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Examining the Role of Police-Led Diversion in the Youth Crime Decline in Australia: A Macro-Level Longitudinal Analysis

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ABSTRACT

While the causes of the international youth crime decline have been disputed, it has been proposed that changing policing responses may have contributed. This study examines whether increased rates of police-led diversion have contributed to the youth crime decline in Australia. Fixed effects panel regressions were undertaken to examine the association between police diversion rates and youth offending prevalence and reoffending across regions in New South Wales and Victoria from 2005 to 2019. A significant decline in youth offending prevalence in this period was found but also a decline in police diversion rates for young people, and there was a lack of association between diversion rates and youth offending prevalence. In contrast, youth reoffending increased during this period. Notably, regions with higher diversion rates had significantly lower levels of youth reoffending. Findings suggest that police-led diversion is unlikely to have played a primary role in the Australian youth crime decline but may have reduced growth in reoffending in regions where it was used more frequently. Findings also indicate that youth offending declines have been socioeconomically conditioned. Implications for the causes of the youth crime decline and policing responses to young people are discussed.

KEYWORDS

Youth offending; youth crime decline; deliquency; police-led diversion; policing

Declines in offending behavior by young people over the past 20 to 30 years have been observed across many Western countries, including the United States (US), United Kingdom (UK), a range of European countries, and Australia (Farrell et al., 2014; Nilsson et al., 2017; Payne et al., 2018). Despite being referred to as "the most important criminological issue of modern times" (Farrell et al., 2015, p. 1), limited empirical work has examined the potential causes of this decline and there remains a lack of consensus about what has driven these changes (Svensson & Oberwittler, 2021). Scholars have focussed on a number of explanatory themes, including the role of increased securitization of property in reducing opportunities for property crime (Farrell et al., 2015), the role of changes in the routine activities and social contexts for young people in reducing their exposure to higher risk criminogenic social settings (Baumer et al., 2021; Svensson & Oberwittler, 2021; Van

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der Laan et al., 2021), and the role of changes in criminal justice responses including policing approaches, to youth offending behavior (McAra & McVie, 2019; Neil & Sampson, 2021). Explanations that reference changes in criminal justice system responses have varied in their description of what specific changes may have reduced youth offending (Van der Laan et al., 2021); however, it has been proposed that reductions in aggressive law enforcement approaches and increased use of criminal justice diversion is likely to have reduced young people's contact with the criminal justice system (Bateman, 2014; Griffiths & Norris, 2020; McAra & McVie, 2019; Neil & Sampson, 2021). While changes in the nature of criminal justice responses involving children and young people have been posited as a key contributor to the youth crime decline (Bateman, 2014; Griffiths & Norris, 2020; McAra & McVie, 2019; Neil & Sampson, 2021), there has been limited direct empirical interrogation of whether reductions in aggressive policing or formal criminal justice responses to youth offending is associated with the youth crime decline.

The proposition that increases in criminal justice diversion could at scale produce significant reductions in the volume of youth offending within a jurisdiction is supported by theory and empirical evidence on the effects of youth diversion on reductions in youth reoffending (McAra & McVie, 2019; Wilson et al., 2018). Increased use of diversion or informal processing should lead to a greater number of young people avoiding the potential criminalizing effects of criminal justice system exposure. Exposure to formal criminal justice processing among youth has been associated with consolidation of an offending identity, disruption of prosocial bonds and attachments, short- and long-term negative impacts on educational and employment pathways, and increases in social networks of deviant peers—all factors that can contribute to greater risks of reoffending (McAra & McVie, 2019; Rowan et al., 2023; Wilson et al., 2018). While criminal justice diversion can occur at many points in the criminal justice processing pathway, police-initiated diversion constitutes the first and most frequently used mechanism to divert young people from further criminal justice system contact and so is likely to be implicated in any large-scale changes to youth offending behavior. Indeed, findings from Neil and Sampson (2021) suggest less aggressive police enforcement responses to youth offending behavior, particularly for drug offenses, is one likely driver of the youth crime decline in the United States.

This study contributes to the limited evidence on the drivers of the youth crime decline by directly examining whether changes in the extent of police diversion of youth offending in recent years may be one explanatory factor for the decline in youth offending observed in Australia. While criminal justice responses have been posited as a key contributor to the youth crime decline in the United States and the United Kingdom (Griffiths & Norris, 2020; McAra & McVie, 2019; Neil & Sampson, 2021), these studies have been limited to descriptive analyses or analysis of changes in more general police enforcement to infer relationships with youth offending patterns, an approach that does not preclude the possibility of spurious correlations. Given widespread and reasonably concurrent declines in youth offending across so many Western countries in recent decades, a key question that arises is whether policing responses or diversionary practices would have changed in uniform ways across these jurisdictions, representing a broad secular shift in policy responses to youth offending, such that it could account for a key driving factor in widespread youth offending declines. The current study provides an ideal opportunity to test this directly, by examining trends in police diversion and its relationship to youth offending trends in a sample drawn from the two Australian jurisdictions with the largest populations—New

South Wales (NSW) and Victoria (VIC), during a period when declines in youth offending were observed. Before outlining our methods and findings, we provide an overview of findings on the youth crime decline, and the impact of police-led diversion, in the following sections.

Declines in youth offending

Fewer young people have been having contact with the criminal justice system or reporting offending behavior across a large number of international jurisdictions since around the late 1990s or early 2000s, including the United States, United Kingdom, a number of European countries, and Australia (Baumer et al., 2021; Farrell et al., 2014; McAra & McVie, 2019; Nilsson et al., 2017; Svensson & Oberwittler, 2021; Van der Laan et al., 2021). The unprecedented decline in youth offending has been observed across different data sources, including different forms of criminal justice system and self-report data (Baumer et al., 2021; Farrell et al., 2014; Keyes et al., 2018; Matthews & Minton, 2018; McCarthy, 2021; Neil & Sampson, 2021; Payne et al., 2018; Svensson & Oberwittler, 2021; Van der Laan et al., 2021). This drop in youth offending has attracted notable commentary and hypothesizing from criminology scholars (Baumer et al., 2018; Farrell et al., 2014). Several studies have suggested that the declines represent primarily a drop in youth offending prevalence rather than frequency—suggesting a shrinkage of the total number of young people who ever engage in offending behavior—rather than a decline in repeat offending (Matthews & Minton, 2018; McCarthy, 2021; Payne et al., 2018). Aligned to this, recent research in Australia and the United Kingdom suggests that the declines represent primarily low level or adolescent-limited offending rather than more persistent or chronic offending among young people (Matthews & Minton, 2018; McCarthy, 2021; Payne et al., 2018).

Explanations for the youth crime decline

Changes in exposure to offending risks and opportunities

Several theories and explanations have been proposed to account for the decline in youth offending, with many explanations suggesting that the decline is related to transformations in the social and technological ecology of youth development, which has reduced young peoples' exposure to risks and opportunities for offending. These explanations have attracted the bulk of the limited empirical scholarship on the youth crime decline (Baumer et al., 2021; Farrell et al., 2014, 2015; Keyes et al., 2018; Svensson & Oberwittler, 2021; Van der Laan et al., 2021).

The security hypothesis proposes that the introduction of increasingly effective property security technology has changed the opportunity structure for youth crime, which mostly consists of property crime (Farrell et al., 2014, 2015). The impact of enhanced security measures on crime is exemplified by the introduction of engine immobilization technology in cars, which was associated with notable declines in vehicle theft following its introduction in many countries in the late 1990s and early 2000s. It is argued that security technology improvements have substantially increased the effort and risk associated with property crime and reduced the potential reward that can be gleaned, thus, deterring opportunistic property offending by young people (Baumer et al., 2018; Farrell et al., 2015). Property crime is the most common type of crime among young people, so it is possible that dramatic

changes to the opportunity structure for property crime could impact overall youth offending rates (Farrell et al., 2015). However, recent research suggests some groups of young people are engaging more frequently in property crime, suggesting that the impact of securitization technology on youth crime has not been uniform (McCarthy, 2021).

A further transformation to the social and technological ecology for youth development resulted from the expansion of high-speed internet access and introduction of smart-phone technology (Twenge et al., 2018). Smart-phone adoption among adolescents escalated following its introduction in around 2008, and is argued to have had significant impacts on youth social behavior and recreational activities (Svensson & Oberwittler, 2021; Twenge et al., 2018). A notable change to adolescent routine activities is that young people now spend more of their leisure time at home, and engage more in digitized social contact, rather than in-person contact, with peers (Svensson & Oberwittler, 2021; Van der Laan et al., 2021). In combination with shifts in parenting norms, these changes appear to have contributed to young people also spending much greater time under parental supervision than was common in older cohorts (Svensson & Oberwittler, 2021). Unstructured socializing with peers has traditionally been a setting wherein youth antisocial and offending behavior flourishes, as peers are exposed to greater opportunities and situational pressures to engage in delinquency and substance abuse, away from the oversight or interference of adults (Baumer et al., 2021; Svensson & Oberwittler, 2021). Recent research from the United States and European countries indicates that changes in routine activities are associated with reductions in self-reported delinquency from older to more recent birth cohorts, including a reduction in unstructured social time spent with peers, fewer "nights out," less alcohol consumption, increased parental supervision and greater engagement with educational institutions (Baumer et al., 2021; Keyes et al., 2018; Svensson & Oberwittler, 2021; Van der Laan et al., 2021).

Changes in criminal justice diversion

Declines in youth offending observed across multiple jurisdictions may also be due to changes in criminal justice policies, specifically movements to promote and enhance diversionary approaches and reductions in aggressive law enforcement approaches by police (Armytage & Ogloff, 2017; Bateman, 2014; McAra & McVie, 2019; Neil & Sampson, 2021). Diversion refers to programs and strategies that aim to minimize an individual's exposure to the criminal justice system by serving as an alternative approach to traditional criminal justice processes. Diversion programs are heterogenous and can occur at different stages within the criminal justice system including prearrest/precharge, postcharge/precourt and pre- or postadjudication. A useful distinction is to frame diversion in terms of whether it involves "diversion from" or "diversion to" the criminal justice system (Richardson & McSherry, 2010). *Diversion from* involves diverting individuals away from the criminal justice system with the aim to prevent or minimize initial contact at the earliest stages of police contact. In contrast, *diversion to* refers to redirecting individuals to specific diversionary programs or interventions that aim to target the underlying factors that contribute to an individual's involvement in criminal behavior (Richardson & McSherry, 2010). Typically, police-led youth diversion options focus primarily on "diversion from" the criminal justice system. However, in practice pre- or postcharge diversion can encompass a variety of approaches, ranging from minimal police contact, such as cautions (considered "true diversion" because it minimizes further exposure to the criminal

justice system), to more-involved but time-limited interventions that can be rehabilitative or restorative in design, such as Restorative Justice Conferencing or diversion to a one-off assessment by a specialist health provider for young people charged with a low-level drug offense (e.g., drug possession) for certain proscribed illicit drugs (Harmon-Darrow et al., 2023; Wilson et al., 2018).

Empirical evidence indicates that diversion programs are an effective approach to reducing youth reoffending (Harmon-Darrow et al., 2023). A systematic review of police-initiated diversion of low-level youth offending suggested that these programs were in general associated with significant reductions in youth reoffending (Wilson et al., 2018). Youth Justice Conferencing, a diversion program that focuses on engaging young people in a restorative justice process with their victims, has been found to have modest reductions on reoffending for young people compared to traditional justice pathways (Sherman et al., 2015). Similarly, studies have found that young people who are cautioned display a longer time to reoffending and a reduced volume of offending overall (Dennison et al., 2006; Wilson et al., 2018).

A number of scholars have proposed a causal connection between an increased policy focus on youth diversion in recent decades and changes in youth offending trends, with increased criminal justice diversion argued to be influencing a decline in the "stock" (i.e., absolute number of entrants) and a diminishing "flow" (i.e., formal processing from arrest to conviction to imprisonment) within the criminal justice system (Griffith & Norris, 2020; McAra & McVie, 2019; Shirley, 2017). In the United Kingdom, the number of first-time system entrants to the criminal justice system declined by 78% between 2008 and 2009 and between 2015 and 2016; custody rates also declined notably over this time (McAra & McVie, 2019). This period corresponded with significant policy changes implemented in 2008 driven by the Youth Crime Action Plan, which focused on crime prevention, nonnegotiable support, and tough enforcement (McAra & McVie, 2019). Further system changes included reducing the number of out-of-court disposals with available actions including no further action, youth cautions, conditional cautions (e.g., precharge/postdiversion programs) and community resolutions (e.g., Restorative Justice Conferences) (Neyroud, 2018). Similarly, Scotland also experienced declines in youth offending coinciding with a renewed emphasis on youth diversion, as have other European jurisdictions (see Matthews & Minton, 2018; McAra & McVie, 2019). In Chicago, United States, Neil and Sampson's (2021) examination of youth birth cohorts born between 1980 and 1995 found that declines over time in the intensity or aggressiveness of police responses within the young persons' residential neighborhoods (i.e., proportion of offenses resulting in arrest) were associated with declines in arrest rates, particularly related to drug law enforcement, for the younger cohorts.

Australia has experienced similar reductions in the number of young people having contact with the youth justice system in recent decades, with changes to policing approaches posited as a potentially critical contributor (Payne et al., 2018; Shirley, 2017). There have been considerable variations in youth justice legislation and policy across Australian jurisdictions over the past 20 to 30 years, with regular "tough on crime" political campaigns. It is difficult to discern from publicly available documents whether there has been an overall broad policy or practice shift in increased use of police-led diversion across Australia the last two decades. In the state of Victoria, the number of cases sentenced in the Victorian Children's Court has significantly decreased since 2007, with the decline being attributed to societal factors as well as proactive steps from police to enhance diversionary practices, in

particular, increased use of cautioning (Armytage & Ogloff, 2017). Conversely, the youth crime decline in New South Wales has been posited as being driven in part by factors such as increased police presence, as well as increased arrests and associated increases in incarceration and incapacitation (Payne et al., 2018).

There are notable differences in youth diversion programs across Australian states and territories, and existing programs have been criticized for being underutilized or not implemented systematically, with variations in police practices around diversion, irrespective of policy directives (Green et al., 2020). For this reason, a police agency's diversion policy does not always accurately represent its use of diversion in practice. There have also been concerns about disparities in the application of police diversion in Australia, particularly for First Nations young people, who have been found to be less likely to receive a caution or a diversionary option, including for their first offense (Allard et al., 2010; Papalia et al., 2019). Proposed reasons for these disparities include officer bias, the lack of availability of some diversion options in regional and remote communities where there can be concentrations of First Nations youth, psychosocial factors that can make diversion challenging (e.g., homelessness), the seriousness of the offending behavior, and a lack of trust between First Nations young people and police (Cunneen, 2006; Green et al., 2020; Little et al., 2011; Papalia et al., 2019).

Current study

In the current study, we draw on propositions from scholars in the United States and the United Kingdom that state that the temporal decline in youth offending seen in these jurisdictions may be in part explained by declines in aggressive police enforcement and increased use of diversionary practices with young people. Specifically, we examine whether an increase in the use of diversionary practices by police may have contributed to the youth crime decline in regions within the two most populous jurisdictions in Australia during a period in which a large volume of recent declines in youth offending have been observed, from 2005 to 2019 (Millsteed & Sutherland, 2016; Payne et al., 2018; Weatherburn et al., 2014). NSW and VIC jurisdictions were also selected for having some of the earliest historical digital records of police data in Australia, enabling a longer trend line in youth offending patterns to be examined. We believe this study may also constitute the first macro-level analysis of the association between police-led diversion and youth offending at a regional level.

In the Australian context, the effects of diversion are contingent on a young person having at least one offense that police have sufficient evidence to charge and/or that the young person has been willing to admit guilt or to not deny the offense. Thus, the primary means through which the impacts of increased diversion should be observed are through decreases in youth reoffending, following an initial offense for which they received a diversion disposition from police. However, we also consider that reduced aggressiveness of police enforcement of youth offending may involve more informal responses to young people, including warnings or problem-solving responses that do not result in any record of the incident. For this reason, we use the volume of police-led diversion also as an indicator of the prevalence of informal policing responses to youth crime, assuming that these unrecorded responses may reduce the total number of young people ever having formal contact with the criminal justice system—that is, informal police responses may have also

reduced youth offending prevalence. Attempting to access historical changes to police policies or operational procedures for youth cautioning and diversion is extremely challenging, and policies do not always accurately reflect diversionary practices by police (Green et al., 2020). Therefore, we use observed changes in the volume of police-led diversion as a more direct measure of changes in diversionary practices or procedures among police in this period.

A key challenge for explanatory studies examining the youth crime decline is that data sets are often limited to a single jurisdiction or a single cohort, which can make it difficult to disentangle the exogenous impact of criminal justice system changes from endogenous cohort changes. Scholars have highlighted the need for more multicohort and multijurisdictional studies to better understand the influence of societal changes on offending behavior (Laub & Sampson, 2020; Neil & Sampson, 2021; Thompson et al., 2023). The current study addresses this by using a longitudinal, multijurisdictional Australian data set. Each Australian state jurisdiction has its own distinct criminal justice legislation and policies, and thus, diversionary approaches can vary. This variation creates a further validation check concerning whether there has been a broader secular shift in policing responses to young people in this period, evident across more than one jurisdiction.

To identify whether changes to police responses to youth offending may have played a role in the youth crime decline in Australia observed during this period, we apply fixed effects panel regressions to examine whether there has been an overall increase in the use of police-led diversion across regions in NSW and VIC between 2005 and 2019 and, additionally, whether this has been associated with decreases in youth offending prevalence and recidivism over the same period. We draw on a range of Australian Census data to control for a number of other relevant social and economic influences on youth offending behavior. This study aims to address the following research questions:

(1) Did the rate of police-led diversion for children and young people age 10 to 16 years demonstrate an increase from 2005 to 2019?
(2) Is there a negative association between the rate of police-led diversion for children and young people age 10 to 16 years and the prevalence of youth offending from 2005 to 2019, indicating that police-led diversion may have contributed to reductions in youth offending prevalence in this period?
(3) Is there a negative association between the rate of police-led diversion for children and young people age 10 to 16 years and youth recidivism from 2005 to 2018, indicating that police-led diversion may have contributed to reductions in reoffending in this period?

Method

Data sources

This study draws on police recorded offending data from NSW and VIC. Data were drawn from the NSW Bureau of Crime Statistics and Research (BOCSAR) and the Victoria Police. Unit-record level de-identified recorded offense data for young people age 10 to 17 years were requested from each agency from the earliest time period available through to 2021,

for which a police action or disposition was recorded for an offense. The University of Melbourne provided ethical approval for the project.

Characteristics of alleged offenders, date of offense, and police actions or dispositions were requested for each record. NSW data were available from 2001 and VIC data were available from 2005. However, for the purposes of comparing jurisdictions only data between 2005 and 2019 are used for this study. The years 2020 and 2021 were excluded from the analysis due to the COVID-19 lockdowns, which also contributed to declines in youth crime (McCarthy et al., 2021).

Diversion in this study refers primarily to precharge diversion, including cautions—Restorative Justice Conferencing, Drug Diversion, and diversion to counseling or other services. In general, for the application of diversion options in Australian jurisdictions, police need to have sufficient evidence of a young person's guilt of an offense that they could proceed to prosecution. Additionally, the young person must either admit guilt or not deny the offense to qualify for diversion options including police cautions. We focus on police-led diversion in this study as the earliest and more frequent opportunity for youth diversion in the criminal justice system and as an indicator of general changes in police responses to youth crime.

Design

The study employs a fixed effects panel design which enables examination of how changes in police-led diversion for young people at the regional level may be associated with declines in youth offending prevalence or reoffending, when other potential social and economic changes at the regional level are accounted for. The unit of observation in this study is an Australian Bureau of Statistics geographic area called a Statistical Area Level 3 (SA3). An SA3 represents a region with between 30,000 to 130,000 residents; there are 358 SA3 regions across Australia. In regional or rural areas, SA3s reflect an area serviced by a regional city that has more than 20,000 people. In major urban areas, SA3s represent an area serviced by a major transport or commercial hub and broadly align to what are referred to as Local Government Areas, representing regions that have similar identities and social and economic characteristics. In this study, the SA3 reflects the region in which the offense took place. SA3s were chosen as the geographic unit as they represent sufficiently large geographic areas that can capture both the area in which a young person may live and also where they may offend. Research has suggested that while the distance to crime from an offender's residence can extend during adolescence, they offend mostly within a median distance of 1 to 5 kms from their residence, depending on the nature of the offense (Andresen et al., 2014). The median spatial size for an SA3 is approximately 2829.6 km^2, so most offenses committed by young people in an SA3 should reflect the region in which they reside.

The estimation of youth offending prevalence and recidivism in SA3s for each annual period was based on all records of offenses for young people in NSW and VIC between 2005 and 2019 for which police had either proceeded against the young person through court prosecution or infringement or offered the young person a diversion option. Offending incidents for young people in each year were identified by grouping offenses which had the same start date and/or the same offending incident identifier, as these groups of offenses were likely to be processed together either through diversion or prosecution dispositions. In

each annual period, an index offending incident was selected for all individuals who had a recorded offense in that year, which reflected their earliest offending incident in that calendar year. For most children and young people in the sample, this would reflect their only offending incident in that year. The use of the first incident in each annual period enables a consistent timepoint from which to measure reoffending. As the police data used for this study were limited to offenses proceeded against or diverted for young people age 10 to 17 years, the total sample was further restricted to ages 10 to 16 years, to avoid right censoring reoffending in the oldest age group.

Variables

Dependent variables

To examine the relationship between police-led diversion and youth crime decline, we explore three key dimensions of youth offending in our analysis: youth offending prevalence; youth offending recidivism; and the mean number of reoffending incidents. *Youth offending prevalence* in this study reflects the count of the total number of (unique) children and young people proceeded against or diverted by police in each annual period. To examine whether broader shifts in law enforcement practices by police may have influenced the total number of young people ever having contact with the criminal justice system (McAra & McVie, 2019; Neil & Sampson, 2021), we use the rate of police-led diversion in our first analysis as an indicator of the extent of informal warnings or problem-solving by police that is likely to have occurred within regions in the specified period, which we expect would have also increased if there were broader shifts in police policies or practices promoting less aggressive, formal or serious law enforcement responses to youth offending.

It is important to note that our measures of youth offending and reoffending capture all types of offenses recorded against young people. Police-led diversion options may be in general focussed on lower-level offenses (e.g., property or drug offenses); however, the effects of diversion on reoffending may be nonspecific with respect to offense type. As we are interested in the influence of diversion on aggregate youth offending trends, capturing the full scope of offenses allows us to more accurately estimate these trends. *Youth offending prevalence* was measured as the total count of young people who had at least one offense proceeded against or diverted by police in each region annually, adjusted to the total youth population in the region, estimated from Australian Census data. All census data used in this study were drawn from census years 2006, 2011, and 2016, and applied to years 2005 to 2010, 2011 to 2015, and 2016 to 2019, respectively. The proportion of young people in the region proceeded against or diverted was then multiplied by 1,000 to provide a prevalence rate of youth offending per 1,000 young persons in each region and each year.

Our second analysis examines the association between the availability of police-led diversion opportunities in a region and the rates of recidivism among children and young people across time. To capture *recidivism rates* for young people who had offenses proceeded against in each region, we again use the index offending incident for an individual in each year and counted the number of offending incidents in the 12 months following the index incident. Any additional incident was coded as 1, while no incidents were coded as 0. The counts of recidivist events in each region were then summed in each year, and divided by the total number of index offending incidents in that region and year. Thus, the *recidivism rate* represents the proportion of index offending incidents in each year in

a region that were followed by at least one further offending incident by the same individual within 12 months.

To examine whether police-led diversion was associated with a reduced overall volume of youth reoffending, we also examine the total *number of reoffending incidents* for each young person with an index offending incident in each year. This followed a similar methodology to the estimation of the recidivism rate, but this time the total number of reoffending incidents within 12 months of an individual's index offending incident that were proceeded against or diverted by police were determined for each individual. The mean number of reoffending incidents following index offending incidents in each region and year was estimated by dividing the total number of reoffending incidents by the number of index incidents in each region and year.

Independent variables

A primary independent variable in this study is time, measured as chronological *years*. Several studies have found youth offending patterns have varied by years and annual trends are a key means by which these changes are observed (Bersani & Eggleston Doherty, 2024; Matthews & Minton, 2018; McCarthy, 2021). In this study, it is assumed that if diversion is a key driver of the youth crime decline, we should see an increase across years in the application of diversion in regions, alongside a linear decrease in youth offending over the same period. Years were given numeric coding with the base year, 2005, coded as 0, and the final year, 2019, coded as 14.

The experience of *police-led diversion* as the primary disposition for an offending incident is another primary independent variable in this study. Diversion in this study is measured as police-led diversion, which constitutes the earliest and most frequent opportunity for criminal justice diversion that young people can access. The police-led diversionary pathways captured in this study reflect somewhat different models and eligibility requirements for young people and are likely to have evolved somewhat over the time period observed in this study. However, the pathways reflect a common theoretical assumption that minimizing a young person's contact with the formal criminal justice system, including prosecution and associated sanctions, will reduce their risks of reoffending (Wilson et al., 2018). Thus, these options are most commonly targeted to young people with minimal offending histories and would be for the most part considered "diversion from" pathways, in that they do not require ongoing contact with the criminal justice system following an initial restorative or rehabilitative intervention and if successfully completed can avoid a criminal conviction for the young person. The diversion pathways captured in this study are initiated by police and involve either a caution or formal warning from an officer or referral to a brief intervention or a restitution activity (e.g., Drug Diversion, Graffiti Diversion, Restorative Justice Conferences) usually provided by a state-funded specialist health or justice agency. For example, Drug Diversion by police in general involves police referring young people charged with a low-level drug-related offense (e.g., drug possession)—for certain proscribed illicit drugs—to a state-funded specialist health agency for an initial assessment with no requirement for longer-term engagement. The current study is not designed to examine the individual effectiveness of these diversionary pathways. Rather it is designed to examine whether an increase in provision of early criminal justice diversion opportunities provided by police to young people across the

period 2005 to 2019 may have contributed to the youth crime decline observed in these jurisdictions.

The experience of diversion was established by coding dispositions for each offense record as constituting either diversion, prosecution, or neither. The latter category included outcomes such as where prosecution was dropped for legal reasons—due to the availability of a witness or victim or where the young person may have been referred to a counseling or welfare service—and these were excluded from the sample. The following dispositions were classified as diversion: caution; drug diversion; graffiti diversion; intoxication diversion; restorative justice conferences; and an official warning. the following dispositions were classified as part of a prosecution pathway: arrest; bail court attendance notice; notice to appear; infringement/fine; future court attendance notice; field court attendance notice; summons issued/served; warrant issued. where offenses are combined in an offending incident which have different dispositions (less than 5% of incidents), incidents that have a prosecution disposition as well as a diversion disposition are coded as prosecution, as it would be expected that any benefits of diversion for some offenses would be counteracted by the prosecution of other offenses within the incident.

The *diversion rate* for index offending incidents in each region and year was estimated based on the percentage of index offending incidents in a given year and region that had been provided with a diversion disposition as their primary outcome. Across this period, there were a total of 143,317 out of 288,784 offending index incidents that had a primary outcome of diversion in these jurisdictions. To validate the diversion rate of index offending incidents as a relatively accurate indicator of the broader availability of diversion opportunities in a region, an *overall diversion rate* was also calculated based on the percentage of total number of offending incidents in a region and year that were diverted.

Covariates

This study uses a fixed effects panel design that assumes that entities (i.e., regions) have a range of unobserved characteristics that could influence the dependent variable (youth offending), and thus, it assumes a correlation between each entity's error term and the unobserved variables. Fixed effects panel models essentially model and control for all time invariant differences across the observation units (e.g., regions), and this means the models can't be biased due to omitted variables (Kohler & Kreuter, 2012). These models are designed to model the time-varying causes of changes across time and as such are an appropriate statistical method for examining the influence of changes in diversion rates on youth offending.

With time invariant regional differences essentially controlled for, our models include a range of time-varying social and economic characteristics of regions that constitute alternative potential sources of influence on youth offending trends over this period. A range of social and economic characteristics were drawn from Australian Census data that theoretically could have influenced youth offending over this period, drawing on indicators that have been used in previous studies to predict regional changes in offending behavior (Entorf & Spengler, 2000; McCarthy, 2021; McCarthy et al., 2021). Census data from the years 2006, 2011, and 2016 were used to estimate the social and economic characteristics of regions, for years 2005 to 2010, 2011 to 2015, and 2016 to 2019, respectively. No attempt to adjust or estimate indicators in non–Census years was undertaken; this would reduce the potential for introducing unnecessary error into the models.

The size of the *youth population* in thousands (total youth population divided by 1,000) was included as a key covariate in this study. Growth in the youth population in a region across time could be a cause of growth in the volume of youth offending, assuming that a given proportion of young people will engage in some level of offending in adolescence as a normative function of adolescent development (Bersani & Eggleston Doherty, 2024).

The *unemployment rate* for the regional population was included as a covariate to reflect changes in local economic conditions that could influence youth offending. The extent of employment opportunities in a community has been consistently found to be associated with youth offending (Van Der Geest et al., 2011). It can represent the extent of legal earning opportunities in an area, and thus low employment can be associated with more recourse to illegal means of income generation (Entorf & Spengler, 2000). The employment rate measure drawn from the census for this study reflects the total number of people actively employed in the region out of the total population age 15 years and older.

As an additional measure of economic conditions, the *median household weekly income* is included as a covariate in this study, and this indicator for each region (SA3) was drawn from census data. This measure can reflect the relative economic position of a community and where the median household weekly income has declined can reflect the experience of increased economic deprivation for communities living in a region. Economic deprivation has been found to influence the likelihood of youth crime, particular serious crime, via a range of pathways including by increasing the experience of family adversity, which can lead to increases in harsh punishment and reduced levels of maternal care (Berti & Pivetti, 2019).

The percentage of *single parent families* in a region was included as a covariate due to its association with the extent of supervision or surveillance that young people in a community may be subject to. Recent empirical work on the youth crime decline has suggested that increased supervision by parents is one factor associated with the decline in youth delinquency in Europe (Svensson & Oberwittler, 2021; Van der Laan et al., 2021). Thus, regions wherein there has been an increase in single-parent families may have experienced non-trivial declines in the availability of parental or guardian supervision or aggregate levels of informal social control for young people in a region. The number of single-parent families was divided by the total number of families in a region (both drawn from census data) and multiplied by 100 to estimate the percentage of families in a region that were single parent families.

The *average persons per bedroom* in a household, drawn from the census, was included in the analysis as an indicator of housing overcrowding, which may influence how much time children and young people spend inside the home or outside with peers. Time spent in unsupervised, unstructured social activities with peers has been identified as a key risk factor for youth offending, and aggregate reductions in unstructured, unsupervised social time has been identified as a key driver of the youth crime decline (Svensson & Oberwittler, 2021). Thus, increases or decreases in housing overcrowding across regions in this period may contribute to shifts in the prevalence of this behavior. Housing overcrowding has also been found to influence psychological distress and poor coping or externalizing behaviors among children (Harker, 2007).

The percentage of the *population born overseas* in a region was included as a covariate in the analysis. Recent research in Australia has indicated that the children of recent refugee arrivals from war-torn countries have become significantly overrepresented in the youth

justice systems in some jurisdictions in Australia, most notably South Sudanese Australian young people (Shepherd & Spivak, 2020). The challenges of resettlement and the navigation of competing cultural norms and expectations, as well as experiences of social and economic exclusion, marginalization, and racism may contribute to these young people disengaging from education and other mainstream institutions and engaging with antisocial peer groups (Shepherd & Spivak, 2020). The number of residents who were born outside of Australia was divided by the total number of residents in an SA3 region, and multiplied by 100 to estimate the proportion of residents born overseas.

The percentage of regional residents that identified as being *First Nations* was included as a covariate in the analysis, drawn from census data, due to the markedly high overrepresentation of First Nations children and young people in youth justice systems across Australia (Allard et al., 2020). First Nations young people, particularly those living in remote communities, are likely to be exposed to much greater risks of social and economic exclusion, economic deprivation, reduced educational engagement, marginalization, and racism (Allard et al., 2020; Weatherburn et al., 2014). Previous findings also suggest that there have been disparities in access to police-led diversion opportunities for First Nations young people, particularly for first offenses, which may have also contributed at least to some degree to their overrepresentation in criminal justice settings (Allard et al., 2010; Papalia et al., 2019).

Analytic approach

Descriptive trend lines were estimated for average annual regional youth offending prevalence rates—that is, the number of unique young people proceeded against or diverted each year as a function of the youth population. Total youth offending rates (frequency) as a function of the youth population were also descriptively graphed alongside prevalence rates to determine how aligned youth offending prevalence and frequency were in this period. A second series of trend lines were estimated for the average annual regional diversion rate for index offending incidents and total diversion rate for all youth offending incidents. Following this a series of fixed effects panel regression models was run to address the key research questions, with cluster robust standard errors used to control for temporal autocorrelation and heteroskedasticity. Initial Hausman tests were run using the key independent and dependent variables and were highly significant across the models ($p < .001$), confirming the appropriateness of the fixed effect models.

To address the first research question, two models were run to estimate the effect of year on both diversion rates for index offending incidents and diversion rates for all youth offending incidents to determine whether there was a linear increase in diversion opportunities in this period. Then a series of fixed effects panel regression models was run to address Research Questions 2 and 3, examining the relationship across time between diversion rates for index offending incidents in a region and key dimension of youth offending—namely, youth offending prevalence, recidivism rates, and the mean number of reoffenses. For each of these dependent variables, an initial model was run including year and other social and economic characteristics as independent variables. Following this, a second model was run with the addition of the diversion rate for index offending incidents to determine whether this was significantly associated with the youth offending indicator and whether it affected the model's explanatory power and fit. If there was a significant

relationship with both year and diversion rates on the dependent variable, a third model was then run to test for potential interaction effects to determine whether diversion may have had differential effects across years on the youth offending indicator. The models examining the impact of diversion rates of recidivism rates and reoffending included only years 2005 to 2018 to avoid confounding recidivism rates for index offending incidents in 2019 with declines in youth offending that occurred in 2020 associated with the COVID-19 pandemic and associated lockdowns (McCarthy et al., 2021).

Results

Figure 1(A) displays an overall declining trend for mean levels of youth offending prevalence (offenders per 1,000 young people) but an increasing trend for youth recidivism

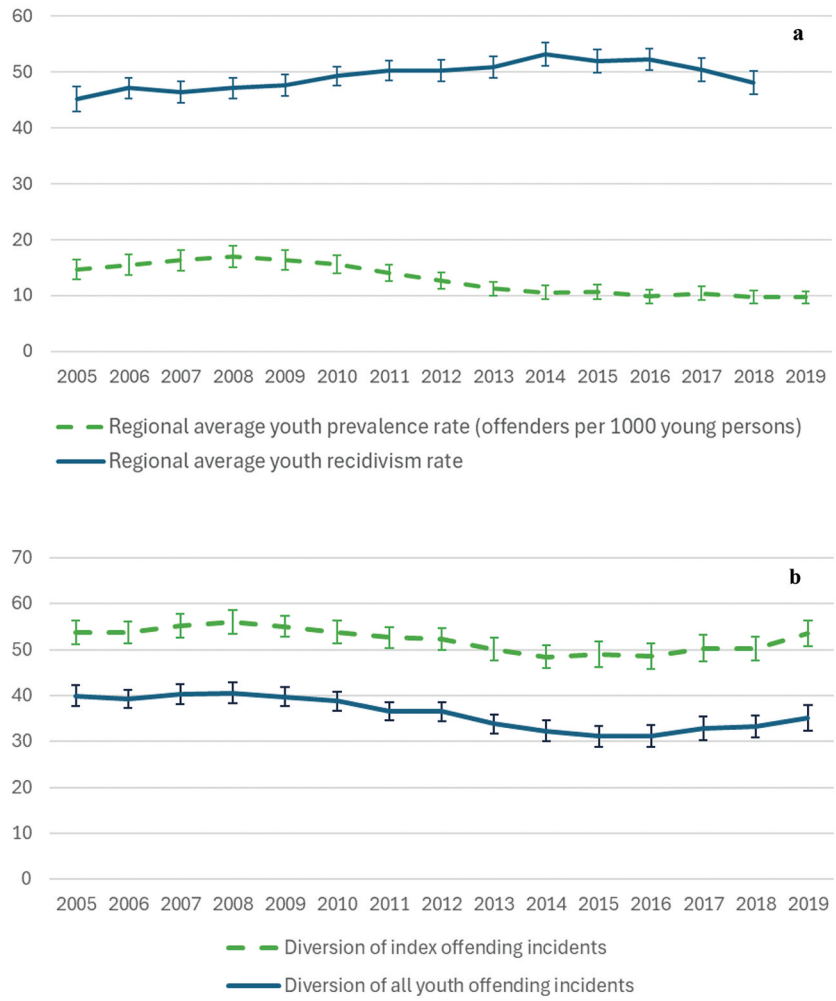

Figure 1. (A) Regional average youth offending prevalence and recidivism rates for young people aged10 to 16 years (*Note*. Recidivism rate reflects the proportion of index offending incidents in a year that was followed by an offending incident within 12 months); (B) regional mean diversion rate for index offending incidents and mean diversion rate for all youth offending incidents.

rates (proportion of index incidents followed by another offending incident within 12 months) at the regional level. The youth diversion rate trend lines show a decline in average regional diversion rates from about 2008 or 2009 after an initial increase and then a later increase from about 2016. A Spearman correlation between diversion rates for index offending incidents and diversion rates for all youth offending incidents showed a very strong relationship (.872, $p < .01$), indicating that the diversion rate for index offending incidents was a relatively accurate indicator of the total amount of diversion opportunities being provided in a region.

Table 1 displays the characteristics of the regions (SA3s) with the annual average for covariates, the standard deviation, and maximum and minimum values displayed. Just over half of the 155 regions were from NSW (57%). All regions had 15 annual observations of data from 2005 to 2019, except for one region that was missing data in 2015 due to no individual offending incidents being recorded in that region in that year.

Table 2 displays the two panel regression models predicting diversion rates for the index offending incident and for offending incidents, respectively, with year and the social and economic characteristics included as predictors. Results for diversion rates of index incidents indicate that this outcome is negatively predicted by year, such that there has been an overall decline in the rate of diversion of index offending incidents from 2005 to 2019. This is contrary to what would be expected if increased application of diversion was a contributor to the youth crime decline observed in this period—that is, a linear increase in diversion rates would be expected. Average persons per bedroom was negatively associated with diversion of index incidents, suggesting that areas that had a greater degree of overcrowded housing had lower rates of diversion for index youth offending incidents. Regions that had increases in the proportion of the population that was First Nations had higher rates of diversion opportunities for index offending incidents for young people in this period. The same decline in total diversion rates for all youth offending incidents was also evident (see Table 2). Unemployment

Table 1. Regional characteristics (annual averages per SA3).

Variable	Mean	*SD*	Min.	Max.	N (%)
Regions					155
Total observations					2,324
NSW	—	—	—	—	89 (57.0%)
VIC	—	—	—	—	66 (43.0%)
Youth population (0 to 19 years)	20,124.76	11,602.16	2,638	67,591	2,324
Unemployment rate	5.77	1.74	2.60	13.10	2,324
Median household weekly income	1,216.42	392.13	594.00	2,636.00	2,324
Single-parent families (%)	10.44	2.37	3.68	19.79	2,324
Average persons per bedroom	0.84	0.09	0.70	1.20	2,324
Born overseas (%)	21.45	13.46	4.13	60.10	2,324
First Nations population (%)	2.18	3.04	.10	26.07	2,324
Number of index offending incidents	124.26	94.62	1	606.00	2,324
Number of index offending incidents diverted	61.67	49.60	0	366.00	2,324
Rate of diversion for index offending incident	52.18	16.44	0.00	100.00	2,324
Rate of diversion for all youth offending incidents	36.09	14.55	0.00	100.00	2,324
Youth offending prevalence (per 1,000 young persons)	12.93	9.96	0.14	93.30	2,324
Youth offending frequency (per 1,000 young persons)	25.48	22.05	0.28	237.67	2,324
12-month recidivism rate	49.25	12.61	0.00	100.00	2,169
Mean number of reoffenses	3.97	2.15	0.00	18.92	2,169

Table 2. Fixed effects panel regression predicting rate of diversion for index offending incident and diversion rate for all offending incidents in NSW and VIC regions, 2005 to 2019.

	Diversion of index offending incident	Diversion of any offending incident
	Coefficient (Robust *SE*)	Coefficient (Robust *SE*)
Year	−0.567 (0.168)**	−0.768 (0.168)***
Youth population ('000s)	−0.087 (0.179)	−0.183 (0.178)
Unemployment rate	−2.055 (0.613)	−1.285 (0.595)*
Median household weekly income	0.002 (0.004)	0.000 (0.004)
Single-parent families (%)	1.852 (1.256)	0.448 (1.118)
Average persons per bedroom	−34.617 (13.020)**	−15.647 (11.208)
Born overseas (%)	0.136 (0.389)	−0.327 (0.332)
First Nations population (%)	4.638 (1.005)***	4.842 (0.924)***
Constant	64.315 (15.466)***	57.530 (13.853)***
N	2,324	2,324
Regions (groups)	155	155
F	13.47***	25.21***
Within R^2	0.094	0.147

*$p < .05$; **$p < .001$; ***$p < .001$.

rates were negatively associated with diversion rates for any youth offending incident, indicating that growth in unemployment in regions was associated with lower rates of youth diversion. Again, growth in First Nations populations was positively associated with the rate of diversion opportunities at the regional level.

Table 3 displays results for a series of fixed effects panel regression models predicting youth offending prevalence, recidivism rates, and mean number of reoffenses, respectively. Results of Model 1 predicting the prevalence of youth offending suggest that there has been a decrease in offending prevalence from 2005 to 2019. Model 1 also suggests that regions with increases in unemployment rates, single-parent families, and average number of persons per bedroom experienced a relatively higher prevalence of youth offending. There was also a negative relationship between changes in the portion of the population born overseas and the portion of the population of First Nations people and youth offending prevalence, indicating that growth in migrant and First Nations populations were associated with lower levels of youth offending prevalence during this period.

Model 2 includes the regional diversion rate for index youth offending incidents in each year and indicates that regional changes in diversion rates were not significantly associated with declines in youth offending prevalence. The model fit statistics for Model 1 and Model 2, including the within group R^2 and the AIC and BIC, indicated no difference or a slight marginal decrease in model fit with the introduction of diversion rates for index offending incidents. This suggests overall that diversion rates are not a key explanatory factor for changes in youth offending prevalence in the observed period when other key factors are accounted for, addressing Research Question 2.

Model 3, predicting changes in youth recidivism rates, indicates a positive relationship between year and regional recidivism rates, suggesting that rather than decreasing and, in contrast to youth offending prevalence, youth recidivism increased from 2005 to 2018. The only other significant relationship in this model suggested that growth in First Nations populations at a regional level was associated with lower levels of recidivism. Model 4 includes diversion rates for index offending incidents and results indicate a significant

Table 3. Fixed effects panel regression predicting regional prevalence of offending, recidivism, and mean number of reoffenses among children and youth age 10 to 16 years from regional characteristics and prevalence of police-led diversion.

	Prevalence of youth offending		Youth recidivism rate			Mean number of reoffending incidents		
	Model 1 Coefficient (Robust *SE*)	Model 2 Coefficient (Robust *SE*)	Model 3 Coefficient (Robust *SE*.)	Model 4 Coefficient (Robust *SE*.)	Model 5 Coefficient (Robust *SE*)	Model 6 Coefficient (Robust *SE*)	Model 7 Coefficient (Robust *SE*)	Model 8 Coefficient (Robust *SE*)
Year	−0.511 (0.064)***	−0.511 (0.065)***	0.653 (0.135)***	0.418 (0.117)***	0.339 (0.237)	0.176 (0.024)***	0.144 (0.021)***	0.262 (0.044)***
Youth population ('000s)	0.263 (0.077)**	0.263 (0.077)**	0.050 (0.174)	0.026 (0.036)***	0.021 (0.146)	−0.068 (0.028)*	−0.071 (0.004)***	−0.063 (0.024)**
Unemployment rate	0.854(0.215)***	0.854 (0.215)***	−0.426 (0.446)	−1.120 (0.474)*	−1.114 (0.473)*	−0.157 (0.097)	−0.251 (0.096)*	−0.259 (0.096)**
Median household weekly income	0.003 (0.001)	0.003 (0.001)	−0.004 (0.003)	−0.004 (0.003)	−0.004 (0.003)	−0.001 (0.001)	−0.001 (0.001)	−0.001 (0.001)
Single-parent families (%)	1.414 (0.527)**	1.415 (0.525)**	0.916 (0.858)	1.531 (0.769)*	1.521 (0.770)	0.259 (0.181)	0.342 (0.172)*	0.357 (0.170)*
Average persons per bedroom	14.660 (5.107)***	14.651 (5.079)**	8.020 (10.150)	−2.058 (9.052)	−1.174 (8.920)	4.908 (1.698)	3.551 (1.442)*	2.231 (1.430)
Born overseas (%)	−0.323 (0.103)**	−0.323 (0.103)**	0.455 (0.309)	0.540 (0.261)*	0.540 (0.261)*	0.176 (0.052)**	0.187 (0.047)***	0.188 (0.046)***
First Nations population (%)	−2.492 (0.563)***	−2.491 (0.566)***	−2.956 (0.721)***	−1.462 (0.628)*	−1.399 (0.667)*	−0.394 (0.148)**	−0.193 (0.137)	−0.287 (0.133)*
Diversion rate (index incident)		0.000 (0.010)		−0.321 (0.036)***	−0.331 (0.053)***	—	−0.043 (0.004)***	−0.028 (0.005)***
Year × diversion					0.001 (0.004)	—		−0.002 (0.001)**
Constant	11.551(6.631)	−11.536(6.679)	31.790 (11.253)**	51.059 (11.137)***	51.016 (11.092)***	−3.802 (2.603)	−1.208 (2.423)	−1.142 (2.423)
N	2,324	2,324	2,169	2,169	2,169	2,169	2,169	2,169
F	34.99***	32.02***	8.27***	26.78***	26.27***	24.07***	39.98***	42.31***
Within R^2	0.436	0.436	0.068	0.216	0.216	0.207	0.278	0.284
AIC	12,023.52	12,025.52	15,271.11	14,896.98	14,898.69	7,814.298	7,612.22	7,595.709
BIC	12,069.53	12,077.28	15,316.56	14,948.11	14,955.51	7,859.754	7,663.36	7,652.529

*$p < .05$; **$p < .001$; ***$p < .001$ *Note* The models predicting prevalence of youth offending include the years 2005 to 2019. The models for youth recidivism and mean number of reoffenses include years 2005 to 2018, as reoffending in the 12 months following an index offense in 2019 will have been affected by the COVID-19 pandemic and the multiple lockdowns that occurred in 2020 across NSW and VIC.

negative relationship between diversion rates and recidivism rates at the regional level, suggesting that increases in diversion in a region were associated with lower recidivism rates for young people in those regions. Model 5 introduces an interaction term for diversion rates for index offending incidents and year to examine whether diversion rates have had differential effects on youth recidivism across years. The interaction term was nonsignificant. Considering the R^2, AIC and BIC across the three models, the model that includes a main effect for diversion rates displays the best goodness of fit for predicting changes in youth recidivism rates within regions over time.

Model 6 predicting the mean number of reoffending incidents in the 12 months following index offending incidents indicates that year has a significant positive association with the mean number of reoffending incidents, suggesting an overall increase in the mean number of reoffending incidents among young people at the regional level from 2005 to 2018. Model 6 results indicate a negative relationship between youth population and First Nations populations and the mean number of reoffending incidents, indicating that growth in the youth population or the First Nations population was associated with a lower mean volume of youth reoffending at the regional level. There was a significant positive association between the proportion of the population born overseas and mean reoffending, indicating that growth in migrant populations was associated with higher levels of youth reoffending at the regional level. Model 7 includes diversion rates for index offending incidents, which had a significant negative association with mean reoffending, suggesting that increases in police-led diversion at the regional level was associated with lower levels of youth reoffending. This model also indicated that young people living in regions where there was growth in the proportion of single-parent families, average number of persons per bedrooms in households, and the percentage of residents born overseas had significantly higher levels of reoffending. There was also a significant, negative association between the youth population and unemployment rates and the mean number of youth reoffending incidents, indicating that regions that had growth in unemployment or youth populations had lower levels of youth reoffending. Model 8 included an interaction term for diversion rates and year, which was negative and significant, albeit of a low effect size, and this model appeared to have the best fit. The interaction between diversion rates and year on mean reoffending is plotted in Figure 2 and suggests that regions with higher diversion rates had overall lower levels of youth reoffending from 2005 to 2018, despite overall growth in youth reoffending in this period. This suggests that diversion rates may have placed some degree of downward pressure on the overall upward trend in reoffending. However, with overall increases in youth recidivism and mean reoffending during this period, there is a lack of evidence that increased police diversion has contributed to the youth crime decline through a reduction in the level of youth reoffending, addressing Research Question 3.

Discussion

In response to recent propositions from scholars in the United States and the United Kingdom (Griffiths & Norris, 2020; McAra & McVie, 2019; Neil & Sampson, 2021) that state that changes in the aggressive police enforcement and criminal justice diversion may have contributed to the youth crime decline in these jurisdictions, this study aimed to directly examine the role of changing police responses to youth offending as a potential contributor to the Australian youth crime decline. Drawing on regional-level data on

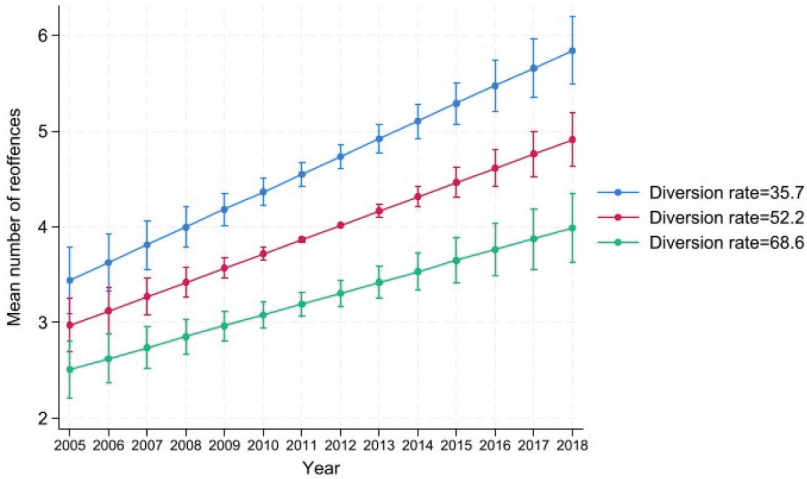

Figure 2. Interaction between regional rate of diversion and year on predicted mean number of reoffending incidents.

police-led diversion and other relevant social and economic factors, we found overall a lack of evidence that police-led diversion contributed to the decline in youth crime in the two largest Australian jurisdictions from 2005 to 2019. However, this study supports previous findings on the significant impact of police-led diversion on reoffending (Dennison et al., 2006; Harmon-Darrow et al., 2023; Wilson et al., 2018), with our study finding that increased rates of police-led diversion in a region were associated with lower levels of youth reoffending. We believe this may be the first study to identify an association between police-led diversion and youth reoffending rates at the regional level.

Results of the regional analysis confirmed significant declines in youth offending prevalence between 2005 and 2019, as observed in other Australian studies (McCarthy, 2021; Millsteed & Sutherland, 2016; Payne et al., 2018). However, police diversion rates also declined in the same period, and there was no significant association between youth diversion rates and youth offending prevalence during this time. In contrast, youth recidivism significantly increased over this period. This supports previous Australian and international research that suggests that the youth crime decline has primarily been a decline in prevalence rather than frequency and appears to have impacted adolescent-limited or low-level offending rather than more high-frequency youth offending (Matthews & Minton, 2018; McCarthy, 2021; Payne et al., 2018). However, a significant interaction between diversion rates and the mean number of reoffenses suggested that regions with higher diversion rates experienced less growth in mean reoffending compared to regions with lower diversion rates. As noted, this macro-level analysis of the influence of police-led diversion on youth reoffending supports previous individual-level studies, with much of this scholarship finding that early diversion of young people away from the criminal justice system reduces the likelihood of reoffending (Dennison et al., 2006; Harmon-Darrow et al., 2023; Wilson et al., 2018).

Our findings do not overall support a clear role for police-led diversion as a broader indicator of policing responses to youth crime, as a key contributor to the overall decline in

youth offending prevalence in Australia in this period. This suggests that the primary drivers of the overall decline in youth offending behavior in Australia are more likely to reflect factors exogenous to the criminal justice system rather than being a product of criminal justice diversion. Alternative explanations related to changes in social and technological ecologies for youth development appear to be more compelling explanations for reductions in youth offending behavior, including shifts in young peoples' routine activities and behaviors related to expanded use of mobile phone technology, social media, and internet-facilitated recreational activities, increased securitization of property, changes to parenting norms; and changing youth attitudes to risky behaviors (Baumer et al., 2021; Svensson & Oberwittler, 2021; Van der Laan et al., 2021).

A declining trend in youth offending prevalence alongside a growth in youth offending recidivism observed in the jurisdictions in this study aligns to trends identified in other recent Australian research from these and other jurisdictions (McCarthy, 2021; Millsteed & Sutherland, 2016; Payne et al., 2018). As these findings suggest, the Australian youth crime decline has not been experienced uniformly, and there are cohorts of young people living in more socially and economically deprived regions who may not have experienced the dramatic transformations in their social and ecological environments that have been implicated in youth crime declines elsewhere (Baumer et al., 2021; McCarthy, 2021; Svensson & Oberwittler, 2021; Van der Laan et al., 2021). The growth in youth offending in regions that had increases in economic and social hardship indicators, such as growth in unemployment rates, single-parent families, and housing overcrowding, supports previous research indicating that the youth crime decline was conditioned by socioeconomic factors (McCarthy, 2021; Nilsson et al., 2017). Likewise, growth in youth reoffending in regions with more-limited social and economic resources, including regions with higher migrant populations, gives an indication of the cohorts of young people currently experiencing higher rates of justice-system involvement. For example, young people from families who fled South Sudan as refugees have become significantly overrepresented in youth justice systems in some Australia jurisdictions over the past decade, likely to be in part a result of the social and economic challenges these families have faced in settling mostly into lower socioeconomic regions (Shepherd & Spivak, 2020). Single-parent families, families in overcrowded housing, and refugee or new migrant families all reflect potentially resource-constrained households and communities in which parents may not have sufficient financial or personal resources to provide increased supervision of their children during non-school hours, in which children may still spend substantial time with their peers outside of the home and away from adult supervision, and in which young people have less access to social capital and may experience greater strain and frustration in accessing conventional social and economic opportunities.

For researchers and policymakers, it is important to contend with findings that not all young people have benefited from the youth crime decline and that young people growing up in communities characterized by social and economic disadvantage, social exclusion, and marginalization may continue to be exposed to offending risks at higher levels than the general youth population. These findings support further tailoring and expansion of diversion opportunities targeting higher-risk places or communities that can protect at-risk or justice-involved young people from the potential criminogenic effects of excessive criminal justice contact and can support their prosocial development (Allard et al., 2020). This could include initiatives outside of the criminal justice sector that focus on providing individual,

family, and community supports to reduce marginalized young peoples' risks of drifting toward antisocial groups and activities (Allard et al., 2020). The recent Justice Reinvestment initiative targeting First Nations communities introduced by the Australian Federal Government in 2022 may enable an expansion of these types of targeted supports to First Nations young people. A broader focus on place-based investment for youth crime prevention in other regions experiencing high levels of justice involvement among young people could expand the benefits of these prevention and early intervention strategies.

Significant declines in police-led diversion observed in this study suggests that this approach has been *underutilized* in recent years (although upward trends in the use of this approach were evident at the end of the study period). The earlier decline in the use of police diversion could reflect a number of issues, including policy changes in the use of police cautioning (this effect is observed across two jurisdictions with independent cautioning and diversion policies) or the fact that with declines in low-level youth offending, police are dealing more commonly with young people displaying highly recidivist offending, which may reduce their inclination to use diversionary options (Green et al., 2020). Either way, an increased use of police-led diversion options in lower socioeconomic communities experiencing higher concentrations of youth offending has the potential to contribute to reducing repeat justice-system involvement among at-risk young people in the criminal justice system. The substantial costs to society of youth justice supervision and detention further supports police-led diversion as a cost-effective response to initial and non-serious youth offending (Allard et al., 2020). With the recent growth in youth reoffending found in this and other recent Australian studies (McCarthy, 2021), there could also be value in expanding the availability of more "diversion to" options for young people engaged in high-frequency offending. These types of diversionary programs, such as deferred prosecution schemes, could provide community-based tailored support to address key needs, goals, and risks for these young people (Drake et al., 2009) and, if successfully completed, could enable the young person to avoid the negative impacts of further convictions or prolonged criminal justice system contact.

In contrast with previous Australian research (e.g., Allard et al., 2010; Papalia et al., 2019), regions that had growth in First Nations populations over this period were found to have increased exposure to youth diversion and decreases in youth offending prevalence and recidivism. There are a few cautions that should be born in mind when interpreting this finding. Firstly, the fixed effects panel models only enable examination of time-varying predictors and so these findings reflect the effect of changes in application of diversion, not the base rate of diversion in regions with more-concentrated First Nations communities. Thus, the findings could reflect increases from a lower-than-average diversion rate. Additionally, First Nations communities around Australia are notably heterogenous, with different levels of exposure to economic deprivation, social and economic exclusion, and marginalization. Lastly, reflecting the potential for ecological fallacies, it is possible that the higher diversion rates in regions experiencing growth in their First Nations populations do not reflect increased access to diversion opportunities for First Nations young people in those regions.

This study has several limitations that should be noted. Firstly, the use of recorded offending data does not capture all offending behavior by young people. Recorded offending data can also to some extent reflect the allocation of policing resources, particularly for detected offenses (e.g., drug offenses), and is likely to underestimate underreported offending (e.g., sexual assault offenses). Our measure of informal police responses to youth crime draws on formal

diversionary responses as a proxy indicator, and it is possible that trends for informal responses do not map to formal police responses. However, it is difficult to ascertain the magnitude and direction of informal police responses to youth crime as in general they are not recorded, and these responses tend not to be officially encouraged by police command. Additionally, the concentration of police resources across areas was not available for inclusion in our model. Should these indicators be available in future studies, they could provide a more complete picture of police activity and its relationship with youth offending at the regional level. There may also be other unmeasured factors that might confound the relationship between access to diversion and reoffending, such as engagement in antisocial peer networks; our study was necessarily limited to examining covariates that could be accurately measured at the regional level. Further, links between youth offending and organized crime networks could vary across regions and influence youth reoffending as has been found in the United Kingdom (Windle et al., 2020); however, we currently have little information on these relationships in the Australian context. We also did not have information on custodial sentences for young people and so incapacitation was not able to be measured. However, custodial periods for young people reflect on average a total of 66 days in a year in Australia (AIHW, 2023), so any incapacitation effects are likely to be minor. Additionally, the use of the location of the offense as an indicator of the region in which the young person resides may be associated with some error. However, we chose large geographic areas (SA3s) to reduce this error, and previous research has suggested that the distance to crime is mostly within this scale (Andresen et al., 2014). Additionally, the data in this study comprised alleged offenses and it is not clear what proportion of the prosecuted offenses would have been dismissed or found not guilty through court adjudication. However, the inclusion of only offenses for which young people admitted or did not deny guilt and of those that police determined had sufficient evidence to prosecute in court should have minimized the number of unfounded charges in the data set. Lastly, this study comprises a longitudinal, observational design, so the extent of causality in the relationship between police-led diversion and youth reoffending in this period cannot be determined.

In conclusion, this study sought to examine whether increased rates of police-diversion may have contributed to declines in youth offending in the two largest Australian jurisdictions over an approximate 15-year period. Despite finding a significant decline in youth offending prevalence from 2005 to 2019, we also found significant decline in diversion rates and concurrent linear growth in youth recidivism during the same period. A lack of any significant association between diversion rates and youth crime prevalence at the regional level and growth in youth recidivism in the same period undermines a role for increased police diversion as a primary contributor to the youth crime decline in Australia. However, a significant negative association between diversion rates and youth recidivism at the regional level suggests that associations between police-led diversion and youth reoffending can be observed at the macro-level and supports broader use of police-led diversion to address youth reoffending. Overall, the findings suggest that factors exogenous to the criminal justice system are more likely to have been the primary drivers of the aggregate youth crime declines in Australia. Additionally, findings suggest that young people living in more socioeconomically deprived and marginalized communities have not experienced equivalent reductions in risks of offending or justice system exposure during the youth crime decline. These young people and their communities should be a priority focus of future criminal justice diversion efforts in Australia.

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