population during a period. Rates are calculated per 1,000 persons, using the estimated resident population (ERP) of the specified region, published by the ABS. As ERPs provide estimates as at 30 June, financial year ERPs were used in the calculation of offence rates and obtained by calculating the average or mid-point ERP as at 31 December (i.e. the average of ERP in the June preceding, and the June following).

The **offence rate** is calculated as:

$$\frac{\text{number of offences}}{\text{ERP}} * 1{,}000$$

The **three-year moving average offence rates** were calculated by taking the average of the offence rates over a three-year period. As an example, the 2011–12 offence rate is calculated by taking the average offence rate for the 2009–10, 2010–11 and 2011–12 financial years.

The **offence rate ratio** used to examine the relative exposure to crime of the most disadvantaged locations, relative to the most advantaged locations is calculated as:

$$\frac{\text{offence rate for IRSAD 1 quintile}}{\text{offence rate for IRSAD 5 quintile}}$$

where the offence rate for the quintiles is calculated by using the aggregated numbers (e.g. offence totals and ERP totals) for all SA2 locations that have been classified by the IRSAD as being in each quintile.

The **Gini coefficient** was calculated with the equation provided by Delbosc and Currie (2011):

$$G = 1 - \sum_{k=1}^{n} (X_k - X_{k-1})(Y_k + Y_{k-1})$$

where X_k is the cumulated proportion of the population variable, for $k = 0, \ldots, n$, with $X_0 = 0$, $X_n = 1$, and Y_k is the cumulated proportion of the offences variable, for $k = 0, \ldots, n$, with $Y_0 = 0$, $Y_n = 1$.

The standard error for the Gini and the statistical test used to test the magnitude of the difference between two Gini coefficients were calculated based on the information provided by Davidson (2009).

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Appendix A: Lorenz curves plotting the cumulative distribution of offences across SA2 locations

This appendix contains six figures, each containing a Lorenz curve plotting the cumulative proportion of offences against the cumulative proportions of the resident population exposed to those offences. The Gini coefficient (*G*) provides a summary measure of the level of inequality in offence distribution, where a higher score indicates more inequality (or concentration of offences within fewer locations and people), while a lower score indicates less equality (or offences being spread across more locations and impacting upon more people).

The figures in this section include the following:

Figure A1 Lorenz curve and Gini coefficient for total offences, for each reference period

Figure A2 Lorenz curve and Gini coefficient for offences against the person, for each reference period

Figure A3 Lorenz curve and Gini coefficient for property offences, for each reference period

Figure A4 Lorenz curve and Gini coefficient for other offences, for each reference period

Figure A5 Lorenz curve and Gini coefficient for drug offences, for each reference period

Figure A6 Lorenz curve and Gini coefficient for good order offences, for each reference period

Figure A1 Lorenz curve and Gini coefficient for total offences, for selected reference periods

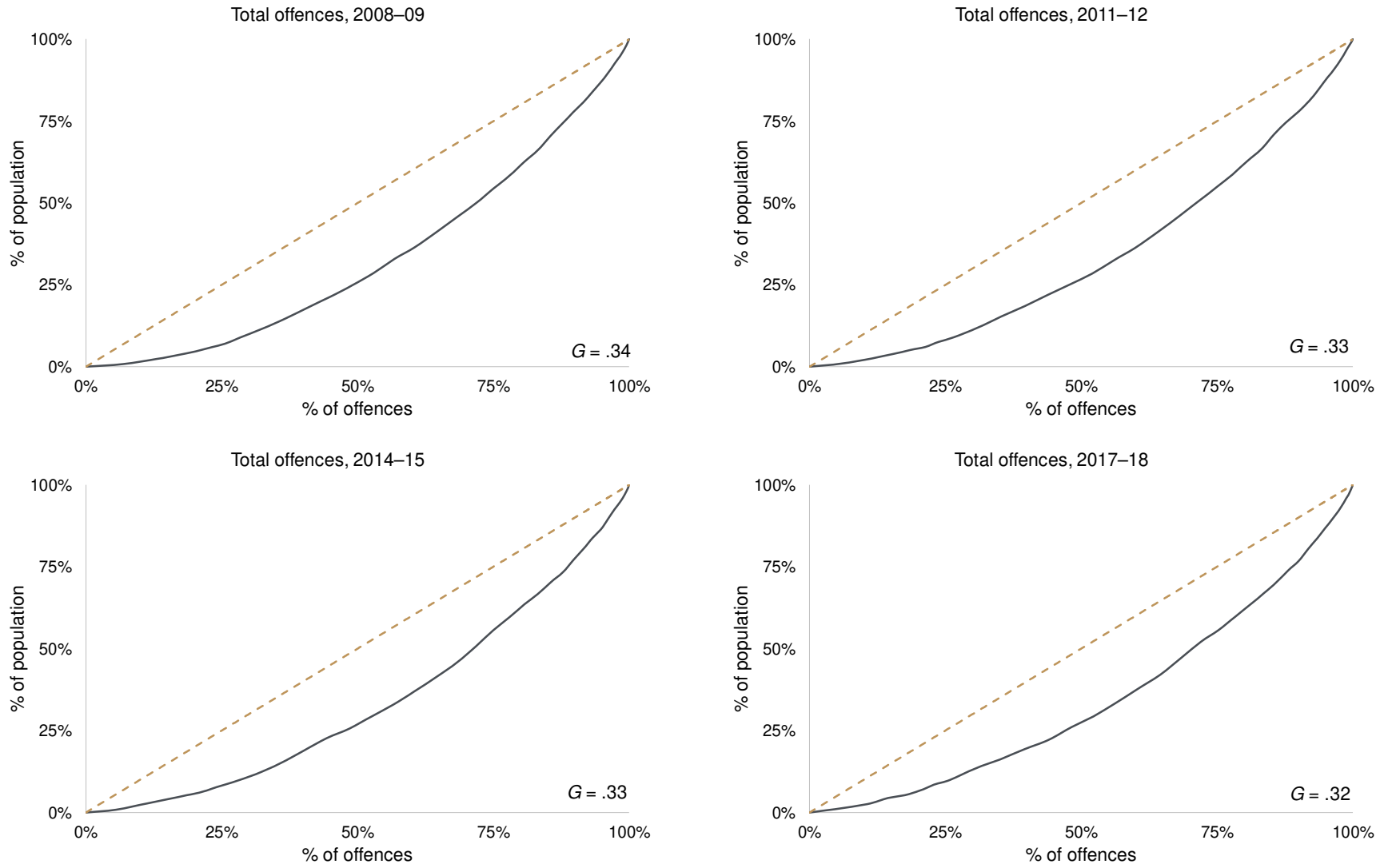


Figure A2 Lorenz curve and Gini coefficient for offences against the person, for selected reference periods

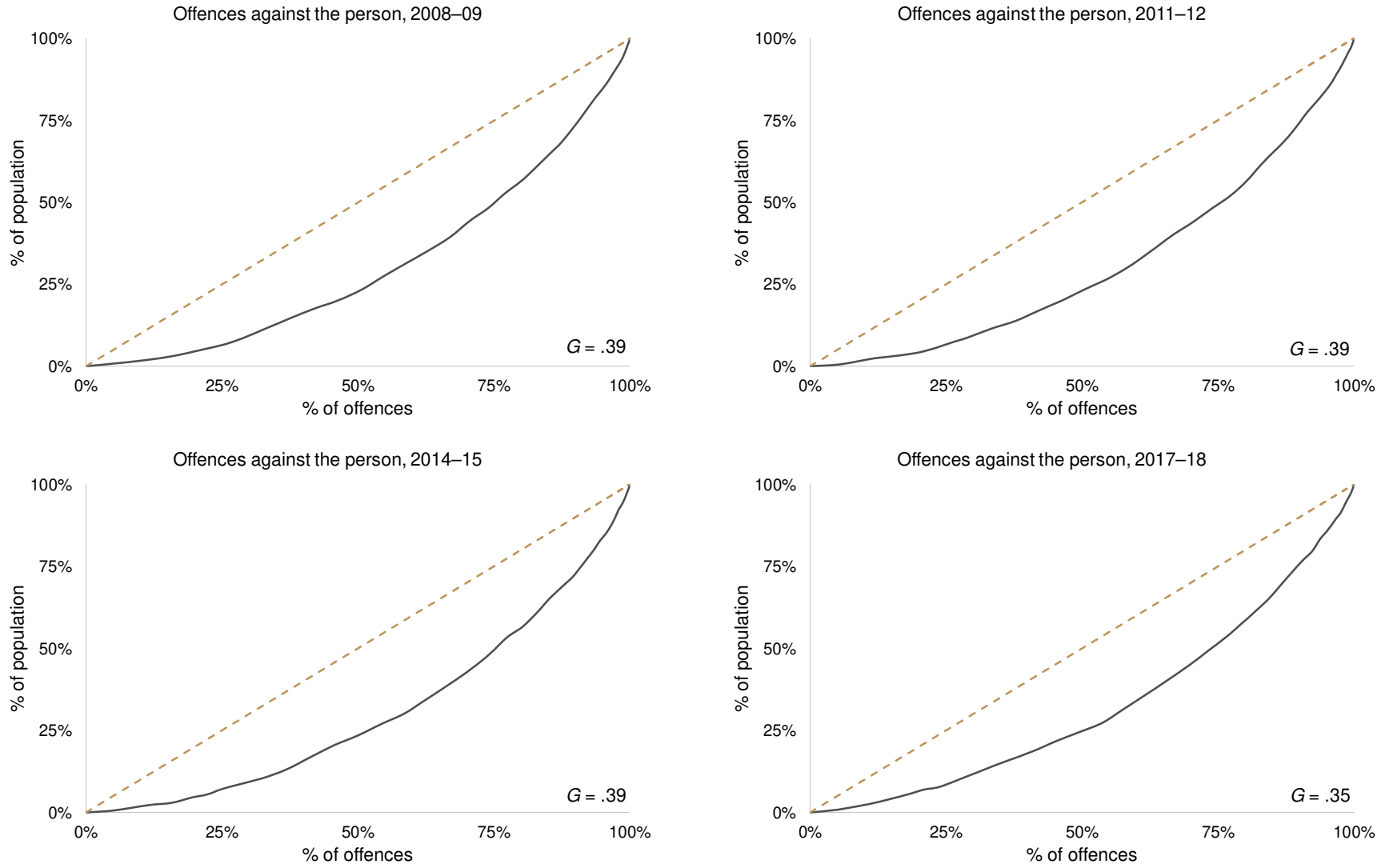


Figure A3 Lorenz curve and Gini coefficient for property offences, for selected reference periods

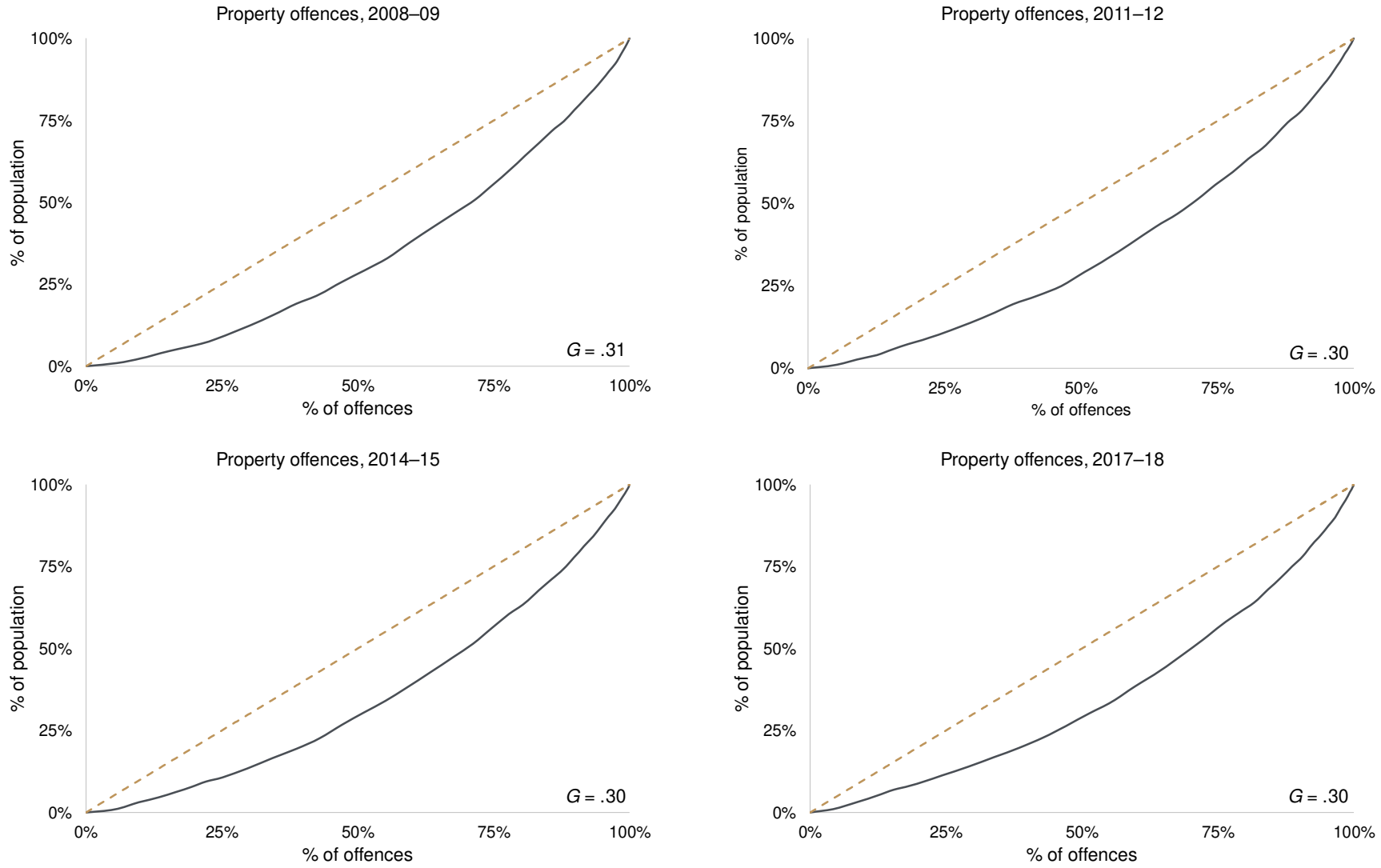


Figure A4 Lorenz curve and Gini coefficient for other offences, for selected reference periods

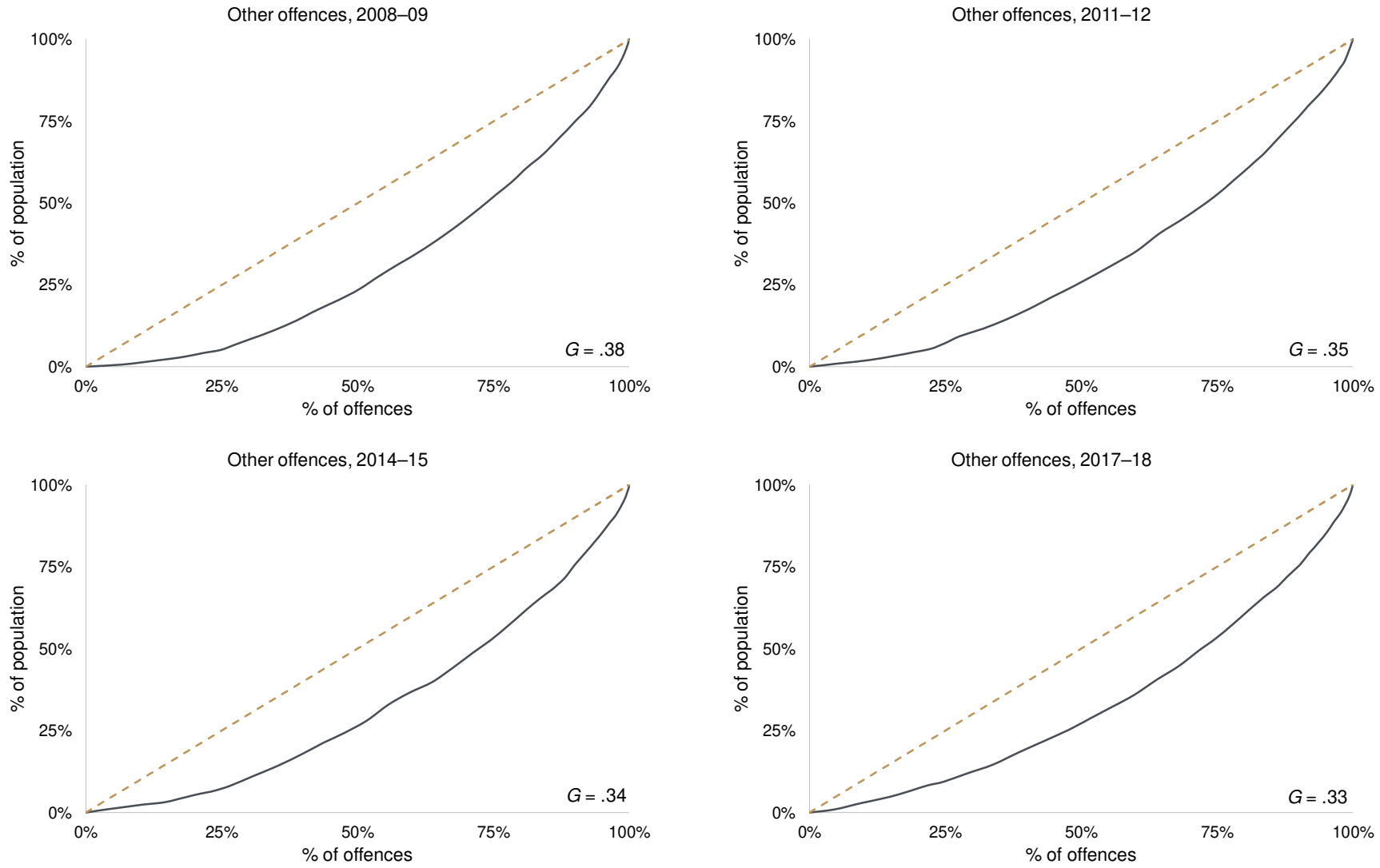


Figure A5 Lorenz curve and Gini coefficient for drug offences, for selected reference periods

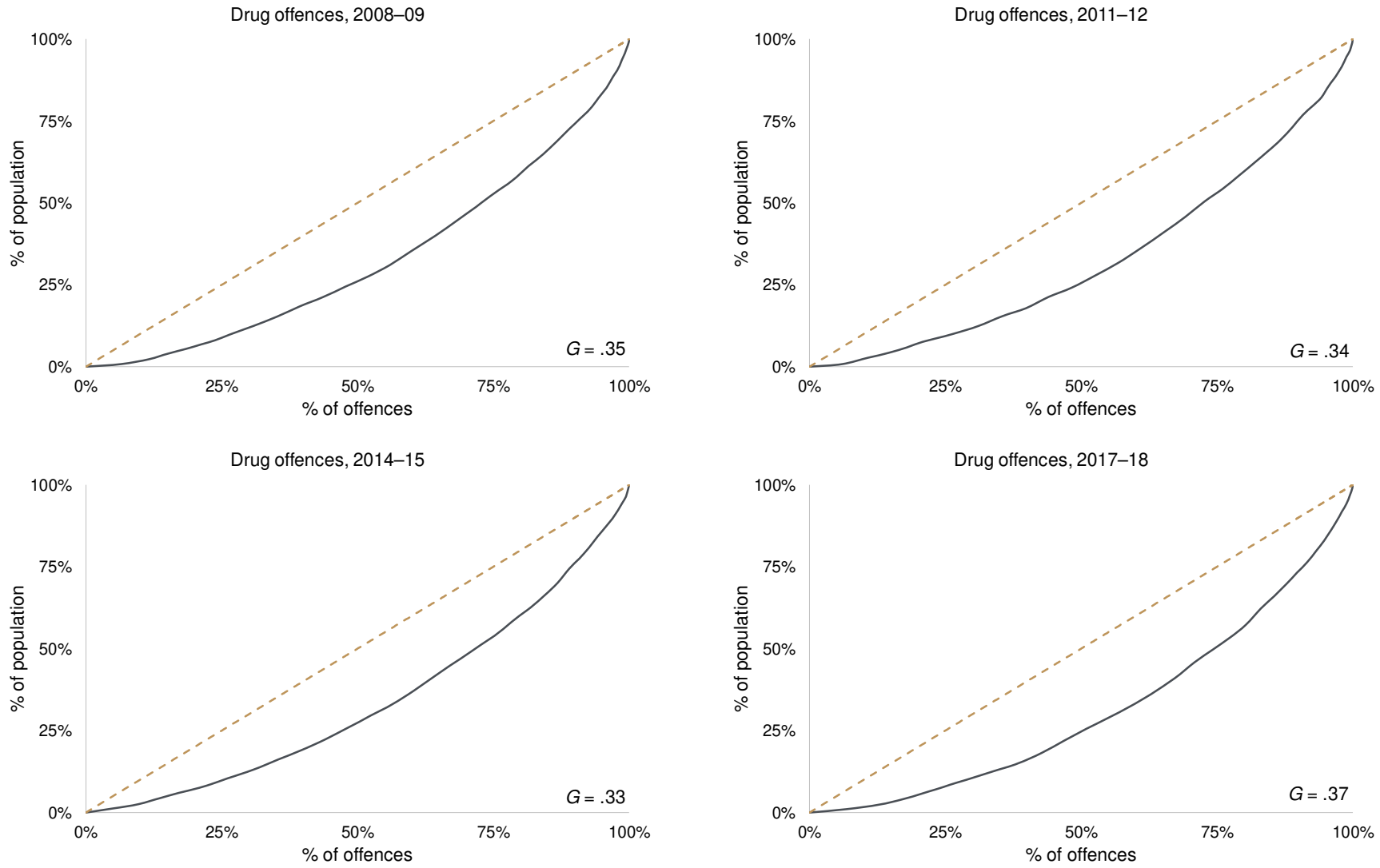
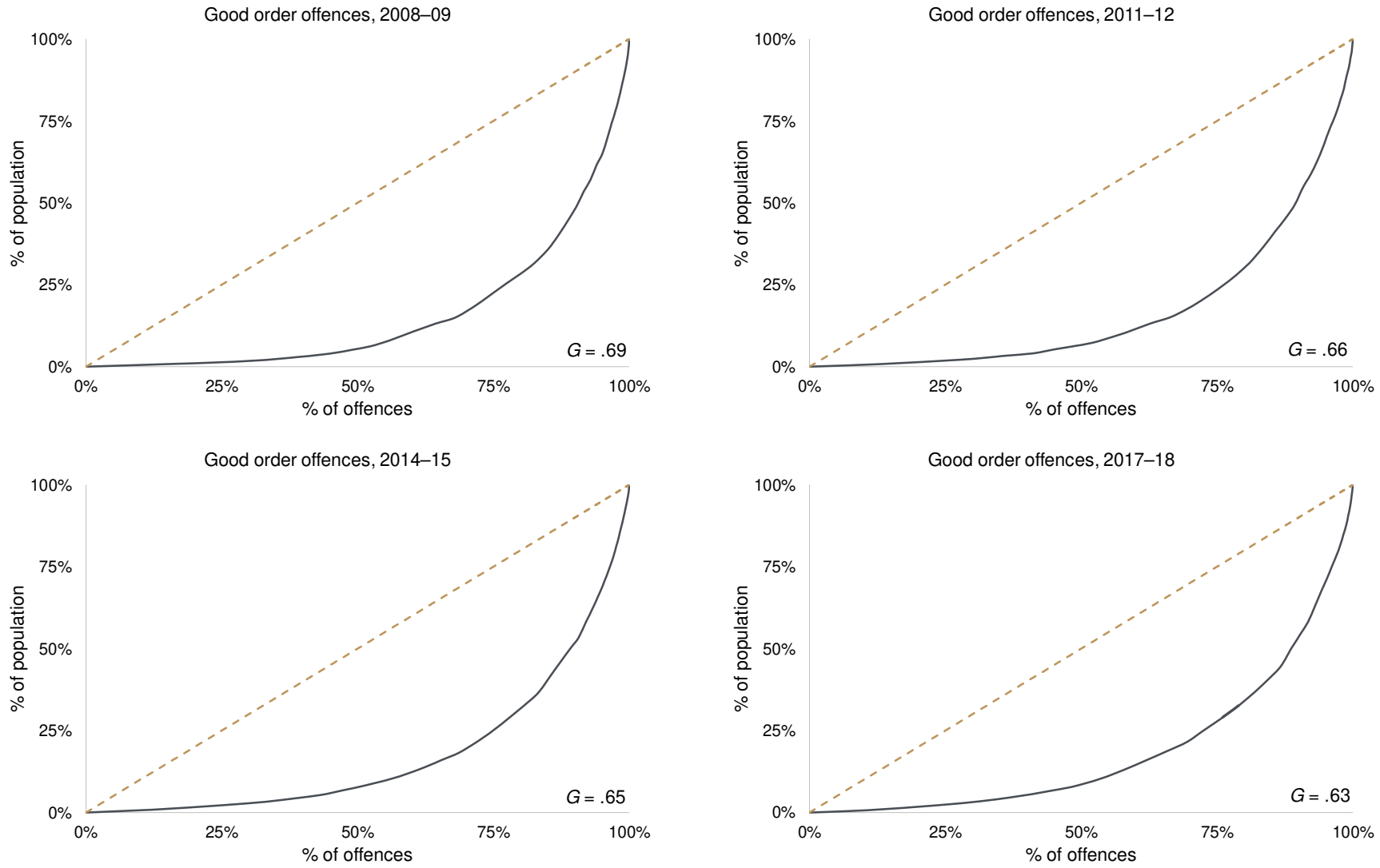


Figure A6 Lorenz curve and Gini coefficient for good order offences, for selected reference periods



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