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**The Immigration-Crime Myth: Exploring the Impact of Immigration on
Neighbourhood Violence**

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Abstract

The myth of the criminal immigrant and the criminogenic effects of immigration is deeply embedded in public and political discourses across the globe. The consequences these perceptions are non-trivial. Conservative governments tend to manipulate the public's fear of 'crime prone' immigrants to garner support for restrictive immigration policies, hard-line anti-terrorism strategies and deportation practices. Further, certain groups are likely to be subjected to heightened levels of alienation and discrimination in the community - particularly at times of economic crises and threats to national security. This perceived association is also linked to increased social anxiety in the neighbourhoods where immigrants live. Yet whether immigration actually leads to measurable increases in crime is highly questionable.

To date, much of what we know about the immigration-crime link is based on the United States. Yet, contextual features unique to the United States are likely to produce distinct outcomes for immigration and crime that do not translate to other settings. In this thesis, I test the applicability of ecological frameworks largely derived from the United States experience (namely, social disorganisation theory and the immigration revitalisation thesis) to the Australian context. Specifically I question whether similar relationships will unfold in a country with a greater mixture of ethnic groups and where immigration policy is highly controlled and focused on the recruitment of skilled immigrants. To address this question, I draw on three waves of Australian census data and nine years of official recorded crime incident data. Comprised of three quantitative studies, I consider in this thesis how immigrant growth, concentration, diversity and segregation impacts violent crime across over 800 neighbourhoods situated in two Australian cities: Sydney - an established immigrant gateway and Brisbane - a relatively new immigrant destination.

In Study 1, I utilise an innovative hybrid modelling approach and set the baseline for Australian research. In doing so, I examine how changes in immigrant concentration impact changes in violent crime within neighbourhoods over time in addition to comparing levels of immigrant concentration and violent crime between neighbourhoods. Building on Study 1, I disaggregate the immigrant population in Study 2 by two key indicators of ethnicity - language and religion. Here, I assess the group specific effects of immigrant concentration on crime as well as the effects of ethnic diversity and in turn, rigorously test the central tenets of social disorganisation theory (by testing diversity effects) and the immigration revitalisation thesis (by considering ethnic group concentration effects). In Study 3, I investigate the effect of immigrant segregation on neighbourhood crime - a largely understudied aspect of the literature to date. Drawing on highly spatialized yet underutilised

measures of local segregation, I assess whether the spatial distribution of the immigrant population and the co-location of immigrant neighbourhoods impacts violent crime.

Together, the findings of these three studies demonstrate that regardless of how immigration is measured (by growth, concentration or segregation) or the ethnic group under consideration (measuring ethnicity by both language and religion) - there is little evidence to suggest immigration is linked to greater violent crime in either city. However, the effect of ethnic diversity on violent crime is more problematic, particularly when comparing across neighbourhoods. Specifically, I find neighbourhoods with greater language and religion diversity encounter more violent crime problems. This points to a breakdown in informal social control in ethnically diverse neighbourhoods. Nevertheless, it is important to recognise that ethnic diversity comprises only a small piece of the overall puzzle when explaining variations in violent crime across place.

Declaration by author

This thesis is composed of my original work, and contains no material previously published or written by another person except where due reference has been made in the text. I have clearly stated the contribution by others to jointly-authored works that I have included in my thesis.

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Publications during candidature

Journal Articles:

Sydes, M. (2017) Revitalised or Disorganised? An empirical examination of immigration and crime in a multi-ethnic setting. *Journal of Research in Crime and Delinquency*. Doi: 10.1177/0022427817696955.

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List of Abbreviations

ABS	Australian Bureau of Statistics
AfD	Alternative for Deutschland
AIC	Australian Institute of Criminology
BOSCAR	New South Wales Bureau of Crime Statistics
BSD	Brisbane Statistical Division
CBD	Central Business District
DIAC	Department of Immigration and Citizenship
DIPB	Department of Immigration and Border Protection
ESS	European Social Survey
EU	European Union
GIS	Geographical Information Systems
ICE	Immigration and Customs Enforcement
IOM	International Organisation for Migration
LM-I	Local Moran's I
LQ	Location Quotient
MAUP	Modifiable Areal Unit Problem
PVV	Party for Freedom
OECD	Organisation for Economic Co-operation and Development
QPS	Queensland Police Service
SSC	State Suburb
SSD	Sydney Statistical Division
SA1	Statistical Area 1
SLA	Statistical Local Area

Chapter One: Introduction

When Mexico sends its people, they're not sending their best... They're sending people that have lots of problems, and they're bringing those problems to us. They're bringing drugs. They're bringing crime. They're rapists. And some, I assume, are good people.

- Donald Trump, June 16, 2015

1.1 Introduction

At a time of financial crises and ongoing threats to national security, immigration issues have catapulted to the top of the political agenda eliciting divisive public debate. In launching his bid for presidency in 2015, Donald Trump explicitly albeit erroneously linked Mexican immigrants to crime. Throughout his campaign, Trump repeatedly referred to “illegal immigrants” as violent criminals and drug lords, refusing to acknowledge the extensive research which suggests otherwise (Butcher & Piehl, 1998a; Butcher & Piehl, 1998b; Butcher & Piehl, 2007; Hagan & Palloni, 1999; Morenoff & Astor, 2006; Rumbaut et al., 2006; Sampson, 2008). Similar rhetoric is echoed across the United Kingdom, Europe and Australia. In a recent interview, ex UKIP leader Nigel Farage attributed an increase in sexual crimes in Sweden to the admittance of Syrian refugees. Farage went on to declare Malmo “the rape capital of Europe, possibly the world” (BBC News, 2017). In the Netherlands, populist far-right politician Geert Wilders openly and unapologetically labelled Moroccan residents as “scum who make the streets unsafe” (McKie, 2017). In Germany, the leader of the Alternative for Deutschland (AfD), Frauke Petry, effectively criminalised Syrian refugees by proposing border guards turn their guns on migrants who cross the country’s borders illegally (Connolly, 2016). While in Australia, newly re-elected conservative senator Pauline Hanson used her maiden address to parliament to warn that “antisocial behaviour is rampant” amongst Muslims and is “fuelled by hyper-masculine and misogynist culture” (Commonwealth of Australia, Senate, 2016, p. 939).

Sensationalist media reports further reinforce these negative stereotypes of immigrants. Evidence from the United States suggests immigrants are overrepresented in news stories about crime relative to their actual presence in crime statistics (Kim, Carvakho, Davis & Mullins, 2011; Santa Ana, 2013). When immigrants do appear on the news, the stories in which they feature overwhelmingly concentrate on crime problems. In analysing four online news sources, Chavez and colleagues (2010) found over 50% of the 160 stories on Mexican immigration dealt with crime. This disproportionate and biased coverage is not limited to the United States. A content analysis of the leading newspaper in the Netherlands found that 34% of the coverage on immigrants and ethnic minorities focused on law violations (Lubbers, Scheepers, & Wester, 1998). While in Belgium,

Jacobs (2016) found that immigrants not only appeared in more televised news stories about crime but were depicted in a more threatening manner.

Within this climate of misinformation and fearmongering, individuals form their views about immigrants, immigration and crime (Gil de Zuniga, Correa & Valenzuela, 2012). Perhaps unsurprisingly then, attitudinal studies and polling data consistently find that a relatively large proportion of respondents associate immigration with crime problems. In the European Social Survey (ESS), almost three quarters of native born Western Europeans reported that immigration worsens crime (Fitzgerald, Curtis & Corliss, 2012). Similar views are held in the United States. Here, perceptions vary depending on political preference with 71% of registered Republican voters convinced immigrants exacerbate crime compared to just 34% of registered Democrat voters (Pew Research Centre, 2015). Yet only a small proportion from either side of the political fence perceived immigration to actually reduce crime problems (3% of Republicans and 10% of Democrats) (Pew Research Centre, 2015).

While the perceived link between immigration and crime is relatively robust across contexts, whether increased immigration actually leads to measurable increases in crime is highly questionable. Empirical scholarship examining this association tends to address one of two broad research questions. First, do immigrants offend at a higher rate than natives? And second, do areas with more immigrants or a growing number of immigrants experience higher rates of crime? To date, the bulk of empirical work interested in answering these questions is situated in the United States. In this setting, scholars consistently find that once appropriate controls are considered, neither first nor second generation immigrants are more likely to engage in crime than their native born counterparts (Butcher & Piehl, 1998a; Butcher & Piehl, 2007; Hagan & Palloni, 1999; Morenoff & Astor, 2006; Rumbaut et al., 2006; Sampson, 2008). Further, evidence at the local and national level indicates that immigrant concentration is not associated with more crime (Chavez & Griffiths, 2009; Desmond & Kubrin, 2009; Kubrin & Ishizawa, 2012; Kubrin & Ousey, 2009; Martinez, Stowell & Lee, 2010). Contrary to popular opinion, some studies actually find a negative relationship between immigration and crime (Ousey & Kubrin, 2009; Ousey & Kubrin, 2014; Stowell et al., 2009; Wadsworth, 2010) with the effect particularly strong in disadvantaged areas (Velez, 2009). In fact, several scholars point to the growth in the immigrant population over time as a plausible explanation for the violent crime drop in the United States (Sampson, 2008; Stowell et al., 2009; Wadsworth, 2010).

Although the rhetoric that links immigration to social problems like crime is evident in all western liberal democracies, research outside of the United States is less clear cut. This suggests that

contextual factors may play an important role in shaping both the immigrant-crime and immigration-crime link. At the individual level, the results are mixed. For example, immigrants in the United Kingdom are not involved in more property or violent crime than native residents (Papadopoulos, 2010), neither are immigrants in Australia (although some variation exists between groups) (Mukherjee, 1999). Yet scholarship across several European countries reveals a different picture. Studies in Germany, Spain, Sweden, Norway, Finland, Denmark and Switzerland find immigrants are overrepresented in official crime statistics (Albrecht, 1997; Lehti, 2015; Martens, 1997; Martens & Holmberg, 2005; Skardhamer, Aaltonen & Lehti, 2014). In fact, this relationship persists after accounting for demographic differences. Yet Beckley and colleagues (2014) warn such analyses that rely on official crime data do not account for potentially discriminatory criminal justice practices.

Findings also vary across contexts at the more aggregate level. Bell and Machin (2013) find immigrant concentration is associated with lower crime rates in England yet in France, the presence of immigrants is significantly related to more crime across police districts (Aoki & Todo, 2009). Bircan and Hooghe (2011) find no significant relationship between total immigrant concentration and crime across Belgian municipalities but when focusing on group specific effects, concentrations of non-EU nationals and African nationals are associated with higher crime (Bircan & Hooghe, 2011). Taken together, these findings suggest that in some countries, under certain conditions, increased immigration may have a crime-generating effect while in others, increased immigration may have a crime-reducing effect.

As context plays an important role in determining the significance and direction of the immigration-crime association, understanding how this relationship plays out across different national contexts is worthwhile. As such, the overarching aim of this thesis is to determine whether the theories commonly used to explain the immigration-crime link in the United States translate to Australia - a multi-ethnic setting where the focus is on the admittance of skilled immigrants and where neighbourhoods are rarely dominated by people from a single birthplace. Of particular interest is the effect of immigration on violent crime across neighbourhoods located in two cities with differing immigration histories. Given the bulk of immigration-crime research to date has employed measures of violent crime (see for example, Martinez et al., 2004; Martinez et al., 2010; Ousey & Kubrin, 2009; Ousey & Kubrin, 2014; Stowell & Martinez, 2009; Velez, 2009; Wadsworth, 2010), I focus solely on violent offences in order to provide a point of comparison to international research. In this chapter, I detail the consequences of the perceived immigration-crime link, introduce the key theoretical arguments which form the basis of my research, establish Australia as an important

comparative site against the American-centric literature and outline the key research questions which guide this thesis.

1.2 Consequences of the perceived immigration-crime link

The consequences of the perceived immigration-crime link are non-trivial. In Britain, concern about unfettered mass immigration was central to the decision of 17 million voters to leave the European Union (EU) despite the threat of substantial economic fallout (Pettifor, 2017). In the 2016 election, immigration was a key and unifying concern for Trump supporters with 80% in favour of building a wall along the Mexican border (Pew Research Center, 2016). Considering 67% believe undocumented migrants are more likely to commit a serious criminal offense than American citizens, their support for tighter border control - and subsequently Trump - is not overly surprising (Pew Research Center, 2016).

Recent election results across Europe show increasing public support for anti-immigration parties who mobilise the criminal immigrant discourse. Empirical evidence suggests it is an effective strategy - data from the ESS shows that voters who link immigration to crime are more likely to vote for the radical right (Rydgren, 2008). Strong public backlash against Chancellor Merkel's open door refugee policy, particularly following recent events in Cologne, has contributed to the rapid rise of the AfD (Richter, 2016). Established in 2013, the party has quickly moved from the fringes of the German political landscape into the mainstream. Currently represented in 10 of Germany's 16 state parliaments, the AfD is set to become the country's third largest political party by September 2017 (Payton, 2016). Although Geert Wilders recently fell short of forming a majority government in the Netherlands, his party - the Party for Freedom (PVV) - secured 20 of the 150 seats in federal parliament, an additional 5 since the previous election (Kroet, 2017). In an increasingly splintered parliament, the PVV is now the second largest political group in the Netherlands. Far-right, anti-immigration parties in France, Austria, Sweden, Greece, Hungary and Slovakia are gaining similar traction (Golder, 2016). Even in Australia, a context typically more receptive to immigrants, recent elections have seen a noticeable shift to the right. In particular, the re-election of Pauline Hanson and members of her One Nation Party to the senate reflects growing discontent amongst a certain subsection of Australia's population (McNair, 2016).

In addition to securing votes and propelling conservative politicians into power, the perceived link between immigration and crime has important consequences for immigration policy. Studies find individuals who blame immigrants for crime have more restrictive immigration preferences and

are significantly more likely to support a reduction in the immigration intake (McLaren & Johnson, 2007; Palmer, 1996). Additionally, those who feel their safety is threatened by immigrants are more likely to support punitive actions. In particular, support for deportation is high with 75% of ESS respondents backing the expulsion of immigrants convicted of a serious criminal offense (Jowell and the Central Coordinating team, 2003). Thus by manipulating the public's fear of "crime prone" immigrants, conservative politicians can garner support for restrictive and exclusionary immigration policies, hard line anti-terrorism strategies and deportation practices (Mears, 2001; Sniderman, Hangendoorn & Prior, 2004; Stumpf, 2006).

President Trump is currently taking advantage of such perceptions. Since his inauguration, the president has targeted immigrants in a series of executive orders – threatening to slash federal funding for sanctuary cities (Chishti & Pierce, 2017) and hiring 10,000 additional immigration officers (Cowger, Bolter & Pierce, 2017). Trump also enacted an unprecedented travel ban (later deemed illegal) on the grounds of national security which restricted the entry of migrants from seven Muslim majority countries (Cowger, Bolter & Pierce, 2017; Pierce & Meissner, 2017). In the same executive order, Trump suspended the country's refugee program for 120 days and introduced a cap on refugee numbers (Cowger, Bolter & Pierce, 2017). Immigration and Customs Enforcement (ICE) is under direct instruction to deport any undocumented migrant with a criminal charge - regardless of the seriousness of the offense (Chishti & Mittelstadt, 2016) - and a specialised immigrant crime office is now operating as a branch of national security under the guise of victim services (Kopan, 2017). Trump's proposed federal budget includes significant funding for the wall and an array of other border protection strategies (Cowger, Bolter & Pierce, 2017).

Although these measures are extreme, they are not isolated. Immigration policies across many Western countries have become increasingly restrictive and exclusionary in recent years. At a time where the number of forcibly displaced persons is at the highest recorded level since World War II (UNHCR, 2015), several countries have actually pared back the number of refugee and asylum seeker visas on offer. Although Sweden was celebrated in 2015 for welcoming over 160,000 refugees, in 2016, the Swedish government introduced new laws that limit the intake to the EU minimum (Swedish Migration Agency, 2017). As a consequence, the number of refugees entering Sweden in 2016 plummeted to less than 30,000. Other countries have failed to respond to the Syrian refugee crisis all together by refusing to extend the number of capped visas available for refugees and asylum seekers (Ferris & Kirisci, 2016). In this climate, Australia continues to maintain one of the harshest border control policies in the world - enforcing an indefinite period of mandatory

detention on asylum seekers (including children) who do not arrive via “appropriate” channels (Australian Human Rights Commission, 2014).

In addition to these macro level policy implications, fear of the criminal immigrant has a direct impact on the everyday lives of minority group members. Extensive research indicates that certain immigrant groups are subjected to heightened levels of discrimination and alienation in the broader community. Studies find that immigrants face discrimination in both the workforce and the housing market (Chavez & Griffiths 2009; Mayda 2006; Semyonov, Rajjman, Tov & Schmidt, 2004; Sniderman et al., 2004). Further, these negative stereotypes can motivate the use of racial profiling practices. Evidence suggests immigrants who belong to visible minorities are overrepresented in stop and search statistics (Epp, Maynard-Moody & Haider-Markel, 2014). In fact, one police operation in Australia, “Operation Molto” explicitly targeted young African males (Police Accountability Project, 2017).

At its worse, anxieties surrounding crime prone immigrants can manifest into violence. The vitriol touted by politicians and the media often provides the impetus for hate crimes targeting immigrants. In the ten days following Trump’s election, 280 incidents motivated by anti-immigrant sentiment were documented by the Southern Poverty Law Center (Southern Poverty Law Center, 2016). The Brexit vote sparked similar anti-immigrant crimes across the United Kingdom. In the month following Brexit, 5,468 hate crimes were reported to police marking a 41% increase on July 2015 (Corcoran & Smith, 2017). After accepting over one million refugees, attacks on refugee shelters in Germany increased fivefold in 2015 compared to the previous year (Bencek & Martin, 2016).

The detrimental effects of the perceived immigration-crime association extend beyond the foreign born population, negatively impacting residents in neighbourhoods where immigrants live. In an Australian study, perceptions of crime and disorder are distorted in neighbourhoods with higher proportions of foreign born residents who speak a language other than English or practice a religion other than Christianity (Wickes et al., 2013a). Studies also find that residents are more fearful of crime in immigrant neighbourhoods (Hooghe & Vroome, 2016). Even after controlling for the actual level of crime, Hooghe and Vroome (2016) find residents report greater fear of crime in areas with more non-EU nationals.

The consequences of the perceived immigration-crime link are thus far-reaching. Although these perceptions are relatively consistent across contexts, evidence from the international literature

suggests the direction and significance of the immigration-crime association is not. Traditional criminological theories have linked increased immigration to greater crime whereas more recent theoretical developments propose the opposite. Problematically, these theories are derived entirely from the United States experience, where contextual factors unique to this setting may produce particular outcomes for the immigration-crime link that do not generalise to other settings. In the following section I outline the key theories used to explain the immigration-crime connection at the neighbourhood level and consider their utility in the Australian context.

1.3 Key theoretical arguments

Immigration changes the demographic, economic and social structures of cities and neighbourhoods (Reid et al., 2005). Whether these changes will have a positive or negative effect on crime is heavily contested. For example, some argue that an increased number of immigrants may heighten crime by adding to the share of the population with a high-risk crime profile (i.e. increasing the number of young males) (Andersen, 2012; Ousey & Kubrin, 2009). As immigrants tend to experience higher rates of victimisation than natives, higher crime rates in immigrant areas may also be a consequence of increasing the share of the population that is vulnerable to crime (Bell, Fasani & Machin, 2013). Others argue that increased immigration should lead to an overall reduction in the crime rate as first generation immigrants are typically found to exhibit relatively low criminal propensities (Butcher & Piehl, 1998a; Butcher & Piehl, 1998b; Butcher & Piehl, 2007; Hagan & Palloni, 1999; Morenoff & Astor, 2006; Rumbaut et al., 2006; Sampson, 2008). Similar arguments are put forward as part of the migration selection effects thesis. Here it is argued that the process of migration itself 'selects' individuals who are particularly responsive to deterrent mechanisms and possess fewer criminal tendencies (Butcher & Piehl, 2007). On a larger scale, increased immigration should therefore be associated with a drop in the crime rate by increasing the proportion of the population unlikely to offend (Ousey & Kubrin, 2009; Sampson, 2008).

Two theoretical frameworks - derived from the United States experience - are predominantly used by scholars to explain the negative or positive impact of immigration on neighbourhood crime: social disorganisation theory (Shaw & McKay, 1942) and the immigration revitalisation thesis (Martinez, Lee & Nielsen, 2004; Martinez et al., 2010; Stowell, 2007). Often presented as a competing dichotomy (although sharing common elements), social disorganisation theorists contend that immigration is likely to disrupt the development of key social networks important for the informal social control of crime whereas the immigration revitalisation thesis purports that

immigration can bring economic and social opportunities that reduce neighbourhood crime (Martinez et al., 2004; Martinez et al., 2010; Stowell, 2007).

Social disorganisation theory

At the turn of the 20th century, Shaw and McKay's (1942) landmark study found that certain structural conditions of an area, namely heightened levels of poverty, ethnic diversity and residential instability, were linked to higher rates of juvenile delinquency in Chicago neighbourhoods. While they did not explicitly identify immigration as a direct cause of crime, it was argued that immigration altered both the socio-demographic composition of the neighbourhood and the social processes important for the regulation of crime. Within the social disorganisation framework, it is assumed that immigrants arrive at their new host country with limited social and economic capital. As a result, they often settle in resource poor neighbourhoods leading to further economic decline at the neighbourhood level (Stowell, 2007). The ethnic diversity that comes with increased immigration also leads to language and cultural barriers amongst residents, making it difficult to reach shared expectations of behaviour. Additionally, influxes of immigrants add to the share of the population who are "new" to the neighbourhood thereby increasing residential mobility. Taken together, these socio-demographic shifts make it difficult for residents to develop social networks and form strong ties to local organisations. Without these critical networks, a community's regulatory capacity becomes limited and crime flourishes (Shaw & McKay, 1942; Sampson and Groves, 1989; Sampson and Raudenbush, 1999; Sampson, Raudenbush & Earls, 1997). Thus changes in immigration are indirectly linked to crime by weakening social networks and informal social control processes.

Immigration revitalisation thesis

However, empirical research in the United States investigating the immigration-crime link finds little support for the social disorganisation perspective (Alaniz, Cartmill, & Parker, 1998; Desmond & Kubrin, 2009; Feldmeyer & Steffensmeier, 2009; Ferraro, 2016; Kubrin & Ousey, 2009; Reid et al., 2005; Stowell et al., 2009; Wadsworth, 2010). Rather than increasing crime, Martinez and colleagues (Lee & Martinez, 2002; Martinez & Lee, 2000; Martinez et al., 2010) argue that increased immigration in ethnic enclaves can revitalise an area by encouraging opportunities to build social and economic ties with culturally similar individuals (Breton, 1964; Desmond & Kubrin, 2009). Immigrant neighbourhoods often boast local ethnic economies that meet the needs of the immigrant population while also providing employment opportunities that stimulate economic growth (Velez, 2009). In immigrant neighbourhoods, residents are also typically active in local

organisations like schools and faith-based institutions (Foner & Alba, 2008; Portes & Rumbaut, 2006). This involvement allows for the additional development of social networks and helps generate informal social control. These strong social ties may potentially mediate the effect of social isolation and deprivation on crime.

There is extensive support for the immigration revitalisation thesis in the United States. In neighbourhoods and cities with concentrated immigration, strong social networks have effectively stabilised the community, offset the criminogenic conditions of the area and in turn reduced crime (Chavez & Griffiths, 2009; Desmond & Kubrin 2009; Kubrin & Ishizawa, 2012; Kubrin & Ousey, 2009; Martinez et al., 2010). Indeed neighbourhoods that had previously experienced a population decline and were “destined to become crime ridden enclaves”, have become thriving social hubs following increased immigration (Martinez, Stowell & Lee, 2010, p. 822).

1.4 Contextual considerations: How Australia and the United States compare

There are notable exceptions to the revitalisation thesis internationally (Andersen, 2012; Aoki & Todo, 2009; Bircan & Hooghe, 2011; Francis, Armstrong & Totikidis, 2006) and within the United States (Martinez et al., 2004; Ramey, 2013). Martinez and colleagues (2004, p. 152) argue this is because “local conditions eclipse broad theoretical predictions.” Immigrant composition differs significantly across contexts and is determined by a range of factors such as geography, immigration policy, histories of colonisation, shared languages, economic opportunities as well as proximity to conflict/ humanitarian crises. It is likely that these macro level conditions play a key role in determining the significance and direction of the immigration-crime connection at the neighbourhood level. Australia’s immigration experience differs to the United States in several, important ways. Thus exploring the immigration-crime link in Australia, a multi-ethnic setting with a relatively recent immigration history, fills a gap in the United States centric literature and provides an evidence base for Australian immigration policy. I compare the key features of each context below.

The United States is the leading destination country for immigrants globally. Founded as an immigrant nation, it is currently home to over 40 million foreign born persons who comprise around 13% of the total population (Zong and Batalova, 2016). The 11.7 million Mexicans residing in the United States represent the largest immigrant group in the world and make up almost one third of all foreigners (Zong and Batalova, 2016). Other key groups and their respective share of the immigrant population include: India and China (5% each); Vietnam, Cuba and Korea (3% each); and the

Dominican Republic and Guatemala (2% each) (Zong and Batalova, 2016). In fact, the top ten countries of origin account for almost 60% of the total immigrant population (Zong and Batalova, 2016). Further, the distribution of the foreign born population across cities in the United States is non-random with immigrants often settling with co-ethnics, forming ethnic enclaves (Martinez et al., 2010). Thus while the United States hosts immigrants from a variety of ethnic backgrounds, there are clear ethnic groups that dominate at both the local and national level.

Australia is also a nation of immigrants with over a quarter of the population born overseas – early twice the proportion seen in the United States (ABS, 2012). Almost one in every two Australians is a first or second-generation immigrant (ABS, 2012). As a lingering effect from what is colloquially referred to as the “White Australia” era (Jupp, 2002), immigrants from the United Kingdom and New Zealand continue to represent the largest foreign born groups in Australia (ABS, 2012). These typically white, English speaking immigrants comprise 21% and 9% of the foreign born population respectively (ABS, 2012). However, the last decade has witnessed significant growth and diversification in the Australian immigrant population - largely driven by the Asian region. Between 2001 and 2011, an additional 200,000 Indian and 176,000 Chinese immigrants were added to the residential population (ABS, 2012). Yet while Indian and Chinese natives now represent the third and fourth largest immigrant groups in Australia (and the most sizeable ethnic minorities), their respective share of the foreign born population (around 6% each) is still relatively small (ABS, 2012). Similar to the United States, certain Australian neighbourhoods attract large numbers of immigrants. Yet by comparison, these neighbourhoods are highly diverse with a much greater mixture of ethnic groups. Empirical studies find ethnic segregation is far less common in the Australian context when compared to cities in the United States (Johnston, Poulsen & Forrest, 2007).

Therefore while the United States and Australia similarly boast incredibly diverse immigrant populations, they differ significantly in terms of ethnic group size and the settlement patterns of immigrants. These differences have important implications for theory. For example, the utility of the revitalisation thesis in explaining the immigration-crime connection may depend on the degree of homogeneity in the immigrant population. The process of neighbourhood revitalisation may require that there be a critical mass of one ethnic group located within a neighbourhood. Ethnic group concentrations may therefore not reach the size necessary for revitalisation in Australian neighbourhoods. Without concentrations of immigrants from the same origins, opportunities to develop strong social ties may be limited. As social disorganisation theory predicts higher crime in more ethnically diverse areas, this theory may be more applicable in the Australian context where

immigrant neighbourhoods are less likely to be dominated by a single birthplace. While social disorganisation theory suggests the language barriers created by increasing immigration will reduce a community's regulatory capacity, this may not be the case in the United States if immigrants tend to settle with co-ethnics. Indeed, social disorganisation theory is much more interested in the effect of ethnic diversity rather than simply the impact of ethnic group concentration on crime (Bursik, 2006). By sharing a common language (for example, Spanish) and often a common religion (for instance, Catholicism), immigrant communities should be able to effectively communicate with one another and find a mutual ground in order to come together to solve local problems.

In addition to ethnic group composition and size, the immigration programs of the United States and Australia are designed to attract very different types of immigrants. Family unification is prioritised in the United States with 480,000 family visas available annually compared to just 140,000 skilled permanent visas and 70,000 refugee visas (American Immigration Council, 2014). Australia's immigration program is designed to "cherry pick" high skilled immigrants, employing a point-based system similar to Canada (Bertone, 2009, p. 87). Each year, over 120,000 skilled visas are allocated compared to around 60,000 family visas and 13,000 humanitarian visas (Spinks, 2016). The number of immigrants who fail to use these legitimate routes varies considerably across the two contexts. Recent estimates suggest around 11 million unauthorised immigrants are currently residing in the United States (Zong and Batalova, 2016). However, due to Australia's geographic isolation, undetected border crossings are particularly difficult. Persons who stay in the country after their visa expires constitute the only group of "illegal" immigrants in Australia (representing around 0.02% of the total population in 2010 and mostly from China, Malaysia, the United States and Britain) (DIAC, 2013). Thus Australia's controlled strategy has resulted in a relatively well-educated and employable foreign born population. In fact, 38% of Australia's immigrant community is considered to be highly educated compared to an average of 31% across other OECD countries (OECD, 2012). Bertone (2009, p. 87) therefore contends, "while the United States has a thriving sub-program of skilled migration much like Australia's, in most other respects the two immigration programs could not be more different."

As a consequence of Australia's skilled migration program, new immigrants may rely less on community level ties and resources for successful settlement compared to their counterparts in the United States. This is because immigrants arriving in Australia typically have the resources to use services that are dependent on income rather than residential community and have avenues other than the local community (such as the workplace) to form social ties. Further, as many immigrants

(particularly those arriving through the skilled stream) possess access to human and economic capital, - it is unlikely influxes of new immigrants into Australian neighbourhoods will exacerbate poverty levels as predicted by social disorganisation theory. Indeed, the relationship between poverty and race/ethnicity is relatively weak across Australian neighbourhoods (as demonstrated in Chapter 4), particularly when compared to the United States.

1.5 Thesis aims and research questions

This thesis provides one of the first neighbourhood level examinations of the immigration-crime link in Australia. As part of this thesis, I will assess whether the theories commonly used to explain the immigration-crime link in the United States translate to the Australian context. To account for the spatial and temporal dimensions of the immigration-crime link, this thesis is comprised of three quantitative studies designed to better understand how immigrant growth, concentration, diversity and segregation impacts violent crime across neighbourhoods situated in two cities: Sydney - an established immigrant gateway and Brisbane - a relatively new immigrant destination (Singer, 2004).

Study 1

To date, most immigration-crime research has focused on how changes in immigrant concentration over time impact crime *within* a unit (see for example Martinez et al., 2010; Ousey & Kubrin, 2009) or how static levels of immigrant concentration are linked to more or less crime *between* units (see for example Stowell & Martinez, 2009; Velez, 2009). However, experiencing an influx of immigrants into a neighbourhood is inherently different to exhibiting a generally high level of immigrant concentration. As such, each process may differentially influence crime. Drawing on three waves of census data (2001, 2006 and 2011), Study 1 considers both measures by employing a unique hybrid modelling approach which captures within and between neighbourhood effects. By utilising a measure of total immigrant concentration and a measure of immigrant growth, this study provides a foundation for Australian research as well as a point of comparison to international scholarship.

Additionally, research suggests that the effect of increases in immigration on crime will vary across different neighbourhoods. For example, it is argued that neighbourhoods with a large immigrant population are less likely to experience an increase in crime following an influx of new arrivals due to a greater availability of resources and access to social ties with co-ethnics. In other words, such contexts are better positioned to 'absorb' new arrivals when compared to

neighbourhoods without an established immigrant presence (Portes & Rumbaut 2006; Singer, 2004). The impact of immigration on crime is also thought to be dependent on the level of neighbourhood disadvantage. Studies in the United States find that the effect of immigrant growth is most pronounced in areas of concentrated disadvantage (MacDonald et al., 2013; Velez, 2009). It is argued that this is because influxes of new immigrants into disadvantaged areas can revitalise neighbourhood organisations and institutions, revive the local economy and reinforce social networks. In contrast, an increased presence of immigrants in advantaged communities is likely to disrupt social networks and informal social control and in turn, increase crime (Velez, 2009). With this in mind, three research questions guide Study 1:

1. How do changes in immigrant concentration impact changes in violent crime within a neighbourhood over time?
2. Do neighbourhoods with a higher concentration of immigrants encounter more or less violent crime?
3. Is the effect of changes in immigrant concentration on crime moderated by the neighbourhood context (for example, the size of the immigrant population or the degree of disadvantage)?

Study 2

Public attitudes towards immigrants are not ethnically neutral with certain groups associated with social problems like crime. In Australia, immigrants from the United Kingdom and New Zealand experience incredibly low levels of anti-immigrant sentiment (Markus, 2013). In 2013, just 3% of survey respondents voiced negative attitudes towards immigrants from these countries (Markus, 2013). Yet around 25% expressed unfavourable attitudes towards Muslim immigrants or immigrants from Arab countries (Markus, 2013). Negative attitudes are likely to impede the successful integration of some groups which in turn, could potentially impact neighbourhood crime outcomes. Therefore the conclusions drawn from the broad measure of immigrant concentration utilised in Study 1 may oversimplify the immigration-crime link and potentially wash out the effects of ethnicity on crime.

Immigrant ethnicity is central to both theoretical perspectives considered in this research. According to the revitalisation thesis, the effect of immigrant concentration on neighbourhood crime should vary across ethnic groups depending on the size of the established co-ethnic population (Martinez et al., 2004). This is because established populations possess social capital that can aid

integration and insulate communities from the social structural factors associated with crime (Martinez et al., 2004). Without access to the resources and ties necessary for successful integration, the presence of newer groups may be linked to increases in neighbourhood crime in the short term. Successive waves of immigration to Sydney and Brisbane have seen migratory populations established at different times. Differences between sites are therefore expected with most ethnic groups settling more recently in Brisbane. Thus increases in the same ethnic group may differentially impact crime across the two cities, leading to more violent crime in Brisbane, but not in Sydney.

Central to social disorganisation theory, although rarely tested in empirical immigration-crime research -is the predicted effect of increasing ethnic diversity on crime (Feldmeyer, Harris & Lai, 2016; Graif & Sampson, 2006). From this theoretical lens, diversity leads to higher neighbourhood crime with communication barriers between residents breaking down the regulatory processes necessary for the informal social control of crime. As a relatively invisible migratory group, it is unlikely that increased immigration from countries like the United Kingdom and New Zealand will contribute to neighbourhood diversity. Conversely, an increased presence of visible ethnic groups in a neighbourhood may create greater language and cultural barriers between residents which obstruct community regulation (Sampson et al., 1997; Shaw & McKay, 1942). From this perspective, diverse immigrant populations are particularly detrimental to a community's regulatory capacity (rather than merely a concentration of immigrants) as residents struggle to find the common ground necessary to come together to collectively solve local problems like crime.

Therefore to tease apart any group specific effects, I disaggregate total immigrant concentration in Study 2 by two measures of ethnicity - language and religion. In addition, I include two corresponding diversity indices to measure the effect of ethnically diverse populations on crime. Thus by assessing both concentration and diversity effects, Study 2 robustly tests the central tenets of the revitalisation thesis and social disorganisation theory. Building on Study 1, Study 2 utilises the same analytic approach (negative binomial hybrid models) over the same time period (2001-2011). In Study 2, I ask three key questions:

1. How do changes in immigrant group concentration and changes in ethnic diversity impact changes in violent crime within a neighbourhood over time?
2. Do neighbourhoods with a higher concentration of certain immigrant groups or higher levels of ethnic diversity encounter more or less violent crime?

3. Is the effect of changes in ethnic group concentration or changes in ethnic diversity on crime moderated by neighbourhood factors such as the size of the immigrant population or the level of disadvantage?

Study 3

Most immigration-crime research to date has employed measures of immigrant growth or concentration with measures of segregation largely underutilised (see for exception Barranco, 2013; Feldmeyer, Harris & Scroggins, 2015). Yet theoretically, there are reasons to believe that the spatial separation of immigrant groups may impact neighbourhood structures in ways that either promote or reduce crime. In the United States, black-white segregation is thought to contribute to higher rates of crime by weakening social controls and undermining a community's regulatory capacity through mechanisms associated with social inequality and social isolation (Peterson, Krivo & Browning, 2009). Yet studies find mixed results. While some find a positive association between segregation and the overall crime rate (see for example Logan & Messener, 1987), others reveal significant variation when considering group specific crime rates (see for example Krivo, Peterson & Kuhl, 2009; Peterson & Krivo; 1993; Shihadeh & Flynn, 1996). Further still, some scholars propose that the segregation of immigrant groups may uniquely impact neighbourhood structures. As immigrant enclaves offer residents a "protective shell of resources" (Feldmeyer et al., 2015, p. 2), it is argued that these strong social networks can potentially mediate the effect of isolation and deprivation on crime.

Therefore in Study 3, I consider both the spatial distribution of the immigrant population and the co-location of immigrant neighbourhoods and whether these residential processes, in turn, influence crime. As previous research finds relatively low levels of residential segregation across Australian cities (Johnston et al., 2007), I begin this study by drawing on two highly spatialized yet underutilised measures of local segregation - Location Quotients (LQs) and Local Moran's *I*. I use these measures to address two questions:

1. How are immigrant groups spatially distributed across Brisbane and Sydney?
2. Are immigrant neighbourhoods co-located within each city or isolated?

After establishing these spatial trends, I consider the effect of residential segregation on crime. Employing negative binomial regression and focusing on data from one time point (2011), I ask two additional questions:

3. How does the residential distribution of each immigrant group impact violent crime?
4. Is the co-location of immigrant neighbourhoods associated with more or less neighbourhood violence?

Together, these three quantitative studies address the overarching aim of this research - that is to determine whether the theories derived from the United States immigration-crime experience generalise to the Australian context.

1.6 Thesis overview

This thesis is comprised of 8 chapters. In this chapter, I introduced the global debate surrounding immigrants, immigration and crime, established Australia as an important research site and outlined the key research questions. In Chapter 2, I provide a comprehensive overview of the empirical literature starting with the *immigrant-crime link* (immigrants as perpetrators) and then moving to the *immigration-crime link* (the effect of immigration on crime). I outline in detail the central tenets of the key theories used to explain the immigration-crime link - with particular focus on social disorganisation theory and the immigration revitalisation thesis. I also address the role context plays in moderating the immigration-crime relationship by comparing research in new and established contexts and pointing to the inconsistencies in the international literature.

In Chapter 3, I narrow my focus to the Australian context. Here, I discuss historical trends in immigration and provide an overview of Australia's immigrant population today. Reflecting on the contextual arguments outlined in Chapter 2, I describe Australia's controlled migration program, attitudes towards immigrants and immigrant settlement patterns. To conclude this chapter, I review the limited research interested in the immigrant-crime link and immigration-crime link in Australia. In Chapter 4, I outline the methodology of my research. Specifically, I provide an in-depth overview of the two research sites, describe the data sources employed, and summarise the analytic approach utilised in each of the three studies. In Chapters 5, 6 and 7, I present the results of the three empirical studies. In Chapter 8, I further discuss the key findings of this thesis and reflect on the implications for theory and policy. I conclude this chapter - and this thesis - by highlighting the limitations of this work and identifying areas for future research.

Chapter Two: Immigration and Crime

2.1 Introduction

Myths surrounding the criminal immigrant and the criminogenic effects of immigration are deeply rooted in public opinion, shaped by political rhetoric and fanned by sensationalist media accounts. However, whether or not these concerns reflect an empirical reality is highly questionable. This chapter reviews what is currently known about immigration and crime in the international context. Specifically, I discuss literature related to both the *immigrant-crime link* (immigrants as perpetrators) and the *immigration-crime link* (the effect of immigration on crime rates). In doing so, I explore empirical studies from the United States and abroad. I also outline the central tenets of the two competing ecological perspectives most commonly employed to explain the relationship between immigration and crime - social disorganisation theory and the immigration revitalisation thesis. I conclude this chapter by discussing new directions in immigration-crime research.

2.2 Immigrant-crime link

Immigrants are presumed to offend at a disproportionately higher rate than natives due to a range of social, economic and cultural factors (Lee & Martinez, 2009; Martinez & Lee, 2000; Thomas, 2011). Yet studies in the United States, find limited empirical support for these predictions. Here scholars typically find first generation immigrants display relatively low criminal propensities (Butcher & Piehl, 1998a; Butcher & Piehl, 1998b; Butcher & Piehl, 2007; Hagan & Palloni, 1999; Morenoff & Astor, 2006; Rumbaut et al., 2006; Sampson, 2008; Vaughn, Salas-Wright, DeLisi, & Maynard, 2014). Whilst generational disparities do exist, second generation immigrants are generally no more crime prone than their native born counterparts (Bersani, 2014a; Bersani, 2014b; Morenoff & Astor, 2006; Rumbaut et al., 2006). However, outside of the United States, the immigrant-crime link is less conclusive. In some settings, particularly in Europe, certain immigrant groups are overrepresented in official crime statistics (Albrecht, 1997; Lehti, 2015; Martens, 1997; Martens & Holmberg, 2005; Skardhamar et al., 2014). This divergence suggests context may matter in determining the significance and direction of the immigrant-crime relationship.

Immigrant involvement in crime

Immigrants are not thought to be inherently criminal but rather the challenges of life in their new host country can form a source of strain and frustration that in turn manifests into offending. In

the United States, certain immigrant groups (for example, Mexicans) are disproportionately young, male, and poorly educated – all characteristics associated with crime amongst natives (Terrazas, 2010). As such, immigrants are generally considered a high-risk population for crime (Hagan & Palloni, 1999). Immigrants also face systemic discrimination in the workforce and encounter higher rates of unemployment and lower household incomes (De Jong & Madamba, 2001; Rumbaut et al., 2006; Schnepf, 2008). According to strain theories, these circumstances make immigrants more vulnerable to crime (Thomas, 2011). While many migrate with the intention to better their and their children's lives, immigrants can face constant barriers to achieving upward social mobility.

Other theories, like the migration selection effects thesis, predict immigrants will offend at a lower rate than natives. This is because immigrants are a self-selected group who decide to migrate as opposed to a random cross section of the sending population (Tonry, 1997). According to Sampson (2008, p. 30) immigrants “selectively migrate on characteristics that predispose them to low crime, such as motivation to work, ambition and a desire not to be deported.” Due to the high stakes immigrants have in conformity, it is likely that they will assume the role of law-abiding citizens following settlement. Thus the process of migration itself actually *selects* individuals who are particularly responsive to deterrent mechanisms and possess fewer criminogenic tendencies (Butcher & Piehl, 2007).

Most empirical evaluations of the immigrant-crime link focus on the growing Latino population in the United States. Here, immigrants are consistently found to be less involved in crime compared to the native born population (Butcher & Piehl, 1998; Butcher & Piehl, 2007; Hagan & Palloni, 1999; Sampson, 2008). In fact, evidence from the Project on Human Development in Chicago neighbourhoods suggests first generation immigrants are 45% less likely to act violently than their third generation counterparts (Sampson, 2008). Once accounting for age, gender and differential treatment in the criminal justice system, Hagan and Palloni (1999) found the rate of imprisonment for Hispanic immigrants in El Paso and San Diego was significantly lower than natives (Hagan & Palloni, 1999). Other studies uncover similar findings. Even without controlling for demographic differences, Butcher and Piehl (1998a) found that foreign born youth were less likely than native youth to be involved in crime.

These trends are consistent over time. In analysing data from the 2010 American Community Survey, Ewing and colleagues (2015) found lower rates of incarceration amongst the immigrant male population (1.6%) compared to the native male population (3.3%). Drawing on census data from 1980, 1990 and 2000, the authors argue this disparity is relatively stable over time with the

incarceration rate of natives two to five times greater than the incarceration rate of immigrants (Ewing, Martinez & Rumbaut, 2015). Immigrant-crime scholarship is thus remarkably unanimous in the United States. Despite the challenges immigrants face, most studies draw the same conclusion - immigrants do not pose a distinct criminal threat to society (Almeida, Johnson, McNamara & Gupta, 2011; Bersani, 2014a; Morenoff & Astor, 2006; Rumbaut et al., 2006; Sampson, 2008; Vaughn et al., 2014).

Internationally, the immigrant-crime link is less clear. In the United Kingdom, Papadopoulos (2010) found no significant relationship between immigrant status and self-reported involvement in either property or violent crime. Similarly, Jaitman and Machin (2013) found that while immigrants were arrested at a significantly higher rate than natives (3.5 arrests per 1,000 population compared to 2.8 arrests per 1,000 population) - this higher arrest rate disappears once controlling for age. Yet, scholarship across several European countries reveals a different picture. In Europe, immigrants are generally overrepresented in official crime statistics as evidenced by a growing body of research in Germany (Albrecht, 1997), Sweden (Van Hofer, Sarnecki & Tham, 1997; Martens & Holmberg, 2005; Martens, 1997), Switzerland (Killias, 2009), Denmark (Van Noije & Kessels, 2011), Norway (Skardhamar et al., 2014) and Finland (Lehti, 2015).

After analysing official police and court data in Germany, Albrecht (1997) concluded that immigrants are more involved in crime than natives with this association remaining even after adjusting for socio-economic conditions and demographic differences. Drawing on official statistics, victimisation data and self-reports, Killias (2009) found immigrants offend at a disproportionately higher rate than natives in Switzerland. In Sweden, Martens (1997) found the proportion of immigrants suspected for crimes was higher than anticipated given their population structure. When holding other factors equal, these group differences remained, although the effect size was reduced (Martens, 1997).

Considering a broader range of family and neighbourhood factors, Hallsten and colleagues (2013) accounted for a relatively large proportion of the gap in offending between immigrants and natives in Sweden. Following the offending trajectories of individuals who completed schooling between 1990 and 1993 until their thirties (N=63,462), they found that between 50% to 80% of the offending gap between immigrant males and their native born counterparts could be explained by differences in family resources and neighbourhood segregation. In addition, the authors tested cultural explanations for crime by pairing individuals who share the same country of origin. Here they found only a small correlation between individuals from similar origins and their level of

criminal involvement. The authors thus concluded that cultural factors (related to country of origin) are unlikely to be a primary driver of crime amongst immigrants.

Studies that disaggregate the foreign born population by ethnicity find considerable heterogeneity in offending rates across groups. In the Netherlands, just 1% of Dutch citizens were officially registered as a suspect of a crime committed in 2009 compared to 3.8% of non-Western immigrants (Van Noije & Kessels, 2011). However, this gap is even greater when focusing on non-Western immigrants by country of origin with 6.0% of immigrants of Antillean origin registered as a crime suspect followed by 5.3% of immigrants of Moroccan origin and 4.1% of immigrants of Surinamese origin (Van Noije & Kessels, 2011). Though it should be noted that these statistics fail to account for the demographic differences between these immigrant groups and natives.

Group differences in offending rates are also found in Norway and Finland. In comparing violent crime and property crime rates in Norway and Finland for 25 immigrant groups, Skardhamar and colleagues (2014) uncovered considerable differences between groups. In many cases, immigrant groups exhibited a low rate of offending relative to the native born population, especially in Norway. Yet for other groups - particularly those where immigrants are migrating for humanitarian purposes (for example immigrants from Somalia, Iraq, Afghanistan, Yugoslavia and Iran), the rate of offending exceeded the native born population. Further still, these differences were independent of age and gender. However, it is important to recognise that the authors did not control for other key determinants of crime which may explain the overrepresentation of humanitarian immigrants in offending rates, namely socio-economic status and racial bias in policing practices.

The inconsistencies in the international literature are likely attributable to contextual factors such as differences in immigration policy and the ability of some nations to integrate their foreign born population more effectively than others (Simon & Lynch, 1999). In their cross-cultural investigation, Simon and Lynch (1999) considered the crime rates of foreigners in immigrant countries (Australia, Canada and the United States), non-immigrant countries (Japan and Germany) and countries with both immigrant and non-immigrant features (Great Britain and France). Here they found a general pattern whereby nations with more liberal immigration policies exhibited lower incarceration rates of foreigners in comparison to nations with more restrictive immigration policies. This rule applied to all observed nations with the exception of France where foreigner involvement in crime was considerably higher than non-immigrant nations (Simon & Lynch, 1999).

In addition to receptivity, differences in the push/pull factors which determine motivations for migration may explain some of the differences across contexts. For some immigrant groups, like Latinos in the United States, immigrants are *pulled* to the host country in pursuit of a better livelihood for themselves and their family with the hope of achieving upward social mobility (Pew Research Center, 2009). While in Europe (particularly in Germany and Sweden), a large proportion of immigrants are *pushed* from their country of origin as a consequence of conflict/humanitarian crisis (Connor, 2016). Such groups tend to lack both social and economic resources upon arrival, face high levels of anti-immigrant sentiment and often experience posttraumatic stress. Due to these circumstances, immigrants who are forced to migrate may be particularly vulnerable to crime and strain whereas migrants who are 'pulled' may be especially responsive to deterrent mechanisms due to their high stake in conformity.

Second generation immigrants

While first generation immigrants in the United States are not engaged in more crime than natives, there is evidence to suggest criminal involvement increases in successive generations (Bersani, 2014a; Bersani, 2014b; Morenoff & Astor, 2006; Rumbaut et al., 2006). To account for the offending gap between first and second generation immigrants, scholars proffer two, somewhat competing theoretical arguments, namely segmented assimilation theory and socialisation processes (also referred to as Americanisation).

Developed by Portes and Zhou (1993), segmented assimilation theory recognises that immigrants arrive at their new host country with vastly different skills and resources. For some, they will follow a path of upward mobility, improving their circumstances post migration. For others, they may stay in the same social class or, experience downward mobility (Portes & Zhou, 1993). Mobility is determined by two key factors: (1) social and financial capital and; (2) patterns of residence (Portes, Fernandez-Kelly & Haller, 2009). Not surprisingly, first and second generation immigrants with fewer resources are at a higher risk of experiencing downward mobility, and as a result, are in greater danger of turning to crime. The effect of low socio-economic status is believed to be particularly strong for second generation immigrants as they did not self-select (Portes & Zhou, 1993; Zimring, 2010).

Alternatively the higher rate of criminal involvement amongst the second generation may be a product of socialisation processes, or as referred to in the United States - a consequence of Americanisation. Unlike their parents, the second generation is born and socialised in their

destination country. Thus, their higher engagement in crime compared to the first generation may merely represent a pattern of convergence with their native born peers. If this is the case, their criminal activity will be linked to the same factors that explain crime amongst natives (Bersani, 2014a). Evidence supporting this perspective does not necessarily disprove claims that some second generation immigrants are worse off than their parents, but it does call into question whether the experiences of the second generation are in fact unique from natives and require separate exploration to the rest of the population.

Common to both perspectives is the idea that the generational disparity in offending patterns may be due (at least in part) to different frames of reference (Bersani, 2014a). For first generation immigrants, their country of birth forms the frame of reference for standards of living. Despite the challenges they now face in their new home country, they are well aware that their current situation is an improvement on their past (Tonry, 1997). The second generation however is essentially 'torn between two worlds' (Tonry, 1997). Their frame of reference is their host country therefore they are unable to find solace in the idea that they are better off now. Rather, they compare their situation to those with non-immigrant histories (Bersani, 2014a; Tonry, 1997). Although second generation immigrants may offend at a higher rate than the first, it does not necessarily follow that they possess greater criminogenic tendencies than non-immigrants in similar circumstances (Zimring, 2010).

Empirical evidence supports the notion that generational status and time of arrival are related to immigrant criminality. Morenoff and Astor (2006) found a strong significant association between age of arrival and self-reported violence amongst immigrant youth in their analysis of PHDCN data. Specifically, immigrants who were under the age of six at time of migration were more likely to act violently during adolescence compared to those who migrated at an older age. Further, they found a significant (although weaker) relationship between linguistic acculturation and self-reported violence. This suggests youth from fully acculturated households are more likely to be violent than those from partially acculturated or non-acculturated households (Morenoff & Astor, 2006).

Almeida and colleagues (2010) uncover similar findings. Using data from the Boston Youth Survey, they tested the effect of generational differences and time of arrival on peer violence. The participants (n=1,878) were categorised as recent arrivals (less than four years in the United States), non-recent arrivals (more than four years in the United States), second generation (one or both parents born overseas) and third generation (both parents born in the United States). In line with previous research, they found that recently arrived immigrants were less likely to partake in peer violence than their native born counterparts while the second generation's rate of violence reflected

their native born peers. Interestingly, they found that the protective effect of nativity was negated amongst non-recent immigrants. They therefore concluded that negative assimilation takes place within the first generation, not just in successive generations.

Employing several waves of data from the National Longitudinal Survey of Youth, Bersani (2014a) questioned whether the rate of offending for first and second generation immigrants (n=532 and n=988 respectively) differed from native born youth (n=6418). Here she found the rate of participation as well as the frequency of offending was lowest amongst first generation immigrants but similar amongst the second generation and natives. These patterns persisted even when disaggregating by nationality and crime type (Bersani, 2014a). In a later study, Bersani (2014b) considered whether second generation youth and native born youth share similar pathways into offending. Here she found that predictors of crime amongst the second generation were, for the most part, consistent with predictors of crime amongst natives. These findings provide some support for theoretical arguments centred on socialisation processes and subsequently question the utility of considering the second generation as a distinct crime problem.

Again, studies outside of the United States interested in the offending rates of the second generation uncover divergent findings. In Italy, Melossi, De Giorgi and Massa (2009) found nativity had little explanatory power in regards to self-reported deviancy. Further, they found no evidence that second generation youth were involved in crime at a greater frequency or seriousness than natives. In Switzerland, Vazsonyi and Killias (2001) found that second generation youth report the highest level of deviant behaviour. Yet, these differences between groups were for less serious types of deviance such as vandalism and school misconduct rather than more serious crimes like theft and assault. Further, the magnitude of these differences was only small. While in Sweden, Kardell and Martens (2013) found the overall offending rate for the first generation was higher than both the rate for the second generation and the rate for natives. Their findings suggest immigrants become less rather than more crime prone following processes of socialisation and assimilation. Together, this literature points to the importance of context in shaping the immigrant-crime link – both for first and second generation immigrants.

2.3 Immigration-crime link

Regardless of whether or not immigrants offend at a higher rate than natives, immigration changes the demographic, economic and social structures of cities and neighbourhoods in ways that may impact crime rates (Reid et al., 2005). Whether these changes will have a positive or negative

effect on crime is the source of much debate. For example, some argue that an increased number of immigrants may heighten crime by adding to the share of the population with a high-risk crime profile (for instance, increasing the number of young males) (Ousey & Kubrin, 2009). In the United States, Ousey and Kubrin (2009) found that a greater proportion of recent immigrants were male (51.4% compared to 48.9%) and fell into the 15-34 age category (53.7% compared to 26.8%). Therefore, it is reasonable to assume that if immigration increases the proportion of the population that is young and male, increased crime may follow. Also, in some contexts, immigrants face higher rates of victimisation than natives (Bell, Fasani & Machin, 2013). Thus, higher crime in immigrant areas may merely reflect an increase in the share of the population that is vulnerable to victimisation.

As first generation immigrants are underrepresented in crime statistics (at least in the United States) (Butcher & Piehl, 1998a; Butcher & Piehl, 2007; Hagan & Palloni, 1999; Morenoff & Astor, 2006; Rumbaut et al., 2006; Sampson, 2008), others argue that increased immigration should lead to an overall reduction in the crime rate by increasing the share of the population unlikely to offend (Sampson 2008). As discussed earlier in this chapter, the migration selection effects thesis predicts immigrants to be selected from the “low end of the criminal propensity distribution” (Ousey & Kubrin, 2009, p. 451). On a larger scale, Sampson (2008, p. 30) argues that this selection bias “favours the argument that immigration may be causally linked to lower crime.”

Although immigration is ultimately a macro social process, it has a considerable impact on neighbourhood contexts. Immigrants are not randomly distributed across cities (ABS 2014a; McDonald et al., 2013). Due to limited social and economic capital, immigrants often settle in disadvantaged areas (Stowell, 2007). Any bivariate relationship uncovered between immigration and crime may therefore be spurious (Stowell, 2007). Two theoretical frameworks are mainly used by scholars to explain the negative or positive impact of immigration on neighbourhood crime: social disorganisation theory and the immigration revitalisation thesis. On the one hand, social disorganisation theorists argue that immigration is likely to disrupt the development of key social networks important for the informal social control of crime. On the other hand, the immigration revitalisation thesis suggests that immigration can bring economic and social opportunities that reduce neighbourhood crime (Martinez et al., 2004; Martinez et al., 2010; Stowell, 2007). I discuss each in turn below.

Social disorganisation theory

In their landmark study, Shaw and McKay (1942) posited that certain structural features,

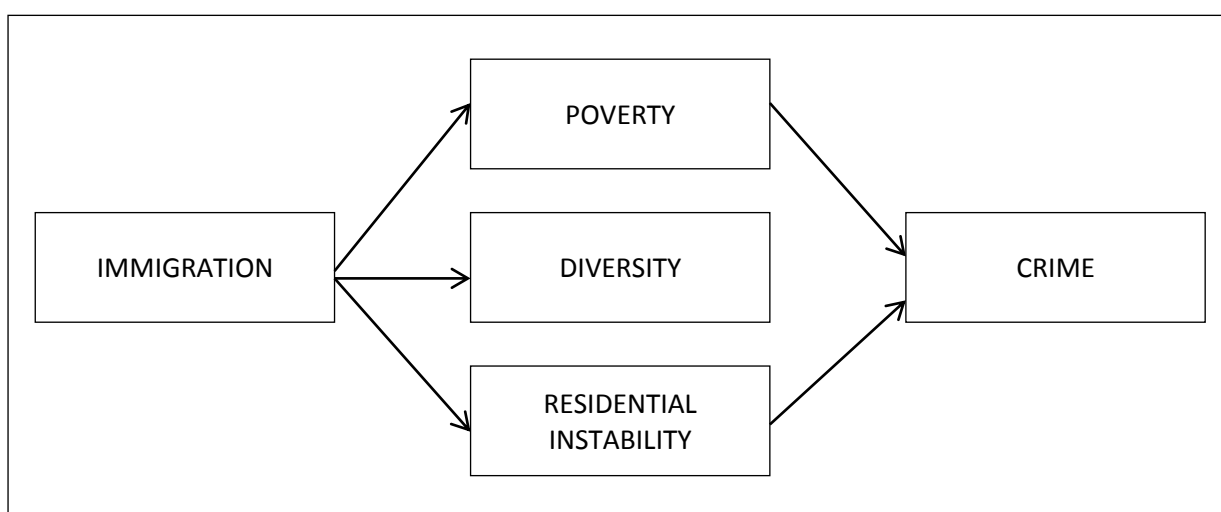
namely poverty, ethnic diversity and residential instability were linked to higher rates of juvenile delinquency in Chicago neighbourhoods. In poor, ethnically diverse and residentially unstable neighbourhoods, developing strong social ties is particularly difficult (Stowell, 2007). Subsequently these structural features erode the social networks necessary to prevent crime thereby limiting a community's regulatory capacity (Sampson & Groves, 1989). Thus unlike other scholars at the time, Shaw and McKay (1942) did not believe immigrants were inherently criminal or that their cultural traditions promoted more crime. Instead, crime was a result of disrupted social structures (Martinez et al., 2010; Stowell, 2007).

Social disorganisation theory assumes an indirect relationship between immigration and crime. As illustrated in Figure 2.1, increased immigration alters levels of poverty, residential instability and ethnic diversity in neighbourhoods which in turn affects crime (Martinez et al., 2010; Stowell, 2007). Key to this theory is the idea that immigrants typically arrive at their new host country with limited resources. As a result, immigrants move into resource poor neighbourhoods further exacerbating levels of economic deprivation in a given area (Stowell, 2007). Immigration also contributes to a neighbourhood's level of ethnic diversity. The language and cultural differences associated with immigration create barriers between residents undermining their ability to build social ties and collectively solve community problems like crime. From this perspective, diverse immigrant populations are particularly detrimental to a community's regulatory capacity. In addition to increasing diversity and disadvantage, influxes of new immigrants add to the share of the population who are new to the area. In residentially unstable areas, residents are unable to develop friendships and form strong ties to local organisations (Stark, 1987). These weak social ties lead to higher crime as residents lack a willingness to exercise informal social control in their neighbourhood. For these reasons, social disorganisation theorists view immigration as "an inherently destabilising or disorganising urban process" (Stowell, 2007, p. 2).

It is important to note that the theory does not explicitly identify immigration as a direct cause of disorganisation. Rather due to its damaging impact on neighbourhood social structures, social disorganisation theorists predict an indirect relationship between immigration and crime. Specifically, social disorganisation theory assumes higher crime rates in neighbourhoods where larger proportions of immigrants (particularly recent arrivals) reside (Stowell, 2007). Yet this perspective fails to recognise that immigrants do not represent a monolithic group but rather arrive under different circumstances with varied resources. Thus it is likely various immigrant groups (whether classified by race/ethnicity or purpose for migration) will differentially impact

neighbourhood social structures (Stowell, 2007).

Figure 2.1 Indirect relationship between immigration and crime



(Stowell, 2007)

Contemporary theoretical perspectives like social capital theory and collective efficacy theory similarly predict that the increased ethnic diversity associated with immigration will negatively impact the regulatory processes necessary to prevent crime. This is because residents living in ethnically diverse neighbourhoods report less confidence in the government, vote less, have fewer friends in their neighbourhood, have less contact with their neighbours and are less involved in charity/volunteer work (Putnam, 2007; Wickes et al., 2013b). Ethnically diverse neighbourhoods also suffer from lower levels of social cohesion and collective efficacy (Lancee & Dronkers, 2011; Putnam, 2007; Walker & Hewstone, 2008; Wickes et al., 2013b). Yet limited research has explicitly considered whether the lower levels of social cohesion and reduced neighbourly interactions associated with ethnic diversity and immigrant concentration are actually linked to increased crime (see for exception Burchfield & Silver, 2013; Feldmeyer et al., 2017; Kubrin & Desmond, 2015).

Immigration revitalisation

The immigration revitalisation thesis was developed by Martinez and colleagues in order to explain the unexpected findings in the empirical literature (Lee & Martinez, 2002; Lee & Martinez, 2009; Martinez & Lee, 2000; Martinez et al., 2004; Martinez et al., 2010; Nielsen, Lee & Martinez, 2005). Central to this theory is the role ethnic enclaves play in providing a sense of home to immigrants suffering feelings of disorientation and displacement (Desmond & Kubrin, 2009). Rather than increasing crime, it is argued that increased immigration in ethnic enclaves can revitalise an

area by encouraging opportunities to build social ties with culturally similar individuals (Breton, 1964; Desmond & Kubrin, 2009). These connections provide vital social and economic resources for immigrants.

Immigrant neighbourhoods often boast thriving ethnic economies with specialised businesses, restaurants, cafes and open-air markets that meet the needs of the immigrant population. These services provide employment opportunities and stimulate economic growth (Velez, 2009). Further, in immigrant neighbourhoods, residents are typically active in local organisations like schools and faith-based institutions (Foner & Alba, 2008; Portes and Rumbaut, 2006). This involvement allows for the additional development of social networks and helps to generate informal social control. It is argued that these strong social ties may mediate the effect of social isolation and deprivation on crime. Studies find this revitalising effect is strongest in disadvantaged neighbourhoods (MacDonald et al., 2013; Velez, 2009). In fact, neighbourhoods that had previously experienced a population decline and were “destined to become crime ridden enclaves,” have actually become thriving social hubs following increased immigration (Martinez et al., 2010, p. 822). Yet the process of revitalisation may depend on the degree of homogeneity in the immigrant population. For revitalisation to occur, it is likely the immigrant population needs to share similar ethnic origins in order to produce strong social networks.

Empirical evaluations of the immigration-crime link

In one of the first empirical examinations of the immigration-crime link, Alaniz and colleagues (1998) investigated the spatial distribution of violent crime committed by or against youth aged 15-24 years. From their analysis of census blocks in three Northern Californian communities, they found that the proportion of foreign born residents in an area did not predict youth violence when controlling for neighbourhood factors. Desmond and Kubrin (2009) further confirmed these findings drawing on self-report data from the National Longitudinal Study of Adolescent Health. In their study, youth living in areas with a greater immigrant presence reported fewer violent offenses with this protective effect particularly strong amongst Asian youth. There is also evidence to suggest that immigrant concentration is linked to lower levels of reoffending amongst juvenile delinquents. Examining the rate of recidivism by 105,573 youth nested within 3,547 neighbourhoods in Florida, Wolff and colleagues (2015) found that delinquents living in immigrant neighbourhoods were significantly less likely to reoffend - although the effect size was modest.

These consistent null and negative effects of immigrant concentration on crime extend beyond youth offenses. For example, Martinez and colleagues (2008) found heterogeneity (a combined measure which included percent recent arrivals, percent Latino and percent linguistically isolated) was significantly and negatively linked to aggravated assault, robbery and drug activity in their study of Miami neighbourhoods. Similarly, Akins and colleagues (2009) found no link between the number of homicides in a census tract and the proportion of recent arrivals in Austin, Texas.

Similar patterns are uncovered at larger geographies. Drawing on a stratified random sample of 150 metropolitan areas, Reid and colleagues (2005) assessed the relationship between several immigration measures (namely, percent recent arrivals, percent Asian foreign born, percent Hispanic foreign born and percent non-English proficient) and four crime types (homicide, robbery, burglary and larceny). They found that in no instance was any immigration measure positively related to crime. In fact, recent immigration was significantly linked to fewer homicides while Asian immigration was significantly associated with less theft. In another study, Kubrin and Ousey (2009) examined the relationship between immigrant concentration and various types of homicide across 206 cities in the United States. Controlling for a range of socio-demographic predictors, they found that immigrant concentration was associated with lower homicide rates overall, as well as lower rates of altercation, felony and drug-related homicide (Kubrin & Ousey, 2009).

However, there is evidence to suggest that the effect of immigration on crime varies when crime rates are disaggregated by offender ethnic/racial group. Studying black and Latino homicide in three border cities, Lee, Martinez and Rosenfeld (2001) found that the presence of new immigrants significantly reduced Latino homicide in El Paso and Black homicide in Miami. However in San Diego, the concentration of new immigrants significantly increased homicide perpetrated by black residents. Utilising homicide arrest counts, Feldmeyer and Steffensmeier (2009) similarly considered whether immigration had a violence-generating, violence-reducing or a null effect on black, white and Latino offending across 328 census tracts in California. Like Lee and colleagues (2001), the authors found differences between groups. In this case, immigration had no effect on Latino offending but slightly reduced both white and black homicide.

Recognising that immigration is a social process that unfolds over time, more recent scholarship has moved towards examining how *changes* in immigration impact *changes* in crime (Ousey & Kubrin, 2009; Martinez et al., 2010; Stowell et al., 2009; Wadsworth, 2010). This is an important step forward as cross sectional studies interested in the impact of immigrant concentration on crime are limited by an inability to examine temporal ordering. Martinez and colleagues (2010,

p.817) argue that longitudinal evaluations are “the key to understanding the dynamic forces driving processes of urban disorganisation and revitalisation.” With this in mind, Martinez and colleagues (2010) utilised neighbourhood-level data over three decennial census years (1980, 1990 and 2000) to examine how changes in immigration influenced changes in homicide over time in San Diego neighbourhoods. To determine how changes in the social structural features of a neighbourhood are linked to changes in homicide, they employed fixed effects negative binomial models with the logged population included as the exposure variable. Their results revealed a negative relationship between immigration and homicide over time. In other words, increases in the size of the foreign born population over time were linked to decreases in the number of homicides.

To test whether increased immigration produces differential outcomes for various racial/ethnic groups, Martinez and colleagues (2010) again estimated the models with racially/ethnically disaggregated homicide data. In doing so, they found increases in the foreign born population were linked to fewer white and Latino homicide victims yet found no significant effect for blacks. Martinez and colleagues (2010, p. 821) claim that overall these results provide support for the revitalisation thesis and suggest that “immigration halts (and might reverse) some of the disorganisation–crime–disorganisation spiral that unfolds throughout long periods of time and is thought to play a central role in the creation of permanently high-crime neighbourhoods.”

Other longitudinal studies have examined this relationship across cities. For example, Ousey and Kubrin (2009) investigated the effect of changes in immigration¹ on changes in violent crime across 159 cities in the United States from 1980 to 2000. Estimating fixed effects linear regression models, they considered whether changes in immigration (as well as changes in other demographic/socio-structural factors), influenced changes in violent crime over time. The models were stepped out in six stages. The initial model focused solely on immigration and crime. Without controlling for other predictors of crime, they found a significant and negative relationship between immigration and violent crime. Specifically, a one unit increase over time in the immigration index was related to a decrease of 253 violent crimes per 100,000 persons. The following models introduced additional measures known to be associated with violent crime. After including these variables, they found demographic transitions, labour market structure, economic deprivation, changes in drug markets and formal social control capacity did not affect the magnitude of the association between immigration and crime. Only one measure - the family instability index - was

¹ Immigration was measured by the creation of an immigration index- (summed the z scores of % Latino, % foreign born and % who speak English not well or not at all).

found to have both a positive relationship with violent crime *and* mediate the effect of immigration on violent crime. In fact, following the inclusion of the family instability index, the direct effect of immigration on crime was no longer statistically significant. Ousey and Kubrin (2009) therefore concluded that immigration strengthens family stability by increasing the presence of two parent households. These improved family structures flow on to produce lower levels of crime. The relationship between immigration and crime is thus indirect once family structures are considered.

Building on their previous work, Ousey and Kubrin (2014), more recently assessed whether immigration patterns are associated with changes in overall homicide rates and circumstance specific homicide rates (including argument homicides, felony homicides, drug-related homicides and gang-related homicides). To explore the temporal changes in 156 large cities in the United States between 1980 and 2010, they estimated fixed effects negative binomial regression models and two stage least squares instrumental variable regression models. They found that changes in the overall homicide and drug-related homicide rate were negatively associated with changes in immigration. In other words, as immigration increased, homicide rates declined. Importantly, they found that for many of the homicide subtypes, the effect of immigration was “contingent and varied, not general” (Ousey & Kubrin, 2014, p. 453). Further, they found increases in immigration were most effective at reducing crime in cities that had relatively high immigration levels in the 1970s.

Stowell and colleagues (2009) uncovered similar results to Ousey and Kubrin (2014) at the metropolitan area level. Here they assessed the effect of changes in immigration on changes in overall violent crime as well as changes in criminal homicide, robbery, forcible rape and aggravated assault between 1994 and 2004. They included an exhaustive list of co-variates in the models such as: population size, racial composition, education attainment, employment status, family formation, divorce rate, poverty, mean household income, adult/child ratio, residential instability, regional effects, police size and firearm availability. Overall they found violent crime rates typically fell in metropolitan areas following increases in immigrant concentration. When disaggregating by violent crime type, the same relationship was found for both robbery and aggravated assault. These findings, according to Stowell and colleagues (2009), provide evidence for Sampson’s claims that increased immigration may be partly responsible for the violent crime drop.

Most recently, Adelman and colleagues (2017) explored the relationship between the size of the foreign born population and a broad range of criminal offenses at the metropolitan level between 1970 and 2010. Employing fixed effects models, they found that as the size of the foreign born population increases over time, rates of violent crime, murder and robbery decrease. In fact, for

every 1% increase in the foreign born population, the overall violent crime rate per 100,000 population drops by 4.9 crimes. When disaggregating by crime type, similar significant effects were found for robbery (4.3 crimes) and homicide (0.11 crimes) but not for aggravated assaults (although the direction was negative). Increases in the foreign born population also impacted the overall property crime rate (dropping by 99 offenses for every 1% increase) as well as the rate of burglary (45 crimes) and larceny (54 crimes).

A recent systematic review and meta-analysis of United States based immigration-crime research further confirmed that immigration is not linked to greater crime (Ousey and Kubrin, 2017). Reviewing the results from over 50 studies, Ousey and Kubrin (2017) found that overall immigration was negatively related to crime although the association was fairly weak. Thus while empirical examinations of the immigration-crime link in the United States have examined this question at multiple scales of geography and utilised a range of different data sources, the results from the cross sectional and longitudinal literature are fairly consistent. Taken together, these studies suggest that regardless of the size of the geographic unit employed, the measure of immigration used or the crime type examined, the conclusion remains the same - immigration is not an inherently disorganising urban process.

Empirical evidence beyond the United States

Similar to the immigrant-crime link, the relationship between immigration and crime is far less conclusive outside of the United States. As a general rule, studies find a negative or null relationship between immigrant concentration and crime in the United Kingdom (Bell et al., 2013; Bell & Machin, 2013; Jaitman & Machin, 2013; Stansfield, 2014). For example, once controlling for socio-economic conditions, Bell and Machin (2013) found crime was lower in neighbourhoods with higher proportions of immigrants. Homogeneity however was the most important protective factor with the benefits of immigration strongest in areas where immigrants belong to the same ethnic group.

In response to public concern surrounding A8² immigration, Bell, Fasani and Machin (2013) examined the effect of two contrasting waves of immigration (namely, the asylum seeker wave and the A8 wave) on violent and property crime in England and Wales. Drawing on crime data from 371 local authorities between 2002 and 2009, they found neither wave significantly impacted violent crime rates. However, they uncovered considerable differences between the two immigrant groups

² The A8 are a group of eight of the 10 countries that joined the EU in 2004. These countries include: Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovakia and Slovenia.

when considering rates of property crime. Specifically, they found a significant and positive link between the asylum seeker wave and property crime rates. Further, this relationship remained once other neighbourhood features were included in the model. Alternatively, the relationship between A8 immigrants and property crime was significant and negative (although the effect size was modest). The authors concluded that these group differences may be explained by differences in labour market opportunities with A8 immigrants better positioned to secure work than asylum seekers.

In their study, Jaitman and Machin (2013) also found no evidence that A8 concentration is linked to higher crime. Yet Stansfield's (2014) analysis shows varying effects across crime types. Responding to claims that Eastern European nationals (i.e. the A8 cohort) are responsible for a quarter of the crimes perpetrated in London, Stansfield (2014) tested the link between recent Eastern European immigration and multiple crime types across 348 local authorities in England and Wales. He found that while the concentration of Eastern European immigrants was not associated with higher rates of homicide, robbery or sex offenses; their presence was significantly and positively related to drug offenses. Further still, this relationship was independent of other predictors of crime. To better understand potential motivations for crime, Stansfield (2014) also assessed the effect of changes in employment-related migration, study-related migration and other-related migration on crime. Here he found interesting differences between groups. Specifically, growth in employment migration was significantly linked to greater drug-related offenses whereas growth in other-related migration was significantly associated with more robberies. An increase in study-related migration had no effect on crime. While there are perhaps more exceptions to the rule, the relatively limited research in the United Kingdom largely mirrors the findings of the United States literature. The similarities between these two contexts are likely due to the fact that the two largest incoming immigrant groups (A8 immigrants in the United Kingdom and Latinos in the United States) are migrating for similar purposes (i.e. work opportunities).

Similar conclusions are drawn in Canada (Andersen, 2011; Zhang, 2014). Grouping immigrants by their time of arrival (new, recent and established), Zhang (2014) found that while new immigrants have no influence on the level of property crime in a neighbourhood, more long standing immigrants do. Specifically, Zhang (2014) found that a 10% increase in the recent or established immigrant share was related to a 2-3% drop in the property crime rate. Investigating crime across Canadian provinces, Andersen (2012) found no direct effect of immigration on crime. Rather the relationship between immigration and crime was indirect, and a result of changes to the demographic composition of neighbourhoods, namely, increases in the most criminogenic subpopulation—young

males (Andersen, 2012).

European studies uncover mixed results. For example, Aoki and Todo (2009) linked the presence of immigrants to higher crime across police districts in France. However, the authors found that unemployment levels largely determined this relationship. In areas where there was greater unemployment (particularly more unemployed immigrants), crime was higher (Aoki & Todo 2009). In Belgium, Bircan and Hooghe (2011) found no effect of total immigration on either property or violent crime across 589 municipalities. However, they found important differences between immigrant groups. Specifically, they found that the concentration of non-EU nationals was positively and significantly associated with property crime while the concentration of African nationals was positively and significantly linked to both property and violent crime³ (Bircan & Hooghe, 2011). In Italy, Bianchi, Buonanno and Pinotti (2012), tested the relationship between immigration and crime across 95 provinces between 1990 and 2003. In this study, the size of the immigrant population was positively linked to property crime and overall crime. Once endogeneity was considered, the size of the immigrant population only impacted the rate of robberies. The authors concluded that as robberies are relatively rare events, the effect of immigration on the overall crime rate is negligible. Taken together these findings indicate that in certain contexts, under certain conditions, increased immigration can reduce crime while in others, increased immigration can heighten it.

2.4 New directions in immigration-crime research

Receptivity of contexts

Exceptions to the immigration reduces crime rule occur because “local conditions eclipse broad theoretical predictions” (Martinez et al., 2004, p. 152). Acknowledging this, scholars have recently moved towards understanding how outcomes vary across different local contexts. Results from this emerging body of research suggest the receptivity of contexts can moderate the effect of immigration on crime at both the neighbourhood and city level (Harris & Feldmeyer, 2013; Light, 2017; Martinez et al., 2004; Painter-Davis, 2015; Ramey, 2013).

Cities with long standing immigration histories, often referred to as “gateway” or “established” cities, are generally receptive contexts (Portes & Rumbaut, 2006; Singer, 2004). In such settings, the established co-ethnic community helps facilitate the integration of new arrivals by providing access to opportunities, resources and social support (Painter-Davis, 2015). Additionally,

³ The authors noted that this group is largely concentrated in one particularly crime prone area.

established cities generally have more receptive governmental policies towards immigrants as well as institutional resources that can assist with navigating settlement processes (Velez & Lyons, 2012). Attitudes towards immigrants are also more favourable in established cities which in turn improves job and housing prospects for immigrants (Painter-Davis, 2015). The potential crime-generating effects of immigration are thus offset as the government, labour market and residents are well equipped to integrate new arrivals both socially and economically.

Similar arguments are pitched at the neighbourhood level. Harris and Feldmeyer (2013) claim increased immigration into established immigrant enclaves can strengthen social ties and networks amongst immigrant residents, generate informal social control, and reinforce attachments to social institutions like church, work and family. In these communities, co-ethnics are well-situated to link new arrivals to essential resources and social support systems. With this in mind, Harris and Feldmeyer (2013, p. 205) argue that increased immigration into ethnic enclaves “is likely to offer protective effects that bolster community resources and institutions and shelter residents from social problems.”

In contrast, new destination cities are typically less receptive contexts. Without a sizeable (and established) co-ethnic presence, local governments and native residents struggle to integrate immigrants. Here immigrants lack access to social and economic resources, face oppositional governmental policies and experience social exclusion and discrimination (Ramey, 2013). Against this backdrop, integration is much more challenging for new immigrant populations. Again, similar arguments are echoed at the neighbourhood level. In neighbourhoods with few immigrant residents, new arrivals lack access to the vital social support networks found in established areas which not only provide access to employment, childcare, financial assistance and housing but also help new arrivals overcome language barriers and adjust to a new culture (Harris & Feldmeyer, 2013; Shihadeh & Barranco, 2010). Without these resources, increased immigration may disrupt neighbourhood structures in ways that increase violence (Harris & Feldmeyer, 2013).

A growing body of empirical literature (again concentrated on the United States context) finds support for these claims (Harris & Feldmeyer, 2013; Light, 2017; Martinez et al., 2004; Painter-Davis, 2015; Ramey, 2013). For example, Martinez and his colleagues (2004) compared the differences in crime outcomes for Miami and San Diego neighbourhoods- two cities with differing immigration histories. Miami is largely a receptive context, particularly for Cuban and Central American immigrants. Immigrants here are provided opportunities for low skilled labour and offered access to economic and social support (Martinez et al., 2004). Alternatively, while San Diego has an

established Mexican population, the city experienced considerable growth in immigration from Southeast Asia in more recent years. In contrast to Miami, minority groups are less concentrated in San Diego and there are also limited opportunities for low skilled labour. Therefore it is possible that San Diego may lack the structures and networks necessary for successful immigrant settlement.

In their comparative study of these two cities, Martinez and colleagues (2004) examined whether levels of receptivity influence spatial variations in crime across neighbourhoods. In Miami they found that drug-related homicides were not higher in areas with more Cuban or Central American residents. Yet in San Diego, the association between the concentration of Southeast Asian immigrants and drug-related homicide was significant and positive. As expected, the proportion of Mexican residents (the long standing migratory group) in San Diego was not related to drug-related homicide. These findings suggest some immigrant gateway cities may only possess the necessary structures and networks for the successful integration of certain immigrant groups. The arrival of new immigrant groups may increase crime in the short term until these resources and networks are established.

Ramey (2013) also examined the importance of receptive contexts across 8,628 census tracts nested within 84 new and established destination cities across the United States. Here he predicted that new, emerging immigrant destinations may be less receptive to immigration and subsequently would experience more crime. The study's findings support this argument. In new immigrant destination cities, immigration concentration was associated with higher levels of violent crime in largely white and black neighbourhoods. In addition, immigrant growth was linked to higher violence in black and integrated neighbourhoods. Yet in Latino neighbourhoods, immigration concentration was associated with lower levels of violence. In contrast, violent crime was lower in neighbourhoods in established destination cities with high concentrations of immigrants. This relationship was consistent across white, black, Latino and integrated neighbourhoods. This led Ramey (2013, p. 26) to argue that revitalisation "is a contingent process", that relies upon the receptive context of the city and the contours of the neighbourhood.

Several studies since have uncovered differences between established and emerging contexts (Harris & Feldmeyer, 2013; Light, 2017; Painter-Davis, 2015). Drawing on race specific arrest data for 326 census places in New York and Texas, Harris and Feldmeyer (2013) found that while recent Latino immigration was linked to a reduction in violence in traditional destinations, it was associated with a slight increase in violence in new destinations. Painter-Davis (2015) reached similar conclusions after exploring the effects of immigration on race-specific violent offending in

established and emerging census places (N=592). Specifically he found that the effect of Latino immigration on black and Latino violence varies by destination type. In established destinations, immigration exerts a violence-reducing effect on blacks and Latinos whereas in new destinations, the effect of immigration is either neutral or violence-generating.

However, not all studies find support for the receptivity argument. In a longitudinal examination spanning 1990 to 2010, Light (2017) assessed the effect of Latino immigration on race-specific victimisation rates across 132 metropolitan areas. The results indicated that the negative association between immigration and crime was not limited to established destinations (although this relationship was not always statistically significant). While Ferraro (2016) found new destinations actually experienced the largest reduction in property crime. Drawing on census, crime and American Community Survey data for 1,252 census places, Ferraro (2016) found that increases in the foreign born population were associated with 228 fewer property crimes per 100,000. Changes in the foreign born population had no statistically significant effect on violent crime or overall crime in new destinations. It is important to note that any differences across these studies may be attributable to the different crime types considered, the varied measures of immigration utilised and inconsistent definitions of what constitutes a ‘new’ versus established context.

Immigrant ethnicity, diversity and crime

Despite the plethora of research interested in the immigration-crime link, very few studies closely examine the particularities of immigrant ethnicity or the effect of ethnic diversity. Most research to date relies on a single measure of immigrant concentration – most commonly the percent foreign born/ recently arrived in an area (Feldmeyer and Steffensmeir, 2009; Lee et al., 2001; Martinez et al., 2008; Martinez et al., 2010; Wadsworth, 2010) or the percent Latino (Feldmeyer, 2009; Harris & Feldmeyer, 2013; Light, 2017). Alternatively, some studies construct an immigration index by combining several measures into one (for example, percent foreign born, percent Latino and percent linguistically isolated) (Ousey and Kubrin, 2009). Problematically, this approach fails to recognise the potential heterogeneity within the immigrant population and may wash out important differences between groups. Further, the focus thus far has been on measures of concentration rather than diversity. Only a handful of immigration-crime studies consider how the mixture of ethnic groups within a given community impacts crime (see for exception Feldmeyer et al., 2016; Graif & Sampson, 2006).

Group specific effects

There are a number of reasons to believe that the immigration-crime relationship may not generalise to all immigrant groups. Firstly, motivations for immigration vary - some migrate with the hope to secure better opportunities and achieve upward social mobility, while others are forced to migrate as a consequence of conflict/humanitarian crises. At the aggregate level, immigrants arriving under these different circumstances may differentially impact neighbourhood structures in ways that either promote or inhibit crime (Sampson, 2008). Secondly, differences in cultural traditions may impact how new immigrants interact and form social ties with established co-ethnics in their neighbourhood (Kubrin, Hipp & Kim, 2016). The quality of these social ties may determine the strength of informal social control mechanisms. Thirdly, immigrants speak a variety of different languages. For some groups (such as Spanish speakers in the United States), they are able to effectively communicate with other immigrants from a number of different countries. For others, language may create a communication barrier between natives and other immigrant residents which in turn impacts social interaction and weakens a community's regulatory capacity (Kubrin, Hipp & Kim, 2016).

In one of the most comprehensive studies to date, Kubrin, Hipp and Kim (2016) tested whether the protective effects of immigration on crime apply to all immigrant groups. In their analysis of property and violent crime across census tracts in Southern California, the authors took four different approaches to measuring immigration. These included: (1) a total immigrant concentration measure (percent foreign born); (2) disaggregated measures of the immigrant population by race/ethnicity; (3) disaggregated measures of the immigrant population by region of origin and; (4) cluster measures of spatially co-located immigrant groups. In the initial stages of modelling, they found that while their total immigrant concentration measure was not significantly associated with violent crime, it was related to lower levels of property crime.

However, they found considerable variability in these relationships once the total immigrant concentration measure was disaggregated. For example, when considering ethnic/racial categorisations, they found that neighbourhoods with 10% more Latinos experienced 7.1% more violent crime while neighbourhoods with 1% more black immigrants encountered 4.7% less violent crime. Although the presence of Asian immigrants did not statistically impact violent crime, it did effect property crime. Neighbourhoods with 10% more Asian immigrants reported 7.4% less property crime. Similar variability was found when disaggregating the immigrant population by region of birth. Of the 18 regions tested, they found four groups (West Africans, North Americans,

North Africans and South Asians) were negatively associated with violent crime while three groups (Western Europeans, Eastern Europeans and Central Americans) were positively linked to violent crime. In terms of property crime, they found negative associations for three groups (West Africans, East Asians and Southeast Asians) but positive relationships for two groups (Southern Europeans and immigrants from the Caribbean). They again uncovered important group differences for the cluster variables. While neighbourhoods with more immigrants from the Chinese group encountered less violent crime, neighbourhoods with more immigrants from three other group clusters (Mexico, Jewish and Central American asylum seekers) recorded more violence. Moreover neighbourhoods with more immigrants from the Chinese or Central American asylum seeker group reported fewer property crimes whereas neighbourhoods with more immigrants belonging to the New World⁴ group faced higher property crime. Together, these divergent findings highlight the importance of considering the group specific effects of immigrant concentration on crime.

Diversity

One of the key arguments underpinning the social disorganisation perspective of the immigration-crime link is that the increasing ethnic heterogeneity caused by immigration makes it difficult for residents to come together to collectively solve community problems like crime. Within this framework it can be assumed that language diversity is particularly detrimental to a community's regulatory capacity. If residents are unable to communicate with one another in a common language, they are less likely to interact with other residents which in turn weakens social ties and informal social control. As a result, crime flourishes. As Feldmeyer and colleagues (2016, p. 271) explain heterogeneity "may contribute to a sense of social isolation among residents and a tendency for people to "hunker down" in their figurative "shells" in ways that decouple linguistically diverse communities from the social capital and normative constraints that reduce crime and violence." Yet despite reasons to believe immigrant concentration and diversity may differentially impact the neighbourhood social processes important for the regulation of crime, few immigration-crime studies compare these two effects (see for exception Feldmeyer et al., 2016; Graif & Sampson, 2006).

In their analysis of 2,858 census places across the United States, Feldmeyer and colleagues (2016) assessed the effects of language heterogeneity and Spanish language concentration on violence. Here they found, in line with previous research, that Spanish-language concentration was

⁴ Comprised of immigrants from Cuba, Ecuador and Italy.

negatively associated with homicide, robbery and index violence (the sum of homicide, rape, robbery, and aggravated assaults). Therefore, places with more Spanish speakers encountered fewer violent crimes, net of other place-based characteristics. These findings support the revitalisation perspective. However, they found the opposite effect in linguistically diverse census places. In more linguistically diverse census places, rates of homicide and robbery were higher - even after accounting for other macro-level factors associated with crime. Index violence did not reach statistical significance. These findings provide support for the social disorganisation perspective. Assessing whether these relationships vary by socio-economic context, they found that the protective effect of Spanish language concentration on crime was particularly strong in disadvantaged areas (consistent with the revitalisation perspective). While in contrast, the crime-generating effect of language diversity was most pronounced in disadvantaged areas (aligning with social disorganisation theory). This research therefore highlights the need to consider both concentration and diversity effects in immigration-crime research as well as the potential for the broader neighbourhood context to shape this relationship.

Spatial considerations

As it stands, most studies interested in untangling the immigration-crime nexus have examined whether immigrant concentration or growth in the immigrant population is linked to crime at the neighbourhood or city level (Chavez & Griffiths, 2009; Desmond & Kubrin, 2009; Feldmeyer, 2009; Feldmeyer & Steffensmeier, 2009; Kubrin & Ishizawa, 2012; Kubrin & Ousey, 2009; Martinez et al., 2010; Ramey, 2013; Stowell, 2007; Wadsworth, 2010). By comparison, we know very little about the association between the segregation of immigrant groups and crime. Theoretically, there are reasons to believe that immigrant segregation impacts neighbourhood structures in ways that either generate or inhibit crime. On the one hand, segregation is thought to reduce social controls and weaken a community's regulatory capacity through mechanisms associated with social inequality and social isolation (Peterson, Krivo & Browning, 2009). As a result, segregation is argued to heighten crime, particularly in disadvantaged cities and neighbourhoods. On the other hand, there is extensive evidence to suggest that immigrant enclaves offer a "protective shell" or "umbrella of social control" which can actually insulate communities from crime (Harris & Feldmeyer, 2013, p. 203). In other words, the strong social networks found in immigrant enclaves can potentially mediate the effect of isolation and deprivation on crime.

Only a handful of empirical studies to date have actually tested the link between immigrant segregation and crime (see for example, Barranco, 2013; Feldmeyer et al., 2015). In his study,

Barranco (2013) considered the effect of immigrant segregation on homicide rates across 776 counties in the United States. Recognising the multi-dimensional nature of segregation, Barranco (2013) included several different segregation indices in the models (namely, the dissimilarity index, immigrant-native interaction and Latino isolation). Here he found that in both new and established destinations Latino segregation exerted a violence-reducing effect. In fact, for every one standard deviation increase in Latino isolation in new destinations, he found a 37% decrease in homicide. Similar effects were uncovered in traditional settlement zones (although the size of the reduction was less at 13%). The Latino-Native interaction variable had a comparable impact on homicide victimisation with every one standard deviation increase associated with a 62.7% drop in homicide in new destinations and a 37% reduction in traditional destinations. Rather than promoting crime, these findings suggest Latino segregation has a violence-reducing effect.

Drawing on arrest and census data, Feldmeyer and colleagues (2015) assessed the impact of immigrant segregation on violent crime across 480 census places in California and New York. To do so, they employed two commonly used measures of segregation: (1) the dissimilarity index and (2) the isolation index. In their study, they found that while neither segregation measure was related to violent crime at the census place level, this relationship appeared contingent on the level of disadvantage. Specifically, they found that in more disadvantaged areas, immigrant segregation (both in terms of unevenness and isolation) was associated with more violent crime. In contrast, immigrant segregation was linked to less violence in more affluent areas with greater resources. The authors concluded that “immigrant segregation and isolation can either be protective for urban locales or alternatively can make places more susceptible to violence depending on the socio-economic context in which it occurs” (Feldmeyer et al., 2015, p. 15).

2.5 Chapter summary

When Lee and Martinez wrote their chapter on immigration and crime in 2001, they noted an absence of macro level studies interested in examining the effect of immigration on crime. This is no longer the case, at least not in the United States. Studies here present an overwhelmingly unanimous picture, immigrants are not more crime prone than natives and the places where immigrants live do not encounter more crime. However, these relationships do not necessarily hold in other settings. The key takeaway message of this chapter is that context matters when it comes to determining the significance and direction of the immigration-crime relationship. Divergent findings in the international literature suggest theories of immigration and crime are unlikely to be universal but rather highly nuanced and context specific. With this in mind, I examine, in detail, the Australian

context in the following chapter and explore a broad range of factors which might affect the relationship between immigration and crime in this setting. In particular, I consider Australia's immigration history and current immigration policy as well as native attitudes towards immigrants and immigrant settlement patterns. Additionally, I review the limited immigration-crime literature available in the Australian context.

Chapter Three: Immigration in the Australian Context

No motive power operated more universally on this continent...and certainly no motive power operated more powerfully in dissolving the technical and arbitrary political divisions which previously separated us than did the desire that we should be one people and remain one people without the admixture of other races.

– Deputy Prime Minister Alfred Deakin, 1901

We must ensure that our citizenship program is conducted in our national interest. Membership of the Australian family is a privilege and should be granted to those who support our values, respect our laws and want to work hard by integrating and contributing to an even better Australia.

- Prime Minister Malcolm Turnbull, 2017

3.1 Introduction

Considering immigrant composition varies significantly across contexts, inconsistencies in the international literature are not particularly surprising. The composition of a country's immigrant population is shaped by a broad range of factors including but not limited to geography, immigration policy, histories of colonisation, shared languages, economic opportunities as well as proximity to conflict/ humanitarian crises. Understanding these macro level conditions is important as they are likely to determine the significance and direction of the immigration-crime connection at the neighbourhood level. In this chapter, I review Australia's, at times tumultuous immigration history and outline the country's current migration program. As receptivity determines the degree to which immigrants integrate and form social ties in their new host country, I consider public attitudes towards immigrants and immigration as well as the experiences of immigrants in Australia. I then focus on the impact of immigration on Australian neighbourhoods. Specifically, I describe immigrant settlement patterns and explore residents' perceptions of community problems in the neighbourhoods where immigrants live. To conclude this chapter, I summarise what is currently known about the immigrant-crime link and the immigration-crime link in the Australian context.

3.2 Australia's immigration history

The need to protect Australia's Anglo-Celtic character from Asian immigration was a driving factor in the formation of the Commonwealth of Australia in 1901 (Jayasuriya, 2012; Jupp, 2002; Neumann, 2015; Walsh, 2001). While colonial governments could limit the entry of certain migratory groups, these restrictions lacked uniformity. Forming a federal governing body was thus necessary in order to impose stricter controls over immigration flows (Walsh, 2001). At the turn of the twentieth century, Australia's population was more ethnically homogenous than Britain's with

the country's three and a half million residents mostly of British or Irish decent (Neumann, 2015). Despite comprising less than 2% of the total population, Asians and Pacific Islanders were perceived to threaten Australia's whiteness (Jupp, 2002; Neumann, 2015). Given the country's geographic isolation from Europe and close proximity to the Asian region, fear of invasion was also high (Ang, 2003).

In response to these growing anxieties, the newly formed federal government quickly passed the *Pacific Island Labourers Act 1901* which facilitated the deportation of approximately 7,500 Melanesians, originally recruited as indentured labourers to work on Queensland's sugarcane fields (Neumann, 2015). On the same day, the *Immigration Restriction Act 1901* was officially enacted - marking the beginning of what is colloquially referred to as the White Australia policy (Jupp, 2002; Tavan, 2005). In essence, the act prevented the entry of non-whites through the use of a controversial dictation test. The test required prospective settlers to write out at dictation, fifty words in a European language chosen by an immigration official (Robertson, Hohmann & Stewart, 2005). Conducted in a language unfamiliar to the applicant, the test was designed for all "undesirable" migrants to fail (Jupp, 2002; Robertson et al., 2005).

The act therefore imposed a racial barrier without specifically referring to race. Rather it was disguised (albeit poorly) for foreign policy purposes as an education test intended to exclude the "uneducated" from joining Australian society (Jupp, 1995; Robertson et al., 2005). As the legislation included penalties for the masters and owners of ships who brought prohibited migrants to Australia, shipping companies refused to issue tickets to non-whites (Jupp, 2002; Neumann, 2015). As such, the threat of the test operated as a strong deterrent - it was actually carried out less than 2,000 times (Neumann, 2015). In later years, further amendments to the act allowed immigration officials to administer the test to immigrants post arrival - providing the impetus for deportation (Dutton, 2002).

At the time, a belief in racial purity and white superiority was deeply embedded in the Australian public conscience and thus the restricted entry of non-Europeans received widespread public support (Walsh, 2001). By 1947, non-European settlers represented just 0.21% of the total population (Tavan, 2005). Between 1901 and 1947, the Chinese population - the largest non-European minority - shrank from 29,900 to just 6,400 (Neumann, 2015). Australia was deemed one of the "whitest" countries in the world (Jupp, 1995; 2002).

In the aftermath of World War II, the Australian government launched its 'populate or perish' mandate with population growth considered key to ensuring both national security and economic

prosperity (Birrell, 2009; Jupp, 2002; Walsh, 2001). Receiving bipartisan support, this high migration policy saw Australia's population almost double in size between 1945 and 1975 - increasing from seven and a half million to thirteen million (Walsh, 2001). As a result, the proportion of the population born overseas rose from 9.8% in 1947 to over 20% by 1971 (Markus et al., 2009).

These new immigrants were largely recruited through a series of assisted immigration agreements with the United Kingdom, Germany, the Netherlands, Greece and Italy (Burnley, 2001; Jupp, 2002). While British immigrants continued to represent the largest incoming group, immigrants from continental Europe accounted for half of all new arrivals during the post war period (Walsh, 2001). Several non-British populations thus experienced exponential growth. For example, the Netherlands-born population grew from just 2,000 in 1947 to 102,000 by 1961 (Jupp, 2002). While in the same time frame, the number of German immigrants dramatically increased from 14,000 to 109,000 (Jupp, 2002). In 1947, 12,000 Greeks and 34,000 Italians were living in Australia, however by 1966, this figure grew to 140,000 and 267,000 respectively (Jupp, 2002). Notably, polling data at the time revealed overly negative attitudes towards Southern European immigrants with natives voicing concerns of ghetto formation and crime (Jupp, 2002).

While the *Migration Act 1958* saw the abolishment of the dictation test (Meaney, 1995), the last remnants of the White Australia Policy were not dismantled until the 1970s (Jupp, 1995). In 1973, the Whitlam Government introduced a Universal Migration Policy allowing for anyone - regardless of race, nationality or religion - to migrate to Australia (Walsh, 2001). At this time, the government began prioritising the entry of skilled migrants on a points based system (Meaney, 1995). Despite this significant policy shift, Australia's population remained largely Anglo-Celtic until 1975 (Walsh, 2001). Facing increasing international pressure to respond to the refugee crisis following the Vietnam War, the Fraser government welcomed 90,000 Indochinese refugees between 1975 and 1984 (Meaney, 1995). Since the 1980s, at least one third of Australia's immigrant population has come from the Asian region (Meaney, 1995; ABS, 2011).

Despite increasing diversity, it wasn't until 1989 that Australia officially embraced multiculturalism. Launching the 'National Agenda for a Multicultural Society,' the Hawke government promoted Australia as a tolerant and harmonious society enriched by the mixture of different cultures (Walsh, 2001). While multiculturalism was accepted without much opposition (Jupp, 2002), some, like historian Geoffrey Blainey voiced fears about Australia "becoming a nation of tribes" and "a giant rooming house for the world" (Birrell, 2009, p. 74). While the Asian population represented only a small proportion of the total population, concern around the

‘Asianisation’ of Australia grew during the 1980s and was revived during the mid to late 1990s by Pauline Hanson’s One Nation Party (Markus et al., 2009). At the height of their popularity, One Nation won 22.7% of the vote in the 1990 Queensland State Election and 8.4% of the vote in the 1998 National Election (Markus et al., 2009). The relative success of One Nation reflects the growing discontent over racial and ethnic issues at the time.

3.3 Recent trends in Australian immigration

Australia today is a nation of immigrants. With over a quarter of the population born overseas, Australia’s immigrant share surpasses other prominent destination countries like the United States (13.2%), Canada (19.9%), New Zealand (23.9%) and the United Kingdom (13.2%) (OECD, 2016). In fact, almost one in every two Australian is a first or second generation immigrant (ABS, 2012). Without immigration, Australia’s population would be in net decline; immigration is the leading contributor to population growth - exceeding natural births since 2006 (Markus, 2013).

Table 3.1 Top 10 countries of birth for the foreign born population

Country of Birth	Number	Percentage
United Kingdom	1,101,100	20.8%
New Zealand	483,400	9.1%
China	319,000	6.0%
India	295,400	5.6%
Italy	185,400	3.5%
Vietnam	185,000	3.5%
Philippines	171,200	3.2%
South Africa	145,700	2.8%
Malaysia	116,200	2.2%
Germany	108,000	2.0%
Born elsewhere overseas	2,183,800	41.2%
Total foreign born population	5,294,200	100%

(ABS, 2011)

As an enduring effect of the White Australia era (Jupp, 2002), immigrants from the United Kingdom and New Zealand continue to represent the largest foreign born groups in Australia (ABS, 2012). These typically white, English speaking immigrants comprise 20.8% and 9.1% of the foreign born population respectively (see Table 3.1). However, the last decade in particular has witnessed significant growth and diversification in Australia’s immigrant population - largely driven by the Asian region. Between 2001 and 2011, an additional 200,000 Indian and 176,000 Chinese immigrants were added to the residential population (ABS, 2012). Yet while Indian and Chinese natives now represent the third and fourth largest immigrant groups in Australia (and the most

sizeable ethnic minorities), their respective share of the foreign born population (around 6% each) is still relatively small (ABS, 2012)- especially when compared to key ethnic groups in other settings.

Differences between the established and newly arrived population - particularly in terms of birthplace, language and religious affiliation⁵ - highlight the changing nature of Australian immigration. For example, one in four established immigrants were born in the United Kingdom with the top ten birthplaces including four Asian and four European countries (ABS, 2012). Yet for recent arrivals, India is the leading birthplace and only one European country - the United Kingdom - ranks within the top ten. For recent arrivals, Asian countries dominate, claiming eight of the top ten positions.

Table 3.2 Top four languages other than English by time of arrival

Established Population		Recently Arrived	
Language	Percentage	Language	Percentage
Mandarin	4.3%	Mandarin	10.8%
Cantonese	4.2%	Punjabi	3.7%
Italian	3.7%	Hindi	3.3%
Vietnamese	3.2%	Arabic	3.0%

(ABS, 2011)

Recent arrivals are also more likely to speak a language other than English at home (67% compared to 49%) and report lower levels of English proficiency (ABS, 2012). As illustrated in Table 3.2, recent waves of migration have seen a shift in the languages immigrants speak at home. Also notable are differences in religious affiliation between the two groups. In particular, recently arrived immigrants are more likely to be affiliated with non-Christian religions compared to established immigrants (see Figure 3.1). These trends reflect a growing presence of immigrants from non-European backgrounds in Australia.

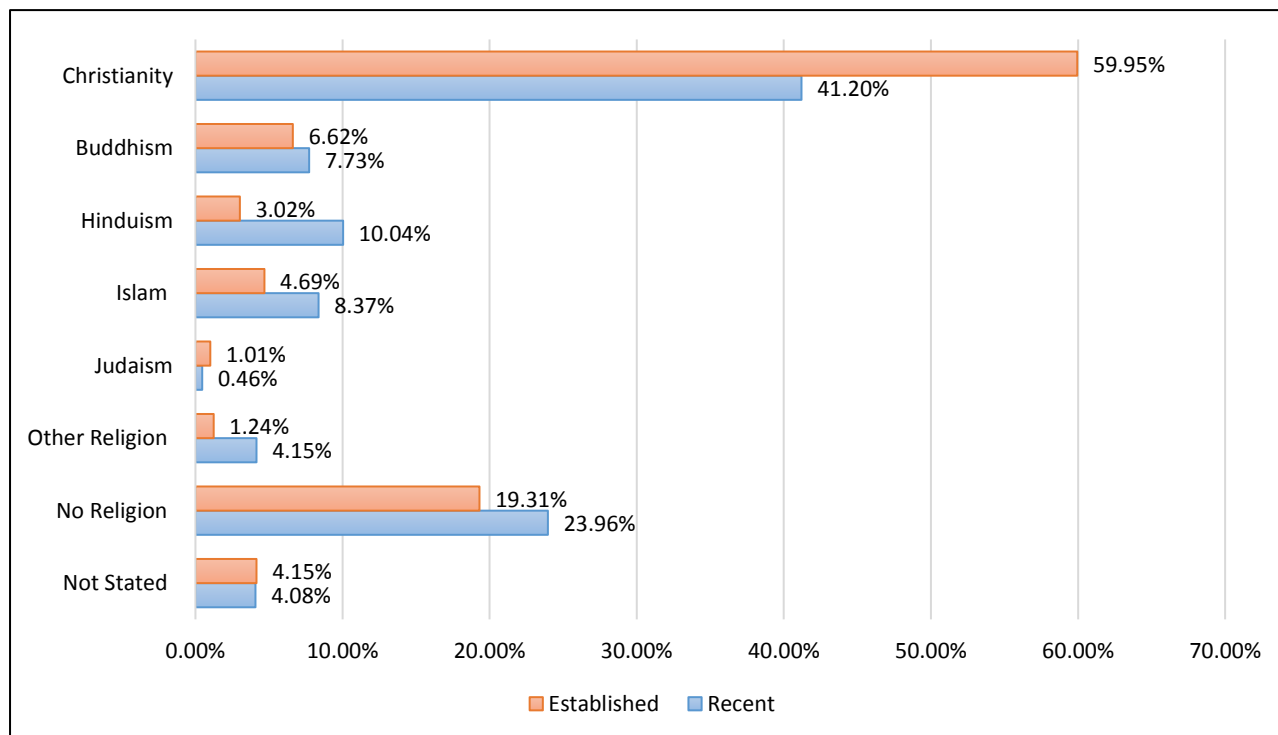
Recent arrivals represent a larger proportion of certain immigrant groups - a trend which reflects various waves of migration to Australia. For example, recent arrivals make up almost half of the Indian population (47%) and over a third of the Chinese population (35%). By comparison, recent arrivals comprise only 11% of the British population (ABS, 2012b). As a consequence of natural deaths, emigration and a general shift in migration patterns⁶, certain immigrant groups represent a smaller share of the immigrant population in 2011 than in 2001. In particular, the

⁵ Recently arrived is defined by the ABS as arriving between census points, in this case any persons who arrived between 2007 and census night 2011.

⁶ It is important to recognize that a decline in the percentage share does not necessarily reflect a decline in the raw number or even a reduction in immigration.

proportion of immigrants born in a European country dropped from 52% in 2001 to 40% in 2011(ABS, 2012).

Figure 3.1 Religious affiliation by time of arrival



(ABS, 2011)

3.4 Immigration policy and Australia’s current migration program

Historically, Australian immigration was characterised by a process of social engineering with the purpose to create a particular kind of society (Markus et al., 2009). To a lesser extent, this trend remains today with Australia’s immigration program designed to “cherry pick” high skilled immigrants, utilising a point-based system similar to Canada (Bertone 2009, p. 87). Each year, over 120,000 skilled visas are allocated compared to around 60,000 family visas and 13,000 humanitarian visas (Spinks, 2016). Table 3.3 provides a breakdown of the number of visas granted to incoming permanent immigrants annually. In addition to these permanent migrants, Australia attracts a substantial number of temporary migrants each year for work and study. New Zealand immigrants are not counted in migration program statistics with the Trans-Tasman agreement allowing for relatively free movement between the two countries. I discuss these key aspects of the migration program in turn.

Table 3.3 Granted visas for permanent residency

	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16
Migration Program							
Skill Stream	107,868	113,725	125,755	128,973	128,550	127,774	128,550
Family Stream	60,254	54,543	58,604	60,185	61,112	61,085	57,400
Special Eligibility	501	417	639	842	338	238	308
Humanitarian Program							
Refugee	6,003	5,998	6,004	12,012	6,501	6,003	8,284
Special Humanitarian	3,233	2,973	714	503	4,515	6,007	7,268
Onshore	4,534	4,828	7,041	7,504	2,752	2,747	2,003

(DIAC, 2010a; 2010b; 2011a; 2011b; 2012a; 2012b; 2013a; 2013b; DIPB, 2014a; 2014b; 2015a; 2015b; 2016a; 2016b)

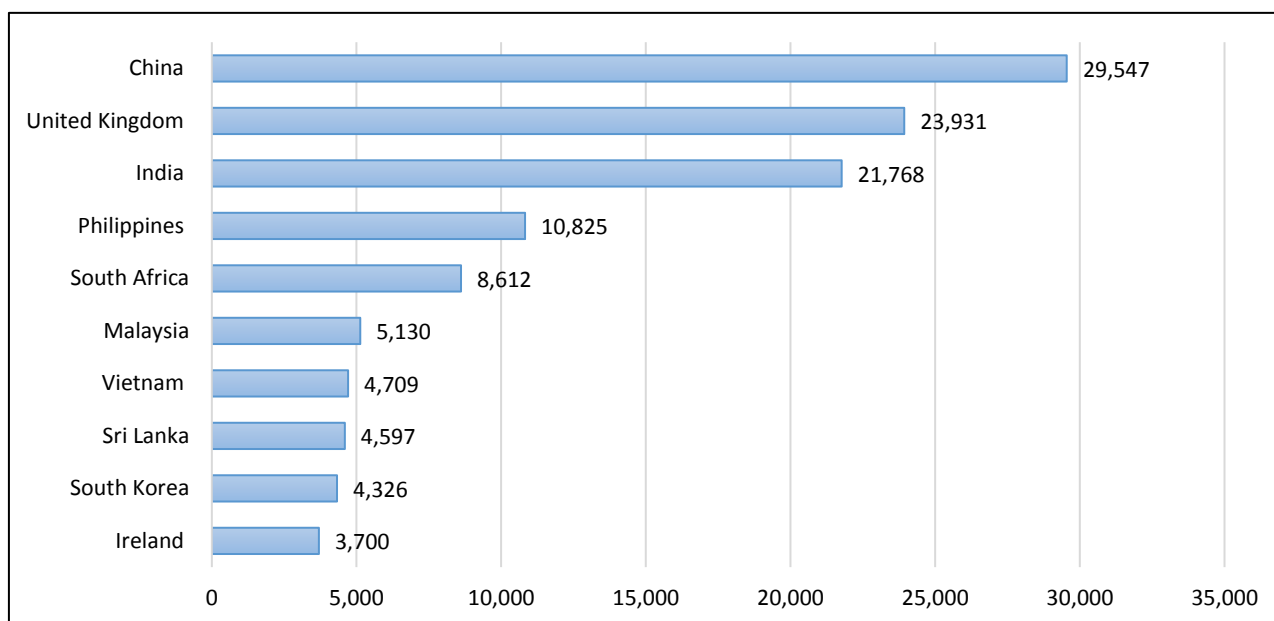
Migration program

Australia's migration program is capped by the federal government at a set level each year and comprises two key streams: (1) the skilled stream and (2) the family stream. Within the skilled stream are four main subcategories: points based skilled migration; permanent employer sponsorship; the business innovation and investment program and distinguished talent (DIAC, 2013a). The points based system comprises the largest group - around 56.7% (DIPB, 2016a). These potential immigrants are assessed on a number of selection criteria such as skills/qualifications, age, work experience and English proficiency (DIBP, 2016a).

The family stream, as the name suggests, reunites close family members - mainly partners, fiancés and dependent children. Other family members including parents, orphan relatives, care givers, aged dependent relatives and remaining relatives can qualify for family visas (DIAC, 2013a). Unlike skilled stream immigrants, family stream applicants are not assessed on the basis of skills or English proficiency (DIAC, 2013a). Rather, their relationship with their sponsor in Australia forms the key selection criteria. However, family stream candidates are still examined against the same health and character requirements as skilled migrants (DIAC, 2013a). Figure 3.2 provides a breakdown of the key source countries for the migration program in the 2010-11 financial year. Here, seven of the top ten countries are in the Asian region, a consistent trend in recent years.

Australia's highly controlled strategy has resulted in a relatively well-educated and employable foreign born population. In fact, immigrants in Australia are more likely to be tertiary educated than natives (24.5% compared to 12.05%) (ABS, 2011). Despite public concerns that immigrants steal native jobs (Mayda, 2006; McLaren & Johnson, 2007; Sides & Citrin, 2007), limited empirical evidence supports these claims (Breunig, Deutscher & Tho, 2017). Rather, skilled migration in Australia fills critical skill shortages in certain industries – redressing the issue of an aging workforce while also stimulating economic growth (Markus et al., 2009).

Figure 3.2 Top 10 source countries for the migration program 2010-2011



(DIAC, 2012a)

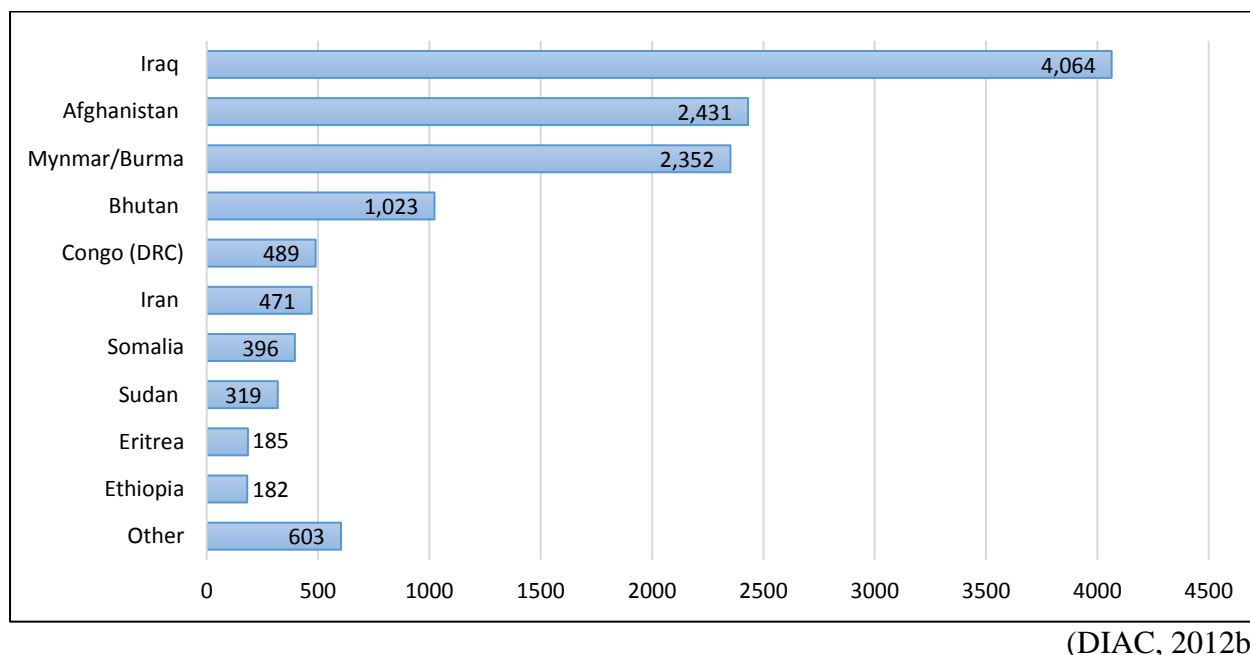
Humanitarian program

As a signatory of the 1951 United Nations Refugee Convention and the 1967 Protocol to provide asylum to refugees, Australia fulfils its international obligations through the Humanitarian Program (McMaster, 2001). The program comprises of two key components: the offshore resettlement component and the onshore protection/asylum component (DIAC, 2013). The offshore resettlement program resettles verified refugees - persons forced to flee their homeland due to fear of persecution because of their race, religion, nationality or political leaning (Refugee Council of Australia, 2014). The humanitarian program additionally offers residency to persons for whom resettlement is deemed the best option - largely displaced persons who are unable to stay in their country due to conflict or humanitarian crises (DIAC, 2013). The onshore protection/asylum component of the program allows individuals to apply for protection after arriving in Australia. Ideally, the onshore program should offer protection to those who meet the United Nations criteria for refugee status however in practice, asylum seekers who arrive in Australia without a valid visa are not well received – particularly those who come by boat (Markus, 2016).

The size and composition of Australia's humanitarian program is capped each year with applications from certain regions prioritised (DIAC, 2013b). Due changing global conditions over time, the origins of humanitarian immigrants are varied (Markus et al., 2009; Walsh, 2001). While earlier waves were comprised largely of Eastern Europeans and later Vietnamese, refugees from the

Middle East and Africa account for a large number of places in recent intakes. As can be seen in Figure 3.3, Iraq, Afghanistan and Burma represented the largest incoming refugee groups in 2011-12. In response to the current refugee crisis, the Australian government allocated an additional 12,000 visas for displaced Syrians in 2015 (DIBP, 2017).

Figure 3.3 Top 10 countries of birth for offshore humanitarian visas 2011-2012



Temporary migration

Temporary migration enables migrants to stay in Australia on a temporary basis for work, study or holiday (ABS, 2009). Unlike the permanent migration program, temporary migration is not capped (ABS, 2009). Rather, it is driven by employer demand and thus there is generally a higher intake during times of economic growth and low unemployment (Markus et al., 2009). Due to the Australian government's strong preference for permanent migration, levels of temporary migration were relatively low until the mid-1990s (Markus et al., 2009). Yet in an increasingly globalised marketplace, the option for temporary migration has become a necessity, allowing the government to quickly respond to skill shortages in certain industries (DIAC, 2012c). Temporary migration also encourages companies to establish bases or branches in Australia with the knowledge that they can move employees with relative ease (Markus et al., 2009). Over one million temporary migrants were living in Australia in 2011. Table 3.4 provides a breakdown of the temporary migrant visa holders and the leading countries of origin.

Table 3.4 Temporary entrants in Australia on 31 December 2012

Visa holder component	Number of Visas	Leading Countries of Origin
Visitor visa holder	368,050	United Kingdom; China; United States; India; Germany
Student visa holder	254,700	China; India; Vietnam; South Korea; Nepal
Working holiday maker visa holders	134,840	United Kingdom; South Korea; Taiwan; Germany; Ireland
Temporary skilled (subclass 457) visa holders	128,690	United Kingdom; India; Ireland; Philippines; United States
Bridging visa holders	110,890	India; China; United Kingdom; Sri Lanka; Nepal
Skilled graduate (subclass 485) visa holders	21,910	India; China; Nepal; Sri Lanka; Malaysia
Other temporary visa holders	25,040	United Kingdom; China; United States; South Korea; Japan

(DIAC, 2012c)

Trans-Tasman agreement

Under the Trans-Tasman agreement, New Zealand and Australian citizens are able to move freely between the two countries without restriction (Markus et al., 2009). Upon arrival, New Zealand residents can secure a special visa which permits residency for an indeterminate period of time (Markus et al., 2009). Thus New Zealanders - the second largest foreign born group in Australia - are not counted as part of the migration program (Markus et al., 2009). In 2012, over half a million New Zealand citizens (587,100) were living in Australia on this special category visa (DIAC, 2012c). New Zealanders in Australia comprise a highly motivated group, exhibiting a greater labour force participation rate and lower unemployment rate than natives (DIBP, 2013). Interestingly, there is a large amount of return migration for New Zealand citizens. This contrasts typical global patterns of one way migration (Markus et al., 2009).

“Illegal” immigration in Australia

In Australia, the number of immigrants who fail to use these legitimate routes is limited. Due to the country’s geographic isolation, crossing its borders undetected is particularly difficult. In fact, persons who stay in the country after their visa expires constitute the only group of “illegal” immigrants (DIAC, 2013). In 2013, there was an estimated 62,000 visa over stayers living in Australia - equivalent to 0.3% of the total population (Whyte, 2014). Visa over stayers are comprised largely of persons from China (7,690), Malaysia (6,420), the United States (5,520) and Britain (3,780) (Whyte, 2014).

Nevertheless, references to illegal immigrants are not uncommon in the Australian context. In fact the majority of Australians perceive asylum seekers who arrive to Australia via boat as acting illegally (Markus, 2016). These perceptions are shaped by strong political rhetoric. Following the Tampa affair in 2001, the Howard government implemented the “Pacific Solution” to deter potential asylum seekers. Receiving bipartisan support at the time, the policy introduced the offshore processing of asylum seekers and a period mandatory detention (Francis, 2014). As a consequence, very few boats attempted to land in Australia between 2001 and 2007 (see Table 3.5).

Table 3.5 Number of irregular maritime arrivals

Year	Number of Boats	Number of Passengers
1990	2	198
1995	7	237
2000	51	2,939
2005	4	11
2006	6	60
2007	5	148
2008	7	161
2009	69	2,726
2010	134	6,555
2011	69	4,565
2012	278	17,202
2013	302	20,587

(Francis, 2014; Markus, 2017)

Close to 50,000 asylum seekers arrived by boat between 2007 and 2013 following a change in government and a subsequent ‘softening’ of asylum seeker policy (Markus, 2016). Over this period, an estimated 1,200 drowned at sea (Kenny & Davis, 2015). Throughout the 2012 federal election, the leader of the opposition, Tony Abbott repeatedly referred to asylum seekers as “illegal arrivals” who “turn up illegally” on “illegal boats” (Rowe & O'Brien, 2014). Abbott’s campaign promise to tighten border control and stop the boats was key to his election success. In late 2016, the Coalition government (led by Malcolm Turnbull) celebrated 800 days without the landing of an asylum seeker boat (Markus, 2016). As it stands, Australia continues to be one of the only countries in the world where asylum seekers face an indefinite period of mandatory detention (Australian Human Rights Commission, 2014).

3.5 Attitudes towards immigrants and immigration

Public attitudes towards immigrants and immigration can determine the degree to which immigrants assimilate and form social ties in their new host country. On a global scale, there is

evidence to suggest Australia - along with Canada - is one of the most receptive countries to immigration in the world (Haller et al., 2009; Markus, 2016). A recent Gallup World Poll finds support for immigration at current or higher levels is at 70% in Australia and 67% in Canada (International Organisation for Migration (IOM), 2015). In other settings, attitudes towards immigration are less favourable, particularly in Europe and the United Kingdom where support for continued or increased immigration sits at just 38% and 29% respectively (IOM, 2015). However, studies find attitudes towards immigrants vary within Australia. In particular, residents in capital cities are more tolerant of ethnically diverse populations than residents in more rural or regional areas (Forrest & Dunn, 2006; Markus, 2016). There is also evidence to suggest that certain Australian cities are more welcoming than others. Indeed, Markus (2016) rates Melbourne and Canberra as the most receptive cities to immigration and cultural diversity, followed by Sydney and Adelaide. By comparison, residents in Brisbane and Perth are less receptive to immigration (Markus, 2016).

Attitudes towards immigrants and immigration vary across ethnic groups. In Australia, like elsewhere, there is a hierarchy of preference for immigrants based on ethnicity (Markus, 2013). Those from the United Kingdom and other English speaking countries are the most preferred immigrants followed by other Europeans. In fact, negative attitudes towards immigrants from England, New Zealand, Italy and Germany were less than 3% in 2013 (Markus, 2013). More visible minorities face greater anti-immigrant sentiment. Negative sentiment directed towards immigrants from the Pacific Islands (4.9%), China (12.8%), India (14.6%) and Ethiopia (16%) is much more apparent (Markus, 2013). Immigrants from the Middle East face the greatest level of negative sentiment in Australia. In fact in 2013, 22% of survey respondents indicated that they felt either 'very negative' or 'negative' towards immigrants from Iraq. Similar negative attitudes are held against immigrants from Lebanon (27%) (Markus, 2013). Differences are also seen across religious groups. While Christian and Buddhist immigrants face relatively low levels of anti-immigrant sentiment (5%), attitudes towards Muslims are decidedly more negative⁷ (25%) (Markus, 2012).

These negative attitudes towards Muslim immigrants are not well hidden. In fact, Muslim immigration is openly debated and often featured in the media. Findings from a poorly designed survey received considerable attention in 2016 with news outlets reporting that almost half of the Australian population supported a ban on Muslim immigration – even though more rigorous and

⁷ It is likely that this survey data underrepresents the true level of negative sentiment in Australia due to social desirability bias.

representative studies find this figure to be much lower (Markus, 2016). In the same year, television presenter Sonia Kruger created a stir by suggesting Muslim immigration should be “stopped now...because I would like to feel safe” (Markus, 2016). Throughout Pauline Hanson’s 2016 election campaign, news networks frequently broadcasted her anti-Muslim, anti-immigration position. In her maiden speech to parliament, she claimed that the country is “in danger of being swamped by Muslims, who bear a culture and ideology that is incompatible with our own” (Commonwealth of Australia, Senate, 2016, p. 939). Hanson went on to argue “if we do not make changes now, there will be no hope in the future. Have no doubt that we will be living under sharia law and treated as second-class citizens with second-class rights” (Commonwealth of Australia, Senate, 2016, p. 939). These incredibly alarmist and inflammatory views continue to be publicised by mainstream media outlets with Hanson regularly featuring on the news. Given her return to the political area, this rhetoric clearly resonates with a certain subsection of the Australian population.

Attitudes towards refugees in Australia vary depending on the circumstances surrounding their arrival. Markus (2016) finds a high rate of approval for refugees who are verified overseas and enter via the Humanitarian program. Indeed 80% of survey respondents indicated support for the Humanitarian program. However, those who arrive by boat are less well received. In fact, maritime arrivals are widely perceived as “illegal” immigrants and “queue jumpers” with only 32% of survey respondents indicating approval (Markus, 2016). Turning back boats – while internationally controversial – is the most supported policy response to dealing with onshore asylum seekers by Australians. As a consequence of the Syrian refugee crisis, attitudes towards Muslims and refugees are becoming increasingly intertwined. Not surprisingly, just over a quarter of Australians feel Christian immigrants should be prioritised for resettlement over Muslim applicants.

3.6 Experiences of immigrants in Australia

Like elsewhere, immigrants in Australia face significant challenges which can impede integration processes. While most perceive Australia to be “a land of economic opportunity” where “hard work brings a better life”, reports of discrimination are high - particularly amongst visible minorities (Markus, 2015, p. 18). Results from the 2015 Scanlon survey suggest immigrants from European countries face relatively low levels of discrimination– with reports ranging between 11% and 15% (Markus, 2015). By comparison, newer and more socially distant groups report much higher levels. For example, 39% of Indian and Chinese respondents recall some experience with discrimination, so too do more than half of South Korean respondents (55%). However, reports of discrimination are most prevalent amongst immigrant groups who typically arrive via the

humanitarian stream. Indeed, 67% of Kenyans, 75% of Zimbabweans and 77% of South Sudanese report negative experiences in Australia (Markus, 2015). A similar cultural divide is evident when considering religious affiliation. Although discrimination is relatively low amongst Anglicans (8%) and Catholics (13%), Hindus and Muslims report much higher levels (26% and 31% respectively) (Markus, 2016).

Field experiments provide further of evidence of racial discrimination in Australia. For example, Mujcic and Fritjers (2013) considered the treatment of research assistants with varied ethnic appearances on public buses. After informing the driver of a fault in their travel card and requesting a free ride, 71% of white participants and 72% of Asian participants were able to catch the bus. However, the success rate was markedly less amongst Indian and Black research assistants - just 51% and 36% respectively. These findings highlight clear differences in treatment based on ethnic appearance. To assess labour market discrimination, Booth and colleagues (2012) sent potential employers advertising positions matched CVs. In doing so, they examined whether applicants with either an Italian, Chinese, Middle Eastern or Indigenous sounding name were more or less likely to receive a call back compared to an applicant with an Anglo-Saxon sounding name. Again, the results provide evidence of racial discrimination - in this case - against Chinese and Middle Eastern applicants. To receive the same number of call-backs as Anglo-Saxon applicants, Chinese and Middle Eastern candidates needed to submit at least 50% more job applications.

Using a similar matching technique, Nelson and colleagues (2015) considered differential treatment in the housing market (Nelson et al., 2015). The authors recruited and paired research assistants of either Anglo, Muslim Middle Eastern or Indian appearance and sent the pairs to open houses for rental properties. In comparing their experiences and interactions with real estate agents, the researchers found those of Muslim Middle Eastern appearance were significantly less likely to be encouraged to rent a property compared to an Anglo or Indian counterpart (Nelson et al., 2015).

Problematically, this discrimination can manifest into unequal outcomes for immigrants in the housing and employment market. Research finds immigrants from non-English speaking backgrounds have poorer employment outcomes than the native born population (Colic-Peisker, 2011), receive lower wages for the same work (Breunig, Hasan & Salehin, 2013) and are more likely to live in precarious housing situations (Forrest, Hermes, Johnston & Poulsen, 2012). Thus while attitudinal surveys suggest Australia is one of the most receptive immigrant destination countries in the world (Haller et al., 2009; Markus, 2016), certain immigrant groups may not share this view. In

fact, 17% of immigrants point to issues with racism and discrimination as their least favourite aspect of life in Australia (Markus, 2015).

Compared to natives, immigrants are more fearful of crime and victimisation and feel less safe in their community (Johnson, 2005; Markus, 2015). However, studies consistently find immigrants are actually less likely to be a victim of crime in Australia— although under reporting and recording practices limit data quality (Johnson, 2005; Makkai & Taylor 2009). Australian Bureau of Statistics (ABS) data suggests the likelihood of violent victimisation is 50% lower amongst the foreign born population – even more so when considering just those from non-English speaking backgrounds (ABS, 2010). Nevertheless, cases of racially motivated crime frequently capture the media’s attention. Racist tirades against ethnic minorities on public transport are often filmed and broadcast on the news (McCosker & Johns, 2014). In 2009, reports of racially motivated attacks against Indian students dominated news headlines and led to a significant reduction in student visa applications from India (Mason, 2012). As immigrants are disproportionately targeted for ethnically and religiously motivated crimes coupled with the fact that these crimes are widely publicised, their fear of crime is not entirely unjustified.

3.7 Immigrant settlement patterns

Immigrant settlement patterns are non-random and are shaped by a range of social and economic factors. Broadly speaking, immigrants tend to live in areas close to family members or near people with similar ethnic backgrounds (ABS, 2014a). Employment opportunities, income and visa conditions also affect where immigrants settle (ABS, 2014a). In Australia, most immigrants are drawn to major urban areas. In fact, 85% of the foreign born population chose to live in urban areas compared to just 64% of the native born population (ABS, 2014a). Neighbourhoods located in and around the central business district are popular settlement zones, as are areas nearby universities (ABS, 2014a). Neighbourhoods with a long-standing immigration history continue to appeal to large numbers of new arrivals (ABS, 2014a). While newly developed master planned estates attract skilled migrants with economic capital (ABS, 2014a). Australian studies find relatively low levels of residential segregation and suggest immigrant neighbourhoods are multicultural rather than dominated by a single birthplace (Markus et al., 2009). In their comparative analysis, Johnston and colleagues (2007) found cities in Australia and New Zealand exhibited less segregation than those in Canada, the United States and the United Kingdom.

Few empirical studies explore the distribution of the foreign born population across Australian neighbourhoods. In one large-scale investigation, Markus and colleagues (2009) assessed immigrant concentration across Statistical Local Areas⁸ (SLAs). SLAs with an immigrant population who comprise over 44 per cent of the total population were considered highly concentrated. Comparing levels of concentration across Australian capital cities, they found that 43% of Sydney SLAs met the highly concentrated criteria (27/63 SLAs). The proportion of highly concentrated SLAs was much lower in other Australian cities - 22% of Perth SLAs (8/36), 19% of Melbourne SLAs (15/78), 7% of Brisbane SLAs (5/214) and 4% of Adelaide SLAs (2/54). Just one SLA in Hobart, Darwin and Canberra reached a high level of concentration.

Outside of these metropolitan areas, immigrant concentration is less common. Markus and colleagues (2009) thus defined a high concentration for non-metropolitan areas as SLAs with above 20% of the population foreign born. In Western Australia - where a booming mining industry attracts a large number of foreign workers - 45% of non-metropolitan SLAs exceeded the 20% threshold. In Queensland, 40% of non-metropolitan SLAs were classified as highly concentrated. In fact, all Gold Coast SLAs and all but one Sunshine Coast SLA reached at least 20 per cent foreign born concentration. However, only 8% of non-metropolitan SLAs in NSW and 6% of non-metropolitan SLAs in Victoria met the high concentration criteria. While only a few non-metropolitan SLAs in South Australia (4 SLAs), Hobart (2 SLAs) and Tasmania (2 SLAs) were deemed highly concentrated.

Markus and colleagues (2009) also examined whether immigrants who share the same birthplace settle together. Here they found that relatively invisible migratory groups in Australia are generally dispersed across the country with a few exceptions. For example, British residents comprise 24% of the population in Joondalup, Perth - representing the largest foreign born concentration in Australia. Despite their overall dispersion, British immigrants make up over 10% of the total population in 61 SLAs across Australia. New Zealanders are also relatively dispersed across the country apart from two SLAs in Queensland - Pacific Pines on the Gold Coast and Tanah Merah in South Brisbane - where they comprise 10% of the total population. Immigrants from South Africa, Canada, Ireland, Germany, the Netherlands and Poland are all highly dispersed. These groups tend to have a relatively long standing presence in Australia and/or share cultural similarities with the native population.

⁸ ABS defined boundaries described by the ABS as a 'general purpose spatial unit' (ABS, 2001).

In contrast, immigrants from China, Hong Kong and Korea are much more concentrated. Typically, these groups tend to settle in suburban middle class areas in the three largest Australian cities: Sydney, Melbourne and Brisbane. Due to high levels of concentration, they make up sizeable proportions of the total population in several neighbourhoods. While spread across the country, the Vietnamese tend to cluster within cities and remain largely concentrated in areas where they first settled as refugees in the 1970s and 1980s. In fact two SLAs -Fairfield and Liverpool (both located in Sydney) - are home to 18% of all Vietnamese immigrants. The Vietnamese account for over 10% of the total population in eight SLAs across Australia.

Sydney is home to 73% of the Lebanese population, with a further 20% residing in Melbourne. Within both of these cities, Lebanese immigrants are concentrated in a small number of areas with 55% living in Rockdale, Canterbury, Bankstown, Auburn, Parramatta, Holroyd, Fairfield and Liverpool. Yet despite this high level of concentration, the Lebanese represent less than 5% of the total population in these areas. The Turkish born are also highly concentrated in Sydney and Melbourne and typically live in similar SLAs to Lebanese immigrants. Even more concentrated is the Iraqi population with 62% residing in Sydney and two thirds of this group living in two SLAs: Fairfield and Liverpool. Indeed, Iraqis constitute around 6% of the total population in Fairfield. Sydney is also a popular settlement city for Fijian migrants (56% live in Sydney) and half of this population is concentrated in three SLAs: Liverpool, Campbelltown and Blacktown.

The degree immigrant groups are dispersed is a function of their cultural distance to the native born population (Markus et al., 2009). Specifically, culturally distant migratory groups are generally geographically clustered while more culturally proximate groups are relatively dispersed. Yet the settlement patterns of some groups go against expectations of cultural distance. For example, the Indian born population is widely dispersed across the country with the exception of one SLA - Parramatta-Holroyd in Sydney where 7.4% of all Indians in Australia live. Indonesians and Malaysians are also not concentrated - apart from around universities. Further those from the Philippines are not concentrated with the exception of Blacktown where 13% live.

3.8 Resident perceptions in immigrant neighbourhoods

Regardless of whether or not immigrant concentration is associated with actual increases in crime, extensive scholarship suggests residents living in immigrant neighbourhoods view their community less favourably (Benier & Wickes, 2016; Markus, 2012; Wickes et al., 2013a; Wickes et al., 2013b). Research indicates that residents living in immigrant neighbourhoods report higher rates of crime and disorder (Wickes et al., 2013a). Studying nearly 10,000 residents living across 300

neighbourhoods in two Australian cities, Wickes and colleagues (2013) found residents perceived more crime and disorder in neighbourhoods with higher proportions of residents born overseas, speaking a language other than English or practicing a religion other than Christianity (Wickes et al., 2013). These findings suggest that foreign born residents are either consciously or subconsciously associated with crime, violence and disorder and as such, their mere presence in a neighbourhood is enough to trigger implicit biases amongst residents. These biases severely distort perceptions of neighbourhood crime and disorder.

Studies also find residents in immigrant neighbourhoods tend to report lower levels of social cohesion and participation (Benier & Wickes, 2016; Leigh, 2006; Markus, 2012; Wickes et al., 2013b). Examining the link between trust and diversity, Leigh (2006) demonstrated that language diversity is particularly detrimental to localised trust. In other words, in more linguistically diverse neighbourhoods, residents are far less trusting of fellow residents. In fact, a one standard deviation increase in language diversity was associated with a 5% decrease in localised trust. Conducting a multilevel analysis of over 4000 residents living across 148 neighbourhoods in Brisbane, Wickes and colleagues (2013b) found residents in ethnically diverse neighbourhoods perceived lower levels of social cohesion and less frequently interacted with their neighbours (Wickes et al., 2013b). Similarly, Benier and Wickes (2016) found collective efficacy was attenuated in linguistically diverse neighbourhoods and in neighbourhoods with a greater concentration of residents from non-English speaking backgrounds. Together, these studies provide support for Putnam's "constrict theory" in the Australian setting with increasing ethnic diversity - largely a product of increasing immigration - leading to social withdrawal amongst residents (Putnam, 2007). This process of 'hunkering' may have important consequences for informal social control mechanisms and neighbourhood crime.

3.9 Immigrants, immigration and crime in Australia

While Australia is a nation of immigrants, the relationship between immigration and crime remains largely understudied in this context. Much of what we do know (see for example Dovey 1952; 1955; 1957; Francis, 1972; 1981; Hazelhurst, 1987; Mukherjee, 1999) no longer reflects the increasingly diverse origins of Australia's foreign born population. Only a handful of Australian studies have explored the immigration-crime relationship within the last decade (see for exception Sinning & Vorell, 2011). To date, these studies have largely overlooked neighbourhood effects (see for exception Francis et al., 2006; Sinning & Vorell, 2011). I discuss the limited research that explores the immigrant-crime link and the immigration-crime link in turn below.

Immigrants and crime

With the significant influx of migrants following World War II came growing public concern about the criminal propensity of the increasingly diverse foreign born population. In response to these anxieties, the Immigration Advisory Council established a committee to determine whether migrants were involved in a disproportionately higher rate of crime than the general population. The series of reports commissioned by the council - known as The Dovey Reports - marked the first empirical investigation into migrant crime in Australia. Released in 1952, the first report found that the incidence of serious crime amongst migrants was considerably lower than the general population despite the notable overrepresentation of young males in the migrant group (Dovey, 1952). Published in 1955, the follow up report found no evidence of changes in the migrant crime rate over time even though crime amongst the general population increased (Dovey, 1955). The final report (1957) further reaffirmed these findings - migrants were no more crime prone than the native population (Dovey, 1957). The committee concluded that while migrants were exposed to substantial hardships (which in turn place them at a higher risk of offending), they posed no distinct criminal threat to the wider population. Fear of the criminal immigrant was thus unfounded.

The end of white Australia saw renewed scholarly interest in migrant crime during the 1970s and 1980s (Francis, 1972; 1981; Hazelhurst, 1987). Francis (1972) calculated the imprisonment rates of several key immigrant groups for each census year from Federation to 1966. Overall, he found that while rates varied over time, imprisonment was highest amongst New Zealanders and Canadians and lowest amongst those from Asia or Africa. These differences between groups remained even after controlling for marital status and age (Francis, 1972). While this appears to reflect a divide between visible and invisible migratory groups, those from the United Kingdom were also involved in a relatively low rate of crime. In a later study, Francis (1981) examined police, court and prison data that included information on an offender's country of birth. Here he found patterns consistent with earlier evaluations - migrants as a whole were underrepresented in crime. However, this finding was not consistent across all groups. In particular Francis (1981) found that New Zealand born and Yugoslav born migrants were overrepresented in the criminal justice system. Yet Francis (1981, p. 164) warned against labelling these birthplaces as producing crime prone migrants and argued the social conditions to which these groups were exposed were likely to explain their higher rate of criminal involvement. Collating data from a range of sources, Hazelhurst (1987) similarly concluded that migrants tend to commit fewer offenses and are less likely to be imprisoned than the native born population.

In the late 1990s, Mukherjee (1999) compared offending rates of key immigrant groups in Victoria. Nine of the 26 countries examined had an arrest rate higher than the arrest rate of the Australian born population. In particular, high arrest rates were found for those born in Romania, Former Yugoslavia, Soviet Republic, Lebanon, Turkey, Fiji, Vietnam and Cambodia. Mukherjee (1999) explained that these immigrant groups also faced poorer socio-economic circumstances. By comparison, the arrest rates of those born in Germany, Greece, Italy, the Netherlands and the United States were lower than the native rate. Despite variation between groups, Mukherjee (1999) found that the overall offending rate of the foreign born was significantly lower than the native rate. Mukherjee's (1999) work thus further supports previous studies - the foreign born population is not involved in more crime than the native born population (although exceptions to this rule do exist).

Immigration and crime

Immigration-crime research at the more macro level is limited in Australia. In fact, just three studies have examined the effect of immigrant concentration on crime across aggregate units (see Francis et al., 2006; Tran, 2005; Sinning & Vorrell, 2011). Studies that consider the temporal and spatial dimensions of the immigration-crime association are virtually non-existent in this setting. Analysing state and territory level crime rates between 1981 and 2004, Tran (2005) examined the link between Asian immigration to Australia and crime. Specifically, he questioned whether crimes against persons and crimes against property are related to either the size of the Asian population or the annual influx of Asians. Here he found that the size of the Asian population was significantly and positively associated with crimes against persons yet had no statistically significant effect on crimes against property. An influx of Asians was not significantly associated with either crime type. Additional analyses indicated that neither the size of the non-Asian immigrant population nor an influx of non-Asian immigrants was linked to rates of violent or property crime at the state level.

Focusing on Local Government Areas (LGAs) in Victoria, Francis, Armstrong and Totikidis (2006) tested the relationship between multiple indicators of ethnicity and immigration (such as birthplace, English proficiency, time of arrival and citizenship status) and various types of crime (including crimes against the person, crimes against property, drug offenses, other crime and total crime). Here, Francis and colleagues (2006) found that LGAs with a greater presence of recent arrivals encountered more crime. Similar effects were found for other immigration/ethnicity measures (namely the concentration of Oceanic immigrants, immigrants from non-English speaking backgrounds, immigrants from English speaking backgrounds and immigrants with low levels of English proficiency). Interestingly, they uncovered a significant and negative relationship between

Australian citizenship and crime across LGAs. Yet problematically, the authors failed to account for the structural conditions of the LGAs under examination. As immigrant settlement patterns (as outlined in section 3.7) are non-random, our understanding of the immigration-crime relationship is limited without accounting for context.

Sinning and Vorell (2011) similarly examined the link between immigration and crime - although tested this association at the SLA level. In doing so, they drew on crime data from each state and territory government and census data from the ABS. Unlike Francis and colleagues (2006), they found no statistically significant relationship between immigrant concentration and the log transformed total crime rate across Australian SLAs. Taken together, the handful of studies interested in the immigration-crime link present a mixed picture of this association in the Australian context. Further, these studies employ relatively large geographic units to examine the effect of immigration on crime and thus potentially mask its effects. Thus while Australia is an immigrant nation, we know very little about the effect of immigration on neighbourhood crime.

3.10 Chapter summary

This chapter illustrated clear differences between the Australian and American immigration experience. While both countries enjoy incredibly diverse immigrant populations, they vary significantly in terms of ethnic group size and immigration policy in addition to the settlement patterns of immigrants. These differences have important implications for the ecological theories outlined in Chapter 2. To date, few empirical studies in the United States find support for social disorganisation theory's explanation of the immigration-crime link. This is not particularly surprising. Immigrants in the United States tend to settle with co-ethnics - sharing both a common language (e.g. Spanish) and a common religion (e.g. Catholicism). Immigrant communities in this setting should thus be able to effectively communicate with one another and find common ground to come together to collectively solve local problems. Due to this tendency to settle near culturally similar individuals, changes in immigration are less likely to impact levels of ethnic diversity in a given neighbourhood in the United States.

On the other hand, single birthplace concentration is rare in Australia. Rather, immigrant neighbourhoods tend to be multicultural and increases in immigration may further add to both the number of groups present as well as the size of the groups (two key indicators of ethnic diversity). Thus in Australian neighbourhoods, the language and cultural barriers created by immigration may reduce a community's regulatory capacity and lead to higher crime as predicted by social disorganisation theory. Alternatively, ethnic group concentration may not reach the threshold

necessary for neighbourhood revitalisation. Further, as new immigrants settling in Australia typically possess access to human and economic capital - a consequence of Australia's skilled migration program - it is unlikely their presence will exacerbate poverty levels as predicted by social disorganisation theory. In other words, increased immigration in Australian neighbourhoods may heighten diversity without worsening levels of disadvantage. Given these contextual differences, the overarching aim of this thesis is to determine whether United States focused theories of immigration and crime can readily translate to the Australian context. In Chapter 4, I outline the methodology for the three empirical studies designed to investigate this aim.

Chapter Four: Methodology

4.1 Introduction

The overarching aim of this thesis is to determine whether theories of immigration and crime derived from the United States experience translate well to the Australian setting. Specifically I ask, in a country with limited ethnic segregation, high levels of ethnic diversity and a largely skilled immigrant population, do similar relationships unfold? To address this aim, this thesis is comprised of three quantitative studies designed to better understand how immigrant growth, concentration, diversity and segregation affect crime rates across neighbourhoods located in two Australian cities: Sydney - an established immigrant gateway and Brisbane - a relatively new immigrant destination (Singer, 2004).

Setting a baseline for Australian research and providing a point of comparison to international scholarship, Study 1 utilises an innovative hybrid modelling approach to examine whether immigrant concentration influences changes in violent crime within neighbourhoods over time and/or variations in violent crime between neighbourhoods. Recognising that this broad measure of immigrant concentration may over-simplify the immigration-crime link, Study 2 disaggregates the immigrant population by language and religion in order to tease apart any group specific effects. By assessing both concentration and diversity effects, key theories of immigration and crime, namely social disorganisation theory and the immigration revitalisation thesis, are robustly tested. In Study 3, the spatial patterns of immigrant settlement are considered. To date, most immigration-crime research has employed measures of immigrant growth or concentration (see for exception Barranco, 2013; Feldmeyer et al., 2015). Study 3 advances the current literature by examining how the spatial segregation of immigrant groups at the local level influences neighbourhood crime outcomes.

Data for this thesis are drawn from three separate sources and aggregated to the state suburb - a common unit of analysis for neighbourhood effects research in the Australian context (Benier & Wickes, 2016; Colic-Peisker & Robertson, 2015; Foster, Giles-Corti & Knuiman, 2010; Sargeant, Wickes & Mazerolle, 2013; Wickes et al., 2013a; Wickes et al., 2013b; Zahnow et al., 2013). Crime incident data were sourced from the Queensland Police Service (QPS) and the New South Wales Bureau of Crime Statistics (BOSCAR). Information on the socio-demographic conditions and environmental features of neighbourhoods was drawn from the Australian Census of Population and

Housing. This chapter provides an in-depth overview of the two research sites; describes the data sources employed; and outlines the analytic approach utilised in each of the three studies.

4.2 Research sites

Scholars find that the receptivity of city contexts can play an important role in moderating the effect of immigration on crime (Martinez et al., 2004; Ramey, 2013). Cities with longstanding immigration histories, often referred to as ‘gateway cities’ are generally receptive contexts. In gateway cities, access to social institutions and ethnic economies is readily available for new immigrants upon arrival (Portes & Rumbaut, 2006; Singer, 2004). Moreover, established co-ethnics provide a valuable source of social capital and facilitate integration by helping recent arrivals navigate their new environment (Velez & Lyons, 2012). By contrast, less receptive city contexts typically exhibit limited co-ethnic presence and local governments and native residents often struggle to assimilate new immigrants. In such settings, immigrant residents tend to lack access to social and economic resources, face oppositional government policies and experience high levels of social exclusion and discrimination (Ramey, 2013). Some studies find the effect of immigration on crime varies between new and established cities with newer destinations experiencing poorer crime outcomes following increased immigration (Martinez et al., 2004; Ramey, 2013; Shihadeh & Barranco, 2010). As the social organisation of the city has important implications for crime at the neighbourhood level, two Australian cities with differing immigration histories are included as research sites in this thesis.

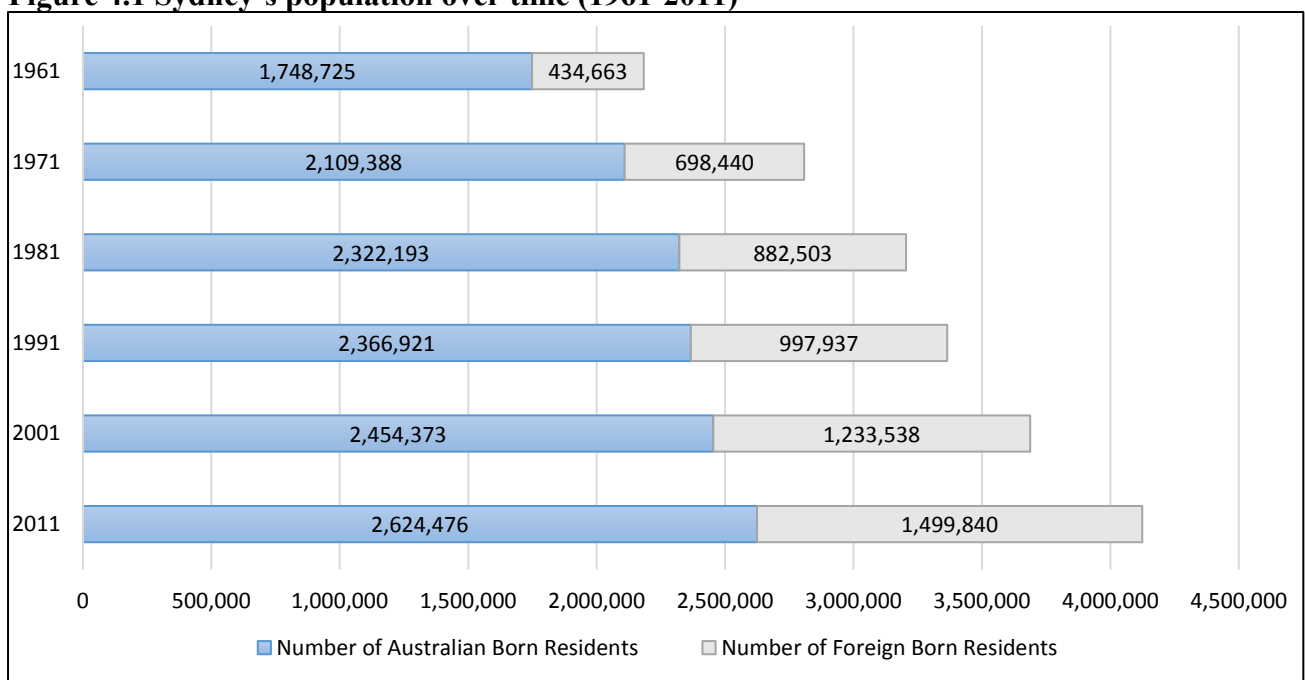
Sydney Statistical Division (SSD)

Sydney is the state capital of New South Wales and is the largest city in Australia. Almost one fifth of the country’s total population lives in Sydney with the residential population exceeding 4 million persons (ABS, 2011). Often referred to as an immigrant gateway city (Price & Benton-Short, 2008), Sydney has served as a key entry point for new immigrants entering Australia since the 1940s (ABS, 2014a). Immigrants have enjoyed a long-standing and sizeable presence in Sydney for over half century and today represent the country’s largest foreign born population (see Figure 4.1) (ABS 2014a; Ley & Murphy, 2001). Of Australia’s six million immigrants, approximately 1.5 million reside in Sydney with over one third of the city’s total population born overseas (ABS, 2014a). While Sydney is the preeminent destination for permanent immigrants, it also attracts many temporary workers and international students. Due to its strong ties to the global economy, half of the immigrants who enter Australia on temporary business visas choose to live in Sydney (Price &

Benton-Short, 2008). Additionally, New South Wales hosts Australia’s largest international student population with over one third of all enrolments (ABS, 2011).

Historically, immigrants from the United Kingdom have comprised the largest incoming and established group in Sydney. Collins (2006) describes these foreigners as a largely ‘invisible’ migratory group due to the similarities they share with natives in terms of language, religion and skin colour. Since World War II, Sydney’s immigrant population has significantly diversified. The first wave of non-British immigrants arrived in the late 1940s and early 1950s comprising largely Eastern European refugees with a wave of Dutch and German immigrants settling shortly after (Benton-Short & Price, 2008). From the mid to late 1950s, large numbers of Italian, Greek, Yugoslav and Lebanese immigrants landed in Sydney (Price & Benton-Short, 2008). The 1980s and 1990s saw an upsurge in immigrants arriving from the Asian region. In 1981, no Asian country was listed in Sydney’s largest foreign born groups. Yet by 2001, China, Vietnam, the Philippines, Hong Kong and India were all ranked within the top 10 (Price & Benton-Short, 2008).

Figure 4.1 Sydney’s population over time (1961-2011)

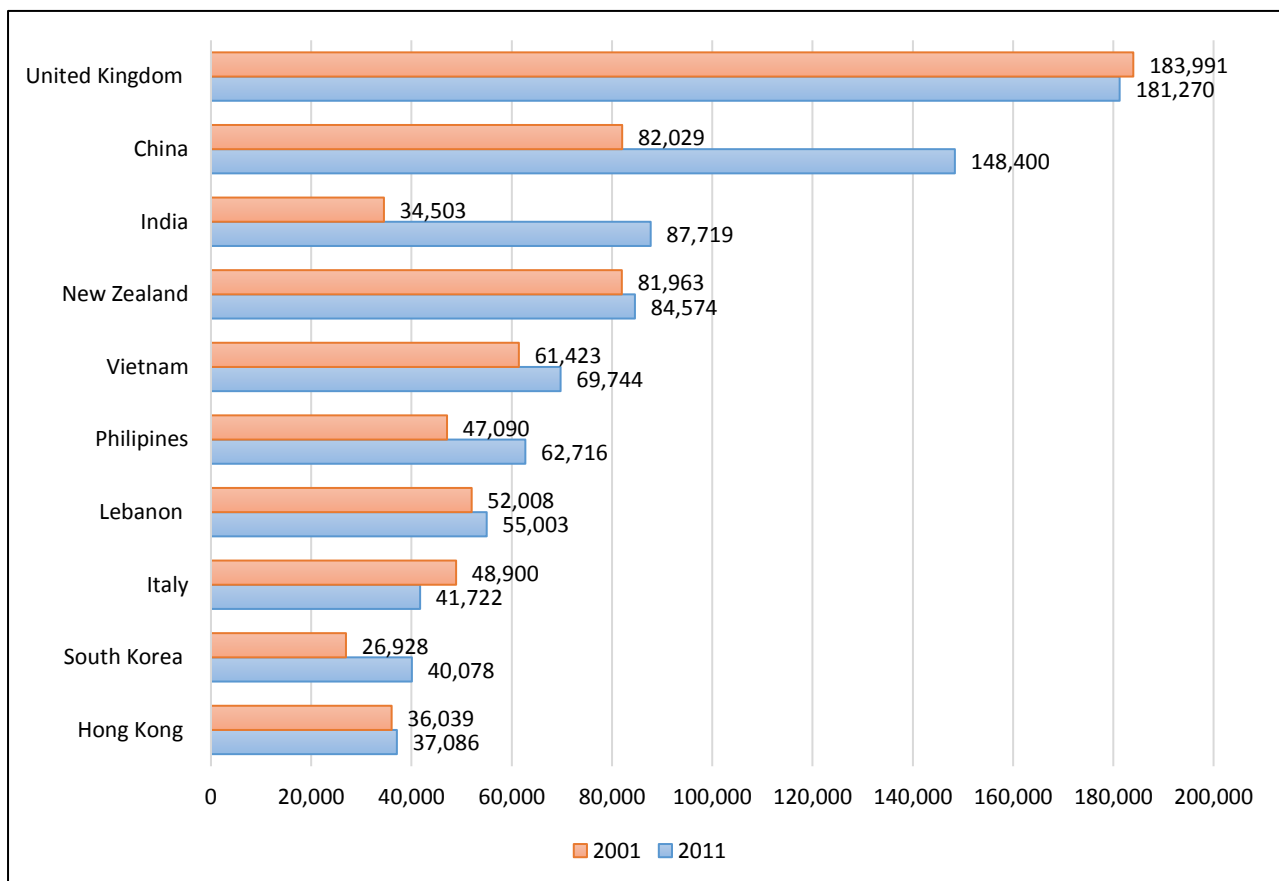


(ABS, 1961; 1971; 1981; 1991; 2001; 2011)

These successive waves of immigration since World War II have shaped the city into what it is today - a mosaic of people from diverse ethnic backgrounds with 96 birthplaces exceeding numbers of over 1,000 persons (ABS, 2011). A significant proportion of Sydney’s immigrant population (67%) speak a language other than English at home with many affiliated with non-Christian religions (25%) (ABS, 2011). Sydney is a popular settlement zone for certain ethnic

groups. In fact, 73% of Australia’s Lebanese population reside in Sydney, so too does 56% of the Fijian population, 62% of the Iraqi population and 61% of the Korean population (Markus et al., 2009). Between 2001 and 2011, Sydney experienced a considerable change in key migratory groups. Figure 4.2 shows that while immigrants from the United Kingdom continue to represent the largest foreign born group in Sydney, Indian and Chinese migration grew substantially over the period of study.

Figure 4.2 Changes in key migratory groups in Sydney (2001-2011)



(ABS, 2001; 2011)

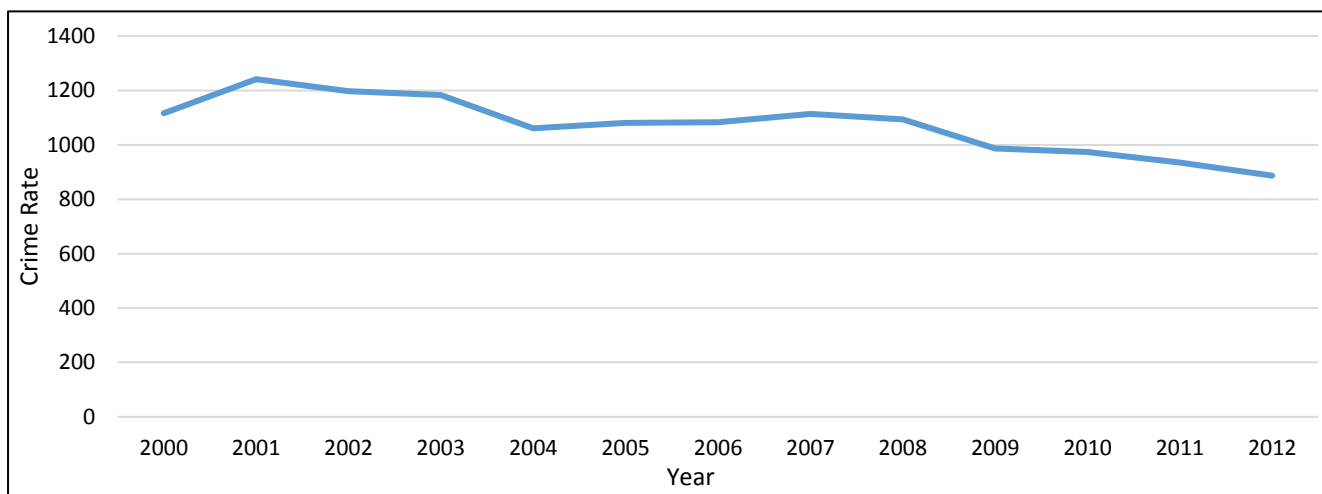
Immigration has played an important role in developing the economic, social and cultural landscape of Sydney (Collins, 2006). Collins (2006, p. 146) describes Sydney’s ethnic economy as a “defining aspect of Sydney as a cosmopolitan global city.” Shortly after their arrival, Italian and Greek entrepreneurs set up small businesses in Sydney. In Leichardt alone, 175 Italian business were established by 1976 including (but not limited to) delicatessens, fruit stores, pastry shops and fashion retailers (Collins, 2006). Vietnamese immigrants have similarly contributed to Sydney’s vibrant ethnic economy. Following the Vietnam War, Vietnamese refugees moved into affordable Sydney suburbs like Cabramatta and opened small businesses. Today, the neighbourhood boasts over 820

ethnic businesses with Collins and Poynting (2000, p. 39) describing a visit to Cabramatta as like a “visit to an Asian city, with the smells of food and produce jostling with the sounds of many languages.”

The established ethnic economy which operates across several Sydney neighbourhoods initially shaped the settlement patterns of many migratory groups. Today, these ethnic businesses not only help facilitate the economic incorporation of the immigrant population (Velez & Lyons, 2012) but also create a sense of home for immigrants suffering from feelings of disorientation and displacement. These places effectively encourage opportunities to build social ties with culturally similar individuals (Breton, 1964; Desmond & Kubrin, 2009) which in turn, helps strengthen neighbourhood networks and informal social control.

Due to Sydney’s well-established immigration history and strong immigrant presence, immigrants living in Sydney have easy access to a variety of resources and social organisations. For example, immigrants are able to practice their religion at a number of non-Christian institutions with 20 mosques, 18 Hindu temples, 16 Buddhist temples and 15 synagogues located within the city⁹. Parents are also able to send their children to non-Christian schools with six Jewish and 12 Islamic schools on offer. Further, immigrants from non-English speaking backgrounds can attend one of the 21 language institutions situated throughout Sydney. Legal aid is also relatively accessible with a range of migration lawyers operating citywide.

Figure 4.3 Sydney violent crime rate per 100,000 persons (2000-2012)



⁹ All religious institutions and schools located by searching the yellow pages online directory and google maps. Counts reflect listed businesses in March 2017.

With a well-established immigration history, a thriving ethnic economy, strong ties to the global economy and a variety of resources available for immigrants, Sydney is in a strong position to effectively integrate new arrivals. The size of Sydney's immigrant population rivals other global immigrant cities like New York, Toronto, Los Angeles, London, Miami and Vancouver (Benton-Short, Price & Friedman, 2005). Yet most notable about the Sydney context is that while foreign born concentration is high across many neighbourhoods, these concentrations are rarely dominated by a single birthplace (Price & Benton-Short, 2008). Further still, the violent crime rate in Sydney has steadily declined in recent years (see Figure 4.3). As such, Sydney provides an interesting research site for the investigation of the immigration-crime link in a non-United States setting.

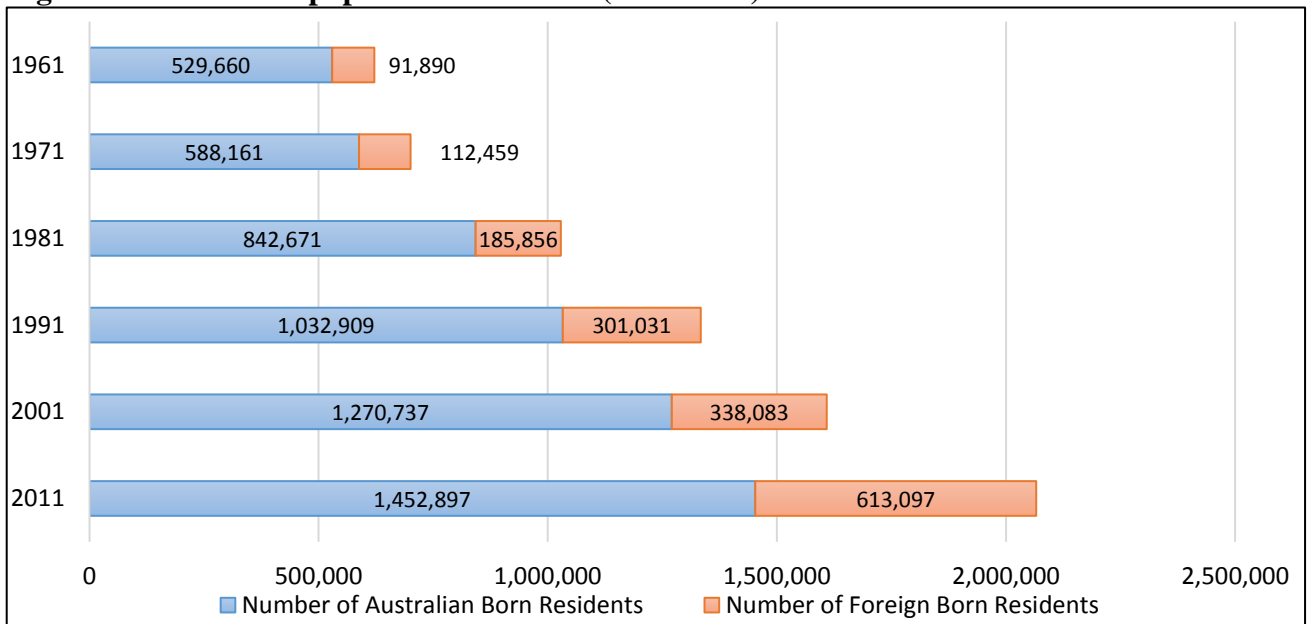
Brisbane Statistical Division (BSD)

Brisbane is the state capital of Queensland and recorded a residential population of 2 million persons in 2011 (ABS, 2011). In contrast to Sydney, Brisbane is a relatively new immigrant destination city (Singer, 2004). At last census, over a quarter of Brisbane's immigrant population had arrived within the last five years (ABS, 2011). Up until the 1990s, there were comparatively few immigrants living in Brisbane (see Figure 4.4). While immigrants have long comprised a sizeable proportion of Sydney's total population (25% in 1971), Brisbane's immigrant share has lagged behind (see Figure 4.5). Over the period of the current study, Brisbane experienced an unprecedented growth in immigration with the foreign born share increasing from 22% in 2001 to 27% in 2011. While Sydney also saw a continued increase on previous years, this upward trend was much more pronounced in Brisbane.

It is perhaps not surprising then that Brisbane's immigration history differs significantly from Sydney's experience. Unlike other Australian states, Queensland did not experience a gold rush during the 19th century making it a less attractive site for immigrants (Burnley, 2001). Due to concerns voiced by an overly conservative electorate, the Queensland Government did not promote diversity in immigration post World War II. As a consequence, Brisbane recorded the lowest intake of non-British immigrants compared to other capital cities at the time (Burnley, 2001). During the 1970s, the largest non-British groups living in Brisbane consisted of the Italians (7,800), the Greeks (3,000) and the Polish (2,800) (Burnley, 2001). Up until the late 1980s, Queensland's intake of Asian migrants was lower than any other state with the exception of South Australia (Burnley, 2001). The 1990s saw an increased presence of immigrants arriving from Asian countries like China, Hong Kong, Vietnam, Taiwan and the Philippines with some of these populations doubling or tripling in size in the space of a decade (ABS, 1986; 1996). Many of these migrants settled in middle ring or

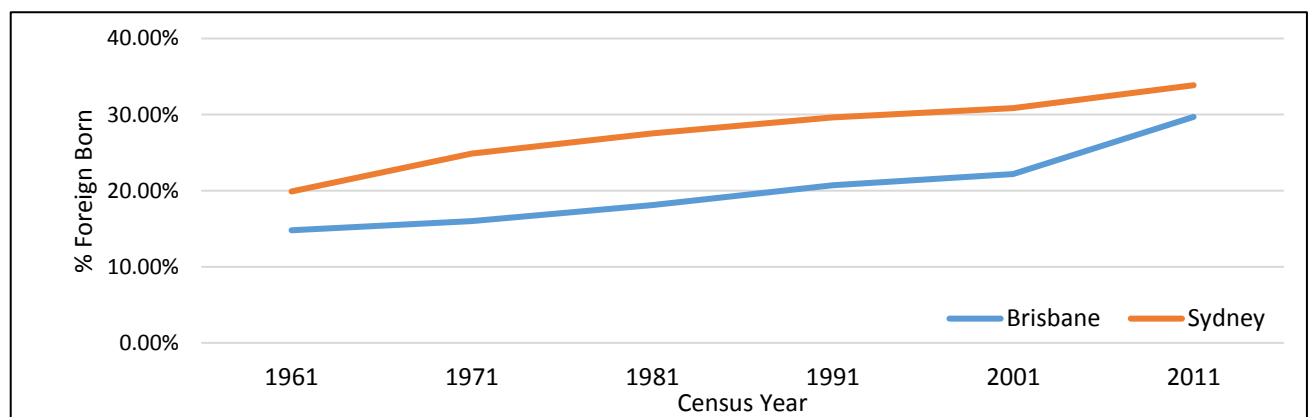
outer ring suburbs such as Stretton, Sunnybank and Macgregor with these formerly Anglo-Celtic neighbourhoods rapidly transformed into culturally diverse communities within a matter of years. Despite the growing presence of non-English speaking immigrants during the 1990s, immigrants from New Zealand and the United Kingdom overwhelmingly represented the largest incoming and established foreign born groups at the time (Burnley, 2001).

Figure 4.4 Brisbane’s population over time (1961-2011)



(ABS, 1961; 1971; 1981; 1991; 2001; 2011)

Figure 4.5 Brisbane and Sydney’s foreign born share compared (1961-2011)

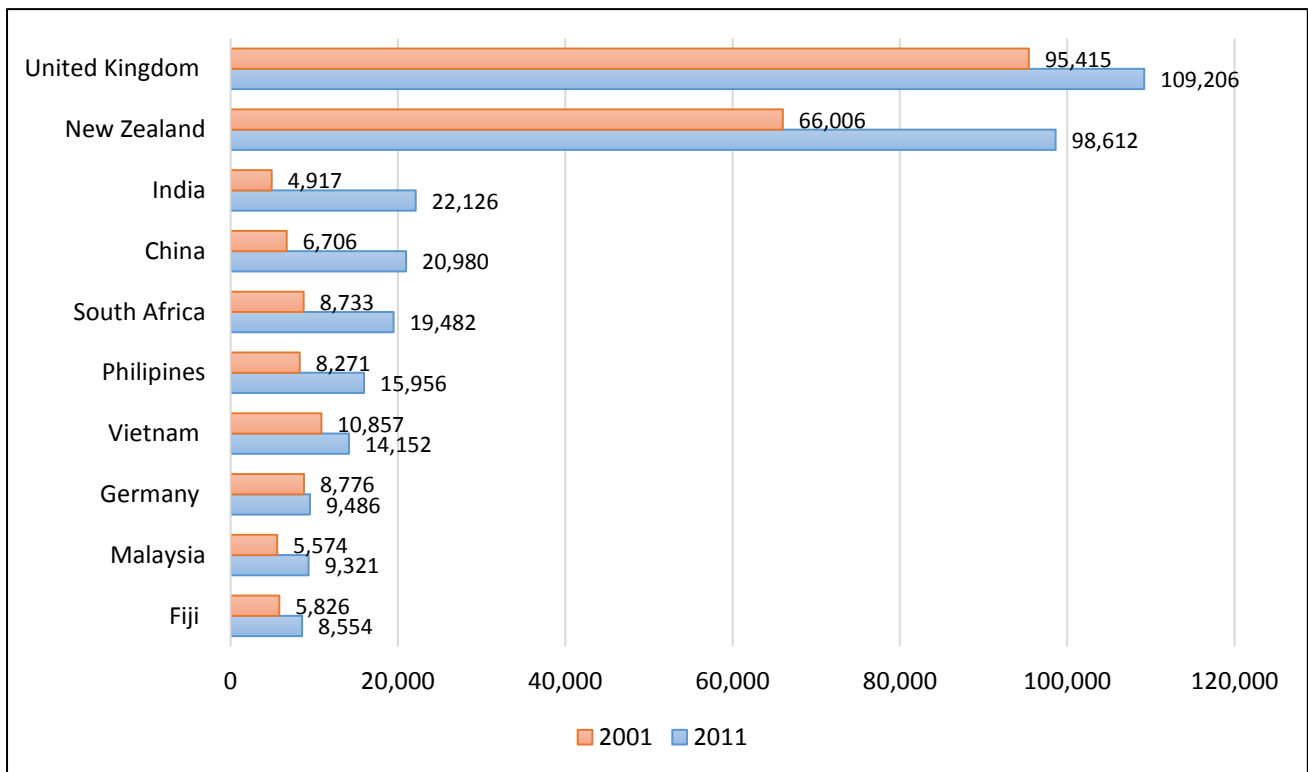


(ABS, 1961; 1971; 1981; 1991; 2001; 2011)

More recent statistics show that Brisbane’s immigrant population continues to be dominated by immigrants from English speaking backgrounds (ABS, 2007; Forrest & Dunn; 2006). Compared to Sydney, Brisbane’s immigrant population is much less linguistically diverse (41% speak a language other than English) and fewer practice non-Christian religions (14%) (ABS, 2011).

Brisbane is rarely the entry point for immigrants from non-English speaking backgrounds. Rather many first settle in other cities before moving to Brisbane (Forrest & Dunn, 2011). Like Sydney, Brisbane experienced a considerable shift in key migratory groups over the period of study. Most significant is the sharp increase in the Chinese and Indian population which grew by 212% and 350% between 2001 and 2011 respectively (see Figure 4.6).

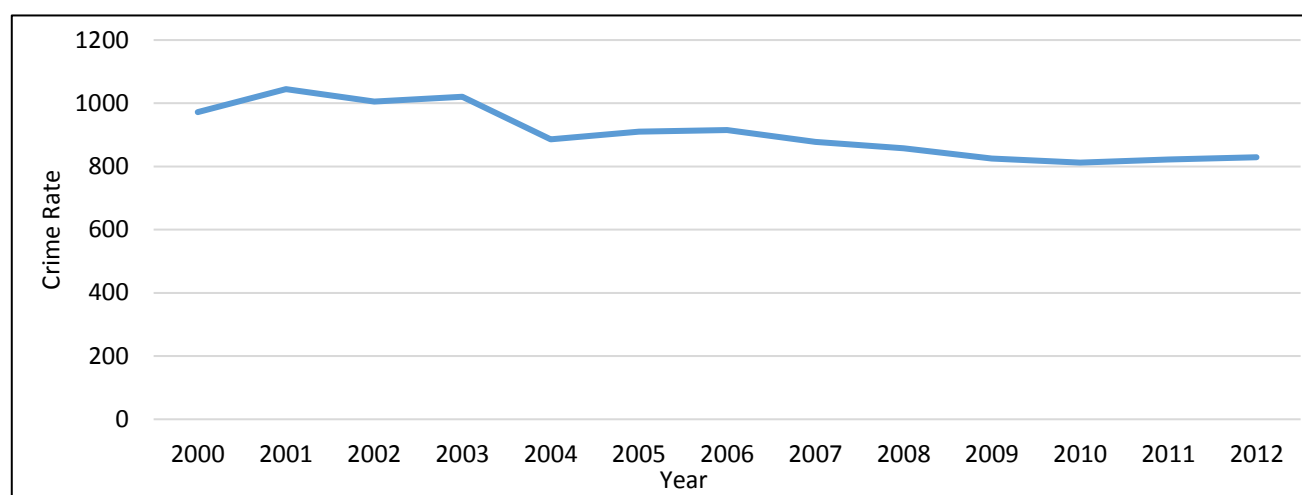
Figure 4.6 Changes in key migratory groups in Brisbane (2001-2011)



(ABS, 2001; 2011)

Immigrants in Brisbane have made similar attempts as those in Sydney to establish an ethnic economy. In 1981, half of the Greek male population were involved in small business (Burnley, 2001). Yet many early ethnic businesses struggled to succeed in Brisbane with small migrant numbers unable to support the local ethnic economy (Burnley, 2001). Following the influx of Asian migrants during the 1990s, a small ethnic economy was established on Brisbane's south side with bakeries, video stores, butchers, grocers and florists opened predominantly in neighbourhoods like Sunnybank, Darra and Inala (Burnley, 2001). While a number of ethnic businesses are now established across the city to service the growing immigrant community, Brisbane's ethnic economy continues to operate on a much smaller scale than what is seen in Sydney.

Figure 4.7 Brisbane violent crime rate per 100 000 persons (2000-2012)



With non-Anglo-Celtic immigration a relatively recent phenomenon in Brisbane, fewer ethnic institutions and resources are available throughout the city. For example, there are only three synagogues, eight Buddhist temples, seven Hindu temples and ten mosques.¹⁰ Non-Christian school options are also limited with only one Jewish school and one Islamic school on offer. While there are 12 businesses set up to teach English as a second language, all are located in the city centre making access more difficult for immigrants who live further away. Therefore it is expected that the limited networks and resources present in Brisbane will reduce capacity for bonds and weaken informal social control. Thus compared to Sydney, it is likely that Brisbane will struggle to “absorb” influxes of new immigrants which in turn may lead to higher neighbourhood crime in locations where immigrants settle. Nevertheless, as demonstrated in Figure 4.7, Brisbane (like Sydney) experienced an overall reduction in the crime rate between 2001 and 2011.

4.3 Unit of analysis

Empirical examinations of the immigration-crime link have addressed this question at varying levels of spatial granularity utilising a wide range of de jure units. In the United States, studies have employed everything from micro places like census block groups (Alaniz et al., 1998), to meso-level constructs like census tracts (Kubrin & Ishizawa, 2012; Martinez et al., 2010; Martinez et al., 2008; Nielsen et al., 2005; Nielsen & Martinez, 2009) through to macro level places such as metropolitan areas (Reid et al., 2005), census places¹¹ (Feldmeyer, 2009; Feldmeyer &

¹⁰ All religious institutions and schools located by searching the yellow pages online directory and google maps. Counts reflect listed businesses in March 2017.

¹¹ Census places are non-overlapping geographic units delineated by the United States Census Bureau. Census places range in size—from small towns up to midsize and large cities (US Census Bureau, 2012).

Steffensmeier, 2009), counties (Shihadeh & Barranco, 2010) and cities (Ferraro, 2016; Kubrin & Ousey, 2009; Ousey & Kubrin, 2009). Some have even examined multiple spatial scales within a single study. For example, Ramey (2013) explored the immigration-crime relationship across 8,628 census tracts nested within 84 cities.

The limited international scholarship shows similar variability in the unit of analysis employed. Andersen (2012) considered the relationship between immigrant concentration and homicide across Canadian provinces - an equivalently sized geographic unit to states in the United States and Australia. In Belgium, Bircan and Hooghe (2011) examined the effect of immigrant concentration on crime across 589 municipalities—areas with an average population of 17,900 inhabitants. Others have utilised much smaller units of analysis. Interested in neighbourhood effects, Bell and Machin's (2013) study in the United Kingdom concentrated on immigration and crime patterns across Lower Layer Super Output Areas with an average residential population of 1,513 persons.

As this study is primarily interested in the meso level processes that shape the immigration-crime link, I focus on the neighbourhood as the primary unit of analysis. Like elsewhere, immigrant settlement patterns and crime in Australia are non-random. Immigrants are not evenly distributed across city landscapes but rather favour certain types of neighbourhoods (ABS, 2014a). In particular, immigrants are overrepresented in neighbourhoods located in and around the city centre comprising over half of the total population in Sydney and Brisbane's central business districts (ABS, 2014a). Neighbourhoods located around universities are also popular settlement zones, home to many young international students (ABS, 2014a). For immigrants arriving through the skilled stream, newly developed or redeveloped suburbs are particularly appealing (ABS, 2014a). Not surprisingly, areas with a long-standing immigrant presence and an established ethnic economy continue to attract new arrivals (ABS, 2014).

Crime is also spatially clustered in particular types of neighbourhoods. A long history of ecological research in the United States suggests that certain neighbourhoods create a social environment conducive to crime (Shaw & McKay, 1942; Sampson et al., 1997). In particular, poor, ethnically diverse, and residentially unstable communities tend to experience higher rates of crime. Empirical research in Australia has uncovered similar patterns (Mazerolle, Wickes & McBroom, 2010).

Yet problematically, there is no universal definition for what constitutes a neighbourhood (Taylor, 2015). Neighbourhood boundaries vary considerably in both areal and population size not only across countries, but also within (Oberwittler & Wikstrom, 2009). In the United States, census tracts are often used to reflect neighbourhoods and usually contain between 1,200 and 8,000 residents (United States Census Bureau, 2012). Delineated based on population, the spatial size of census tracts depends largely on the level of population density. In Britain, scholars tend to employ either Lower Layer Super Output Areas (with an average population of 1,500 residents) or Middle Layer Super Output Areas (with an average population of 7,500 residents) (Office for National Statistics, 2017).

The issues associated with determining appropriately sized neighbourhoods is described by Oberwittler and Wikstrom (2009, p. 40) as an “awkwardly inescapable” aspect of neighbourhood based research. While the purpose of geographic analysis is to determine how two (or more) spatial phenomenon are related to one another, the Modifiable Areal Unit Problem (MAUP) suggests that effects may vary depending on the unit of analysis (Oberwittler & Wikstrom, 2009; Openshaw & Taylor, 1979; Rengert & Lockwood, 2009). MAUP comprises two key components - the scale effect and the zonation effect. The scale effect (also known as aggregation bias) refers to variance in the results at different geographic scales (Wong, 2004). In criminological research, if the unit of analysis is too large, the crime rates of several heterogeneous neighbourhoods are aggregated into one - potentially distorting empirical relationships (Hipp, 2007). Although smaller units are generally more homogenous in terms of their environmental conditions, focusing on small units can also present methodological challenges. In particular, when modelling rare events like crime, small units can produce excessive zero cell counts of the dependent variable and thereby reduce the accuracy of the analysis (Oberwittler & Wikstrom, 2009; Rengert & Lockwood, 2009).

The second component of MAUP - the zonation effect - concerns variability in the results when comparing different unit boundaries at the same spatial scale (Wong, 2004). As administrative boundaries are demarcated for non-research purposes, these boundaries may not represent meaningful neighbourhoods or reflect the spatial patterning of the social phenomena under examination (Rengert & Lockwood, 2009). This can be problematic because if administrative boundaries artificially divide an ethnic enclave into multiple neighbourhoods, segregation indices will underestimate the level of segregation (Oberwittler & Wikstrom, 2009). Thus MAUP can introduce a source of error into the model that can affect the validity of the results. Despite the challenges associated with MAUP, Sampson (2006, p. 35) argues that “the place stratification of

local communities by factors such as social class, race and family status is a robust phenomenon that emerges at multiple levels of geography.” Similar arguments can be made for the association between immigrant concentration and crime with consistent patterns uncovered regardless of the unit of analysis operationalised.

Rengert and Lockwood (2009) suggest two important considerations for determining the appropriate unit of analysis. The first depends on the theoretical propositions under examination. The second is more pragmatic - at what unit is data available? Consistent with previous Australian neighbourhood studies (Benier & Wickes, 2016; Foster et al., 2010; Sargeant et al., 2013; Wickes et al., 2013a; Wickes et al., 2013b; Zahnow et al., 2013), the unit of analysis employed in this thesis is the state suburb. State suburbs are an ABS approximation of localities gazetted by the Geographical Place Name authority in each State and Territory (ABS, 2011). State suburbs are a similarly sized unit to census tracts in the United States and Middle Layer Super Output Areas in the United Kingdom. The state suburb is synonymous with the neighbourhood in the Australian context. Research suggests residents recognise their state suburb as their local neighbourhood with most able to name the suburb in which they live (Mazerolle et al., 2007). Further studies find certain suburbs are stigmatised by high rates of crime and disorder – a trend which is not seen for other administrative units such as local government areas or postcodes (Palmer, Ziersch, Arthuson & Baum, 2005). Indeed immigrant suburbs like Cabramatta are often perceived to be associated with social problems like drug-related crime (Collins, 2006). In addition to being theoretically relevant, crime and census data for both sites are available at the state suburb level for all time points examined. With this in mind, the state suburb is the most suitable unit of analysis to answer the research questions outlined in this thesis.

In 2011, there were 824 state suburbs located within the Sydney Statistical Division (SSD) and 429 state suburbs within the Brisbane Statistical Division (BSD). As this study is primarily interested in how changes in the residential population influence violence over time, some neighbourhoods were considered inappropriate for inclusion. Neighbourhoods were selected based on two criteria: (1) the area had over 300 residents at all three time points; and (2) over 25% of the land use was classified as residential in 2011. In addition, four well-known entertainment precincts were excluded from the analysis as the high density of licensed premises located within these neighbourhoods largely explains the high prevalence of violent crime (Livingston, 2008; Grubestic, Pridemore, Williams & Philip-Tabb, 2013). Using these criteria ensured that outlier areas such as parklands, agricultural land, entertainment precincts and newly developed areas were not included in

the analysis. For Study 1 and 2, this process resulted in a total neighbourhood sample of N=580 (Sydney) and N=302 (Brisbane). As Study 3 is cross-sectional and focuses solely on 2011, some additional neighbourhoods met the population based criteria. The analytic sample for Study 3 is therefore N=598 (Sydney) and N=313 (Brisbane). The total persons residing within these neighbourhoods ranged from 307 to 43,373 persons with an average population of 6,089 residents.

Dealing with census boundary changes

There are additional challenges associated with longitudinal neighbourhood based research. Specifically, administrative boundaries tend to change over time as a result of population growth and urban sprawl. Changing classification systems also present issues for comparison over time. In this study, the state suburb boundaries shifted to varying degrees between 2001 and 2011. To deal with these changes, the ABS provides correspondence files which help create comparable units over time. Using a proportional approach, data from the 2001 and 2006 census were matched to the 2011 state suburb boundaries. To reduce the amount of error associated with concordance, data were extracted at the Collection District (CD) level - the smallest available unit for residential data comprising on average 225 dwellings (ABS, 2006).

The process of concurring data is relatively simple. In the correspondence files, each CD is assigned a proportion based on how much of the unit's area falls within the 2011 suburb boundaries. Data cells for each variable were multiplied by the allocated proportion. For example, if a CD recorded 100 foreign born residents in 2006 and the proportional score was listed as 0.75, the adjusted score for this variable would be 75. The adjusted counts for the CDs were then collapsed and aggregated to the state suburb level. Each neighbourhood was assigned a rating based on the quality of the concordance by the ABS (poor, acceptable or good). Based on this assessment, the data concurred for 79.30% of the suburbs included in the longitudinal analyses is of a "good" quality, while 15.50% is "acceptable."

4.4 Data sources

This thesis draws on three administrative data sources to examine the immigration-crime relationship over time. In Australia, each state is responsible for the distribution of crime statistics. Crime data was therefore extracted from two separate sources. BOSCAR provided data on crime in Sydney and the QPS allowed access to crime data for Brisbane. Information on the socio-demographic and environmental features of neighbourhoods was drawn from the ABS Census of Population and Housing. Each data source is described in detail below.

Queensland Police Service (QPS)

In raw form, the QPS crime incident data listed the x y co-ordinates for all offenses which occurred in Queensland from January 2000 to December 2012. These data were transferred to ArcGIS for geocoding with each incident that fell within the 2011 BSD boundaries assigned to a suburb. Next, the crime incident data were cleaned in Stata and aggregated to the neighbourhood level. Daily counts were collapsed to represent annual counts of crime based on the calendar year. QPS offenses were combined to create a violent crime category. Offenses classified as violent crime in Brisbane include homicide, manslaughter, attempted homicide, conspiracy to murder, assault (grievous, serious and common) and robbery (armed and unarmed).

New South Wales Bureau of Crime Statistics and Research (BOSCAR)

BOSCAR provided monthly counts of all crime incidents within New South Wales suburbs from January 2000 to December 2012. The state suburb is the smallest unit of analysis that this data is provided and thus the preassigned suburbs listed in the dataset were used. The crime incident data were cleaned in Stata with incidents falling outside of the SSD dropped from the dataset. From here, monthly counts were aggregated to represent annual counts of crime based on the calendar year. Recognising that collection agencies record crime differently and definitions of crimes vary across state boundaries, offense subcategories were further examined to ensure similar offenses were captured in New South Wales crime statistics. BOSCAR offenses included in the violent crime measure consist of murder, attempted murder, murder accessory/conspiracy, manslaughter, assault (domestic violence related, police, non-domestic violence related) and robbery (with firearm, with non-firearm weapon and without weapon). While differences exist in how subcategories are defined in the two sites (for example assault categories), once aggregated both violent crime measures capture similar violent crime incidents: homicide, other homicide, assaults and robberies.

Australian Census of Population and Housing

The Australian Census of Population and Housing is conducted every five years under the auspices of the ABS. With participation mandatory, the census aims to provide an accurate representation of the number of people and dwellings in Australia on census night. Additionally, the census collects information on a number of individual and household indicators including: age, gender, income, occupation, dwelling type and occupancy, year of arrival, ancestry, languages spoken, and religion. This study utilises three waves of ABS census data (2001, 2006 and 2011) based on place of usual residence to provide information on the socio-demographic and

environmental features of neighbourhoods. Data from the 2011 and 2006 census were extracted using TableBuilder Pro - an online product made available by the ABS. TableBuilder Pro allows users to create large tables with census data and supports a variety of cross classified tables (for example, year of arrival by religious affiliation). Tables created in TableBuilder Pro were exported to excel and later cleaned in Stata. As 2001 census data is not available online, it was purchased directly from the ABS. All variables of interest were cross-checked to ensure consistency in the questions and response categories across census years.

4.5 Violent crime counts as the outcome variable

Immigration-crime scholarship in the United States and elsewhere has tended to focus on the effect of immigration on violent crime (see for example, Martinez et al., 2004; Martinez et al., 2010; Ousey & Kubrin, 2009; Ousey & Kubrin, 2014; Stowell & Martinez, 2009; Velez, 2009; Wadsworth, 2010). To provide a point of comparison to international research, violent crime is employed as the dependent variable across all three quantitative studies in this thesis. Offenses classified as violent crime include homicide, other homicide, assault and robbery. While Andresen and Linning (2012) cite issues with combining offenses into broad crime categories, this aggregation is necessary in the Australian context with violent crime a particularly rare event.

In modelling crime across place, scholars usually use one of two strategies. The traditional approach is to create a crime rate by dividing crime counts by a population base (for example, the residential population) and then converting this figure to a rate to per 100,000 persons. This crime rate (or the log transformation) is then modelled using linear regression. While this approach is suitable when considering crime across large units of analysis (such as cities), Osgood (2000) argues that it is problematic when examining crime across smaller units (like census tracts) where the population is smaller and crime events are fewer. This is because crime incidents are discrete events and thus the crime rate for any given population relates to integer counts of crime (Osgood, 2000). In places with a small population, a single violent crime incident might equate to a high crime rate. Osgood (2000) therefore warns that using crime rates at this geographic unit violates the assumption of homogeneity of error variance. Specifically, crime rates will produce larger error terms when based on small populations compared to large populations (Osgood, 2000). As the population size of neighbourhoods included in this thesis varies from 300 persons up to 40,000 persons, Osgood's (2000) warning is worthy of consideration. Additionally, violent crimes are rare events distributed across neighbourhoods in a highly skewed manner. As such, OLS regression is not suitable as the normal distribution of error terms cannot be assumed when crime counts are small. Osgood (2000, p.

23) explains: “As populations decrease, an offense rate of zero will be observed for a larger and larger proportion of cases. Thus, there is an effective censoring at zero that is dependent on sample size, which has considerable potential for biasing the resulting regression coefficients.”

To deal with these methodological challenges, many scholars have opted to use count models such as Poisson or negative binomial regression. These models generally include an exposure term that effectively standardises counts by population size. I take this approach in this thesis and employ negative binomial regression to assess crime within and between neighbourhoods. The violent crime count for each time point is calculated based on a three year moving average centred around each census year (for example in 2001, the crime count represents the average for 2000, 2001 and 2002). This helps create a more stable estimate of crime and prevents an uncharacteristically high crime year from biasing the results (Ousey & Kubrin, 2009; Ousey & Kubrin, 2014).

Table 4.1 Number of zero violent crime count suburbs

	SYDNEY (N=598)	BRISBANE (N=302)
2001	2 (0.003%)	13 (4.30%)
2006	2 (0.003%)	11 (3.64%)
2011	0 (0.00%)	10 (3.31%)

Figure 4.8 and 4.9 show the distribution of violent crime across the three time points for both research sites. Here we can see that violent crime counts are consistently higher across Sydney neighbourhoods compared to Brisbane neighbourhoods, reflecting the greater population size and density in Sydney neighbourhoods. While violent crime counts are quite rare events in the Australian context, only a few suburbs reported zero violent crimes (see Table 4.1). Areas that reported zero violent crimes tended to have relatively small residential populations with low population density and were located on the outskirts of the city. The following sections outline the analytic strategy of each of the three quantitative studies that comprise this thesis.

4.6 Study 1: Immigrant growth, concentration and crime

Study 1 aims to determine whether theories of immigration and crime developed in the United States context generalise to multi-ethnic settings like Australia where recent immigrant waves have focused on the admittance of skilled immigrants and where neighbourhoods are rarely dominated by a single birthplace. Apart from setting a baseline for Australian research, Study 1 also advances the current literature by employing an innovative hybrid modelling approach. Previous

Figure 4.8 Distribution of violent crime counts across Sydney neighbourhoods

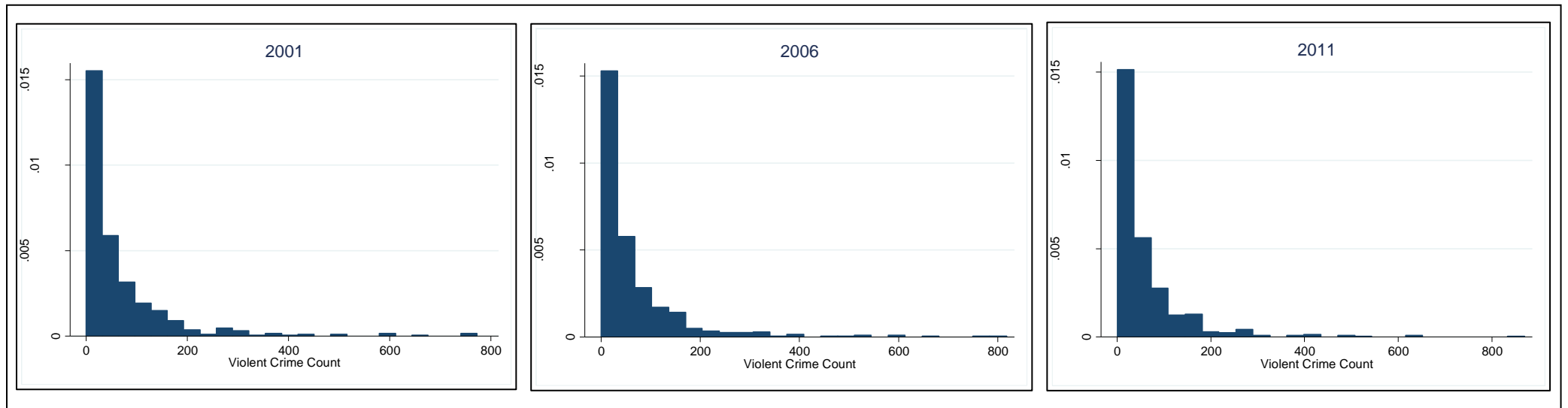
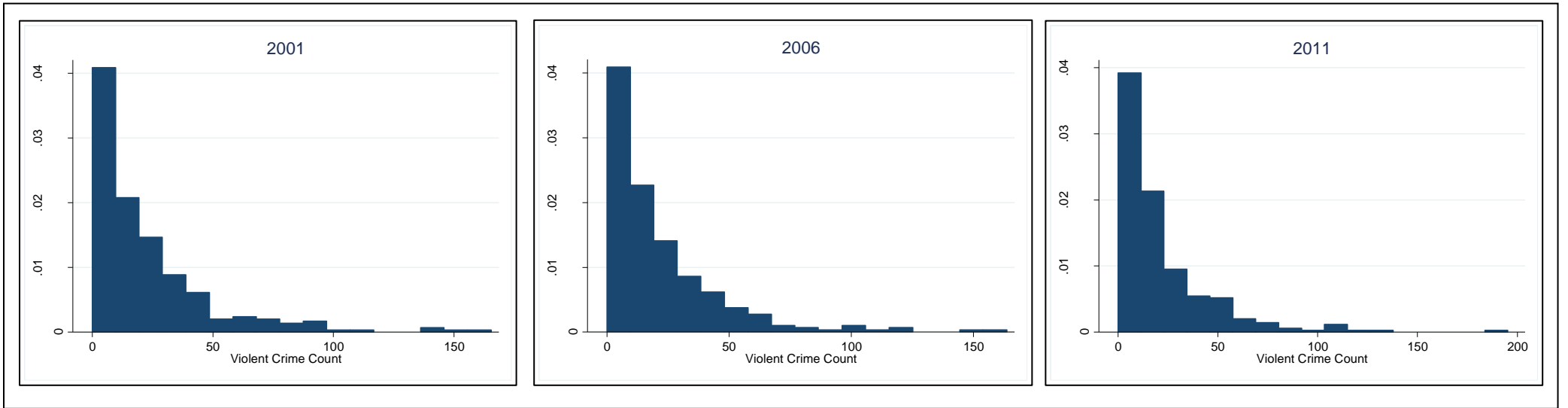


Figure 4.9 Distribution of violent crime counts across Brisbane neighbourhoods



immigration-crime studies consider either how changes in immigrant concentration over time impact crime *within* a unit (see for example Martinez et al. 2010; Ousey & Kubrin, 2009) or how static levels of immigrant concentration are associated with more or less crime *between* units (i.e. cross-sectional research, see for example Stowell & Martinez, 2009; Velez, 2009). Yet experiencing an influx of immigrants into an area is inherently different to exhibiting a generally high level of immigrant concentration and as such, each process may differentially influence crime. This study considers both and is guided by three research questions. First, how do changes in immigrant concentration impact changes in violent crime within neighbourhoods over time? Second, do neighbourhoods with a higher concentration of immigrants encounter more or less violent crime than those with a lower concentration? And finally, do neighbourhood factors (such as the size of the immigrant population or the level of disadvantage) moderate the effect of changes in immigrant concentration on violent crime across neighbourhoods?

Variable information

In Australia, like elsewhere, immigrant settlement patterns and crime are non-random and both are heavily shaped by dynamic neighbourhood contexts (ABS, 2014a; McDonald et al, 2013). Due to lower rents and costs of living, many immigrants settle in disorganised communities (Stowell, 2007) where violent crime is much more pronounced (Krivo & Peterson, 1996; Shaw & McKay, 1942). In Australia, newly arrived immigrants often settle in and around the central business district (CBD) (ABS 2014a) however, such areas present greater opportunities for crime due to high population density and a greater mixed land use (Livingston, 2008; Nielsen & Martinez, 2003; Grubestic et al., 2013). The relationship between immigration and crime may therefore be spurious and a result of the types of places immigrants chose to settle. To control for aspects of the neighbourhood that might correlate with crime and immigration, a number of theoretically and empirically derived socio-demographic and environmental variables are included in the analysis (Bell & Machin, 2013; Martinez et al., 2010; Ousey & Kubrin, 2009; Ousey & Kubrin, 2014). This section provides information on the key independent variable of interest for Study 1 as well as an overview of the neighbourhood variables included. Descriptive statistics for these variables are included in Table 4.2 and 4.3. As can be seen in the correlation matrices provided in Table 4.4, none of these variables exceed correlations of 0.70.

Immigrant Concentration: the key variable of interest for Study 1 is total immigrant concentration. This variable effectively captures the share of the total population who is foreign born across each neighbourhood at each time point. Several studies in the United States have used a comparable

measure to tap into the presence of immigrants (see for example Feldmeyer and Steffensmeir, 2009; Lee et al., 2001; Martinez et al., 2008; Martinez et al., 2010; Wadsworth, 2010) - although percent Latino is also common (Feldmeyer, 2009; Harris & Feldmeyer, 2013; Light, 2017). On average, levels of immigrant concentration are considerably higher across Sydney neighbourhoods compared to Brisbane neighbourhoods at all time points. However, both cities saw an increase in the neighbourhood level of immigrant concentration between 2001 and 2011 (Sydney: 28.74% in 2001 and 30.75% in 2011; Brisbane 20.19% in 2001 and 23.81% in 2011).

Disadvantage: Social disorganisation theory predicts disadvantaged neighbourhoods will encounter higher rates of crime. Extensive studies reveal that socio-economic disadvantage is a consistent and strong predictor of neighbourhood violence (Bursik & Grasmick, 1993; Krivo & Peterson, 1996; Lee et al., 2001; Sampson, Morenoff & Raudenbush, 2005). Scholars argue this is because disadvantaged communities generally exhibit weaker ties between neighbours, higher levels of unemployment, limited supervision of children and teenagers and residents lack a willingness to intervene in local problems (Browning, Dietz & Feinberg, 2004). As a result, residents living in disadvantaged neighbourhoods often fail to engage in the informal social control actions required to reduce crime (for example arranging neighbourhood watches or contacting the police) (Velez, 2009). Due to limited social and economic capital, certain immigrant groups (such as humanitarian immigrants) often settle in disadvantaged areas on arrival and thus any relationship uncovered between immigration and crime may be due to selection bias (Stowell, 2007).

To control for the effect of disadvantage on violent crime, a disadvantage factor was generated in Stata using the *factor* command with the principal-component factor (*pcf*) option. The disadvantage factor is based on three measures: percent unemployed and seeking work, percent one parent families and percent low-income persons.¹² These variables loaded strongly on one factor in both cities at each time point. All variables had loadings of 1.9 or higher. Higher scores of the disadvantage factor reflect higher degrees of neighbourhood disadvantage.

Residential Instability: In addition to disadvantage, social disorganisation theorists also contend that higher levels of residential instability are associated with more neighbourhood crime. In residentially unstable areas, residents are unable to build social networks and form strong ties to local organisations (Stark, 1987). These weak social ties can reduce a community's regulatory capacity and as a consequence, crime flourishes. As immigration is a strong driver of residential instability, it

¹² Low income measure captures persons who reported earning less than \$399 a week. This figure was adjusted in 2001 and 2006 according to the Consumer Price Index based on September each census year (ABS, 2015).

is important to control for its unique effect on violent crime and thus two measures of residential instability (percent households renting and percent households at a different address five years ago) are included in the models (the correlation between the two variables is below 0.62 at each time point).

Young Males: In the broader criminological literature, young males are found to be disproportionality involved in crime (Boyd, 2000; Hirschi & Gottfredson, 1983). Evidence from the 2011 Australian Census suggests that while a similar proportion of recently arrived immigrants are male compared to the native population, nationally, a higher number of recent immigrants fall within the 15 to 24 age bracket (22.40% compared to 14.53%) (ABS, 2011). If increased immigration shifts the socio-demographic composition of neighbourhoods by increasing the proportion of young males, crime rates are likely to rise. Indeed, Andersen (2012) found that increased immigration indirectly affected crime by increasing the number of young males in the population. To control for this, percent males aged 15-24 years is included in the models.

Indigenous Presence: Indigenous Australians are overrepresented in the criminal justice system both as victims and as perpetrators of violent crime (Wundersitz, 2010). Despite comprising only 3% of the total population (ABS, 2011), recent figures show Indigenous offenders make up 40% of the prisoner population incarcerated for assault (Australian Institute of Criminology (AIC), 2015). Further Indigenous Australians are 2-3 times more likely to be a victim of crime (AIC, 2015). Their disproportionate contact with the system can be attributed to the high levels of social disadvantage which plagues Indigenous communities (Altman, Biddle & Hunter, 2008) and the systematic discrimination they face. As research shows Indigenous Australians are more likely to be charged by police than their non-Indigenous counterparts (Wundersitz, 2010), this may have important consequences for official crime data. Studies have linked Indigenous presence to greater recorded crime at the aggregate level (McCausland & Vivian 2010). To control for the effect of Indigenous presence on crime, percent Indigenous is included in the models. In 2011, neighbourhoods in Brisbane had on average a greater number of Indigenous residents (2.15%) compared to Sydney (1.43%).

Population Density: Population density affects neighbourhood environments in ways that can either promote or prevent violent crime. By presenting more opportunities for violence (due to increased contact with or access to potential victims), some contend higher population density is intrinsically linked to higher rates of neighbourhood crime. Alternatively, it is also argued more densely populated neighbourhoods should experience less violent crime. By having more ‘eyes on the street,’

population density can provide a source of natural surveillance that inhibits potential offenders from engaging in violence (Harries, 2006). To control for the effect of population density on violent crime, a measure of population density was also included in the models. This measure was calculated by dividing the total population of a neighbourhood by the area of the neighbourhood (in square kilometres). This variable was then rescaled (divided by 100) for interpretation purposes. As shown in Table 4.2 and 4.3, neighbourhoods in Sydney are on average much more densely populated than neighbourhoods in Brisbane (29.15 and 14.27 in 2011 respectively).

Residential Land Use: Extensive evidence suggests crime is clustered around certain non-residential land uses particularly bars, schools, transport stations and shopping centres (Grubestic et al., 2013; Ihlanfeldt, 2003; Livingston, 2008; Murray & Swatt, 2010; Nielsen & Martinez, 2003).

Environmental criminologists contend these non-residential land uses either attract or generate opportunities for crime and thus neighbourhoods with these features present tend to experience higher rates of crime (McCord & Ratcliffe, 2009). Land use is less considered in empirical tests of social disorganisation. However, from this perspective it is argued that mixed or non-residential land use can limit the capacity of residents to maintain social control. Specifically, residents' ability to differentiate between locals and outsiders is reduced in areas with greater non-residential land use due to the large number of strangers in the area (Stucky and Ottensmann, 2009). Previous immigration-crime scholarship has largely ignored the effect of land use on crime (see for exception Alaniz et al., 1998; Nielsen and Martinez, 2003). Yet failing to account for land use may present a misleading picture of the immigration-crime association, particularly if immigrants are unevenly distributed in areas with more crime-generators or attractors present. This study therefore accounts for the influence of non-residential land use on violent crime.

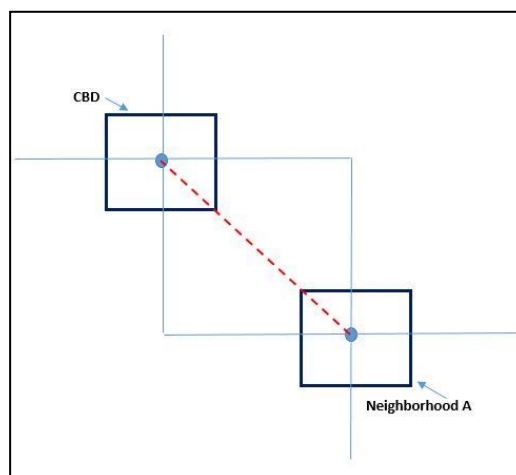
To control for the effect of non-residential land use on violent crime, the land use categories assigned to meshblocks¹³ in the 2011 census were used to construct a percent residential land use variable. Meshblocks are the smallest unit of analysis provided by the census and include information on their physical size as well as a categorisation of their primary land use into one of seven classes: residential, parkland, commercial, industrial, water, education or transport. To create the residential land use measure, meshblocks were spatially joined to state suburbs in ArcGIS. The total area of residential meshblocks within each suburb was summed and then divided by the total suburb area. This figure was then multiplied by 100 to provide a percentage score. While it is acknowledged that not all non-residential land uses are equal in their ability to attract or generate

¹³ No residential data is provided at this level.

crime, this blunt measure controls for the potential of non-residential activities driving higher rates of crime across neighbourhoods. Unfortunately due to data availability, the land use measure is only taken at one time point (2011).

Distance to the CBD: Early neighbourhood theories of crime predicted a negative correlation between a neighbourhood's distance to the CBD and the occurrence of crime (Burgess, 1928). Notable in Australian capital cities is the tendency for immigrants to settle in and around the CBD (as discussed in Chapter 3) (ABS, 2014). In fact, in both Sydney and Brisbane over 60% of the residential population living in the city centre is foreign born (ABS, 2014). With this in mind, the distance between the centroid of each neighbourhood and the centroid of the CBD was estimated to create a *distance to CBD* measure. To create this measure, ArcGIS and Stata were both employed to compute the Euclidean distance (in km) between the geometric centres of each neighbourhood to the CBD (see Figure 4.10). On average, the Sydney neighbourhoods included in the sample were located 25.88 km from the city centre (min=0.89km and max=88.33km) while Brisbane neighbourhoods were on average located 19.18km from the city centre (min= 1.04km and max=61.67km).

Figure 4.10 Distance to CBD calculation



Nearby violent crime: As neighbourhoods are not independent entities, scholars contend that the activities in adjacent areas may affect crime in the focal neighbourhood. Morenoff and colleagues (2001) found that the spatial proximity to violent crime neighbourhoods was associated with homicide rates in the focal area. Acknowledging the potential for spillover effects, a spatially lagged violent crime variable was generated to account for violence in surrounding areas based on the average crime rate for 2010, 2011 and 2012. This variable was created in Stata using a spatial weights matrix which employed the rook contiguity matrix. The crime rate measure was then log transformed. In the longitudinal models, this measure is not used to look at changes in neighbouring areas but rather represents the average level of violent crime in neighbouring areas.

Table 4.2 Descriptive statistics for Study 1 Sydney (N=580)

Variables	2001			2006			2011		
	Mean (S.D)	Min	Max	Mean (S.D)	Min	Max	Mean (S.D)	Min	Max
Violent Crime Counts	67.64 (101.70)	0.00	773.33	64.96 (97.70)	0.00	817.67	58.91 (87.21)	0.33	869.33
% Immigrant	28.74 (11.73)	8.45	67.53	28.97 (11.92)	8.33	64.90	30.75 (12.98)	9.33	70.43
Disadvantage	-0.06 (1.02)	-2.23	5.04	0.13 (1.15)	-2.12	6.28	0.11 (1.06)	-1.90	5.35
Population Density	25.68 (19.33)	0.63	186.41	26.85 (20.02)	0.63	192.48	29.15 (21.76)	0.51	201.69
% Renting	24.07 (13.43)	1.66	84.30	24.39 (12.81)	1.13	77.91	24.47 (12.64)	0.83	83.29
% Different Address 5 Years	38.84 (10.07)	21.58	86.00	30.04 (8.18)	15.78	61.22	33.57 (9.45)	17.02	80.25
% Indigenous	1.10 (1.41)	0.00	11.55	1.18 (1.57)	0.00	12.99	1.43 (1.78)	0.00	15.15
% Young Males	6.89 (1.64)	3.26	16.96	6.79 (1.65)	2.74	14.22	6.56 (1.64)	2.32	16.01
% Residential Land Use	-	-	-	-	-	-	66.62 (18.99)	25.17	100.00
% Distance to CBD (km)	-	-	-	-	-	-	25.83 (19.24)	0.89	88.33
Nearby Violent Crime	-	-	-	-	-	-	6.42 (0.71)	0.00	8.60

Table 4.3 Descriptive statistics for Study 1 Brisbane (N=302)

Variables	2001			2006			2011		
	Mean (S.D)	Min	Max	Mean (S.D)	Min	Max	Mean (S.D)	Min	Max
Violent Crime Counts	22.51(26.07)	0.00	165.33	21.67 (24.54)	0.00	163.67	21.47 (25.42)	0.00	195.33
% Immigrant	20.19 (7.10)	6.80	50.54	20.76 (7.41)	6.52	54.67	23.81 (8.75)	6.65	56.61
Disadvantage	0.42 (0.91)	-1.53	3.31	0.03 (0.80)	-2.00	2.35	0.11 (0.82)	-1.85	2.62
Population Density	12.01 (9.03)	0.14	47.48	13.13 (9.94)	0.14	55.64	14.27 (10.61)	0.13	65.20
% Renting	25.43 (11.97)	2.80	57.97	25.00 (11.55)	2.82	52.01	26.90 (12.00)	2.55	54.48
% Different Address 5 Years	44.32 (8.83)	13.28	79.16	38.11 (7.60)	11.19	68.86	40.59 (8.93)	7.68	68.66
% Indigenous	1.79 (2.09)	0.00	29.32	1.90 (2.55)	0.00	37.61	2.15 (2.74)	0.00	40.29
% Young Males	7.41 (2.02)	1.79	22.37	7.35 (2.03)	2.42	22.43	7.25 (2.02)	1.16	22.58
% Residential Land Use	-	-	-	-	-	-	66.12 (18.17)	25.57	100.00
Distance to City Centre (km)	-	-	-	-	-	-	19.18 (11.93)	1.04	61.67
Nearby Violent Crime	-	-	-	-	-	-	5.40 (1.03)	0.00	7.35

Table 4.4 Correlation matrices for Study 1

SYDNEY (N=580)		1	2	3	4	5	6	7	8	9	10	11
2001	1. Violent Crime Counts	1.00										
	2. % Immigrant	0.33	1.00									
	3. Population Density	0.30	0.43	1.00								
	4. % Indigenous	0.17	-0.17	-0.11	1.00							
	5. Disadvantage	0.37	0.19	0.00	0.59	1.00						
	6. Young Males	0.11	0.17	-0.09	0.15	0.09	1.00					
	7. % Renting	0.46	0.40	0.54	0.37	0.56	0.03	1.00				
	8. % Diff. Add. 5yrs	0.11	0.14	0.30	-0.12	-0.14	-0.11	0.34	1.00			
	9. Distance to CBD	-0.08	-0.54	-0.54	0.35	0.34	-0.03	-0.25	-0.04	1.00		
	10. % Residential Land Use	-0.04	0.15	0.40	-0.11	-0.07	-0.10	-0.01	-0.00	-0.24	1.00	
	11. Nearby Violent Crime	-0.00	-0.06	-0.02	-0.02	0.01	0.02	-0.04	0.01	0.03	-0.05	1.00
2006	1. Violent Crime Counts	1.00										
	2. % Immigrant	0.28	1.00									
	3. Population Density	0.28	0.40	1.00								
	4. % Indigenous	0.18	-0.26	-0.16	1.00							
	5. Disadvantage	0.30	0.17	-0.20	0.63	1.00						
	6. Young Males	0.13	0.18	-0.14	0.13	0.24	1.00					
	7. % Renting	0.44	0.34	0.56	0.34	0.33	-0.03	1.00				
	8. % Diff. Add. 5yrs	0.20	0.22	0.48	-0.15	-0.29	-0.14	0.54	1.00			
	9. Distance to CBD	-0.04	-0.53	-0.56	0.45	0.44	0.07	-0.21	-0.18	1.00		
	10. % Residential Land Use	-0.05	-0.14	0.37	-0.12	-0.06	-0.18	0.01	-0.01	-0.24	1.00	
	11. Nearby Violent Crime	0.00	-0.06	-0.02	-0.00	0.00	0.00	-0.04	-0.01	0.03	-0.05	1.00
2011	1. Violent Crime Counts	1.00										
	2. % Immigrant	0.32	1.00									
	3. Population Density	0.23	0.46	1.00								
	4. % Indigenous	0.16	-0.35	-0.21	1.00							
	5. Disadvantage	0.32	0.16	-0.18	0.62	1.00						
	6. Young Males	0.10	0.12	-0.25	0.18	0.38	1.00					
	7. % Renting	0.46	0.42	0.57	0.31	0.37	-0.07	1.00				
	8. % Diff. Add. 5yrs	0.18	0.26	0.53	-0.17	-0.30	-0.27	0.53	1.00			
	9. Distance to CBD	-0.02	-0.55	-0.55	0.53	0.42	0.17	-0.21	-0.22	1.00		
	10. % Residential Land Use	-0.05	0.13	0.37	-0.13	-0.03	-0.12	0.03	-0.02	-0.24	1.00	
	11. Nearby Violent Crime	0.01	-0.06	-0.03	0.01	-0.01	-0.00	-0.00	-0.04	0.03	-0.05	1.00

BRISBANE (N=302)		1	2	3	4	5	6	7	8	9	10	11
2001	1. Violent Crime Counts	1.00										
	2. % Immigrant	0.19	1.00									
	3. Population Density	0.32	0.23	1.00								
	4. % Indigenous	0.24	-0.17	-0.09	1.00							
	5. Disadvantage	0.52	0.13	0.20	0.42	1.00						
	6. Young Males	0.19	0.31	0.29	-0.04	0.05	1.00					
	7. % Renting	0.54	0.19	0.63	0.30	0.59	0.32	1.00				
	8. % Diff. Add. 5yrs	0.02	0.29	0.37	-0.23	-0.09	0.13	0.40	1.00			
	9. Distance to CBD	-0.10	-0.27	-0.63	0.25	0.18	-0.33	-0.37	-0.29	1.00		
	10. % Residential Land Use	-0.09	0.04	0.33	-0.07	-0.06	-0.03	0.02	0.08	-0.11	1.00	
	11. Nearby Violent Crime	0.08	0.04	0.12	-0.00	0.00	-0.02	0.07	0.10	-0.10	0.01	1.00
2006	1. Violent Crime Counts	1.00										
	2. % Immigrant	0.17	1.00									
	3. Population Density	0.22	0.25	1.00								
	4. % Indigenous	0.22	-0.20	-0.14	1.00							
	5. Disadvantage	0.45	0.12	-0.10	0.39	1.00						
	6. Young Males	0.18	0.33	0.24	-0.03	0.01	1.00					
	7. % Renting	0.50	0.14	0.62	0.21	0.36	0.28	1.00				
	8. % Diff. Add. 5yrs	0.06	0.28	0.34	-0.17	-0.10	0.10	0.40	1.00			
	9. Distance to CBD	-0.02	-0.31	-0.63	0.27	0.38	-0.28	-0.38	-0.15	1.00		
	10. % Residential Land Use	-0.10	0.03	0.34	-0.08	-0.06	-0.04	0.01	-0.01	-0.11	1.00	
	11. Nearby Violent Crime	0.09	0.04	0.13	-0.01	0.01	0.02	0.06	0.05	-0.10	0.01	1.00
2011	1. Violent Crime Counts	1.00										
	2. % Immigrant	0.18	1.00									
	3. Population Density	0.19	0.32	1.00								
	4. % Indigenous	0.20	-0.24	-0.18	1.00							
	5. Disadvantage	0.47	0.14	-0.12	0.43	1.00						
	6. Young Males	0.16	0.31	0.16	-0.02	0.09	1.00					
	7. % Renting	0.49	0.22	0.61	0.20	0.34	0.27	1.00				
	8. % Diff. Add. 5yrs	0.13	0.32	0.47	-0.18	-0.03	0.13	0.62	1.00			
	9. Distance to CBD	0.03	-0.38	-0.63	0.33	0.39	-0.26	-0.36	-0.29	1.00		
	10. % Residential Land Use	-0.10	-0.00	0.33	-0.07	-0.08	-0.01	0.01	-0.07	-0.11	1.00	
	11. Nearby Violent Crime	0.07	0.08	0.13	-0.03	-0.02	-0.01	0.07	0.12	-0.10	0.01	1.00

Analytic Strategy

As immigration is a social process which unfolds over time, its study requires longitudinal analysis. There are two main approaches to longitudinal analysis: fixed effects and random effects. While fixed effects models control for unobservable factors reducing potential bias, they concentrate solely on within-unit variation and time variant variables (Allison, 2009). In contrast, random effects models exploit both within group and between group variation producing more precise estimates (Allison, 2009). Yet the assumptions of the random effects model can lead to omitted variable bias and potentially misrepresent the association. Longitudinal examinations of immigration and crime have preferred the fixed effects estimation (Martinez et al., 2010; Ousey & Kubrin, 2009; Ousey & Kubrin, 2014; Wadsworth, 2010) and are thus unable to examine between unit variation as well as the effect of time invariant variables.

Hybrid models allow for more precise estimates than what is offered by fixed effects models while dealing with the potential bias which undermines the random effects approach. This study utilises Allison's hybrid model which allows for the examination of both within neighbourhood and between neighbourhood effects (Allison, 2009). The first step for calculating a hybrid model is to create the two types of variables: community specific mean-centred variables (for the between effects) and mean-deviated variables (for the within effects). The mean-centred variables are the predictor variables used to compare between neighbourhoods. The mean-centred variables are created as follows:

$$\text{Mean-Centred Variable} = (\text{Time 1} + \text{Time 2} + \text{Time 3})/3$$

The mean-deviated variables compare changes within a neighbourhood overtime. This variable is calculated for each time point as follows:

$$\text{Mean-Deviated Variable} = (\text{Mean} - \text{Time } t)$$

After creating these variables, the next step is to run a regression model with the mean-deviated variables and the mean-centred variables included as predictors. Hybrid models therefore comprise two distinct components: (1) the within effects and; (2) the between effects. The within effects component of the model assesses how changes in the predictor variables in Neighbourhood A influence changes in Neighbourhood A's level of violent crime over time. Of particular interest to this study is how changes in immigrant concentration impact violent crime within a neighbourhood. The between effects component allows for comparison across neighbourhoods - Neighbourhood A's

average score over the three time points is thus compared to Neighbourhood B's. This allows us to consider whether areas with a higher average level of immigrant concentration encounter higher levels of crime. Taken together, this approach enables us to disentangle how change influences violent crime *within* a neighbourhood over time as well as compare *across* neighbourhoods.

As violent crimes represent relatively rare neighbourhood events, the distribution is strongly skewed to the right with many places exhibiting low counts. As such, hybrid estimates for negative binomial regression models are calculated as they are less affected by overdispersion (Alison, 2009). As demonstrated in section 4.5, zero crime counts are infrequent and represent only a small proportion of suburbs. Zero inflated models were thus not required. The models are run using the *xtnbreg* command in Stata with the total resident persons included as the exposure variable. This estimates the outcome as a crime rate. In order to get correct standard errors, Alison (2009) suggests that it is important to use an estimation technique that accounts for dependence among the multiple observations for each neighbourhood. Allison (2009) recommends random effects. The formula for the random effects negative binomial hybrid model is:

$$y_{tj} = a + B_{1j}X_t + B_{2j}Z + B_{3j}I + u_j + E_{tj}$$

Where y is the number of violent crimes incidents in neighbourhood j in year t , a is the intercept, X is a matrix of the mean-deviated neighbourhood predictors and Z is a matrix of mean-centred neighbourhood predictors, I is a matrix of the time invariant neighbourhood predictors, u_j is the random effect and E_{tj} is the standard error term.

4.7 Study 2: Immigration, ethnicity and crime

Study 2 expands on Study 1 by disaggregating immigrant concentration by two indicators of ethnicity: language and religion, to tease apart group specific effects. By tapping into the presence of culturally similar immigrants, these disaggregated concentration measures are more suitable for testing the immigration revitalisation thesis than the total immigrant concentration measure employed in Study 1. To simultaneously test the central tenets of social disorganisation theory, corresponding diversity measures are also included in the models. By considering both concentration and diversity effects and by accounting for the dynamic features of the neighbourhood, the central tenets of social disorganisation theory and the immigration revitalisation thesis are rigorously tested. Three similar questions to Study 1 guide Study 2. First, I ask how do changes in immigrant group concentration and diversity impact changes in violent crime over time within a neighbourhood.

Second, I question whether neighbourhoods with a higher concentration of certain immigrant groups or higher levels of ethnic diversity report more or less violent crime. And finally, I ask whether the effect of changes in immigrant concentration and ethnic diversity varies across different neighbourhood contexts (namely, in areas with high versus low levels of immigrant concentration and in more versus less disadvantaged neighbourhoods).

Variable information

This section outlines the measures of immigrant group concentration and ethnic diversity included in the Study 2 models. Descriptive statistics for these additional variables are provided in Tables 4.6 and 4.7. The neighbourhood variables included in the Study 1 analysis are retained for Study 2. As shown in the correlation matrices (see Table 4.8 and 4.9), these variables are not too highly correlated with one another to prohibit them from being included in the same model.

Group specific concentration measures

As ethnicity is a multi-dimensional construct, the total immigrant concentration measure is disaggregated by both language and religion to determine the group specific effects of immigration on violent crime over time and across neighbourhoods. These group categories were developed using the ABS broad group classification¹⁴ (see Table 4.5, for further detail on composition of broad language categories see Chapter 6). By capturing the presence of co-ethnics, these disaggregated measures allow for a more meaningful test of the immigration revitalisation thesis in Australia.

Table 4.5 Ethnic group categories

Language	Religious Affiliation
% Northern European	% Islam
% Southern European	% Buddhism
% Eastern European	% Hinduism
% Southern Asian	% Christianity
% Southeast Asian	% 'Other' Religion (incl. Judaism)
% Southwest and Central Asian	% No Religion
% Eastern Asian	
% English Only	
% 'Other'	

¹⁴ Due to relatively small overall numbers, the Judaism category was included under the 'Other' Religion category.

Diversity

Social disorganisation theory predicts the negative effect of immigration on crime is particularly pronounced in ethnically diverse areas (Stowell 2007). To measure this, diversity indices are included in the Study 2 analysis and are calculated using the Blau formula (Blau, 1977):

$$1 - \sum p_i^2$$

where p is the proportion of the total group who are members of a given category i . A completely homogenous community would receive a score of 0 and the score for an entirely heterogeneous community would approach 1. The language diversity index is comprised of the nine broad language groups listed in Table 4.5. Similarly, the religion diversity index was calculated using the six broad religious groups outlined in Table 4.5. For ease of interpretation, the index is multiplied by 100.

Analytic strategy

Consistent with Study 1, Study 2 utilises a hybrid modelling approach. By including mean-centred variables and mean-deviated variables this approach allows for the examination of both within-neighbourhood and between-neighbourhood effects. Similar to Study 1, the first stage of analysis involves creating the two types of variables. Next, the variables are entered into a regression model. Again, violent crime counts are modelled using negative binomial estimates with the total resident population included as the exposure variable. In line with Allison's recommendation, random effects are estimated in order to get correct standard errors as it allows for dependence amongst multiple observations for each neighbourhood. For further information on this modelling strategy refer to Section 4.7.

Similar to Study 1, the models are stepped out in three stages. In stage 1, only the group specific measures and corresponding diversity indices are included in the model. In stage 2, the socio-demographic and environmental features of neighbourhoods are added. In stage 3, the interaction terms are considered. This process allows us to see how broader neighbourhood contexts shape the immigration-crime relationship. The two conceptualisations of ethnicity (language and religion) are modelled separately due to issues with multi-collinearity.

Table 4.6 Descriptive statistics for Study 2 Sydney (N=580)

	2001			2006			2011		
	Mean (S.D)	Min	Max	Mean (S.D)	Min	Max	Mean (S.D)	Min	Max
Language Concentration									
% Northern European	0.51 (0.36)	0.00	2.88	0.58 (0.50)	0.00	2.94	0.60 (0.48)	0.00	2.43
% Southern European	3.53 (2.26)	0.00	20.97	3.27 (3.14)	0.00	18.58	3.13 (2.71)	0.00	16.34
% Eastern European	2.04 (1.93)	0.00	18.38	1.67 (1.63)	0.00	15.78	1.59 (1.42)	0.00	12.60
% Southwest and Central Asian	2.26 (3.22)	0.00	21.24	2.57 (3.66)	0.00	24.08	2.74 (3.97)	0.00	27.85
% Southern Asian	1.37 (2.16)	0.00	22.21	1.81 (3.02)	0.00	30.14	2.65 (4.53)	0.00	42.39
% Southeast Asian	2.46 (3.98)	0.00	33.19	2.54 (4.07)	0.00	32.56	2.84 (4.29)	0.00	36.00
% Eastern Asian	3.92 (4.73)	0.00	29.29	4.39 (5.59)	0.00	36.65	4.92 (6.54)	0.00	42.37
% 'Other' Languages	1.07 (1.60)	0.00	18.82	0.59 (1.21)	0.00	12.04	0.65 (1.12)	0.00	10.09
% English Only	11.70 (4.52)	2.31	29.42	11.30(4.49)	2.79	28.47	11.40 (5.02)	2.83	29.85
Religion Concentration									
% Buddhist	2.12 (3.44)	0.00	36.96	2.26 (3.53)	0.00	35.30	2.44 (3.55)	0.00	35.58
% Christian	17.65 (6.09)	5.56	42.17	17.07 (5.82)	6.69	39.21	16.82 (5.67)	6.72	39.97
% Hindu	0.84 (1.42)	0.00	18.49	1.12 (2.05)	0.00	22.35	1.60 (3.11)	0.00	33.27
% Muslim	1.54 (2.34)	0.00	21.72	1.68 (2.79)	0.00	27.58	1.98 (3.29)	0.00	33.72
% 'Other' Religion (Judaism)	0.77 (1.78)	0.00	22.62	0.81 (1.98)	0.00	25.95	0.93 (4.31)	0.00	25.32
% No Religion	3.86 (2.60)	0.35	14.95	4.62 (3.29)	0.00	23.51	5.81 (4.31)	0.00	28.11
Diversity Indices									
Language Diversity	44.41 (22.00)	7.84	97.13	46.62 (22.31)	8.55	95.34	47.20 (22.27)	9.76	92.58
Religion Diversity	48.44 (11.99)	17.41	97.05	51.90 (12.12)	21.27	94.16	53.65 (11.47)	22.31	88.77

Table 4.7 Descriptive statistics for Study 2 Brisbane (N=302)

	2001			2006			2011		
	Mean (S.D)	Min	Max	Mean (S.D)	Min	Max	Mean (S.D)	Min	Max
Language Concentration									
% Northern European	0.63 (0.37)	0.00	2.17	0.73 (0.56)	0.00	4.24	0.84 (0.53)	0.00	3.03
% Southern European	1.08 (1.01)	0.00	7.85	1.01 (0.98)	0.00	7.77	1.08 (0.93)	0.00	6.82
% Eastern European	0.90 (0.86)	0.00	4.47	0.76 (0.76)	0.00	4.84	0.75 (0.63)	0.00	3.35
% Southwest and Central Asian	0.22 (0.30)	0.00	1.85	0.31 (0.48)	0.00	3.42	0.49 (0.68)	0.00	4.95
% Southern Asian	0.50 (0.61)	0.00	4.50	0.70 (0.84)	0.00	4.60	1.49 (1.56)	0.00	8.14
% Southeast Asian	1.10 (2.19)	0.00	20.47	1.23 (2.13)	0.00	16.20	1.57 (2.21)	0.00	18.13
% Eastern Asian	1.46 (3.17)	0.0	28.91	1.80 (3.66)	0.00	30.65	2.29 (4.41)	0.00	31.29
% 'Other' Languages	0.97 (1.44)	0.00	9.87	0.63 (1.16)	0.00	8.81	0.85 (1.40)	0.00	9.19
% English Only	13.43 (3.49)	4.66	25.47	8.33 (7.15)	0.00	38.63	12.13 (3.62)	3.55	25.28
Religion Concentration									
% Buddhism	1.00 (1.71)	0.00	12.29	1.15 (1.78)	0.00	10.45	1.27 (1.69)	0.00	9.41
% Christianity	12.03 (3.85)	4.46	25.99	12.76 (3.70)	3.96	23.53	12.76 (2.70)	3.96	23.53
% Hinduism	0.29 (0.40)	0.00	2.58	0.44 (0.57)	0.00	3.45	0.44 (0.57)	0.00	3.49
% Islam	0.38 (0.57)	0.00	4.58	0.50 (0.86)	0.00	8.66	0.79 (1.20)	0.00	12.98
% 'Other' Religion (Judaism)	0.24 (0.23)	0.00	1.47	0.24 (0.30)	0.00	1.64	5.46 (2.61)	0.88	18.32
% No Religion	3.37 (1.49)	0.67	11.62	4.21 (0.191)	0.00	14.26	0.48 (0.47)	0.00	2.93
Diversity Indices									
Language Diversity	22.63 (13.12)	4.80	92.23	26.57 (14.33)	6.50	91.77	29.04 (15.74)	4.58	96.17
Religion Diversity	48.07 (7.34)	34.50	93.79	53.28 (7.30)	37.05	94.58	54.39 (7.49)	37.16	97.14

Table 4.8 Correlation matrices (language concentration and diversity)

SYDNEY (N=580)		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
2001	1. Violent Crime Counts	1.00																				
	2. Northern European	-0.07	1.00																			
	3. Eastern European	0.28	-0.08	1.00																		
	4. Southern European	0.08	-0.29	0.40	1.00																	
	5. Eastern Asian	0.19	-0.13	0.29	0.19	1.00																
	6. Southern Asian	0.24	-0.29	0.21	0.13	0.38	1.00															
	7. Southeast Asian	0.25	-0.25	0.45	0.29	0.28	0.31	1.00														
	8. Southwest & Central Asian	0.26	-0.32	0.45	0.38	0.25	0.36	0.45	1.00													
	9. 'Other' Languages	0.28	-0.31	0.16	0.15	0.06	0.29	0.33	0.38	1.00												
	10. English Only	0.50	0.21	0.07	-0.05	0.15	0.08	-0.04	-0.05	-0.05	1.00											
	11. Language Diversity	0.32	-0.32	0.63	0.64	0.57	0.50	0.60	0.68	0.42	0.04	1.00										
	12. Population Density	0.30	0.10	0.24	0.22	0.26	0.09	0.14	0.12	0.09	0.29	0.35	1.00									
	13. % Indigenous	0.17	-0.23	-0.04	-0.11	-0.26	-0.02	0.02	-0.02	0.52	-0.16	0.00	-0.11	1.00								
	14. Disadvantage	0.37	-0.36	0.23	-0.17	0.02	0.13	0.40	0.38	0.59	-0.12	0.29	0.00	0.59	1.00							
	15. Young Males	0.11	-0.15	0.07	-0.36	0.17	0.15	0.17	0.16	0.15	0.02	0.21	-0.09	0.15	0.09	1.00						
	16. % Renting	0.46	-0.09	0.23	0.11	0.22	0.23	0.21	0.22	0.46	0.17	0.39	0.54	0.37	0.56	0.03	1.00					
	17. % Diff. Add. 5yrs	0.11	0.11	-0.05	-0.17	0.14	0.22	0.01	-0.15	-0.7	0.17	-0.01	0.30	-0.12	-0.14	-0.11	0.34	1.00				
	18. Distance to CBD	-0.08	-0.14	-0.29	-0.36	-0.45	-0.11	-0.08	-0.16	0.02	-0.23	-0.48	-0.54	0.35	0.34	-0.03	-0.25	-0.04	1.00			
	19. % Residential Land Use	-0.04	-0.06	0.10	-0.16	0.08	-0.04	0.08	0.09	0.05	0.05	0.15	0.40	-0.11	-0.07	-0.10	-0.01	-0.00	-0.24	1.00		
	20. Nearby Violent Crime	-0.00	0.04	-0.03	-0.16	-0.00	-0.03	-0.03	0.01	-0.01	0.02	-0.10	-0.02	-0.02	0.01	0.02	-0.04	0.01	0.03	-0.05	1.00	
2006	1. Violent Crime Counts	1.00																				
	2. Northern European	-0.11	1.00																			
	3. Eastern European	0.24	-0.13	1.00																		
	4. Southern European	0.03	-0.26	0.42	1.00																	
	5. Eastern Asian	0.14	-0.10	0.21	0.13	1.00																
	6. Southern Asian	0.26	-0.24	0.14	0.05	0.34	1.00															
	7. Southeast Asian	0.20	-0.25	0.43	0.22	0.20	0.27	1.00														
	8. Southwest & Central Asian	0.22	-0.28	0.43	0.34	0.18	0.31	0.45	1.00													
	9. 'Other' Languages	0.25	-0.26	0.11	0.06	-0.04	0.25	0.30	0.33	1.00												
	10. English Only	0.49	0.21	0.06	-0.05	0.13	0.09	-0.05	-0.06	-0.09	1.00											
	11. Language Diversity	0.30	-0.30	0.60	0.58	0.55	0.48	0.58	0.65	0.33	0.05	1.00										
	12. Population Density	0.28	-0.03	0.24	0.19	0.27	0.10	0.12	0.08	0.01	0.26	0.40	1.00									
	13. % Indigenous	0.18	-0.26	-0.11	-0.15	-0.30	-0.03	0.00	-0.07	0.57	-0.18	-0.11	-0.16	1.00								
	14. Disadvantage	0.30	-0.45	0.19	0.10	-0.01	0.17	0.45	0.43	0.65	-0.18	0.25	-0.20	0.63	1.00							
	15. Young Males	0.13	-0.22	0.11	-0.08	0.18	0.26	0.20	0.22	0.18	-0.05	0.21	-0.14	0.13	0.24	1.00						
	16. % Renting	0.44	-0.18	0.15	0.06	0.21	0.22	0.15	0.16	0.36	0.16	0.38	0.56	0.34	0.33	-0.03	1.00					
	17. % Diff. Add. 5yrs	0.20	0.11	-0.06	-0.18	0.28	0.27	-0.08	-0.14	-0.15	0.28	0.09	0.48	-0.15	-0.29	-0.14	0.54	1.00				
	18. Distance to CBD	-0.04	-0.18	-0.26	-0.35	-0.44	-0.09	-0.07	-0.16	0.09	-0.23	-0.51	-0.56	0.45	0.44	0.07	-0.21	-0.18	1.00			
	19. % Residential Land Use	-0.05	-0.04	0.10	0.19	0.09	-0.03	0.08	0.09	0.02	0.04	0.15	0.37	-0.12	-0.06	-0.18	0.01	-0.01	-0.24	1.00		
	20. Nearby Violent Crime	0.00	0.07	-0.03	-0.14	-0.01	-0.02	-0.04	-0.02	0.01	0.02	-0.09	-0.02	-0.00	0.00	0.00	-0.04	-0.01	0.03	-0.05	1.00	

SYDNEY (N=580)		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
2011	1. Violent Crime Counts	1.00																					
	2. Northern European	-0.10	1.00																				
	3. Eastern European	0.22	-0.18	1.00																			
	4. Southern European	0.01	-0.26	0.45	1.00																		
	5. Eastern Asian	0.12	-0.11	0.17	0.10	1.00																	
	6. Southern Asian	0.31	-0.25	0.10	0.02	0.30	1.00																
	7. Southeast Asian	0.23	-0.30	0.43	0.19	0.17	0.24	1.00															
	8. Southwest & Central Asian	0.25	-0.36	0.42	0.30	0.11	0.26	0.46	1.00														
	9. 'Other' Languages	0.32	-0.36	0.11	0.02	-0.07	0.25	0.34	0.33	1.00													
	10. English Only	0.46	0.35	0.05	-0.04	0.11	0.08	-0.06	-0.09	-0.09	1.00												
	11. Language Diversity	0.29	-0.37	0.59	0.56	0.53	0.50	0.58	0.64	0.36	0.04	1.00											
	12. Population Density	0.23	0.18	0.25	0.23	0.28	0.15	0.13	0.08	0.00	0.28	0.04	1.00										
	13. % Indigenous	0.16	-0.30	-0.17	-0.21	-0.33	-0.09	-0.05	-0.10	0.56	-0.18	-0.20	-0.21	1.00									
	14. Disadvantage	0.32	-0.55	0.16	0.03	0.01	0.16	0.47	0.43	0.69	-0.22	0.29	-0.18	0.62	1.00								
	15. Young Males	0.10	-0.34	0.03	-0.09	0.16	0.14	0.25	0.23	0.27	-0.12	0.19	-0.25	0.18	0.38	1.00							
	16. % Renting	0.46	-0.09	0.17	0.09	0.23	0.26	0.20	0.19	0.43	0.18	0.40	0.57	0.31	0.37	-0.07	1.00						
	17. % Diff. Add. 5yrs	0.18	0.28	-0.05	-0.11	0.28	0.23	-0.09	-0.17	-0.20	0.29	0.06	0.53	-0.17	-0.30	-0.27	0.53	1.00					
	18. Distance to CBD	-0.02	-0.25	-0.28	-0.39	-0.42	-0.10	-0.08	-0.14	0.11	-0.25	-0.50	-0.55	0.53	0.42	0.17	-0.21	-0.22	1.00				
	19. % Residential Land Use	-0.05	-0.06	0.13	0.19	0.09	-0.03	0.07	0.09	0.02	0.05	0.15	0.37	-0.13	-0.03	-0.12	0.03	-0.02	-0.24	1.00			
	20. Nearby Violent Crime	0.01	0.08	-0.04	-0.15	-0.01	-0.04	-0.04	-0.02	-0.00	0.02	-0.10	-0.03	0.01	-0.01	-0.00	-0.00	-0.04	0.03	-0.05	1.00		

BRISBANE (N=302)		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
2001	1. Violent Crime Counts	1.00																					
	2. Northern European	-0.04	1.00																				
	3. Eastern European	0.30	0.01	1.00																			
	4. Southern European	0.19	0.07	0.45	1.00																		
	5. Eastern Asian	0.04	0.08	0.32	0.33	1.00																	
	6. Southern Asian	0.03	0.02	0.44	0.40	0.59	1.00																
	7. Southeast Asian	0.19	0.06	0.40	0.37	0.15	0.35	1.00															
	8. Southwest & Central Asian	0.23	-0.00	0.60	0.55	0.49	0.58	0.26	1.00														
	9. 'Other' Languages	0.43	-0.04	0.42	0.18	0.01	0.16	0.54	0.14	1.00													
	10. English Only	0.54	-0.05	0.26	0.08	0.13	0.18	0.02	0.18	0.14	1.00												
	11. Language Diversity	0.34	0.11	0.62	0.64	0.58	0.61	0.62	0.61	0.47	0.11	1.00											
	12. Population Density	0.32	-0.10	0.24	0.46	0.26	0.27	0.07	0.42	0.06	0.34	0.36	1.00										
	13. % Indigenous	0.24	-0.07	-0.02	-0.08	-0.18	-0.18	0.13	-0.11	0.33	-0.11	0.11	-0.09	1.00									
	14. Disadvantage	0.53	-0.05	0.40	0.10	-0.03	-0.06	0.25	0.12	0.50	0.13	0.22	0.20	0.42	1.00								
	15. Young Males	0.19	0.11	0.20	0.19	0.44	0.28	0.11	-0.24	0.10	0.14	0.46	0.29	-0.04	0.05	1.00							
	16. % Renting	0.54	-0.09	0.33	0.40	0.07	0.11	0.20	0.31	0.37	0.20	0.45	0.63	0.30	0.59	0.32	1.00						
	17. % Diff. Add. 5yrs	0.02	0.07	0.15	0.28	0.24	0.29	-0.04	0.25	-0.09	0.15	0.16	0.37	-0.23	-0.09	0.13	0.40	1.00					
	18. Distance to CBD	-0.10	0.11	-0.28	-0.51	-0.27	-0.38	-0.17	-0.41	-0.05	-0.15	-0.39	-0.63	0.25	0.18	-0.33	-0.37	-0.29	1.00				
	19. % Residential Land Use	-0.09	-0.05	0.00	0.09	0.11	0.05	-0.04	0.12	-0.04	0.06	-0.01	0.33	-0.07	-0.06	-0.03	0.02	0.08	-0.11	1.00			
	20. Nearby Violent Crime	0.08	-0.02	0.06	0.05	0.06	0.07	0.02	0.05	0.04	0.16	0.03	0.12	-0.00	0.00	-0.02	0.07	0.10	-0.10	0.01	1.00		

BRISBANE (N=302)		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
1.	Violent Crime Counts	1.00																				
2.	Northern European	-0.11	1.00																			
3.	Eastern European	0.23	-0.05	1.00																		
4.	Southern European	0.14	-0.06	0.36	1.00																	
5.	Eastern Asian	0.08	-0.01	0.39	0.35	1.00																
6.	Southern Asian	-0.02	0.03	0.49	0.38	0.67	1.00															
7.	Southeast Asian	0.17	-0.05	0.38	0.35	0.21	0.40	1.00														
8.	Southwest & Central Asian	0.16	-0.04	0.53	0.37	0.51	0.54	0.37	1.00													
9.	'Other' Languages	0.44	-0.13	0.40	0.05	-0.03	0.08	0.42	0.20	1.00												
10.	English Only	0.51	-0.10	0.05	-0.10	-0.02	-0.02	-0.08	-0.02	0.21	1.00											
11.	Language Diversity	0.31	-0.06	0.60	0.59	0.62	0.62	0.62	0.59	0.38	-0.04	1.00										
12.	Population Density	0.22	-0.20	0.18	0.51	0.28	0.21	0.08	0.20	0.02	0.12	0.38	1.00									
13.	% Indigenous	0.22	-0.11	-0.06	-0.13	-0.17	-0.19	0.06	-0.14	0.28	0.06	0.02	-0.14	1.00								
14.	Disadvantage	0.45	-0.14	0.18	-0.05	0.03	-0.04	0.27	0.02	0.53	0.29	0.14	-0.10	0.39	1.00							
15.	Young Males	0.18	-0.03	0.20	0.26	0.46	0.28	0.17	0.24	0.08	0.15	0.48	0.24	-0.03	0.01	1.00						
16.	% Renting	0.50	-0.05	0.23	0.38	0.09	0.06	0.20	0.22	0.36	0.23	0.42	0.62	0.21	0.36	0.28	1.00					
17.	% Diff. Add. 5yrs	0.06	0.11	0.13	0.19	0.17	0.21	-0.04	0.13	-0.10	0.06	0.10	0.34	-0.17	-0.10	0.10	0.40	1.00				
18.	Distance to CBD	-0.02	0.20	-0.25	-0.54	-0.29	-0.35	-0.18	-0.38	-0.01	0.15	-0.40	-0.63	0.27	0.38	-0.28	-0.38	-0.15	1.00			
19.	% Residential Land Use	-0.10	-0.08	0.03	0.07	0.09	0.05	0.00	0.10	-0.05	0.04	-0.01	0.34	-0.08	-0.06	-0.04	0.01	-0.01	-0.11	1.00		
20.	Nearby Violent Crime	0.09	-0.07	0.04	0.09	0.05	0.03	-0.01	0.07	0.04	0.10	0.04	0.13	-0.01	0.01	0.02	0.06	0.05	-0.10	0.01	1.00	
1.	Violent Crime Counts	1.00																				
2.	Northern European	-0.19	1.00																			
3.	Eastern European	0.17	-0.02	1.00																		
4.	Southern European	0.11	0.0	0.40	1.00																	
5.	Eastern Asian	0.05	-0.02	0.46	0.34	1.00																
6.	Southern Asian	0.10	-0.05	0.60	0.50	0.67	1.00															
7.	Southeast Asian	0.23	-0.11	0.40	0.29	0.25	0.45	1.00														
8.	Southwest & Central Asian	0.22	-0.04	0.55	0.45	0.49	0.69	0.53	1.00													
9.	'Other' Languages	0.46	-0.21	0.38	0.06	0.02	0.24	0.58	0.34	1.00												
10.	English Only	0.48	0.15	0.19	0.11	0.07	0.12	0.02	0.09	0.14	1.00											
11.	Language Diversity	0.32	-0.08	0.66	0.58	0.65	0.69	0.66	0.68	0.48	0.10	1.00										
12.	Population Density	0.19	-0.08	0.23	0.63	0.27	0.38	0.12	0.36	0.01	0.26	0.39	1.00									
13.	% Indigenous	0.20	-0.28	-0.13	-0.22	-0.18	-0.19	0.03	-0.12	0.24	-0.13	0.01	-0.18	1.00								
14.	Disadvantage	0.47	-0.26	0.16	-0.14	0.10	0.02	0.34	0.14	0.55	0.06	0.23	-0.12	0.43	1.00							
15.	Young Males	0.16	-0.11	0.16	0.26	0.40	0.28	0.20	0.30	0.30	0.03	0.45	0.16	-0.02	0.09	1.00						
16.	% Renting	0.49	-0.31	0.20	0.47	0.11	0.31	0.28	0.36	0.39	0.15	0.46	0.61	0.20	0.34	0.27	1.00					
17.	% Diff. Add. 5yrs	0.13	0.06	0.17	0.43	0.20	0.32	0.09	0.29	0.03	0.19	0.25	0.47	-0.18	-0.03	0.13	0.62	1.00				
18.	Distance to CBD	0.03	-0.07	-0.27	-0.62	-0.29	-0.48	-0.21	-0.41	-0.01	-0.09	-0.42	-0.63	0.33	0.39	-0.26	-0.36	-0.29	1.00			
19.	% Residential Land Use	-0.10	-0.01	0.00	0.06	0.08	0.04	-0.01	-0.00	-0.04	0.03	-0.00	0.33	-0.07	-0.08	-0.01	0.01	-0.07	-0.11	1.00		
20.	Nearby Violent Crime	0.07	0.04	0.03	0.11	0.06	0.09	-0.00	0.01	0.04	0.18	0.03	0.13	-0.03	-0.02	-0.01	0.07	0.12	-0.10	0.01	1.00	

2011

Table 4.9 Correlation matrices (religion concentration/diversity)

SYDNEY (N=580)		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17		
2001	1. Violent Crime Counts	1.00																		
	2. % Buddhist	0.23	1.00																	
	3. % Christian	0.23	0.45	1.00																
	4. % Hindu	0.19	0.16	0.38	1.00															
	5. % Muslim	0.30	0.29	0.47	0.34	1.00														
	6. % 'Other' Religion	0.02	-0.02	-0.00	0.01	-0.05	1.00													
	7. % No Religion	0.19	0.21	0.18	0.15	0.03	0.24	1.00												
	8. Religion Diversity	0.31	0.40	0.19	0.22	0.33	0.38	0.67	1.00											
	9. Population Density	0.30	0.20	0.25	0.05	0.18	0.24	0.57	0.55	1.00										
	10. % Indigenous	0.17	-0.10	-0.12	-0.05	0.04	-0.13	-0.32	-0.01	-0.11	1.00									
	11. Disadvantage	0.37	0.35	0.17	0.08	0.37	-0.15	-0.23	0.10	0.00	0.59	1.00								
	12. Young Males	0.11	0.14	0.15	0.12	0.14	-0.06	-0.2	0.07	-0.09	0.15	0.09	1.00							
	13. % Renting	0.46	0.22	0.22	0.21	0.31	0.09	0.39	0.58	0.54	0.37	0.56	0.03	1.00						
	14. % Diff. Add. 5yrs	0.11	-0.00	-0.01	0.22	-0.04	0.11	0.41	0.34	0.30	-0.12	-0.14	-0.11	0.34	1.00					
	15. Distance to CBD	-0.08	-0.19	-0.41	-0.11	-0.17	-0.26	-0.60	-0.45	-0.54	0.35	0.34	-0.03	-0.25	-0.04	1.00				
	16. % Residential Land Use	-0.04	0.10	0.16	-0.04	0.03	0.07	0.09	0.04	0.40	-0.11	-0.07	-0.10	-0.01	-0.00	-0.24	1.00			
	17. Nearby Violent Crime	-0.00	-0.01	-0.10	-0.04	0.02	-0.03	0.01	0.02	-0.02	-0.02	0.01	0.02	-0.04	0.01	0.03	-0.05	1.00		
2006	1. Violent Crime Counts	1.00																		
	2. % Buddhist	0.16	1.00																	
	3. % Christian	0.17	0.43	1.00																
	4. % Hindu	0.22	0.13	0.32	1.00															
	5. % Muslim	0.28	0.27	0.39	0.21	1.00														
	6. % 'Other' Religion	0.04	-0.03	0.01	0.08	-0.04	1.00													
	7. % No Religion	0.13	0.20	0.13	0.16	-0.04	0.15	1.00												
	8. Religion Diversity	0.32	0.40	0.14	0.28	0.34	0.34	0.65	1.00											
	9. Population Density	0.28	0.20	0.19	0.08	0.10	0.21	0.53	0.60	1.00										
	10. % Indigenous	0.18	-0.13	-0.17	-0.07	0.41	-0.15	-0.40	-0.09	-0.16	1.00									
	11. Disadvantage	0.30	0.35	0.22	0.11	0.22	-0.23	-0.38	-0.03	-0.20	0.63	1.00								
	12. Young Males	0.13	0.16	0.10	0.24	0.28	-0.04	-0.07	0.03	-0.14	0.13	0.24	1.00							
	13. % Renting	0.44	0.17	0.12	0.21	-0.01	0.07	0.35	0.61	0.56	0.34	0.33	-0.03	1.00						
	14. % Diff. Add. 5yrs	0.20	-0.02	-0.04	0.29	-0.01	0.16	0.55	0.51	0.48	-0.15	-0.29	-0.14	0.54	1.00					
	15. Distance to CBD	-0.04	-0.21	-0.40	-0.10	-0.13	-0.25	-0.59	-0.44	-0.56	0.45	0.44	0.07	-0.21	-0.18	1.00				
	16. % Residential Land Use	-0.05	0.11	0.16	-0.02	0.03	0.05	0.09	0.03	0.37	-0.12	-0.06	-0.18	0.01	-0.01	-0.24	1.00			
	17. Nearby Violent Crime	0.00	-0.00	-0.11	-0.02	-0.00	-0.04	0.03	0.01	-0.02	-0.00	0.00	0.00	-0.04	-0.01	0.03	-0.05	1.00		

SYDNEY (N=580)		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
2011	1. Violent Crime Counts	1.00																
	2. % Buddhist	0.18	1.00															
	3. % Christian	0.18	0.42	1.00														
	4. % Hindu	0.25	0.12	0.25	1.00													
	5. % Muslim	0.32	0.24	0.33	0.27	1.00												
	6. % 'Other' Religion	0.10	-0.02	0.07	0.19	0.02	1.00											
	7. % No Religion	0.08	0.21	0.12	0.15	-0.10	0.16	1.00										
	8. Religion Diversity	0.31	0.42	0.21	0.38	0.38	0.38	0.61	1.00									
	9. Population Density	0.23	0.20	0.21	0.15	0.14	0.23	0.57	0.56	1.00								
	10. % Indigenous	0.16	-0.19	-0.22	-0.11	-0.22	-0.16	-0.41	-0.17	-0.21	1.00							
	11. Disadvantage	0.32	0.37	0.21	0.09	0.40	-0.19	-0.36	0.05	-0.18	0.62	1.00						
	12. Young Males	0.10	0.20	0.11	0.09	0.22	-0.08	-0.15	-0.05	-0.25	0.18	0.38	1.00					
	13. % Renting	0.46	0.22	0.17	0.24	0.29	0.14	0.35	0.61	0.57	0.31	0.37	-0.07	1.00				
	14. % Diff. Add. 5yrs	0.18	-0.00	-0.07	0.26	-0.04	0.20	0.58	0.48	0.53	-0.17	-0.30	-0.27	0.53	1.00			
	15. Distance to CBD	-0.02	-0.21	-0.40	-0.12	-0.13	-0.25	-0.58	-0.43	-0.55	0.53	0.42	0.17	-0.21	-0.22	1.00		
	16. % Residential Land Use	-0.05	0.10	0.15	-0.02	0.03	0.04	0.09	0.04	0.37	-0.13	-0.03	-0.12	0.03	-0.02	-0.24	1.00	
	17. Nearby Violent Crime	0.01	-0.00	-0.11	-0.04	0.01	-0.05	0.01	-0.01	-0.03	0.01	-0.01	-0.00	-0.00	-0.04	0.03	-0.05	1.00

BRISBANE (N=302)		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
2001	1. Violent Crime Counts	1.00																
	2. % Buddhist	0.16	1.00															
	3. % Christian	0.20	0.58	1.00														
	4. % Hindu	0.02	0.48	0.43	1.00													
	5. % Muslim	0.24	0.53	0.43	0.42	1.00												
	6. % 'Other' Religion	-0.02	0.38	0.45	0.41	0.31	1.00											
	7. % No Religion	0.05	0.49	0.51	0.48	0.45	0.44	1.00										
	8. Religion Diversity	0.28	0.42	0.22	0.20	0.39	0.23	0.55	1.00									
	9. Population Density	0.32	0.21	0.12	0.32	0.33	0.10	0.34	0.20	1.00								
	10. % Indigenous	0.24	-0.01	-0.15	-0.19	0.33	-0.21	-0.31	0.11	-0.09	1.00							
	11. Disadvantage	0.53	0.16	0.16	-0.11	-0.05	-0.06	-0.04	0.22	0.20	0.42	1.00						
	12. Young Males	0.19	0.32	0.11	0.29	0.17	0.24	0.38	0.45	0.29	-0.04	0.05	1.00					
	13. % Renting	0.54	0.19	0.12	0.08	0.31	0.04	0.16	0.42	0.63	0.30	0.59	0.32	1.00				
	14. % Diff. Add. 5yrs	0.02	0.10	0.25	0.32	0.36	0.24	0.41	0.16	0.37	-0.23	-0.09	0.13	0.40	1.00			
	15. Distance to CBD	-0.10	-0.28	-0.14	-0.33	0.28	-0.27	-0.03	-0.13	-0.63	0.25	0.18	-0.33	-0.37	-0.29	1.00		
	16. % Residential Land Use	-0.09	0.05	0.01	0.12	-0.36	0.03	0.09	-0.08	0.33	-0.07	-0.06	-0.03	0.02	0.08	-0.11	1.00	
	17. Nearby Violent Crime	0.08	0.04	0.03	0.06	0.06	0.03	0.05	-0.05	0.12	-0.00	0.00	-0.02	0.07	0.10	-0.10	0.01	1.00

BRISBANE (N=320)		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
2006	1. Violent Crime Counts	1.00																
	2. % Buddhist	0.14	1.00															
	3. % Christian	0.19	0.55	1.00														
	4. % Hindu	-0.02	0.55	0.48	1.00													
	5. % Muslim	0.18	0.60	0.45	0.55	1.00												
	6. % 'Other' Religion	-0.03	0.42	0.43	0.52	0.34	1.00											
	7. % No Religion	0.06	0.50	0.47	0.51	0.41	0.32	1.00										
	8. Religion Diversity	0.29	0.44	0.14	0.20	0.37	0.10	0.51	1.00									
	9. Population Density	0.22	0.21	0.13	0.22	0.24	0.05	0.35	0.24	1.00								
	10. % Indigenous	0.22	-0.05	-0.19	-0.20	-0.08	-0.16	-0.28	0.13	-0.14	1.00							
	11. Disadvantage	0.45	0.17	0.18	-0.08	0.12	-0.05	-0.09	0.18	-0.10	0.39	1.00						
	12. Young Males	0.18	0.35	0.08	0.30	0.33	0.15	0.41	0.44	0.24	-0.03	0.01	1.00					
	13. % Renting	0.50	0.17	0.06	0.02	0.24	-0.08	0.13	0.43	0.62	0.21	0.36	0.28	1.00				
	14. % Diff. Add. 5yrs	0.06	0.05	0.24	0.21	0.19	0.16	0.41	0.17	0.34	-0.17	-0.10	0.10	0.40	1.00			
	15. Distance to CBD	-0.02	-0.29	-0.18	-0.33	-0.29	-0.13	-0.34	-0.11	-0.63	0.27	0.38	-0.28	-0.38	-0.15	1.00		
	16. % Residential Land Use	-0.10	0.08	-0.01	0.07	0.05	-0.00	0.06	-0.08	0.34	-0.08	-0.06	-0.04	0.01	-0.01	-0.11	1.00	
	17. Nearby Violent Crime	0.09	0.03	0.04	0.05	0.01	0.00	0.07	-0.03	0.13	-0.01	0.01	0.02	0.06	0.05	-0.10	0.01	1.00
2011	1. Violent Crime Counts	1.00																
	2. % Buddhist	0.13	1.00															
	3. % Christian	0.18	0.52	1.00														
	4. % Hindu	0.08	0.60	0.45	1.00													
	5. % Muslim	0.20	0.60	0.40	0.55	1.00												
	6. % 'Other' Religion	0.08	0.53	0.36	0.66	0.51	1.00											
	7. % No Religion	0.05	0.59	0.46	0.59	0.41	0.51	1.00										
	8. Religion Diversity	0.34	0.56	0.18	0.49	0.53	0.42	0.54	1.00									
	9. Population Density	0.19	0.24	0.09	0.40	0.28	0.33	0.45	0.37	1.00								
	10. % Indigenous	0.20	-0.10	-0.21	-0.20	-0.08	-0.20	-0.33	0.12	-0.18	1.00							
	11. Disadvantage	0.47	0.23	0.18	-0.04	0.21	-0.03	-0.05	0.26	-0.12	0.43	1.00						
	12. Young Males	0.16	0.33	0.03	0.30	0.33	0.20	0.36	0.43	0.16	-0.02	0.09	1.00					
	13. % Renting	0.49	0.19	0.04	0.28	0.31	0.27	0.23	0.55	0.61	0.20	0.34	0.27	1.00				
	14. % Diff. Add. 5yrs	0.13	0.13	0.18	0.34	0.25	0.26	0.47	0.33	0.47	-0.18	-0.03	0.13	0.62	1.00			
	15. Distance to CBD	0.03	-0.30	-0.16	-0.47	-0.30	-0.46	-0.46	-0.26	-0.63	0.33	0.39	-0.26	-0.36	-0.29	1.00		
	16. % Residential Land Use	-0.10	0.09	-0.05	0.05	-0.00	0.01	0.05	-0.03	0.33	-0.07	-0.08	-0.01	0.01	-0.07	-0.11	1.00	
	17. Nearby Violent Crime	0.07	0.02	0.09	0.10	0.03	0.06	0.09	-0.03	0.13	-0.03	-0.02	-0.01	0.07	0.12	-0.10	0.01	1.00

4.8 Study 3: Immigration, segregation and crime

In Study 3, I shift the focus from considering immigrant concentration effects to segregation. Limited immigration-crime scholarship thus far has considered the role segregation plays in shaping the immigration-crime relationship (see for exception Barranco, 2013; Feldmeyer et al., 2015). Rather studies have typically focused on employing measures of immigrant concentration or immigrant growth (Chavez & Griffiths, 2009; Desmond & Kubrin, 2009; Feldmeyer, 2009; Feldmeyer & Steffensmeier, 2009; Kubrin & Ishizawa, 2012; Kubrin & Ousey, 2009; Martinez et al., 2010; Ramey, 2013; Stowell, 2007; Wadsworth, 2010). In the broader criminological literature, segregation is argued to weaken social controls and undermine a community's regulatory capacity through mechanisms associated with social inequality and social isolation (Peterson et al., 2009). However, some scholars argue immigrant enclaves can shield communities from crime by providing residents with a "protective shell of resources" (Feldmeyer et al., 2015, p. 2). By examining the relationship between immigrant segregation and violent crime across Australian neighbourhoods, this study brings together and empirically tests social disorganisation theory and the immigration revitalisation thesis.

Four key questions guide this study. The first two relate to establishing trends in spatial segregation in Brisbane and Sydney as previous (albeit limited) research suggests Australian neighbourhoods exhibit low levels of ethnic segregation. I therefore ask, how are various immigrant groups spatially distributed across Brisbane and Sydney neighbourhoods? And, do immigrant neighbourhoods tend to be co-located or isolated? After establishing these trends, the last two questions relate to the effect of segregation on crime. I question firstly whether the residential distribution of various immigrant groups impacts violent crime and secondly if the co-location of immigrant neighbourhoods is associated with more or less neighbourhood violence.

Variable Information

Study 3 employs local spatial segregation measures not previously applied to the study of immigration and crime to examine ethnic segregation in Australian neighbourhoods. Acknowledging the limitations of traditional segregation indices (outlined in depth in Chapter 7), I capitalise on recent advancements in geographical information systems (GIS) technology to create the key independent variables of interest. Specifically, I utilise two highly spatialized yet underutilised local segregation measures: Location Quotients (LQs) and Local Moran's I (LM-I) to consider the effect of segregation on crime at one time point. These segregation measures focus on one aspect of

ethnicity - language spoken at home - with the immigrant population divided into four key language groups: immigrants who speak Asian languages, immigrants who speak European languages, immigrants who speak 'Other' languages and immigrants who speak English only. I focus specifically on language as it is found to be one of the strongest signifiers of difference in the Australian setting (Anderson, 1991; Calhoun, 1993). Aggregating language groups into these broad categories also allows for greater variation in ethnic group size across neighbourhoods. However it is acknowledged that immigrants belonging to these broad language groups may not necessarily be able to communicate effectively with one another and thus language barriers between residents may still present challenges to community regulation. Regardless, it is argued that the degree of social and cultural distance these immigrants face between immigrant groups will be less. The two key measures of local immigrant segregation created for the Study 3 analyses are described below. The neighbourhood variables included in the Study 1 and Study 2 models are retained for Study 3. Descriptive statistics for these variables, along with the segregation measures and dependent variable are included in Table 4.10. Correlations are provided in Table 4.11 and 4.12.

Location Quotients (LQs)

As a ratio measure of relative concentration, LQs are utilised in this study to assess the concentration-evenness dimension of segregation. Specifically, LQs compare the share of a racial/ethnic group in a particular neighbourhood to their overall share in the city and are thus a useful tool for examining residential distributions (Brown & Chung, 2006). LQs are also simple to interpret. Scores greater than 1 indicate a neighbourhood has more than their expected share of immigrants suggesting overrepresentation. Scores less than 1 suggest a neighbourhood has less than their expected share indicating underrepresentation. The formula for calculating LQs is as follows:

$$LQ_n = \left(\frac{i_n}{t_n}\right) / \left(\frac{I}{T}\right)$$

Where i_n and t_n are the immigrant population and total population in the neighbourhood; I and T are the immigrant population and total population in the city. There is no statistical test available for determining a statistically significant LQ score (Groff, 2011). In stage 1 of the analysis, the LQ scores are categorised into three distinct groups: underrepresented (LQ <0.5), neutral (LQ 0.5-1.5) and overrepresented (LQ >1.5). This is done to visually represent spatial trends across Brisbane and Sydney neighbourhoods. For the analytic models (stage 2), the LQs are included as a continuous variable to prevent arbitrary cut points from skewing the results.

Local Moran's I (LM-I)

LM-I evaluates each neighbourhood in terms of the characteristics of neighbouring areas and reveals incidents of spatial clustering (i.e. the spatial co-location of immigrant neighbourhoods) (Anselin, 1995; Brown & Chung, 2006). The LM-I procedure was computed in ArcGIS and employs a rook spatial contiguity matrix to capture the spatial arrangement for each study region. A rook contiguity matrix was chosen over a queen contiguity matrix due to its more conservative approach in identifying neighbouring areas (Dubin, 2009). Detecting statistically significant outliers and clusters, the LM-I output includes a LM-I index value, Z score, P-value and cluster type for each neighbourhood in the sample. The Z score indicates whether the similarity or dissimilarity found between a neighbourhood and adjacent areas is more than expected in a random distribution. High positive z scores indicate neighbourhoods share similar features with nearby areas. These neighbourhoods are therefore labelled as either High-High (HH) clusters (high concentration surrounded by high concentration) or Low-Low (LL) clusters (low concentration surrounded by low concentration). Alternatively, low negative Z scores illuminate statistically significant spatial outliers. These areas are categorised as either a High-Low (HL) cluster (high concentration surrounded by low concentration) or Low-High (LH) cluster (low concentration surrounded by high concentration). In stage 1, all group cluster types are presented on the maps to demonstrate where immigrant neighbourhoods are located in relation to one another. However, this variable is collapsed into a dichotomous variable for the analytic models (stage 2) with HH clusters (1) compared to all other categories (0) – LL, LH, HL, NS (this is due to a limited number of HL clusters found).

Analytic strategy

To assess the impact of immigrant segregation on violent crime across neighbourhoods, the initial assumption of a Poisson model was employed given the dependent variable is a non-negative integer. Greene (2008) denotes the formula for a standard Poisson model:

$$P[Y = y_i | x_i] = \frac{\exp(-\lambda_i) \lambda_i^{y_i}}{y_i!} \quad \lambda_i = \exp(\alpha + x_i' \beta), \quad y_i = 0, 1, \dots, N; \quad i = 1, \dots, N$$

where x_i is a vector of covariates and $i = 1, \dots, N$ indexes the N observations in a random sample. In the Poisson model, the variance is equal to the mean (Lacy, 2014). However, a test of equidispersion identified overdispersion in the data as the variance in the model exceeded the mean value of violent crime in both cities. This necessitated the use of a negative binomial model. A Vuong test rejected the need to use a zero-inflated model ($z = -1.08, p = 0.86$ Sydney and $z = -1.57, p = 0.94$ Brisbane).

A negative binomial model relaxes the restriction of equidispersion in the Poisson model. As such, the formula (Greene, 2008) becomes:

$$E[y_i|x_i\varepsilon_i] = \exp(\alpha + x_i'\beta + \varepsilon_i) = h_i\lambda_i$$

where ε_i is a random variable uncorrelated with x , and $h_i = \exp(\varepsilon_i)$ is assumed to have a gamma distribution with a mean of 1 and variance of 1. I calculate the negative binomial models in Stata using the *nbreg* command. In all negative binomial models, I include the total number of persons usually resident as an exposure term.

Consistent with the previous studies, the models in Study 3 are stepped out in two stages. In the first stage of analysis, just the segregation measures are included. In the second, the socio-demographic and environmental features are added. This process helps demonstrate how neighbourhood contexts shape the relationship between segregation patterns and crime.

Table 4.10 Descriptive statistics for Study 3

	SYDNEY (N=598)				BRISBANE (N=313)			
	Mean	S.D	Min	Max	Mean	S.D	Min	Max
Violent Crime Counts	57.36	86.35	0.00	869.33	20.82	25.22	0.00	195.33
Asian Languages LQ	0.77	0.81	0.00	4.23	0.87	1.08	0.00	6.54
European Languages LQ	0.95	0.63	0.00	3.23	0.94	0.52	0.00	3.37
'Other' Languages LQ	0.81	1.08	0.00	7.21	0.84	1.09	0.00	7.00
English Only LQ	1.03	0.45	0.26	2.61	0.98	0.26	0.25	1.76
Asian Languages Cluster	HH: 16.08%		Other: 83.92%		HH: 11.18%		Other: 88.82%	
European Languages Cluster	HH: 16.25%		Other: 83.75%		HH: 10.54%		Other: 89.46%	
'Other' Languages Cluster	HH: 13.90%		Other: 86.10%		HH: 7.35%		Other: 92.65%	
English Only Cluster	HH: 15.41%		Other: 84.59%		HH: 9.90% %		Other: 90.10%	
Disadvantage	0.09	1.06	-1.90	5.35	0.09	0.82	-1.85	2.62
% Indigenous	1.42	1.76	0.00	15.15	2.13	2.70	0.00	40.29
% Young Males	6.55	1.66	2.14	16.01	7.21	2.02	1.16	22.58
% Renting	24.18	12.69	0.83	83.29	26.57	12.09	2.55	54.48
% Different Address (5 years)	33.70	9.79	17.02	80.25	40.85	9.59	7.68	77.55
Population Density	28.85	22.11	0.51	201.69	13.94	10.60	0.13	65.20
Distance to CBM (KM)	26.14	19.26	0.89	88.33	19.77	12.39	1.04	61.67
Residential Land Use	66.71	19.15	25.17	100.00	66.75	18.62	25.57	100.00

Table 4.11 Correlation matrices for Study 3 Sydney (N=598)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1. Violent Crime	1.00																
2. Asian Languages LQ	0.31	1.00															
3. European Languages LQ	0.09	0.28	1.00														
4. 'Other' Languages LQ	0.31	0.27	0.02	1.00													
5. English Only LQ	-0.12	-0.46	-0.16	-0.36	1.00												
6. Asian Languages Cluster	0.23	0.79	0.17	0.23	-0.46	1.00											
7. European Languages Cluster	0.02	0.21	0.77	0.01	-0.25	0.14	1.00										
8. 'Other' Languages Cluster	0.28	0.29	0.00	0.72	-0.32	0.27	-0.04	1.00									
9. English Only Cluster	-0.05	-0.17	-0.02	-0.21	0.73	-0.20	-0.12	-0.17	1.00								
10. Population Density	0.26	0.27	0.30	0.01	0.29	0.13	0.13	-0.03	0.36	1.00							
11. % Indigenous	0.15	-0.24	-0.27	0.54	-0.23	-0.16	-0.15	0.34	-0.25	-0.20	1.00						
12. Disadvantage	0.30	0.26	0.03	0.56	-0.66	0.24	0.12	0.53	-0.43	-0.18	0.61	1.00					
13. % Young Males	0.10	0.27	-0.10	0.27	-0.42	0.23	0.02	0.24	-0.28	-0.24	0.19	0.38	1.00				
14. % Renting	0.46	0.34	0.13	0.42	0.02	0.23	0.04	0.26	0.15	0.59	0.30	0.36	-0.07	1.00			
15. % Diff. Add. 5yrs	0.18	0.14	-0.08	-0.18	0.40	0.02	-0.11	-0.17	0.34	0.53	-0.16	-0.31	-0.28	0.51	1.00		
16. Distance to CBD	-0.04	-0.32	-0.45	0.10	-0.30	-0.15	-0.20	0.10	-0.41	-0.56	0.53	0.40	0.17	-0.23	-0.22	1.00	
17. % Residential Land Use	-0.06	0.09	0.17	0.02	-0.02	0.04	0.11	0.00	0.03	0.35	-0.13	-0.04	-0.11	0.02	0.01	-0.23	1.00

Table 4.12 Correlation matrices for Study 3 Brisbane (N=313)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1. Violent Crime	1.00																
2. Asian Languages LQ	0.15	1.00															
3. European Languages LQ	0.09	0.54	1.00														
4. 'Other' Languages LQ	0.46	0.29	0.14	1.00													
5. English Only LQ	-0.08	-0.14	0.30	-0.11	1.00												
6. Asian Languages Cluster	0.13	0.79	0.45	0.20	-0.10	1.00											
7. European Languages Cluster	0.13	0.46	0.65	0.02	-0.06	0.41	1.00										
8. 'Other' Languages Cluster	0.27	0.19	0.11	0.81	-0.06	0.19	-0.04	1.00									
9. English Only Cluster	-0.03	-0.12	0.04	-0.08	0.50	-0.11	-0.10	-0.04	1.00								
10. Population Density	0.21	0.33	0.48	0.03	-0.03	0.25	0.37	-0.06	-0.10	1.00							
11. % Indigenous	0.20	-0.16	-0.30	0.24	-0.33	-0.11	-0.12	0.21	-0.08	-0.17	1.00						
12. Disadvantage	0.47	0.18	-0.12	0.48	-0.20	0.18	0.16	0.34	-0.06	-0.09	0.42	1.00					
13. % Young Males	0.17	0.40	0.21	0.12	-0.20	0.36	0.19	0.08	-0.05	0.17	-0.01	0.10	1.00				
14. % Renting	0.50	0.27	0.29	0.40	-0.21	0.20	0.28	0.24	-0.13	0.62	0.19	0.35	0.27	1.00			
15. % Diff. Add. 5yrs	0.11	0.25	0.37	0.05	0.22	0.17	0.22	-0.01	0.04	0.41	-0.18	-0.06	0.10	0.58	1.00		
16. Distance to CBD	-0.01	-0.40	-0.54	-0.03	-0.00	-0.27	-0.31	0.02	0.11	-0.63	0.31	0.34	-0.28	-0.38	-0.25	1.00	
17. % Residential Land Use	-0.11	0.03	-0.02	-0.05	-0.12	-0.01	-0.01	-0.08	-0.16	0.29	0.06	-0.09	-0.03	-0.02	-0.06	-0.05	1.00

4.9 Chapter summary

Concerns about increased immigration and increased crime are not limited to the United States with anti-immigrant sentiment expressed across the global. Evidence from the United States suggests these concerns are largely unwarranted (Alaniz et al., 1998; Akins et al., 2009; Desmond & Kubrin, 2009; Kubrin & Ousey, 2009; Lee et al., 2001; Martinez et al., 2008; Reid et al., 2005; Stowell et al., 2009; Wadsworth, 2010). However, in a country with limited ethnic segregation, high levels of ethnic diversity and a largely skilled immigrant population, will similar relationships unfold? The overarching aim of this thesis is to understand how theories of immigration and crime derived from the United States apply to other settings. To explore the dynamic role neighbourhood, city and national contexts play in shaping the immigration-crime relationship, this thesis is comprised of three quantitative studies designed to better understand how immigrant growth, concentration, diversity and segregation affects crime rates across neighbourhoods located in two Australian cities: Sydney - an established immigrant gateway and Brisbane - a relatively new immigrant destination (Singer, 2004). In the following chapters, I present the results for each of the three empirical studies outlined.

Chapter Five: Immigrant Growth, Concentration and Crime

5.1 Introduction

The bulk of immigration-crime research to date is based on the United States experience. Here, studies find that neither immigrants nor their children represent a greater criminal threat to society than the native born population once appropriate controls are considered (Butcher & Piehl, 1998a; Butcher & Piehl, 1998b; Butcher & Piehl, 2007; Hagan & Palloni, 1999; Morenoff & Astor, 2006; Rumbaut et al., 2006; Sampson, 2008). Contrary to popular perceptions, immigrant concentration is actually associated with lower levels of crime across many neighbourhoods and cities (Chavez & Griffiths, 2009; Desmond & Kubrin, 2009; Kubrin & Ishizawa, 2012; Kubrin & Ousey, 2009; Martinez et al., 2010). Evidence at both the local and national level suggests no relationship, or indeed a negative relationship between increased immigration and crime over time (Ousey & Kubrin 2009; Ousey & Kubrin, 2014; Stowell et al., 2009; Wadsworth, 2010). In fact, Sampson (2008, p. 30) argues that increased immigration may, in some part, be responsible for the violent crime drop and claims “cities of concentrated immigration are some of the safest places around.”

The empirical examination of the immigration-crime nexus outside of the United States is relatively rare and presents a much less consistent picture. For example, immigrant concentration is linked to lower crime rates in England (Bell & Machin, 2013) but in France, the presence of immigrants is positively associated with crime (Aoki & Todo, 2009). In Belgium, research finds no significant relationship between total immigrants and crime, however, when focusing on group specific effects, concentrations of non-EU nationals and African nationals are related to higher crime in certain municipalities (Bircan & Hooghe, 2011). In Canada, the relationship between immigration and crime is indirect and a result of changes to the demographic composition of neighbourhoods, namely increases in the most criminogenic subpopulation - young males (Andersen, 2012). Taken together, these findings suggest that in some countries, under certain conditions, increased immigration may suppress crime while in others, increased immigration may heighten it.

Previous immigration-crime scholarship has either focused on how changes in immigrant concentration over time impact crime *within* a unit, such as a neighbourhood or city (see for example Martinez et al., 2010; Ousey & Kubrin, 2009), or how static levels of immigrant concentration are associated with more or less crime *between* units (see for example Stowell & Martinez, 2009; Velez, 2009). Yet experiencing an influx of new immigrants into a neighbourhood (i.e. the process that is

captured by change measures) is inherently different to exhibiting a generally high immigrant presence (i.e. the process that is captured by concentration measures). There is thus potential that each process may differentially influence crime. Study 1 considers both mechanisms by employing a unique hybrid modelling approach which captures both within and between neighbourhood effects.

Three research questions guide Study 1. First, how do changes in immigrant concentration impact changes in violent crime within a neighbourhood over time? Second, do neighbourhoods with a higher concentration of immigrants encounter more or less crime? And finally, is the effect of changes in immigrant concentration on crime moderated by the neighbourhood context (for example, the size of the immigrant population or the level of disadvantage)? In this chapter, I first demonstrate how neighbourhoods in Brisbane and Sydney have changed over the period of study with particular focus on changing patterns in immigrant concentration. After establishing these changes, I present a series of analytic models which assess the within and between effects of immigrant concentration on violent crime.

5.2 Changes in immigrant concentration over time

As part of Study 1 is interested in how *changes* in immigrant concentration impact *changes* in neighbourhood violence over time, an important starting point for this research is to demonstrate the extent to which neighbourhoods experienced a significant change in immigrant concentration over the period of study. Table 5.1 demonstrates an increase in Sydney and Brisbane’s immigrant share between 2001 and 2011.

Table 5.1 National and city immigrant share

	AUSTRALIA		SYDNEY		BRISBANE	
	2001	2011	2001	2011	2001	2011
% Immigrant	23.10%	26.00%	30.38%	33.86%	22.20%	29.70%

Descriptive statistics for the neighbourhood level are provided in Table 5.2 and indicate that on average, immigrant concentration has risen across Sydney and Brisbane neighbourhoods. In 2011, immigrants represent on average 28.19% of the residential population across Sydney neighbourhoods, up from 26.52% in 2001. Further, the maximum level of immigrant concentration grew from 67.53% in 2001 to 74.40% by 2011. A similar upward trend is seen in Brisbane. While in 2001, the average level of immigrant concentration across Brisbane neighbourhoods was 19.48%, by 2011 immigrants comprise on average 22.79% of the neighbourhood population. The upper end of immigrant concentration also increased in Brisbane from 50.54% in 2001 to 56.61% in 2011. Yet while neighbourhoods in both cities saw an upsurge in immigrant concentration over time,

concentration levels remain much lower across Brisbane neighbourhoods.

Table 5.2 Neighbourhood immigrant share 2001-2011

	2001				2011			
	Mean	S.D	Min	Max	Mean	S.D	Min	Max
% Immigrant (Sydney)	26.52	11.80	7.71	67.53	28.19	13.46	8.12	74.40
% Immigrant (Brisbane)	19.48	7.24	6.33	50.54	22.79	9.01	5.14	56.61

Figure 5.1 and 5.2 illustrate the changing nature of immigrant concentration across the two sites over time. While these maps show that a number of neighbourhoods in Sydney and Brisbane experienced substantial growth in immigrant concentration, considerable differences in immigrant settlement patterns are identified between the two cities. In the most highly concentrated areas in Sydney, immigrants represent between 45.69% and 74.40% of the residential population. In other words, there are a number of neighbourhoods in Sydney (N=61) where immigrants outnumber natives. Also notable about the Sydney context is that these immigrant neighbourhoods are widely scattered across the city rather than confined to a certain geographic area. Comparisons between the 2001 and 2011 maps show that the spatial clustering of neighbourhoods with high concentrations of immigrants has increased over time. However, several neighbourhoods located near these long standing immigrant areas reach a high level of immigrant concentration by 2011. Examples of this trend are most evident when comparing the inner city region (refer to inset in Figure 5.1). This suggests clusters of high concentration neighbourhoods are growing over time.

Change is even more apparent in the Brisbane context. As can be seen in Figure 5.2, neighbourhoods located in Brisbane's south present the highest levels of immigrant concentration in the city with between 33.65% and 56.65% of the population foreign born. Further these highly concentrated neighbourhoods share a common boundary with other high concentration areas. These neighbourhoods form together to create a relatively large contiguous immigrant enclave. Like Sydney, most of the densely concentrated areas in 2001 continue to exhibit a high level of concentration in 2011. Yet by 2011, this high concentration has spread to adjacent neighbourhoods. Also visible in Brisbane is the increasing presence of immigrants in the city's northern suburbs in 2011. In 2001, most neighbourhoods located on the north side of Brisbane recorded low levels of immigrant concentration, falling within the 0.00% to 14.15% bracket. Many of these areas sit within the 14.16% to 22.94% range by 2011. While hardly any north side neighbourhoods exceeded concentration levels of 25% in 2001, a small handful reach a level of immigrant concentration above the city average in 2011. Several of these newly concentrated neighbourhoods share a boundary with one another. This trend points to a series of growing immigrant enclaves on Brisbane's north.

Figure 5.1 Immigrant concentration in Sydney (2001 and 2011)

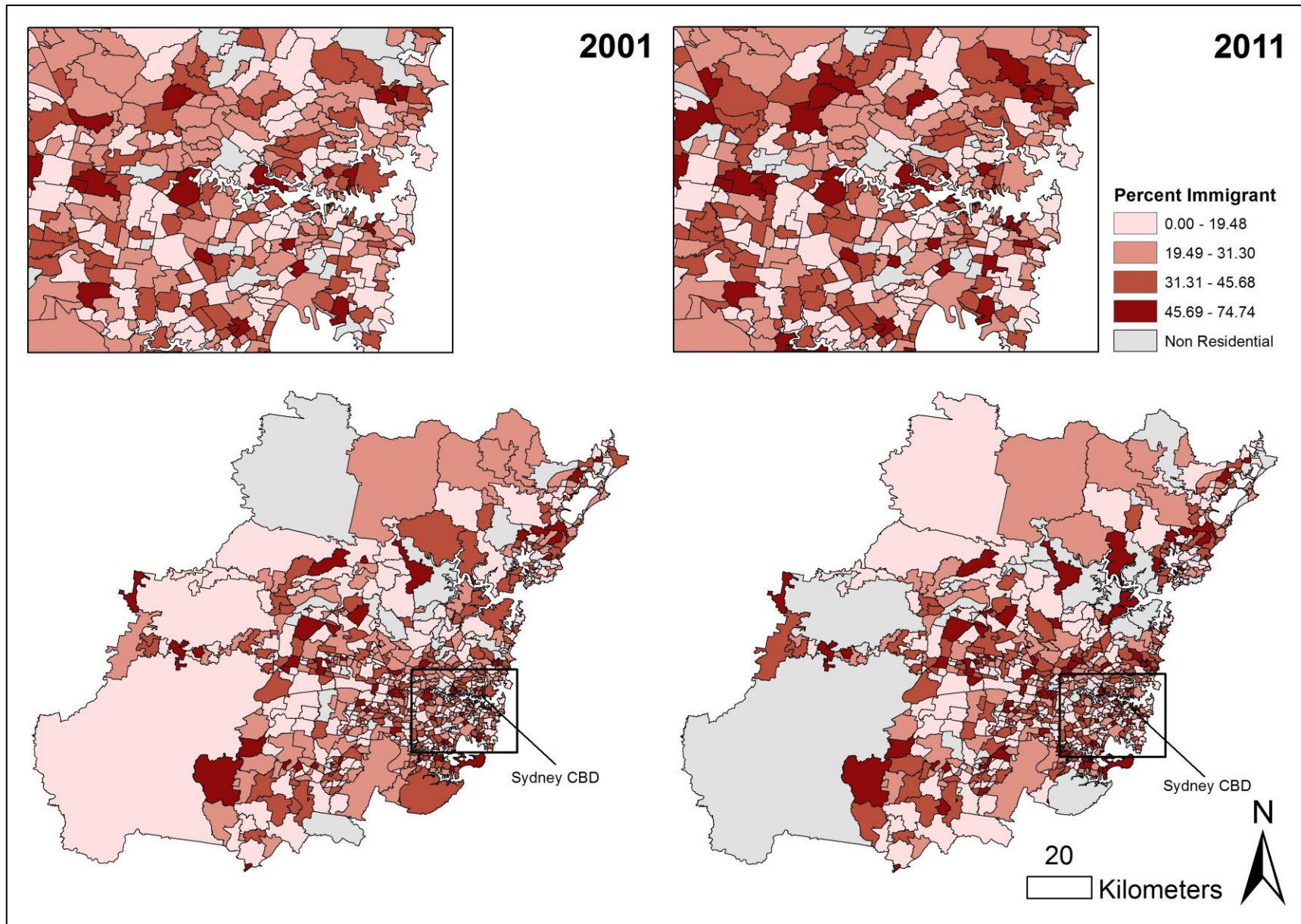
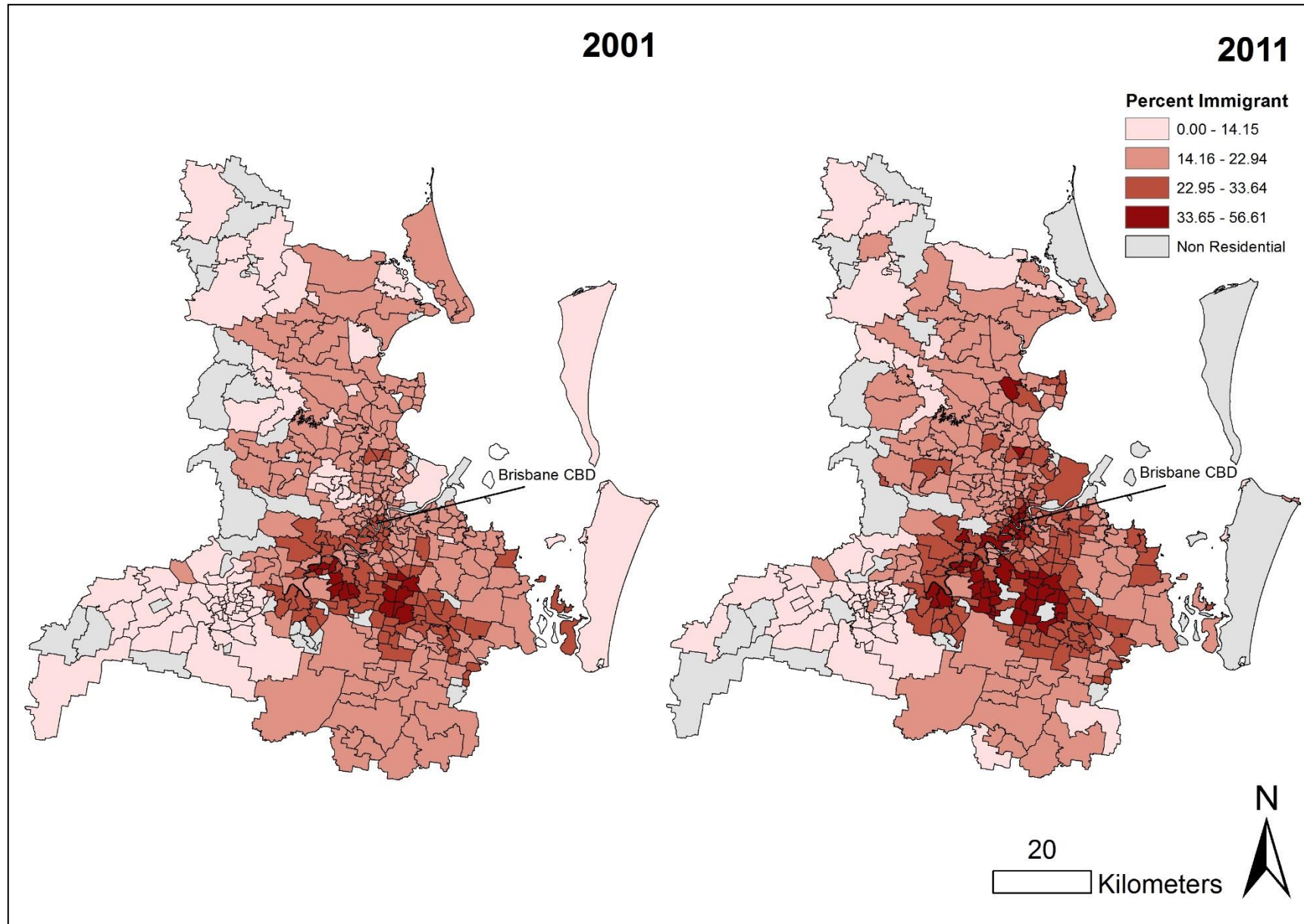


Figure 5.2 Immigrant concentration in Brisbane (2001 and 2011)



These maps highlight significant differences in the spatial distribution of the immigrant population across the two sites. While the most highly concentrated neighbourhoods in Sydney have between 45.69% and 74.74% of the population foreign born, the upper category for Brisbane ranged between 33.56% and 56.61%. Thus despite considerable growth in immigration, concentration levels across Brisbane neighbourhoods are much lower level than what is seen in Sydney. Unlike Sydney, it is rare for immigrants to comprise the majority of the population in Brisbane. In 2011, immigrant concentration exceeded 50% in only six Brisbane neighbourhoods (total N=365¹⁵) compared to 61 neighbourhoods in Sydney (total N=735). Further still, immigrant concentration is spatially clustered in Brisbane. In this city, most highly concentrated immigrant neighbourhoods are co-located and situated in the south. While some highly concentrated neighbourhoods in Sydney share a boundary with other highly concentrated areas, there are pockets of immigrant neighbourhoods dispersed across the city. These divergent patterns reflect each city's status as either a new or established destination.

To ascertain whether neighbourhood differences in immigrant concentration between 2001 and 2011 are statistically significant, a series of paired t-tests were conducted. Results from these t-tests are presented in Table 5.3. Here we can see that the increase in immigrant concentration that each site experienced is statistically significant. Additional t-tests were run on all presumed time variant variables in order to justify their inclusion as change measures. I find neighbourhoods in both sites experienced a statistically significant change over the period of study in all of the key predictor variables.

Table 5.3 Paired t-tests of time variant predictors

	SYDNEY		BRISBANE	
	z	p<	z	p<
% Immigrant	11.64	***	17.87	***
% Indigenous	9.24	***	6.52	***
% Young Males	-5.35	***	-2.28	*
% Renting	2.35	*	6.09	***
% Different Address 5 years	-17.09	***	-8.81	***
Disadvantage	7.97	***	-10.04	***
Population Density	11.71	***	12.30	***

* p<0.05, ** p<0.01, ***p<0.001

¹⁵ Neighbourhoods with over 300 persons usually resident in 2011.

5.3 Analytic strategy

To assess the effect of immigrant concentration on crime, Study 1 utilises Allison's hybrid modelling approach (Allison, 2009). These models allow for the examination of both within neighbourhood and between neighbourhood effects and unlike fixed effects models, allow for the inclusion of time invariant predictors. Theoretically, this allows us to simultaneously test whether it is the process of change in neighbourhood conditions that matters for crime and/or the average level of concentration. The within effects component of the model considers how changes in the predictor variables within a neighbourhood influence changes in that neighbourhood's level of violent crime over time. Interested solely in within unit change, these estimates can be interpreted as fixed effects. The between effects component of the model allows for comparisons to be made across neighbourhoods by calculating an average score for the predictor variables. Taken together, this hybrid modelling approach allows us to determine how change influences violent crime *within* a neighbourhood over time as well as compare *across* neighbourhoods. To estimate the within and between effects, hybrid models comprise two types of variables: mean-deviated variables (for the within effects) and mean-centred variables (for the between effects). The process of calculating these variables is outlined in Chapter 4. Descriptive statistics are provided in Table 5.4.

As addressed in Chapter 4, violent crimes represent relatively rare neighbourhood events, particularly in the Australian context. The distribution of violent crime in both cities is highly skewed with many places exhibiting low counts. To deal with overdispersion, estimates for negative binomial regression are calculated with the residential population included as the exposure variable. I estimate random effects to allow for the dependence of multiple observations for neighbourhoods. For further information on the modelling strategy, please refer to Chapter 4.

Table 5.4 Descriptive statistics for mean-centred and mean-deviated variables

	SYDNEY						BRISBANE							
	Overall		Between		Within		Overall		Between		Within			
	Mean	S.D	Min	Max	S.D	Min	Max	Mean	S.D	Min	Max	S.D	Min	Max
% Immigrant	29.49	12.07	9.17	65.28	2.09	12.03	51.50	21.57	7.62	7.10	53.09	2.23	12.75	31.33
% Indigenous	1.24	1.54	0.00	12.03	0.43	-1.86	7.41	1.95	2.48	0.08	35.54	0.48	-4.48	6.50
% Young Males	6.75	1.48	3.05	15.00	0.73	0.08	12.84	7.33	1.92	2.36	22.46	0.61	4.45	10.56
% Renters	24.31	12.78	1.21	81.35	2.19	7.33	54.22	25.71	11.58	2.78	50.49	2.31	16.29	41.32
% Different Address 5 years	34.15	8.56	19.78	63.11	5.08	9.72	66.42	40.97	7.69	10.72	71.42	4.33	27.51	58.70
Population Density	27.23	20.16	0.73	193.52	3.40	-0.08	65.35	13.11	9.75	0.19	52.00	1.65	-8.33	28.61
Disadvantage	0.06	1.08	-1.87	5.42	0.27	-1.21	1.99	0.19	0.80	-1.59	2.66	0.30	-0.81	1.27
Nearby Crime	6.42	0.71	0.00	8.58	-	-	-	5.40	1.04	0.00	7.35	-	-	-
N				1740							906			
n				580							302			
T				3							3			

5.4 Results

The models are stepped out in three stages. In the first stage of modelling, the mean-centred and mean-deviated immigrant concentration variables are included. After assessing the bivariate relationship between immigration and crime, the socio-demographic and environmental features are added to the model. This allows us to determine the role context plays in shaping the immigration-crime connection. In the final stages of modelling, two interaction terms are considered. These terms test central arguments of the revitalisation thesis, namely that changes in immigrant concentration will have the largest effect in certain types of places – particularly in areas with an established immigrant presence (Ramey, 2013) and in more disadvantaged communities (Velez, 2009). The results for stage 1 and stage 2 are discussed for each city before turning to the interaction effects.

Sydney

In the initial stages of modelling, only the immigrant concentration measure is included. Here, the within effects component of the model suggests a significant negative relationship between changes in immigrant concentration and crime in Sydney ($B=-0.030$ $p<0.001$). That is, as immigrant concentration increases within a neighbourhood over time, violent crime decreases. However, in the between effects component of the model, the relationship between immigrant concentration and violent crime does not reach statistical significance. This suggests that for Sydney it is the process of *change* in immigrant concentration that is most impactful in protecting communities against violent crime rather than just levels of concentration. Thus neighbourhoods undergoing a greater influx of immigrants experience less violent crime over time while areas with a higher average level of immigrant concentration see no effect.

Next, the socio-demographic and environmental features of neighbourhoods are entered into the model. Once accounting for the neighbourhood context, the within effects component of the model demonstrates that changes in immigrant concentration in Sydney - an established immigrant gateway - continue to have a significant and negative effect on violent crime over time ($B=-0.012$ $p<0.001$). Other significant predictors of violent crime include changes in the presence of young males, renters, those at a different address five years ago and population density. In Sydney neighbourhoods, as the young male population increases over time, so too does violent crime ($B=0.040$ $p<0.001$). This supports other studies that find a link between the size of the young male population and neighbourhood violence (Andersen, 2012; Wadsworth, 2010). Consistent with social disorganisation theory, measures of population turnover (namely, percent renters and percent at a

different address five years ago) are significantly and positively associated with violent crime. As the number of renters increase over time, violent crime rises ($B=0.009$ $p<0.01$). Neighbourhood violence similarly rises as the percent of new residents within a given neighbourhood increases over time ($B=0.002$ $p<0.05$). Taken together, these findings suggest that in more unstable neighbourhoods, residents are unable to develop the networks necessary for the informal social control of crime. Increasing population density is negatively related to violent crime in Sydney ($B= -0.026$ $p<0.001$). Thus, as population density increases over time, violent crime levels decline. Changes in disadvantage had no significant effect on violent crime over time - this finding is surprising given the strong support for this relationship in the international literature.

The between effects component of the model reveals no significant relationship between the average level of immigrant concentration and violent crime across neighbourhoods once accounting for the broader socio-demographic context. However, I find several other factors are significant predictors of violent crime when comparing between neighbourhoods. Factors positively linked to higher violent crime include Indigenous presence, disadvantage, renters and population density. For example, areas with a higher average number of Indigenous persons experience more violent crime than neighbourhoods with fewer Indigenous residents ($B= 0.075$ $p<0.001$). This finding is in line with previous research (McCausland & Vivian, 2010) and reflects the high levels of disadvantage the Indigenous population face in Australia (Altman et al., 2008).

According to social disorganisation theory, disadvantaged and residentially unstable neighbourhoods lack the capacity for the informal regulation of crime (Shaw & McKay, 1942; Sampson & Groves, 1989). In Sydney, the results of Study 1 show that traditional indicators of disorganisation are significantly and positively linked to violent crime *across* neighbourhoods. Here the results suggest areas with a higher level of disadvantage encounter more violent crime than neighbourhoods with lower disadvantage ($B= 0.261$ $p<0.001$). This finding is consistent with extensive international scholarship which connects neighbourhood disadvantage to crime (Bursik & Grasmick, 1993; Krivo & Peterson, 1996; Lee et al., 2001; Sampson et al., 2005). Some support is also found for the effect of residential mobility on crime. Specifically, the concentration of renters is positively linked to violent crime. Thus, areas with more renters report more violent crime ($B= 0.023$ $p<0.001$). This indicates that without an invested stake in the community, renters may be less willing to intervene in social problems like crime. Yet the other measure of residential mobility - those at a different address five years ago - is not significantly associated with violent crime when comparing across Sydney neighbourhoods.

Table 5.5 Effects of immigrant concentration on violent crime within and between neighbourhoods

	SYDNEY (N=580)			BRISBANE (N=302)				
	B (SE)		B (SE)	B (SE)		B (SE)		
		<i>Within</i>			<i>Within</i>			
% Immigrant	-0.030 (0.00)	***	-0.012 (0.00)	***	-0.030 (0.00)	***	-0.012 (0.00)	*
% Indigenous			-0.056 (0.01)				0.016 (0.02)	
% Young Males			0.040 (0.01)	***			0.039 (0.02)	*
% Renting			0.009 (0.00)	**			-0.0004 (0.00)	
% Different Address (5yrs)			0.002 (0.00)	*			-0.0005 (0.00)	
Disadvantage			0.019 (0.02)				0.160 (0.3)	***
Population Density			-0.026 (0.00)	***			-0.032 (0.01)	***
		<i>Between</i>			<i>Between</i>			
% Immigrant	0.001 (0.00)		-0.002 (0.00)		0.004 (0.01)		-0.001 (0.01)	
% Indigenous			0.075 (0.02)	***			0.042 (0.02)	*
% Young Males			-0.018 (0.01)				0.038 (0.03)	
% Renting			0.023 (0.00)	***			0.041 (0.01)	***
% Different Address (5yrs)			0.0002 (0.00)				-0.011 (0.01)	
Disadvantage			0.261 (0.05)	***			0.273 (0.07)	***
Population Density			0.008 (0.00)	***			0.003 (0.001)	
Nearby Violent Crime			-0.032 (0.03)				-0.019 (0.02)	
		<i>Random</i>			<i>Random</i>			
Distance to CBD			0.006 (0.00)	**			0.009 (0.00)	
% Residential Land Use			-0.007 (0.00)	***			-0.007 (0.00)	***
Constant	-5.05 (0.11)	***	-4.865 (0.27)	***	-4.541 (0.23)	***	-4.680 (0.43)	***
ln (r)	1.294 (0.07)		2.624 (0.08)		1.921 (0.159)		3.280 (0.257)	
ln (s)	1.308 (0.07)		2.272 (0.08)		0.707 (0.10)		1.577 (0.12)	
Log likelihood	-6940.724		-6516.356		-2936.414		-2758.75	

* p<0.05, ** p<0.01, ***p<0.001

Population density is another significant predictor of violent crime in Sydney. In more densely populated areas, violent crime is higher (B= 0.008 p<0.001). In this study, the relationship found between population density and crime in the between effects component of the model, contrasts the association seen in the within effects component. As experiencing change in population density is inherently different to presenting a generally high level of population density, it's not surprising the results vary. While at first, these results might appear to contradict one another, it is important to recognise that these two measures capture very distinct neighbourhood processes. The within effects component of the model measures change and thus increasing population density may be associated with urban renewal and neighbourhood growth - but may not have reached the threshold where anonymity is achieved. By contrast, the between effects component of the model differentiates between areas that exhibit (on average) a high or low level of population density. In this case, the positive association between the level of population density and violent crime may be

due to a greater number of opportunities (i.e. more potential victims) and greater anonymity for would be offenders (Glaeser & Sacerdote, 1996; Kelly, 2000).

Ecological theories of crime predict neighbourhoods more proximate to the city centre will encounter higher levels of crime and disorder. As these areas are perceived to be undesirable and unsafe, residents will chose to move to more distal and safer neighbourhoods once they have sufficient economic capital (Burgess, 1928; Shaw & McKay, 1942). This process thereby exacerbates disadvantage and population turnover in these inner city areas. In contrast to this argument, I find the opposite in the Sydney context. Here, the results show a neighbourhood's distance from the city centre is positively linked to violent crime. In other words, more distally located neighbourhoods report a higher number of violent crimes ($B = 0.006$ $p < 0.01$). Considering Sydney's real estate market, this finding isn't overly surprising with some of the most expensive and sought after homes located in neighbourhoods in and around the central business district.¹⁶ Alternatively, more distal areas offer cheaper rent, lower costs of living and access to social housing.

Environmental perspectives suggest that certain non-residential land uses create opportunities for crime (Ihlanfeldt, 2003; Grubestic et al., 2013; Livingston, 2008; Murray & Swatt, 2010; Nielsen & Martinez, 2003). Therefore at the neighbourhood level, areas with greater non-residential land use are expected to encounter a higher rate of crime. In this study, I find a significant and negative relationship between residential land use and violent crime across Sydney neighbourhoods. Here, the results indicate areas with a higher degree of residential land use experience fewer violent crimes ($B = -0.007$ $p < 0.001$). The concentration of young males and nearby violent crime is not significantly associated with higher crime across Sydney neighbourhoods.

Brisbane

Despite being a new destination city - with a differing immigration history and immigrant composition to Sydney - changes in immigrant concentration similarly impact violent crime in Brisbane. Only the immigration measures are included in the first stages of modelling for Brisbane. In the within effects component of the model, I find a significant and negative relationship between changes in immigrant concentration and crime over time ($B = -0.030$ $p < 0.001$). In the between effects component of the model, I find no statistically significant relationship between the average level of immigrant concentration and violent crime when comparing across neighbourhoods. As with

¹⁶ The CBD itself was not included in the neighbourhood sample.

Sydney, it is the process of change in immigrant concentration that is most consequential for violent crime in the Brisbane setting.

Once controlling for neighbourhood contexts, the within effects component of the model continues to point to a significant and negative relationship between changes in immigrant concentration and violent crime over time ($B=-0.012$, $p<0.05$). Thus despite possessing fewer established networks and resources for immigrants upon arrival, an increase in immigrant concentration in Brisbane neighbourhoods is linked to lower crime. Other variables significantly associated with more violent crime over time include the increased presence of young males and increased disadvantage. In Brisbane, as neighbourhood disadvantage increases over time, the level of violent crime also rises ($B=0.160$, $p<0.001$). This effect is not seen in the Sydney context. In line with the Sydney models, the increasing presence of young males is associated with more neighbourhood violence over time ($B=0.039$, $p<0.05$). Increasing population density over time has a similar effect on crime in both cities. In Brisbane, I find a significant and negative relationship between changes in population density and changes in violent crime. Thus as population density increases over time in a given neighbourhood, violent crime decreases ($B=-0.032$ $p<0.001$).

The between effects component of the model continues to reveal no significant relationship between immigrant concentration and violent crime across Brisbane neighbourhoods once appropriate controls are considered. Several of the neighbourhood characteristics associated with more violent crime across Sydney neighbourhoods are again significant in the Brisbane context. In particular, measures of social disorganisation including the level of disadvantage and presence of renters are positively linked to violent crime when comparing between Brisbane neighbourhoods. In Brisbane, neighbourhoods which exhibit higher levels of disadvantage experience more violent crime compared to neighbourhoods with lower levels of disadvantage ($B=0.273$ $p<0.001$). Additionally, areas with a larger presence of renters report more neighbourhood violence ($B=0.041$ $p<0.001$). Indigenous presence is also significantly and positively associated with violent crime across Brisbane. Here I find areas with a greater number of Indigenous residents tend to encounter more violence than those with fewer Indigenous residents ($B=0.042$ $p<0.05$). Like Sydney, residential land use is negatively linked to violent crime in Brisbane ($B=-0.007$ $p<0.001$). This suggests neighbourhoods with greater residential land use face fewer violent crime problems.

Interaction terms

Emerging research from the United States suggests that certain socio-structural features of the neighbourhood moderate the immigration-crime relationship. For example, scholars argue that

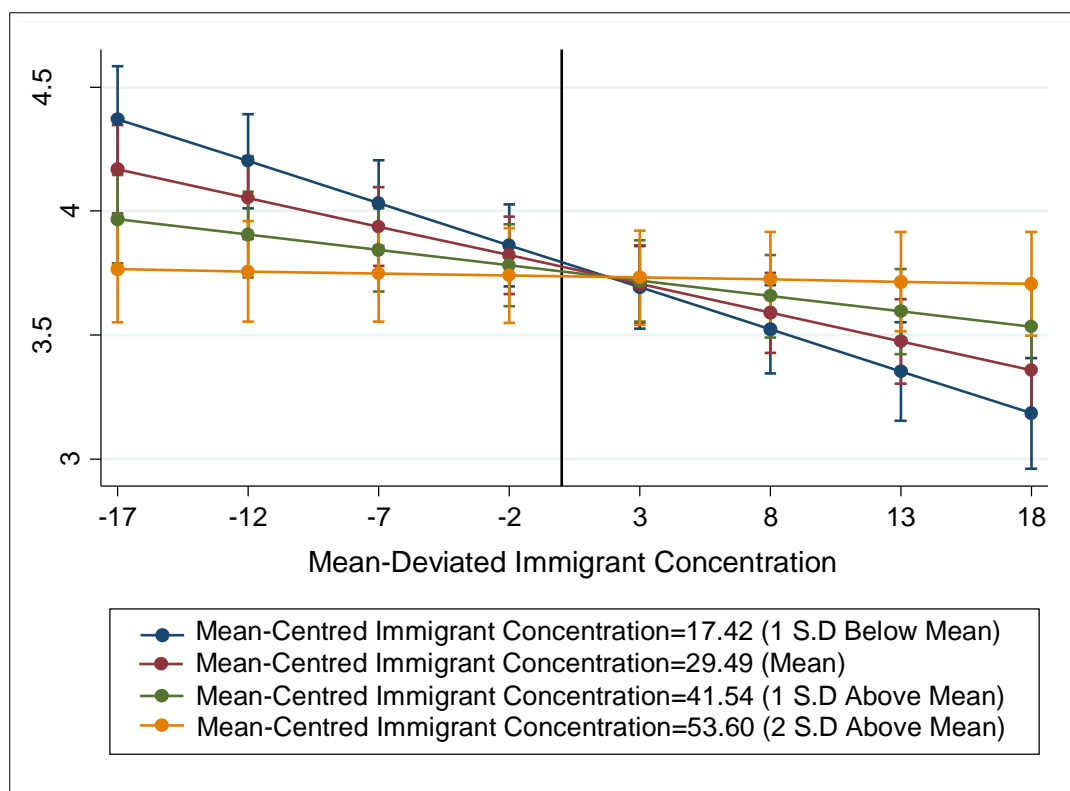
areas with an established immigrant presence will fare better following increased immigration when compared to newer settlement sites (Martinez et al., 2004; Ramey, 2013). This is because new immigrants arriving in areas with an established immigrant presence will presumably have greater access to co-ethnics, social institutions and ethnic economies (Portes & Rumbaut 2006; Singer, 2004). Established neighbourhoods should therefore be well equipped to facilitate integration and absorb influxes of new immigrants. However, without these established ties and resources, new immigrant areas may struggle - at least in the short term - and experience more crime following increased immigration (Martinez et al., 2004). Results from empirical studies which test these assumptions are far from conclusive. While some find that newer destination cities experience poorer crime outcomes following increased immigration (Martinez et al., 2004; Ramey, 2013), others argue that new settlement zones experience the largest drop in crime (Ferraro, 2016).

To test this moderation effect, scholars generally categorise neighbourhoods or cities as either established/traditional or new/non-traditional (Harris & Feldmeyer, 2013; Light, 2017; Painter-Davis, 2015). This process often involves using the level of immigrant concentration at the starting time point or a time prior to the study to split the sample into two groups. Yet immigrant concentration occurs on a continuum and by dichotomously classifying neighbourhoods as new or established, this nuance is lost. Thus, in addition to broadly classifying Brisbane and Sydney as an established gateway and new destination, I include an interaction to conduct a more robust investigation of this moderation effect at the neighbourhood level. To determine whether the effect of change in immigrant concentration varies depending on the average level of immigrant concentration, I include an interaction term between the mean-deviated and mean-centred variables.

Table 5.6 presents the models with the interaction term included. Here, I find a statistically significant effect in Sydney ($B = 0.001$, $p < 0.001$) but not in Brisbane. In Sydney, changes in immigrant concentration impact crime differently depending on a neighbourhood's level of immigrant concentration. Yet contrary to expectations, areas with a lower level of immigrant concentration experience the greatest reduction in crime following an influx of immigrants into the neighbourhood. As Figure 5.3 reveals, areas with one standard deviation below the mean level of immigrant concentration see the largest drop in crime following positive immigrant growth. Comparatively, the effect of an increase in immigration on violent crime is smaller in areas with an above average level of immigrant concentration. In fact, once the level of immigrant concentration reaches two standard deviations above the mean (around 54%), changes in immigrant concentration have little effect on violent crime. These results point to a threshold effect. Once a community

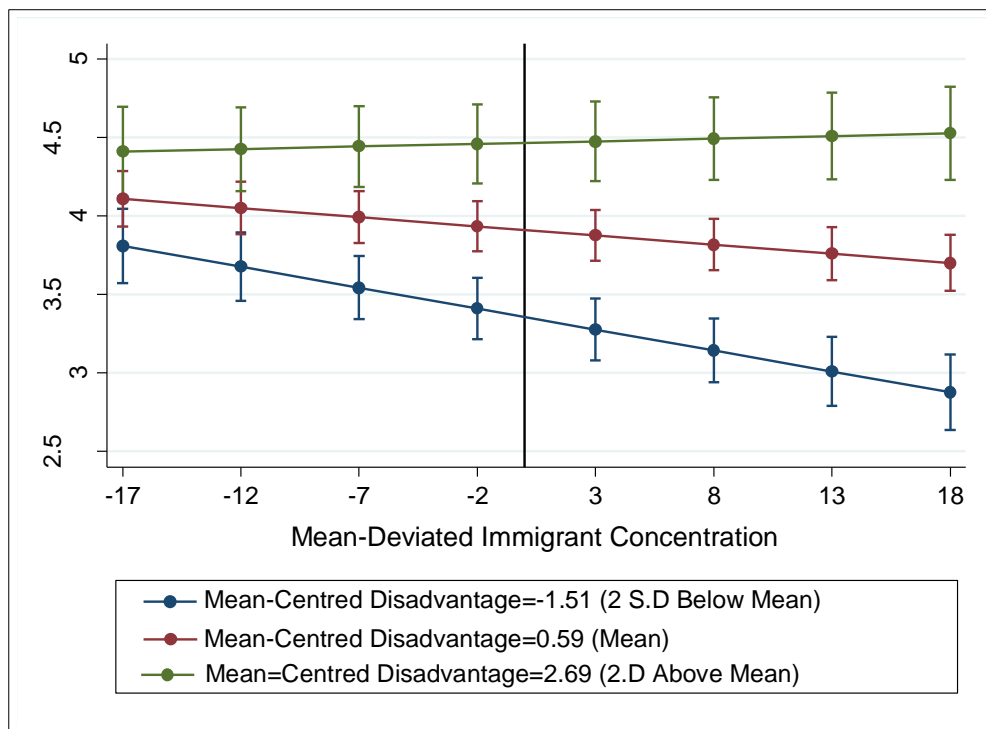
reaches a certain level of immigrant concentration, the effect of changes in immigrant concentration on violent crime diminishes. This also suggests that despite theoretical predictions, a large and established immigrant population is not required in order for changes in immigrant concentration to have a protective effect against crime. As Brisbane has very few neighbourhoods with a foreign born population above 50%, it's not surprising this threshold effect is not found in this setting.

Figure 5.3 Immigrant concentration interaction



Another neighbourhood factor argued to moderate the immigration-crime link is disadvantage. Research from the United States suggests that the negative relationship between immigrant concentration and crime is particularly pronounced in areas of concentrated disadvantage (MacDonald et al., 2013; Velez, 2009). Indeed Velez (2009) found influxes of recent immigrants differentially affected crime in advantaged neighbourhoods compared to disadvantaged neighbourhoods. In disadvantaged neighbourhoods, increased immigrant presence was associated with reductions in lethal violence while in advantaged areas an increased number of immigrants was related to more crime. Velez (2009) suggests that this is because influxes of immigrants into disadvantaged areas effectively revitalise neighbourhood organisations and institutions, stimulate the local economy and strengthen social networks. Yet in advantaged communities, an increased presence of immigrants potentially disrupts social networks and informal social control and in turn, crime increases.

Figure 5.4 Mean-deviated immigrant concentration and mean-centred disadvantage



To test this perspective, an additional interaction term between the mean-deviated immigrant concentration measure and the mean-centred disadvantage measure was entered into the model. Specifically, I examine whether the effects of changes in immigrant concentration on violence vary across neighbourhoods with different levels of disadvantage. Again, this interaction term is statistically significant in the Sydney context only ($B= 0.007$, $p<0.001$). Here, I find that changes in immigrant concentration in more affluent areas are associated with the largest reduction in crime (see Figure 5.4). However in more disadvantaged areas, an increase in immigrant concentration slightly increases violent crime. These findings suggest disadvantage differentially moderates the immigration-crime relationship in the Australian context compared to what is seen in the United States. When taken together, these interaction terms suggest some of the key arguments of the revitalisation thesis do not hold in the Australian setting - at least when considering total immigrant concentration.

Table 5.6 Interaction Effects

	SYDNEY (N=580)				BRISBANE (N=302)			
	B (SE)		B (SE)		B (SE)		B (SE)	
	<i>Within</i>				<i>Within</i>			
% Immigrant	-0.049 (0.01)	***	-0.016 (0.00)	***	-0.027 (0.01)		-0.017 (0.01)	**
% Indigenous	-0.055 (0.01)	***	-0.052 (0.01)	***	0.021 (0.02)		0.015 (0.02)	
% Young Males	0.036 (0.01)	***	0.035 (0.01)	***	0.029 (0.02)		0.028 (0.01)	
% Renting	0.007 (0.00)	**	0.008 (0.00)	**	0.001 (0.00)		-0.001 (0.00)	
% Different Address (5yrs)	0.003 (0.00)	*	0.003 (0.00)		0.001 (0.00)		-0.001 (0.00)	
Disadvantage	0.017 (0.02)		0.030 (0.02)		0.149 (0.03)	***	0.164 (0.03)	***
Population Density	-0.027 (0.00)	***	0.009 (0.00)	***	-0.031 (0.01)	***	-0.030 (0.01)	***
	<i>Between</i>				<i>Between</i>			
% Immigrant	-0.002 (0.00)		-0.002 (0.00)		-0.001 (0.01)		-0.002 (0.00)	
% Indigenous	0.007 (0.02)	**	0.073 (0.02)	**	0.042 (0.02)	*	0.073 (0.02)	**
% Young Males	-0.020 (0.01)		-0.018 (0.01)		0.038 (0.02)		-0.018 (0.01)	
% Renting	0.023 (0.00)	***	0.023 (0.00)	***	0.040 (0.01)	***	0.023 (0.00)	***
% Different Address (5yrs)	0.000 (0.00)		0.00 (0.00)		-0.010 (0.01)		0.000 (0.00)	
Disadvantage	0.266 (0.05)	***	0.264 (0.05)	***	0.273 (0.07)	***	0.264 (0.05)	***
Population Density	0.009 (0.00)	***	0.009 (0.00)	***	0.003 (0.01)		0.009 (0.00)	***
Nearby Violent Crime	-0.031 (0.03)		-0.030 (0.03)		-0.019 (0.03)		-0.030 (0.03)	
	<i>Random</i>				<i>Random</i>			
Distance to CBD	0.006 (0.00)	**	0.006 (0.00)	*	0.009 (0.00)		0.006 (0.00)	**
% Residential Land Use	-0.007 (0.00)	***	-0.007 (0.000)	***	-0.007 (0.00)	***	-0.007 (0.00)	***
	<i>Interaction</i>				<i>Interaction</i>			
Within Immigrant X Between Immigrant	0.001 (0.00)	***			0.000 (0.00)			
Within Immigrant X Between Disadvantage			0.007 (0.00)	***			0.007 (0.00)	
Constant	-4.832 (0.27)	***	-4.862 (0.27)	***	-4.669 (0.43)	***	-4.648 (0.43)	***
ln (r)	2.642 (0.08)		2.641 (0.08)		3.291 (0.03)		3.309 (0.27)	
ln (s)	2.258 (0.08)		2.260 (0.082)		1.573 (0.01)		1.569 (0.12)	
Log likelihood	-6503.812		-6510.270		-2758.065		2757.049	

* p<0.05; ** p<0.01; ***p<0.001

Site comparison

Despite the substantial differences in each city's immigration history and immigrant composition, changes in immigrant concentration over time as well as the level of immigrant concentration impact neighbourhood crime in similar ways across the two sites. In both cities, changes in immigrant concentration over time are linked to less violent crime, even after controlling for broader neighbourhood features like disadvantage. Additionally, the level of immigrant concentration is not significantly linked to neighbourhood violence in either city. Thus neighbourhoods with a higher immigrant concentration do not experience significantly higher or lower violence compared to neighbourhoods with a lower immigrant concentration. Thus while Sydney and Brisbane differ considerably in terms of established networks and resources for immigrants, the results do not vary between the new and established site. As the recruitment of immigrants is controlled at the national level in Australia, this (at least partially) may explain the similarity between the two city contexts.

Overall the results demonstrate that increased immigration does not lead to greater neighbourhood violence - a consistent finding to research in the United States. However, what remains unclear is whether this similarity is due to a process of revitalisation. The measures included here (similar to previous scholarship) do not directly test the effect of immigrant concentration on the neighbourhood social processes important for the regulation of crime (such as collective efficacy). From a revitalisation perspective, we would expect immigrant neighbourhoods to exhibit strong social networks that foster shared expectations for informal social control which in turn lead to a reduction in crime. This missing link in the current study makes it difficult to determine whether the similarities found between the two countries is a result of the same processes.

However, the two interaction terms included in the models do not provide support for some of the arguments central to the revitalisation thesis. While scholars contend increased immigration will exert the largest protective effect on crime in areas with an established immigrant presence, this is not the case in Australia. In fact in Sydney, the effect of increased immigration on crime is strongest in areas with a lower average level of concentration. Additionally, I find no support for the argument that the effect of increases in immigrant concentration over time is strongest in disadvantaged communities destined for decline. Rather in Sydney, more affluent areas see the largest drop in violent crime following increased immigration. If anything, increased immigrant concentration in disadvantaged communities increases crime (although only slightly).

The push/pull factors which drive migratory decisions may explain some of the similarities found across the two contexts. In Australia, the foreign born population represents the “motivated immigrant” described in the selection effects thesis. Most new arrivals are highly skilled and secure employment prior to arrival (DIBP, 2015). The point-based program of migration effectively chooses migrants who have high stakes in conformity and wish to avoid the criminal justice system. Similarly, the United States attracts a large volume of workers (although low skilled and at times arriving via illegitimate routes) as well as immigrants hoping to reunite with family. Thus, despite differences in socio-economic and legal status, immigrants in the United States and Australia are *pulled* to the host country in pursuit of a better livelihood for themselves and their family. On a larger scale, Sampson (2008, p. 30) argues that this selection bias “favours the argument that immigration may be causally linked to lower crime.”

Finally, it is important to note that when explaining crime across place, immigrant concentration represents only a modest piece of the overall puzzle. Rather, other factors such as disadvantage and land use play a more crucial role in determining the spatial distribution of violent crime. The evidence presented here suggests disorganised neighbourhoods, places with higher levels of disadvantage, Indigenous presence and renters, experience the greatest share of violent crimes. Taken together, these findings reinforce the importance of considering the broader context of neighbourhoods when assessing the immigration-crime link.

5.5 Chapter summary

Overall there is no evidence in either city to suggest that neighbourhoods with a greater concentration of immigrants have more violent crime or that increases in the immigrant population over time are associated with greater violence. In fact, even after accounting for neighbourhood context, increasing immigrant concentration is significantly linked to lower violence in both cities. Yet statistically significant effects are found only in the within effects component of the model. Comparing across neighbourhoods, the level of immigrant concentration had no effect on crime, even after controlling for context. These findings therefore indicate that it is the process of *change* that is most consequential for crime rather than levels of concentration. The interaction terms reveal differences between the two sites. In Sydney, changes in immigrant concentration differentially impacts crime depending on the average level of immigrant concentration and the average level of disadvantage. Contrary to theoretical predictions, the crime-reducing effect of change in immigrant concentration is most pronounced in areas with a lower average level of immigrant concentration and disadvantage. No statistically significant interactions are uncovered in Brisbane.

While this study focuses on a broad measure of immigration to assess the immigration-crime connection, in reality, immigrants represent a diverse group, arriving under different circumstances with varied resources and backgrounds. With this in mind, relying solely on a measure of total immigrant concentration may oversimplify the relationship and wash out any effect of ethnicity on crime - particularly because immigrants from the United Kingdom and New Zealand comprise the largest foreign born groups in Australia. Therefore, group specific measures focused on capturing the effects of ethnicity are introduced in Study 2. More specifically, these variables disaggregate the total immigrant concentration measure by two indicators of ethnicity - language and religion. By tapping into the presence of culturally similar immigrants, these refined measures allow for a more meaningful test of the immigration revitalisation thesis in Australia. Further, as social disorganisation theory predicts crime to be higher in more ethnically diverse areas (rather than highly concentrated areas), Study 2 includes two diversity indices to more rigorously test the central tenets of this theory.

Chapter Six: Immigration, Ethnicity and Crime

6.1 Introduction

To provide a point of comparison to international studies and a baseline for Australian research, Study 1 focused on understanding the relationship between total immigration and violent crime. The results suggest that when immigrants are considered as a homogenous group, neither increasing immigrant concentration over time nor higher average levels of immigrant concentration are linked to more neighbourhood crime. In this study, total immigrant concentration is disaggregated by two measures of ethnicity - language and religion. Study 2 thus extends on Study 1 by considering the influence of specific immigrant groups on violent crime – with particular focus on emerging immigrant populations that have experienced growth in recent years. These groups tend to be more ‘visible’ and culturally distinct from native Australians and experience greater social distance.

By examining the presence of culturally similar immigrants, these group specific concentration measures provide a more robust test of the immigration revitalisation thesis which emphasises the importance of co-ethnics. However from a social disorganisation perspective, ethnic diversity is argued to lead to higher neighbourhood crime rather than simply ethnic group concentration. While there is a tendency to conflate concentration and diversity measures in immigration-crime studies, there are reasons to believe these two processes will differentially impact neighbourhood crime. For example, while the concentration of ethnic minorities may insulate communities from crime by strengthening social networks and providing residents with a “protective shell” of resources (Harris & Feldmeyer, 2013, p. 203) ethnic diversity is likely to have the opposite effect. Instead in ethnically diverse neighbourhoods, cultural differences between immigrant groups, language barriers and in-group preferences cause residents to “hunker down,” and avoid neighbourly interactions (Feldmeyer et al., 2016; Putnam, 2007; Wickes et al., 2013b). In turn, residents in ethnically diverse neighbourhoods are less likely to engage in informal social control actions thereby providing a social environment conducive to crime. To simultaneously test the central tenets of social disorganisation theory, the Study 2 models include corresponding diversity measures. By considering both concentration and diversity effects and by accounting for the dynamic socio-structural and environmental features of the neighbourhood, this study rigorously tests the key arguments of both the immigration revitalisation thesis and social disorganisation theory.

Three key overarching questions guide this study. First, how do increases in ethnic group concentration and ethnic diversity impact changes in violent crime within neighbourhoods over time? Second, how does ethnic group concentration and ethnic diversity effect violent crime when comparing across neighbourhoods? And finally, do changes in immigrant group concentration and ethnic diversity differentially impact violent crime across different neighbourhood contexts (i.e. at varying levels of immigrant concentration and disadvantage)? In this chapter, I first explain the theoretical importance of accounting for ethnicity in immigration-crime research and detail the key ethnic groups of interest. Next, I demonstrate how neighbourhoods in Brisbane and Sydney have changed over the period of study with particular focus on changing patterns in ethnic group concentration and diversity. Once establishing these changes, I present a series of analytic models which assess the within and between effects of ethnic group concentration and ethnic diversity on neighbourhood violent crime.

6.2 Immigrant ethnicity

Immigrant ethnicity is fundamental to both the revitalisation and disorganisation perspectives. According to the revitalisation thesis, immigrants from the same cultural and linguistic background can provide new arrivals with essential resources and ties that assist with integration (Martinez & Lee, 2000; Martinez et al., 2004; Martinez et al., 2010; Nielsen et al., 2005). With this in mind, the effect of immigrant concentration on crime is predicted to vary across ethnic groups depending on the size of the established co-ethnic population. An influx of a relatively new ethnic group may be linked to an increase in neighbourhood crime in the short term until the co-ethnic population reaches a size where these resources and ties are established (Martinez et al., 2004) As outlined in Chapter 3, Sydney has a long history as a gateway city while Brisbane's immigrant population has only recently begun to grow. As such it is expected that Sydney is more likely to have established ethnic groups with ties and resources that support the integration of recent arrivals - hence support for the revitalisation thesis may be more evident in this site.

In contrast, social disorganisation theory predicts that a greater mixture of ethnic groups in a neighbourhood can weaken a community's regulatory capacity by creating language and cultural barriers amongst residents. In ethnically diverse communities, residents may struggle to find the common ground necessary to come together to collectively solve community problems like crime (Sampson et al., 1997; Shaw & McKay, 1942). Immigration thus indirectly leads to greater neighbourhood crime by heightening the level of diversity within a given community.

Ethnicity is a multi-dimensional construct and can be measured using a variety of indicators. To capture the ethnic profile of residents, a number of questions related to country of birth, ancestry, language and religion are included in the Australian census. In this study, I focus on two aspects of immigrant ethnicity - language and religion. Unlike country of birth or ancestry, both language and religion involve some level of active participation. I discuss the theoretical importance of each in turn below and introduce the key ethnic groups of interest for this study.

Immigrant concentration by language

Immigrants from white, English speaking countries are rarely perceived to be a source of public concern and tend to experience low levels of anti-immigrant sentiment in Australia (Markus, 2012). Theoretically, the common ground that English speaking immigrants share with the native population may prevent a breakdown in social cohesion and informal social control (Sampson et al., 1997). However, immigrants from non-English speaking backgrounds who enter Australia via the skilled migration program are required to speak English proficiently. As such, the number of immigrants who are linguistically isolated in Australia is relatively small (approximately 3%) (ABS, 2011). Nevertheless, over 50% of Australia's immigrant population speak a language other than English at home (ABS, 2011). Australian research finds that language is a powerful signal of social and cultural difference and an important marker of ethnicity (Anderson, 1991; Wickes et al., 2013). Scholarship from the United States suggests the concentration of immigrants who speak the same language can help create 'little worlds' and foster a sense of home for immigrants struggling with feelings of disorientation and displacement. Such places encourage opportunities to build ties with culturally similar individuals (Breton, 1964; Desmond & Kubrin, 2009) which in turn, strengthens neighbourhood networks and informal social control.

To assess the effects of language concentration on crime, I divide the immigrant population into nine broad language groups as classified by the ABS (ABS, 2011). These language groups reflect the languages other than English immigrants speak at home and to some extent, map onto their region of origin. These language groups include: Northern European; Southern European; Eastern European; Southeast Asian; Southwest and Central Asian; Southern Asian; Eastern Asian; Other; and English only. Table 6.1 provides a more detailed description of the languages that comprise each of the broad categories.

Table 6.1 Composition of broad language categories

Broad Category	Description
Northern European	Celtic; German Related Languages; Dutch Related Languages; Scandinavian; Finish Related Languages (Excluded English)
Southern European	French; Greek; Iberian Romance; Italian; Maltese
Eastern European	Baltic; Hungarian; East Slavic; South Slavic; West Slavic;
Southeast Asian	Burmese; Hmong-Mien; Mon-Khmer; Tai; South-East Austronesian
Southwest and Central Asian	Iranic, Middle Eastern Semitic Languages; Turkic
Southern Asian	Dravidian; Indo-Aryan
Eastern Asian	Chinese; Japanese; Korean
‘Other’	American Languages, African Languages, Pacific Austronesian Languages; Oceanian Pidgins and Creoles; Papua New Guinea Languages.
English Only	English

(ABS, 2011)

City Trends

While the number of immigrants increased as a share of each city’s total population between 2001 and 2011 (see Chapter 5), Figure 6.1 and 6.2 show significant variation in growth between language groups. In both cities, immigrants who speak Northern European, Southeast Asian, Southwest and Central Asian, Southern Asian and Eastern Asian languages comprise a larger share of the city’s total population in 2011 compared to 2001. However, other groups saw a reduction in size. In 2011, immigrants who speak Southern European, Eastern European, ‘Other’ languages and English only represent a smaller share of Sydney’s population than in 2001. Similar trends are seen in Brisbane. While the size of the immigrant population who speak Southern European languages remained fairly stable over time, the share of immigrants who speak Eastern European and ‘Other’ languages is smaller in 2011. In contrast to Sydney, the number of immigrants who speak English only increased in Brisbane over time.

These patterns reflect a nationwide shift in the incoming countries of origin. While earlier waves of immigrants originated from Europe and English speaking countries like New Zealand and the United Kingdom, new immigrants are increasingly sourced from the Asian region (ABS, 2011). The reduction in the share of the population who speak ‘Other’ languages reflects changes in the regional priorities of the humanitarian migration program in 2009 from the African region to Asia and the Middle East (Markus et al., 2009).

Figure 6.1 Changes in language groups in Sydney (2001-2011)

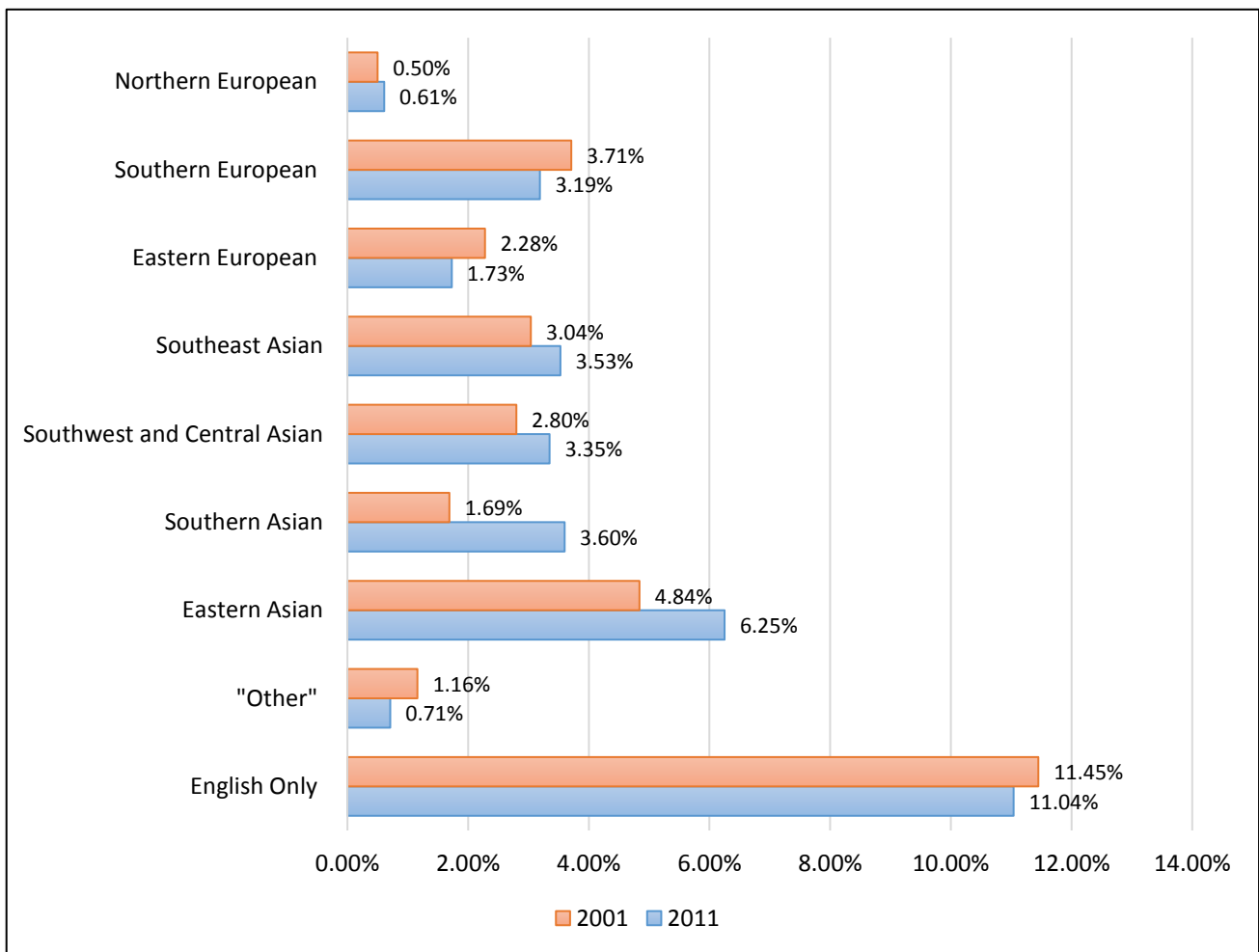


Figure 6.1 and 6.2 also highlight clear differences between the two cities in terms of the size of these language groups. As a share of the total population, immigrants who speak Southern European, Eastern European, Eastern Asian, Southeast Asian, Southern Asian and Southwest and Central Asian languages are more prominent in the Sydney context. Other groups - namely immigrants who speak Northern European languages, 'Other' languages or English only - represent a larger share of the total population in Brisbane compared to Sydney. However, as demonstrated in Table 6.2, the extent of change (particularly growth) is much greater in Brisbane. These differences between the two sites further reinforce Sydney's status as an established immigrant gateway and Brisbane's status as a new immigrant destination city.

Figure 6.2 Changes in language groups in Brisbane (2001-2011)

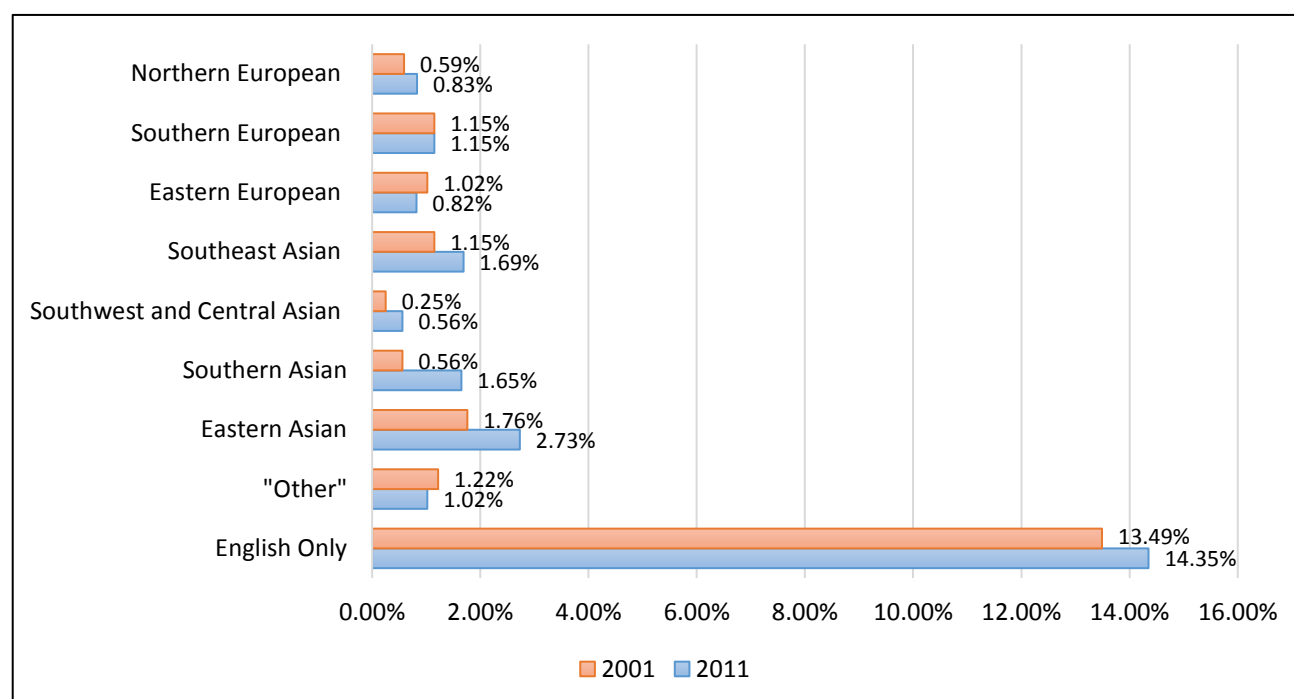


Table 6.2 Language group growth rate

	SYDNEY	BRISBANE
Northern European	22.00%	40.68%
Southern European	-14.02%	0.00%
Eastern European	-31.79%	-19.61%
Southeast Asian	16.12%	46.96%
Southwest and Central Asian	19.64%	119.23%
Southern Asian	95.27%	194.64%
Eastern Asian	29.13%	55.11%
'Other'	-38.79%	-16.39%
English only	-3.58%	6.38%

Neighbourhood Trends

Similar trends are seen at the neighbourhood level. The descriptive statistics provided in Table 6.4 indicate that while some language groups became on average, more prevalent across neighbourhoods in 2011 compared to 2001, others experienced limited change, or indeed reduced in size. In both cities, the mean neighbourhood level of concentration for immigrants who speak Northern European, Southwest and Central Asian, Southern Asian, Southeast Asian and Eastern Asian languages is higher in 2011. Yet for other groups, such as immigrants who speak Southern European, Eastern European and 'Other' languages, their mean level of concentration in 2011 is unchanged or less than in 2001. The main difference I find between the two cities is the

concentration of immigrants who speak English only. In Sydney neighbourhoods, the mean level of concentration for this group decreased between 2001 and 2011, while in Brisbane the concentration of immigrants who speak English only increased from 2001 levels.¹⁷

To assess whether these neighbourhood differences over time are statistically significant, I conducted a series of paired t-tests. The results are presented in Table 6.3 and show that the change each language group experienced is statistically significant with the exception of immigrants who speak Southern European languages in Brisbane.

Table 6.3 Paired t-tests of time variant group specific language measures

	SYDNEY		BRISBANE	
	z	p<	z	p<
% Northern European	3.87	***	7.00	***
% South European	-8.20	***	-0.33	
% East European	-12.77	***	-4.83	***
% Southeast Asian	9.46	***	10.59	***
% Southwest Central Asian	7.85	***	9.08	***
% Southern Asian	11.28	***	14.99	***
% Eastern Asian	9.06	***	8.20	***
% 'Other'	-12.70	***	-3.08	**
% English Only	-5.54	***	6.33	***

* p<0.05; ** p<0.01; ***p<0.001

¹⁷ It is important to note that these figures reflect a proportionate increase or decrease. In other words, a group may still increase in raw numbers even if its market share diminishes. Nevertheless, the percentage figure better speaks to influx and reflects the groups that are growing at a faster rate.

Table 6.4 Descriptive statistics for language measures

	SYDNEY						BRISBANE					
	2001			2011			2001			2011		
	Mean (S.D)	Min	Max	Mean (S.D)	Min	Max	Mean (S.D)	Min	Max	Mean (S.D)	Min	Max
% Northern European	0.51 (0.36)	0.00	2.88	0.60 (0.48)	0.00	2.43	0.63 (0.37)	0.00	2.17	0.84 (0.53)	0.00	3.03
% Southern European	3.53 (2.26)	0.00	20.97	3.13 (2.71)	0.00	16.34	1.08 (1.01)	0.00	7.85	1.08 (0.93)	0.00	6.82
% Eastern European	2.04 (1.93)	0.00	18.38	1.59 (1.42)	0.00	12.60	0.90 (0.86)	0.00	4.47	0.75 (0.63)	0.00	3.35
% Southwest and Central Asian	2.26 (3.22)	0.00	21.24	2.74 (3.97)	0.00	27.85	0.22 (0.30)	0.00	1.85	0.49 (0.68)	0.00	4.95
% Southern Asian	1.37 (2.16)	0.00	22.21	2.65 (4.53)	0.00	42.39	0.50 (0.61)	0.00	4.50	1.49 (1.56)	0.00	8.14
% Southeast Asian	2.46 (3.98)	0.00	33.19	2.84 (4.29)	0.00	36.00	1.10 (2.19)	0.00	20.47	1.57 (2.21)	0.00	18.13
% Eastern Asian	3.92 (4.73)	0.00	29.29	4.92 (6.54)	0.00	42.37	1.46 (3.17)	0.00	28.91	2.29 (4.41)	0.00	31.29
% 'Other'	1.07 (1.60)	0.00	18.82	0.65 (1.12)	0.00	10.09	0.97 (1.44)	0.00	9.87	0.85 (1.40)	0.00	9.19
% English Only	11.70 (4.52)	2.31	29.42	11.40 (5.02)	2.83	29.85	13.43 (3.49)	4.66	25.47	14.14 (3.62)	3.55	25.28

Immigrant concentration by religion

In response to national security concerns, immigrant religion is an increasingly contentious issue across many western countries. Compared to other aspects of ethnicity, Markus and colleagues (2009) argue that religion is one of the strongest drivers of fear and anti-immigrant attitudes in Australia (Markus et al., 2009). Studies find Islamic immigrants encounter much higher levels of anti-immigrant sentiment than other religious denominations. In the 2016 Scanlon Foundation Survey, 25% of respondents expressed either somewhat negative or very negative attitudes towards Muslims (Markus, 2016). By comparison, only 5% of the sample indicated negative attitudes towards Christians or Buddhists (Markus, 2016). Right wing politicians further reinforce these negative attitudes by explicitly linking Muslims to crime problems. In her maiden speech to parliament, Australian senator Pauline Hanson described Muslims as prominent in organised crime, violence and drug dealing (Commonwealth of Australia, Senate, 2016, p. 939). Hanson even went on to argue, “neighbourhoods of Muslim settlement are suffering from collapsing social cohesion and fear of crime” (Commonwealth of Australia, Senate, 2016, p. 939). Similar vitriol is heard elsewhere across the Western world - particularly in Europe where Muslim immigrants comprise a large proportion of the incoming foreign born population. Here, Islam is viewed as an almost insurmountable barrier to social integration (Foner & Alba, 2008).

While religion remains a relatively understudied aspect of ethnicity in immigration-crime research, scholars in the United States find that participating in religious practices can help immigrants adjust to life in their new country (Ebaugh & Chafetz, 2000; Portes & Rumbaut, 2006). Referring to the three R's (refuge, respectability and resources), Hirschman (2004) argues that actively engaging in religious activities can provide immigrants with the critical social and economic capital necessary for successful settlement. Religious organisations can create a sense of belonging and present opportunities for immigrants to form social support networks by creating a community of co-ethnics who regularly gather in a familiar cultural environment (Ebaugh & Cafetz, 2000; Foner & Alba, 2008; Ley, 2008; Portes & Rumbaut, 2006). Indeed Foner and Alba (2008, p. 362) describe religious organisations as “a source of solace and shelter from the stresses, setbacks, and difficulties of coming to terms with life in a new country.” By being a good Christian, Muslim or Buddhist, immigrants can earn respect and prestige within their religious community (Foner & Alba, 2008). Therefore religion can provide immigrants with an alternative source of respectability - this is particularly important for those who experience downward occupational mobility following migration (Foner & Alba, 2008). Finally, religious organisations provide immigrants with access to

an array of vital resources and services ranging from employment opportunities to housing to English classes (Connor & Koenig, 2013; Ley, 2008). In doing so, religious organisations help facilitate integration within their own religious group.

Much of the scholarship in the United States focuses on Christian institutions (Janzen, Chapman & Watson, 2012; Ley, 2008; Menjivar, 2003), as Christian immigrants comprise the largest religious group (Pew Research Center, 2017). Yet emerging research indicates that other religions like Buddhism and Sikhism share many of the same integrative effects (Levitt, 2007). Thus at the neighbourhood level, the concentration of immigrants affiliated with the same religion should have a protective effect on crime as their involvement in religious activities allows for the additional development of social networks and in turn helps generate informal social control.¹⁸

City Trends

In this study, I divide the immigrant population into six broad religious groups following the ABS classification. These groups include: Buddhism, Christianity, Hinduism, Islam, 'Other' Religions (including Judaism), and No Religion. In both Sydney and Brisbane, non-Christian groups increased as a share of the total population over the period of study (see Figure 6.3 and 6.4). In 2011, immigrants affiliated with Buddhism, Hinduism and Islam make up a larger proportion of each city's residential population than in 2001. Similarly, immigrants who report no religious affiliation or a religious affiliation classified as 'Other' represent a greater share of both Sydney and Brisbane's population in 2011. In comparing the two sites, I find one key difference. In Sydney, Christian immigrants decreased in size between 2001 and 2011, while in Brisbane, this group experienced growth.

The majority of immigrants in both sites are affiliated with Christianity - the most commonly practiced religion amongst native born Australians (ABS, 2011). By comparison, immigrants affiliated with non-Christian religions comprise a much smaller share of the total population in both Sydney and Brisbane. As can be seen in Figure 6.3 and 6.4, immigrants affiliated with Islam, Buddhism or Hinduism are far more visible in Sydney than in Brisbane. Yet I find that the rate of growth in these groups is more pronounced in Brisbane (see Table 6.5). These differences again reaffirm Sydney's status as an established immigrant gateway and Brisbane's status as a new immigrant destination.

¹⁸ It is recognized that differences between nominal religion and practicing religion do exist. The data included here relate to nominal religion as questions related to practice are not asked as part of the Australian census.

Figure 6.3 Changes in religious groups in Sydney (2001-2011)

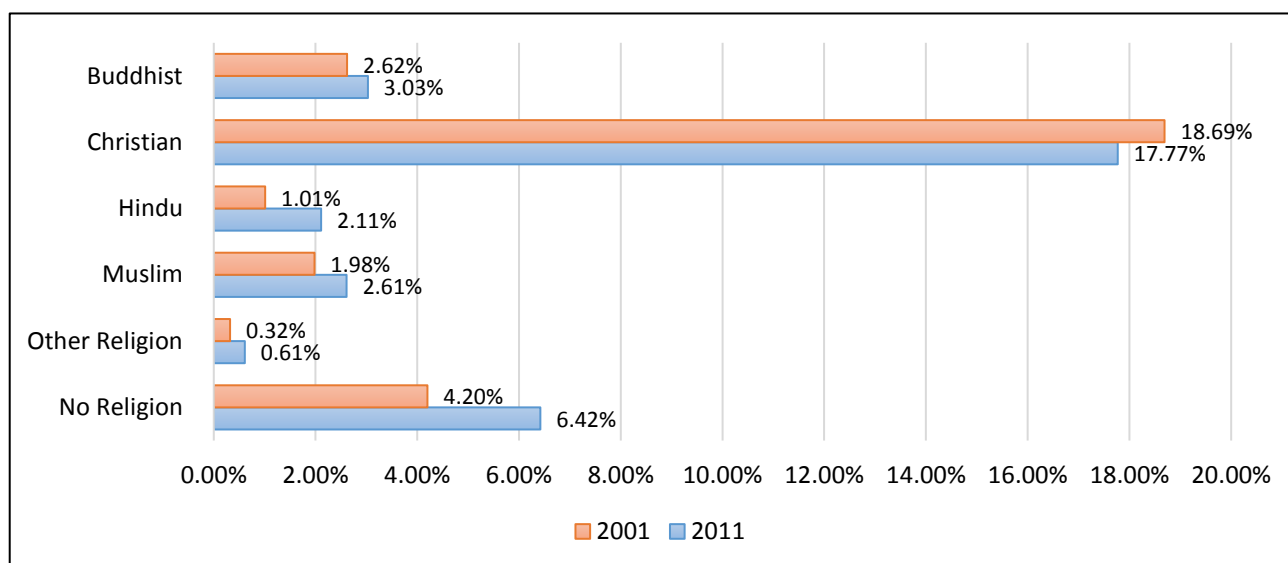


Figure 6.4 Changes in religious groups in Brisbane (2001-2011)

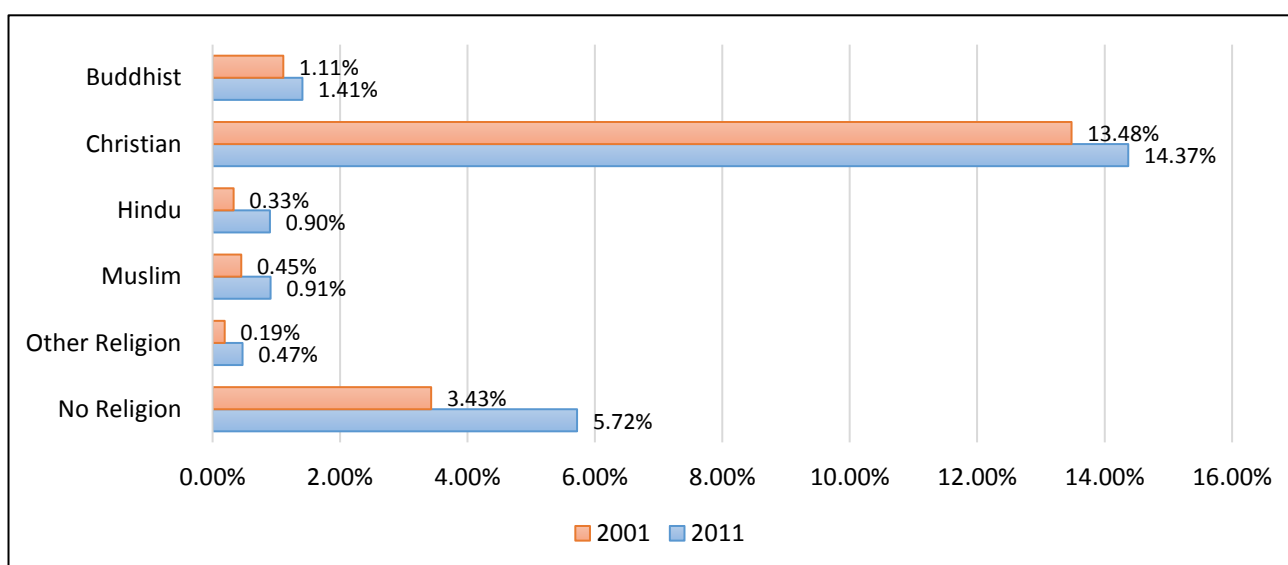


Table 6.5 Growth rate for religion groups

	SYDNEY	BRISBANE
Buddhist	15.64%	27.03%
Christian	-5.18%	6.60%
Hindu	108.91%	172.72%
Muslim	46.97%	102.22%
Other Religions	90.63%	147.37%
No Religion	52.86%	66.76%

Neighbourhood trends

When considering these changes at the neighbourhood level, I find similar trends. In both cities, the concentration of most religion groups increased between 2001 and 2011. In 2011, immigrants affiliated with Buddhism, Hinduism, Islam, ‘Other’ religions or no religion comprise, on average, a larger share of the population across neighbourhoods (see Table 6.7). I find one key difference between the two sites. In Sydney - in line with citywide trends - the concentration of immigrants affiliated with Christianity is lower in 2011 compared to 2001. Yet in Brisbane, this group experienced continued growth across neighbourhoods over the period of study. Again, I performed a series of paired t-tests in order to determine whether these differences are statistically significant. As noted in Table 6.6, the concentration of all religion groups – with the exception of immigrants affiliated with Christianity in Sydney - significantly increased between 2001 and 2011.

Table 6.6 Paired t-tests of group specific religion measures

	SYDNEY		BRISBANE	
	z	p<	z	p<
% Buddhist	8.77	***	7.11	***
% Christian	-9.99	***	6.36	***
% Hindu	9.20	***	14.78	***
% Islamic	7.60	***	8.50	***
% Other Religions (Judaism)	7.78	***	10.14	***
% No Religion	22.12	***	23.63	***

* p<0.05, ** p<0.01, ***p<0.001

Table 6.7 Descriptive statistics for religion groups

	SYDNEY						BRISBANE					
	2001			2011			2001			2011		
	Mean (S.D)	Min	Max	Mean (S.D)	Min	Max	Mean (S.D)	Min	Max	Mean (S.D)	Min	Max
% Buddhist	2.12 (3.44)	0.00	36.96	2.44 (3.55)	0.00	35.58	1.00 (1.71)	0.00	12.29	1.27 (1.69)	0.00	9.41
% Christian	17.65 (6.09)	5.56	42.17	16.82 (5.67)	6.72	39.97	12.03 (3.85)	4.46	25.99	12.76 (2.70)	3.96	23.53
% Hindu	0.84 (1.42)	0.00	18.49	1.60 (3.11)	0.00	33.27	0.29 (0.40)	0.00	2.58	0.44 (0.57)	0.00	3.49
% Islamic	1.54 (2.34)	0.00	21.72	1.98 (3.29)	0.00	33.72	0.38 (0.57)	0.00	4.58	0.79 (1.20)	0.00	12.98
% Other Religion	0.77 (1.78)	0.00	22.62	0.93 (4.31)	0.00	25.32	0.24 (0.23)	0.00	1.47	0.48 (0.47)	0.00	2.93
% No Religion	3.86 (2.60)	0.35	14.95	5.81 (4.31)	0.00	28.11	3.37 (1.49)	0.67	11.62	5.46 (2.61)	0.88	18.32

Diversity

While ethnic group concentration may strengthen social networks and informal social control, the mixture of ethnic groups is argued to weaken a community's regulatory capacity (Shaw & McKay, 1942). From a social disorganisation perspective, the diversity that comes with increased immigration leads to cultural and language barriers amongst residents making it difficult to reach shared expectations of behaviour. In more diverse areas, the critical networks necessary for the informal social control of crime become limited and crime flourishes (Shaw & McKay, 1942; Sampson & Groves, 1989; Sampson & Raudenbush, 1999; Sampson et al., 1997). Chapter 4 provides further information on how the language diversity and religion diversity index were constructed. To establish whether the level of diversity significantly changed across neighbourhoods over time, I conducted a series of paired t-tests. The results, presented in Table 6.8, suggest that the level of both language and religion diversity significantly increased over the period of study in both cities.

Table 6.8 Paired t-tests of diversity measures

	SYDNEY		BRISBANE	
	z	p<	z	p<
Language Diversity	10.18	***	20.28	***
Religion Diversity	22.62	***	27.18	***

* p<0.05; ** p<0.01; ***p<0.001

To more clearly illustrate this increasing diversity over time, I created a series of maps for the two cities. Figure 6.5 and 6.6 demonstrate the changing nature of language and religion diversity across Sydney neighbourhoods over time.

In Sydney, the most linguistically diverse neighbourhoods are located in and around the inner city and are typically co-located (see Figure 6.5). The maps demonstrate a clear increase in the number of highly diverse neighbourhoods in Sydney between 2001 and 2011. This trend is most evident when comparing the inner city region. Many neighbourhoods located near highly diverse areas in 2001 reach a high level of language diversity in 2011, indicating growth in the spatial clustering of language diversity. Similar changes are seen in the spatial patterning of religion diversity (see Figure 6.6). Neighbourhoods which exhibit a high level of religion diversity are similarly located in close proximity to the CBD. A greater number of neighbourhoods reached a level of high religion diversity in 2011 compared to 2001.

Figure 6.5 Language diversity in Sydney (2001 and 2011)

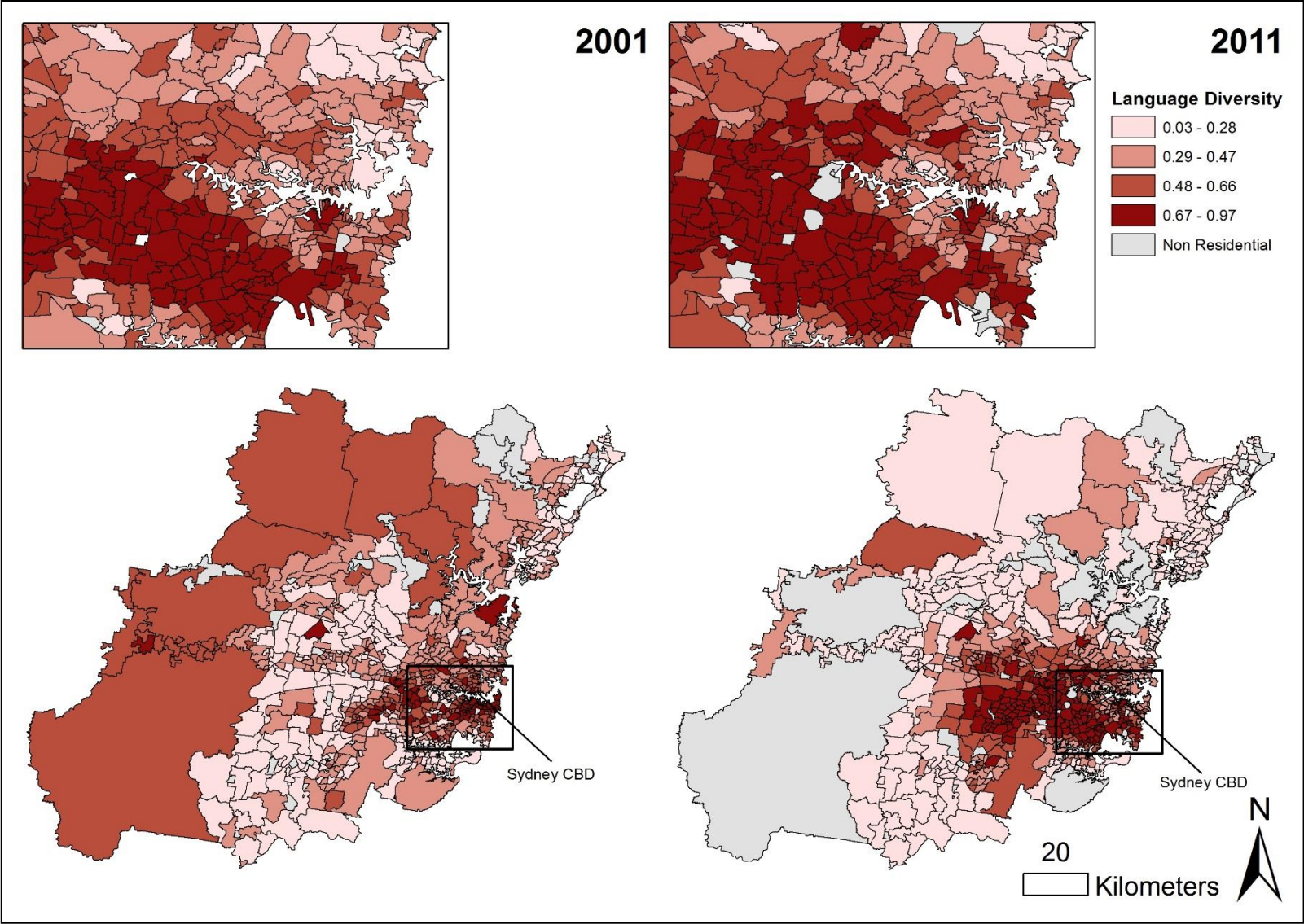


Figure 6.6 Religion diversity in Sydney (2001 and 2011)

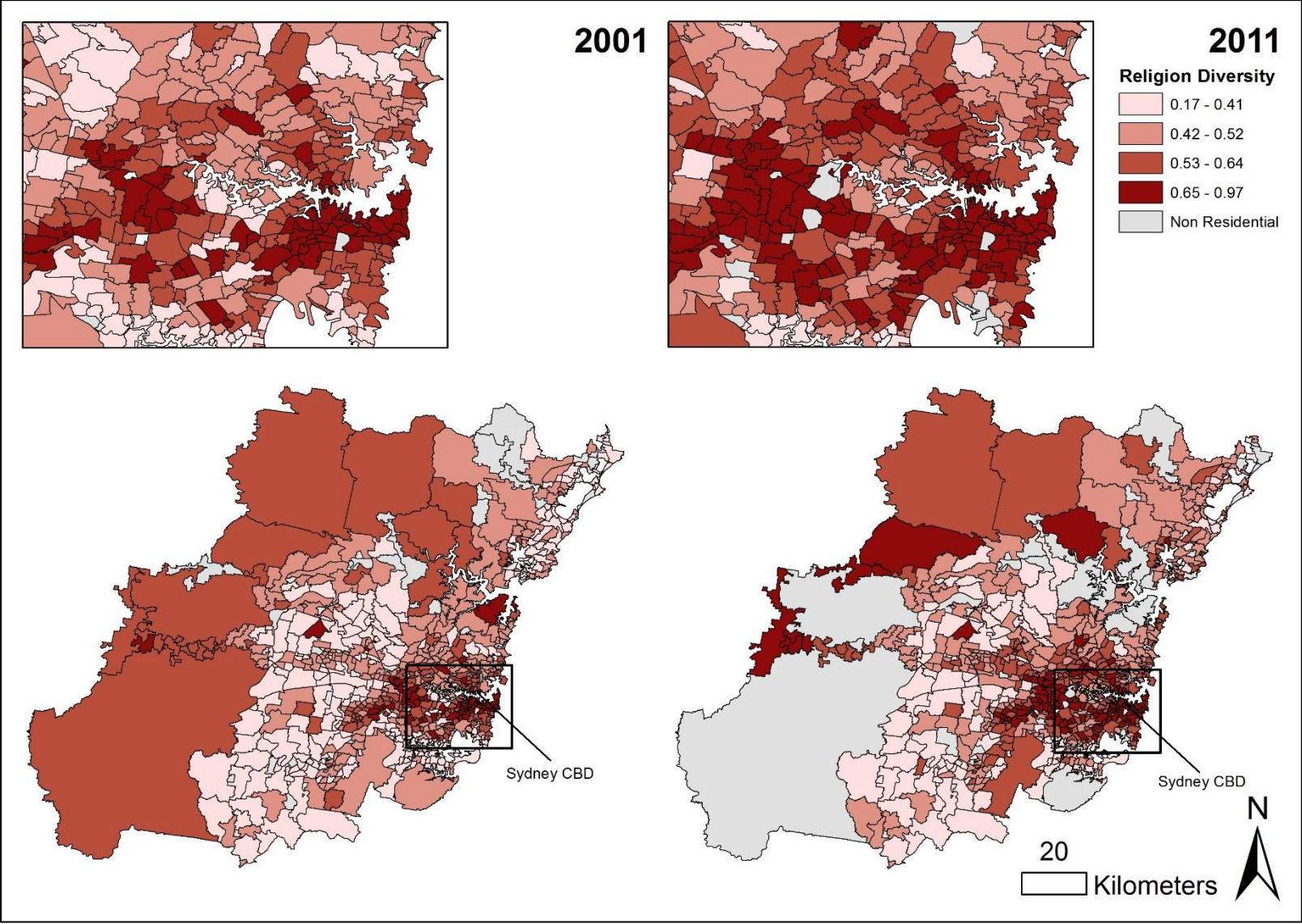


Figure 6.7 Language diversity in Brisbane (2001 and 2011)

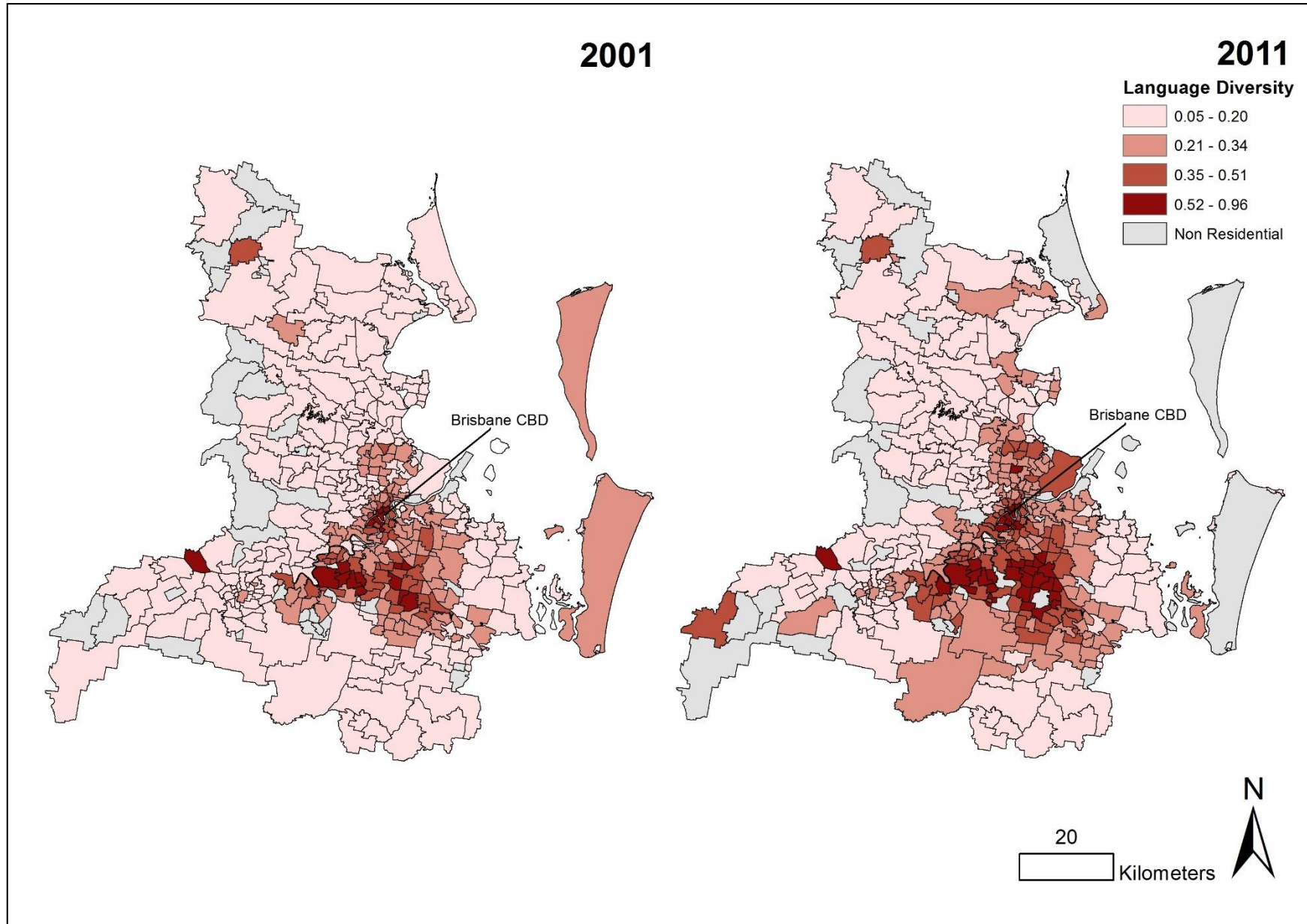
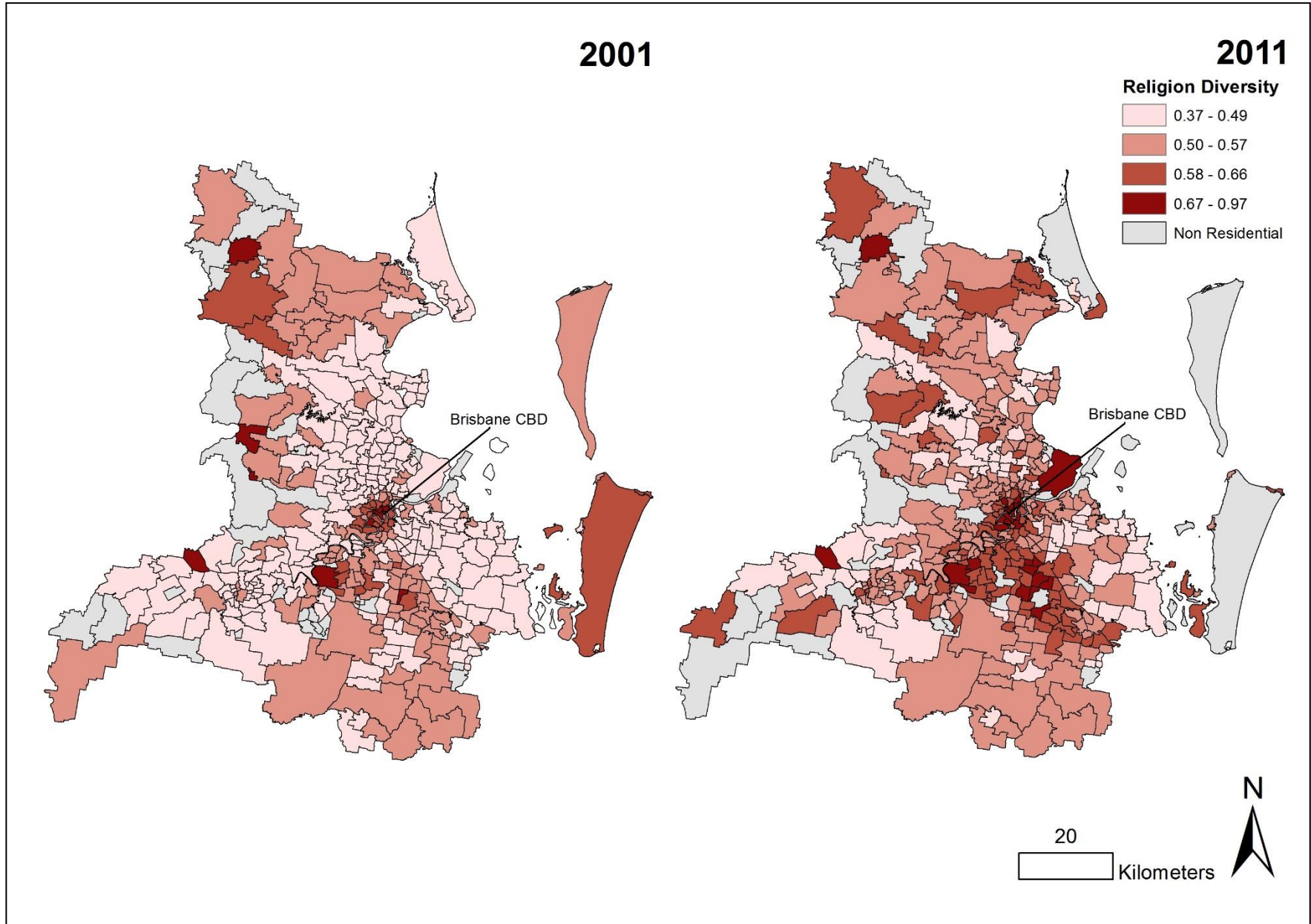


Figure 6.8 Religion diversity in Brisbane (2001 and 2011)



Brisbane neighbourhoods experienced notable changes in diversity between 2001 and 2011. In 2001, most Brisbane neighbourhoods fell within the lowest category of language diversity (see Figure 6.7). The few neighbourhoods that show high levels of language diversity are largely situated in the inner city and on Brisbane's south side. Language diversity was particularly low in Brisbane's northern suburbs and in areas located on the outskirts of the city. The neighbourhoods highlighted in 2001 as linguistically diverse, continue to present high levels of language diversity in 2011 with several experiencing an increase in diversity. The clustering of language diversity also appears to have grown in 2011. While language diversity remains much less common in Brisbane's northern suburbs in 2011, a handful of neighbourhoods have increased in diversity moving from the lowest category up to the second or third category.

Religion diversity is also fairly uncommon across Brisbane neighbourhoods. In 2001, very few Brisbane neighbourhoods recorded a high level of religion diversity (see Figure 6.8). However by 2011, limited neighbourhoods remain in the lowest category of religion diversity. Interestingly, these maps reveal clear differences between neighbourhoods that are linguistically diverse and religiously diverse. This further emphasises the importance of considering multiple aspects of ethnicity.

6.3 Analytic strategy

In this study, I am primarily interested in assessing two types of effects: (1) how increases in ethnic group concentration and ethnic diversity influence changes in violent crime within neighbourhoods; and (2) how ethnic group concentration and ethnic diversity is associated with violent crime across neighbourhoods. By including in the analysis mean-deviated variables (differenced scores which capture the degree of change over the three time points) and mean-centred variables (the average score for each neighbourhood over the period of study), I can address these questions. However, the preliminary analyses revealed that some ethnic groups significantly reduced in size at both the neighbourhood and city level over time. Given the aims of the study - to understand the impact of increases in ethnic group concentration on crime - for parsimony I examine within effects for only the ethnic groups that experienced a significant increase in size between 2001 and 2011 in both cities.¹⁹ Table 6.9 provides a breakdown of the group variables included in the hybrid model. Descriptive statistics for the mean-centred and mean-deviated variables are presented in Table 6.10.

¹⁹ Groups that increased in Brisbane but not in Sydney (i.e. Christian immigrants and English only) were not significantly associated with violent crime when included in the within effects component of the model in Brisbane.

Table 6.9 Summary of variables included in within and between effects

	Within	Between
Language Measures		
Northern European	✓	✓
Southern European	x	✓
Eastern European	x	✓
Southeast Asian	✓	✓
Southwest and Central Asian	✓	✓
Southern Asian	✓	✓
Eastern Asian	✓	✓
'Other'	x	✓
English Only	x	✓
Language diversity	✓	✓
Religion Measures		
Buddhism	✓	✓
Christianity	x	✓
Hinduism	✓	✓
Islam	✓	✓
'Other' Religions	✓	✓
No Religion	✓	✓
Religion diversity	✓	✓

Consistent with the Study 1 analyses, I calculate hybrid estimates for negative binomial regression models using the *xtnbreg* command in Stata with total persons as the exposure variable. To allow for multiple observations for neighbourhoods, I estimate random effects. The language and religion models are estimated separately and are both stepped out in two stages. In stage 1, only the immigration measures are included. In stage 2, the socio-demographic and environmental features of neighbourhoods are added. All neighbourhood variables employed in Study 1 are retained for Study 2. As such, I focus primarily on reporting the effects of the concentration and diversity measures in this chapter.

Table 6.10 Descriptive statistics for mean-centred and mean-deviated variable

	SYDNEY							BRISBANE							
	Overall		Between		Within			Overall		Between		Within			
	Mean	S.D	Min	Max	S.D	Min	Max	Mean	S.D	Min	Max	S.D	Min	Max	
Language Concentration															
% Northern European	0.57	0.39	0.00	2.21	0.22	-0.81	2.52	0.73	0.42	0.00	2.85	0.27	-0.33	2.14	
% Southern European	3.31	3.05	0.00	18.63	-	-	-	1.06	0.94	0.00	7.48	-	-	-	
% Eastern European	1.76	1.62	0.00	15.58	-	-	-	0.80	0.72	0.00	3.91	-	-	-	
% Southeast Asian	2.61	4.09	0.00	33.92	0.47	-0.85	4.91	1.30	2.144	0.00	18.19	0.43	-0.93	4.56	
% Southwest and Central Asian	2.52	3.58	0.00	24.39	0.64	-5.75	9.24	0.34	0.44	0.00	3.13	0.28	-1.37	3.55	
% Southern Asian	1.94	3.16	0.00	29.92	1.32	-11.00	15.36	0.90	0.94	0.00	4.72	0.68	-1.96	4.40	
% Eastern Asian	4.41	5.53	0.00	35.11	1.31	-11.16	24.71	1.85	3.70	0.00	29.29	0.88	-6.87	9.20	
% Other Languages	0.61	0.72	0.00	7.51	-	-	-	0.73	0.86	0.00	6.15	-	-	-	
% English Only	11.47	4.61	2.81	28.90	-	-	-	11.97	2.91	4.54	23.44	-	-	-	
Religion Concentration															
% Buddhist	2.27	3.49	0.00	35.95	0.40	-0.81	5.20	1.13	1.70	0.00	10.02	0.33	-0.70	3.41	
% Christian	17.18	5.78	7.27	40.33	-	-	-	13.17	3.76	4.77	24.10	-	-	-	
% Hindu	1.19	2.13	0.00	21.74	0.94	-10.95	12.72	0.52	0.57	0.00	3.15	0.38	-1.22	2.38	
% Islamic	1.73	2.78	0.00	27.14	0.59	-5.28	8.31	0.56	0.87	0.00	8.74	0.44	-3.60	4.80	
% Other Religions	0.84	1.85	0.00	24.63	0.34	-2.34	4.41	0.32	0.27	0.00	1.58	0.24	-0.64	1.90	
% No Religion	4.76	3.33	0.66	21.95	1.25	-5.27	19.08	4.34	1.92	0.99	14.15	1.13	-1.42	9.87	
Diversity Indices															
Language Diversity	46.07	22.01	10.52	94.24	3.09	31.21	63.83	26.07	14.13	7.19	93.39	3.97	12.27	40.46	
Religion Diversity	51.33	11.61	20.33	91.66	3.26	33.17	72.35	51.91	7.06	37.62	95.17	3.48	37.83	63.40	
N											1740				
n											580				
T											3				

6.4 Results: Language

Sydney

In the initial stages of modelling, only the immigration variables are included. Before controlling for neighbourhood contexts, the within effects component of model suggests an increase in the number of immigrants who speak Northern European, Southeast Asian, Southwest and Central Asian, Southern Asian or Eastern Asian languages is significantly and negatively linked to violent crime (see Table 6.11). In other words, regardless of the language group under consideration, an increasing presence of immigrants speaking a language other than English within a neighbourhood over time is associated with a reduction in crime problems.

Specifically, as the presence of immigrants who speak Northern European languages increases over time, fewer violent crimes are recorded ($B=-0.202$ $p<.001$). Similarly neighbourhoods that experience growth in the number of immigrants who speak Southeast Asian languages also report fewer violent crimes over time ($B=-0.040$ $p<.001$). Likewise, as the number of immigrants who speak Southwest and Central Asian languages increases within a neighbourhood, violent crime decreases ($B=-0.043$ $p<.001$). An increase in the number of immigrants who speak Southern Asian languages is also associated with a reduction in neighbourhood violence ($B=-0.023$ $p<.001$). Neighbourhoods that experience growth in the number of immigrants who speak Eastern Asian languages similarly encounter less violent crime ($B=-0.035$ $p<.001$). However, changes in language diversity within a neighbourhood over time are positively associated with changes in violent crime. As language diversity increases within a neighbourhood, so too do official reports of violence ($B=0.005$ $p<.05$).

In the between effects component of the model I find several significant and negative relationships between the average concentration of certain language groups and violent crime. For example, compared to neighbourhoods with fewer immigrants who speak Northern European languages, areas with a greater average concentration of this group encounter fewer violent crime problems ($B=-0.466$ $p<.001$), as do neighbourhoods with more immigrants who speak Southern European languages ($B=-0.062$ $p<.001$). Neighbourhoods with a greater average presence of immigrants who speak Southeast Asian languages also report fewer violent crimes ($B=-0.024$ $p<.01$), as do areas with more immigrants who speak Eastern Asian languages ($B=-0.034$ $p<.001$). Neighbourhoods with a greater average presence of immigrants who speak English only also encounter fewer violent crimes ($B=-0.002$ $p<.001$).

Table 6.11 Language, immigration and neighbourhood crime

	SYDNEY (N=580)				BRISBANE (N=302)							
	B	SE	B	SE	B	SE	B	SE				
	<i>Within</i>				<i>Within</i>							
% Northern European	-0.202	***	0.03	-0.104	**	0.03	-0.078	0.04	-0.024	0.04		
% South East Asian	-0.040	***	0.01	-0.035	***	0.01	0.022	0.02	0.005	0.02		
% South West Central Asian	-0.043	***	0.01	-0.033	***	0.01	-0.027	0.03	-0.037	0.03		
% Southern Asian	-0.023	***	0.00	-0.012	***	0.00	-0.078	***	0.02	-0.041	*	
% Eastern Asian	-0.035	***	0.00	-0.022	***	0.00	0.014	0.01	-0.008	0.01		
Language Diversity	0.005	*	0.00	0.008	***	0.01	-0.008	**	0.00	0.005	0.00	
% Indigenous				-0.055		0.01			0.003	0.02		
% Young Males				0.037	***	0.01			0.027	0.01		
% Renting				0.009	***	0.00			-0.001	0.00		
% Different Address (5yrs)				0.003	*	0.00			0.000	0.00		
Disadvantage				0.054	**	0.02			0.175	***	0.03	
Population Density				-0.020	***	0.00			-0.033	***	0.01	
	<i>Between</i>				<i>Between</i>							
% Northern European	-0.466	***	0.12	-0.073		0.09	-0.643	***	0.11	-0.257	**	
% Southern European	-0.062	***	0.01	-0.034	**	0.01	-0.079		0.06	-0.077	0.05	
% Eastern European	0.029		0.02	-0.023		0.02	-0.114		0.08	-0.034	0.06	
% Southeast Asian	-0.024	**	0.01	-0.029	***	0.01	-0.092	**	0.03	-0.063	**	
% Southwest Central Asian	-0.017		0.01	-0.034	***	0.01	0.107		0.14	0.058	0.11	
% Southern Asian	-0.011		0.01	-0.009		0.01	-0.464	***	0.08	-0.296	***	
% Eastern Asian	-0.034	***	0.01	-0.039	***	0.01	-0.039	*	0.02	-0.022	0.02	
% 'Other'	0.183	***	0.03	-0.091	***	0.02	0.067		0.05	-0.105	**	
% English Only	-0.002	***	0.01	-0.004		0.01	0.040	*	0.02	0.006	0.01	
Language Diversity	0.014	***	0.00	0.019	***	0.00	0.062	***	0.01	0.039	***	
% Indigenous				0.046		0.03			0.029	*	0.01	
% Young Males				-0.020		0.01			-0.016	0.02		
% Renting				0.019	***	0.00			0.024	**	0.01	
% Different Address (5yrs)				0.006		0.00			0.005	0.01		
Disadvantage				0.376	***	0.06			0.443	***	0.08	
Population Density				0.008	***	0.00			-0.003	0.01		
Nearby Violent Crime				-0.008		0.03			-0.003	0.03		
	<i>Random</i>				<i>Random</i>							
Distance to CBD				0.006	**	0.00			-0.002	0.01		
Residential Land Use				-0.007	***	0.00			-0.006	**	0.01	
Constant	-4.959	***	0.14	-5.242	**	0.30	-5.227	***	0.32	-4.593	***	
ln (r)	1.649 (0.07)			2.802 (0.09)			2.587 (0.21)			3.594(0.31)		
ln (s)	1.583 (0.08)			2.333 (0.08)			1.161 (0.11)			1.71 (0.12)		
Log likelihood	-6798.77			-6451.28			-2858.26			-2732.16		

* p<0.05; ** p<0.01; ***p<0.001

However, areas with a higher average concentration of immigrants who speak other languages (for example African or Polynesian languages), report more violent crime ($B=0.183$ $p<.001$). Higher levels of language diversity are positively associated with violent crime across neighbourhoods. In other words, more diverse areas experience higher rates of violent crime ($B=0.014$ $p<.01$). The average concentration of immigrants who speak Eastern European, Southern Asian or Southwest and Central Asian languages is not significantly associated with violent crime when comparing between neighbourhoods.

Next the neighbourhood variables are entered into the model. Once controlling for neighbourhood contexts, the relationships identified in the within effects component of the model remain largely unchanged. Neighbourhoods that experience growth in the immigrant population who speak Southeast Asian languages continue to encounter fewer violent crimes after the broader neighbourhood context is considered ($B=-0.035$ $p<.001$). Similar effects are seen in neighbourhoods with an increasing presence of immigrants who speak Southwest and Central Asian ($B=-0.033$ $p<.01$), Southern Asian ($B=-0.012$ $p<.001$), Eastern Asian ($B=-0.022$ $p<.001$) and Northern European languages ($B=-0.104$ $p<.01$). Thus even after appropriate neighbourhood controls are considered, an increasing presence of these language groups within a neighbourhood over time is associated with a significant reduction in violent crime. However, increasing language diversity continues to have a significant and positive effect on violent crime after controlling for context. Thus as language diversity increases within a neighbourhood over time, so too does violence ($B=0.008$ $p<.001$).

After accounting for the neighbourhood features of neighbourhoods, there are some slight changes in the between effects component of the model. For example, once the neighbourhood variables are included, areas with a greater average presence of immigrants who speak Southwest and Central Asian languages encounter fewer violent crimes ($B=-0.034$ $p<.001$). Alternatively, no statistically significant relationship remains between the average concentration of immigrants who speak Northern European languages and the level of violent crime when comparing across neighbourhoods. After the neighbourhood controls are entered into the model, the relationship between the concentration of immigrants who speak English only and violent crime is no longer statistically significant. Most notably, the direction of the association between the concentration of immigrants who speak 'Other' languages and violent crime switches once the neighbourhood variables are included. Once considering context, the presence of immigrants who speak 'Other' languages is linked to significantly less violent crime across neighbourhoods ($B=-0.091$ $p<.001$).

Other relationships are less affected by the addition of the neighbourhood control variables. For example, areas with a greater average number of immigrants who speak Southern European languages continue to experience less violent crime once context is considered ($B=-0.034$ $p<.01$). Neighbourhoods with a greater average number of immigrants who speak Southeast Asian languages also report less violent crime ($B=-0.029$ $p<.001$), as do areas with more immigrants who speak Eastern Asian languages ($B=-0.039$ $p<.001$). The average concentration of immigrants who speak Eastern European or Southern Asian languages is not significantly associated with violent crime across neighbourhoods.

However, it is important to note again that these groups only account for a relatively small amount of the variation in violent crime. Other factors continue to be important predictors of violent crime in Sydney. Most of these findings align with the Study 1 models and suggest that disorganised neighbourhoods (places with high levels of disadvantage and mobility) encounter more violent crime problems. The most notable difference between the Study 1 and 2 models is the significant relationship between increasing disadvantage over time and neighbourhood violence ($B=0.054$ $p<.01$). Once disaggregated measures of immigrant group concentration are entered into the model (in addition to diversity), increases in disadvantage are related to more violent crime.

Brisbane

Like Sydney, only the immigration measures are included in the initial model. Here, the within effects component of the model suggests that an increase in the immigrant population who speaks Southern Asian languages is negatively associated with violent crime. Thus neighbourhoods that experience an increase in the number of immigrants who speak Southern Asian languages see a reduction in the number of violent crimes over time ($B=-0.078$ $p<.001$). Unlike Sydney, increasing language diversity in Brisbane is negatively associated with violent crime before controlling for neighbourhood context ($B=-0.008$ $p<.01$). This suggests that as language diversity increases within a neighbourhood, violent crime decreases. Changes in the number of immigrants who speak Northern European, Southeast Asian, Southwest and Central Asian and Eastern Asian languages are not significantly associated with changes in violent crime in Brisbane.

In the between effects component of the model, the average concentration of immigrants who speak Northern European, Southeast Asian, Southern Asian and Eastern Asian languages is negatively and significantly associated with violent crime across neighbourhoods. For example, neighbourhoods with more immigrants who speak Northern European languages report fewer violent

crimes ($B=-0.643$ $p<.001$), as do neighbourhoods which attract more immigrants who speak Southeast Asian ($B=-0.092$ $p<.01$), Southern Asian ($B=-0.467$ $p<.001$) and Eastern Asian languages ($B=-0.039$ $p<.05$). Before controlling for context, the average concentration of immigrants who speak English only is positively associated with crime. Areas with more immigrants who speak English only experience more violence ($B=0.040$ $p<.05$). The average level of language diversity across neighbourhoods is also positively linked to violence. This suggests that more linguistically diverse areas experience more than their expected share of violent crime problems ($B=0.062$ $p<.001$).

Next the socio-demographic and neighbourhood features of neighbourhoods are entered into the model. Once accounting for the broader neighbourhood context, the effect of increases in the immigrant population who speak Southern Asian languages on violent crime remains significant and negative ($B=-0.041$ $p<.05$). This group, comprised largely of Indian immigrants, grew by over 194% between 2001 and 2011. Yet despite the relatively small co-ethnic population in 2001, it appears that the large influx of immigrants who speak Southern Asian languages has not increased violence, suggesting that the increase in this language group has most likely not undermined informal social control. Thus despite Brisbane's status as a new immigrant destination site (particularly for these groups) influxes of relatively "new" immigrants do not lead to an increase in neighbourhood crime.

After controlling for neighbourhood context, changes in language diversity are no longer significantly associated with changes in violent crime. Changes in the immigrant population who speak Southeast Asian, Southwest and Central Asian and Eastern Asian languages continue to have no significant effect on changes in violent crime over time. This too is notable given the significant shifts in these populations over the period of study.

When comparing across neighbourhoods, the presence of immigrants who speak Northern European languages continues to have a significant and negative effect on violent crime after context is considered ($B=-0.257$ $p<.01$). The average concentration of immigrants who speak Southeast Asian ($B=-0.063$ $p<.01$) and Southern Asian languages ($B=-0.269$ $p<.001$) also remain significant and negative predictors of violent crime across neighbourhoods. Areas with a greater concentration of immigrants who speak these languages report less violence. After controlling for the structural features of neighbourhoods, the presence of immigrants who speak 'Other' languages is significantly and negatively associated with violent crime across Brisbane neighbourhoods ($B=-0.105$ $p<.01$). Yet more linguistically diverse neighbourhoods continue to encounter more violent crime problems, when compared to more linguistically homogenous neighbourhoods, even after context is considered

($B=0.039$ $p<.001$). After accounting for context, the average concentration of immigrants who speak English only or Southern European, Eastern European, Southwest and Central Asian and Eastern Asian languages has no effect on violent crime across neighbourhoods.

6.5 Results: Religion

Sydney

Next I consider the concentration and diversity effects of religion on violent crime. To begin, only the immigration measures are included in the model (see Table 6.12). The within effects component of the model suggests increases in the immigrant population affiliated with any religion - whether it be Buddhism, Hinduism, Islam or other - within a neighbourhood over time are not significantly associated with more neighbourhood violence. Contrary to popular opinion and current debate, an increased presence of Muslim immigrants within a neighbourhood is actually linked to less violent crime ($B=-0.024$, $p<0.001$). An influx of immigrants with no religious affiliation is also associated with a reduction in neighbourhood violence over time ($B=-0.049$, $p<0.001$). Changes in the percentage of immigrants affiliated with Hinduism, Buddhism or other religions are not significantly associated with changes in violent crime over time. I find no significant association between increasing religion diversity and increasing neighbourhood violence over time.

The between effects component of the model reveals a fairly similar story. Areas with a higher average concentration of most immigrant groups do not experience more violent crime. In fact, several religious affiliations are significantly and negatively linked to neighbourhood violence. For example, areas with greater average concentrations of Buddhist immigrants encounter less violent crime ($B=-0.041$ $p<0.001$). Likewise, areas with more Muslim immigrants also exhibit fewer violent crime problems ($B=-0.036$ $p<0.01$). Neighbourhoods with a greater average presence of immigrants affiliated with 'Other' religions (like Judaism) also experience less violent crime ($B=-0.115$ $p<0.001$). However, similar effects are seen for immigrants without a religious affiliation. Areas with a higher average concentration of non-religious immigrants report fewer violent crimes ($B=-0.147$ $p<0.001$). This suggests that the protective effect of immigrant group concentration is not limited to immigrants who are actively participating in religious activities.

I find one exception to the rule - the concentration of Christian immigrants. Specifically, I find areas with a greater average concentration of Christian immigrants record more violent crime problems ($B=0.014$ $p<0.01$). Similar to the language models, I find a positive and significant relationship between religion diversity and violent crime across Sydney neighbourhoods

Table 6.12 Religion, immigration and neighbourhood crime

	SYDNEY (N=580)				BRISBANE (N=302)							
	B	SE	B	SE	B	SE	B	SE				
	<i>Within</i>				<i>Within</i>							
% Buddhist	0.013	0.01	0.013	0.01	0.048	0.03	0.026	0.03				
% Hindu	-0.002	0.00	-0.002	0.00	-0.080	*	0.03	-0.032	0.03			
% Muslim	-0.024	***	0.01	-0.024	***	0.01	-0.021	0.02	-0.029	0.02		
% No Religion	-0.049	***	0.00	-0.049	***	0.00	-0.045	***	0.01	-0.027	*	0.01
% 'Other' Religions	-0.006		0.01	-0.006		0.01	0.026		0.05	-0.023		0.05
Religion Diversity	-0.002		0.00	-0.002		0.00	-0.007	*	0.00	0.005		0.00
% Indigenous				-0.042		0.01				0.003		0.02
% Young Males				0.030	***	0.01				0.026		0.02
% Renting				0.009	***	0.00				-0.000		0.00
% Different Address (5yrs)				0.000		0.00				-0.000		0.00
Disadvantage				0.039	*	0.02				0.172	***	0.03
Population Density				-0.015	***	0.00				-0.026	***	0.01
	<i>Between</i>				<i>Between</i>							
% Buddhist	-0.041	***	0.01	-0.037	***	0.01	-0.010		0.04	-0.007		0.03
% Christian	0.014	*	0.01	0.008		0.00	0.015		0.01	-0.014		0.02
% Hindu	0.005		0.01	0.009		0.01	-0.135		0.11	-0.064		0.09
% Muslim	-0.036	**	0.01	-0.036	**	0.01	0.035		0.07	-0.050		0.05
% No Religion	-0.147	***	0.01	-0.051	***	0.01	-0.156	***	0.03	-0.020		0.03
% 'Other' Religions	-0.115	***	0.02	-0.032	*	0.01	-0.229		0.20	-0.078		0.16
Religion Diversity	0.060	***	0.00	0.016	***	0.00	0.087	***	0.01	0.036	***	0.01
% Indigenous				0.029		0.02				0.033	*	0.01
% Young Males				-0.009		0.01				-0.002		0.02
% Renting				0.019	***	0.00				0.024	***	0.02
% Different Address (5yrs)				0.004		0.00				-0.003		0.02
Disadvantage				0.358	***	0.05				0.386	***	0.07
Population Density				0.010	***	0.00				0.003		0.01
Nearby Violent Crime				-0.027		0.03				-0.006		0.03
	<i>Random</i>				<i>Random</i>							
Distance to CBD				0.003		0.00				-0.000		0.00
Residential Land Use				-0.007	***	0.00				-0.006	**	0.00
Constant	-6.922	***	0.23	-5.239	***	0.32	-8.041	***	0.49	-5.700	***	0.05
ln (r)	1.801(0.08)		16.578 (1.51)		2.625 (0.22)		3.552 (0.31)					
ln (s)	1.373 (0.07)		9.174 (0.74)		1.077 (0.105)		1.659 (0.12)					
Log likelihood	-6730.644***		-6443.66***		-2852.964***		-2736.257***					

* p<0.05; ** p<0.01; ***p<0.001

($B=0.060$ $p<0.001$). Specifically, more religiously diverse areas encounter more violent crime than less religiously diverse neighbourhoods.

Next the neighbourhood variables are entered into the model. Once controlling for neighbourhood contexts, the relationships identified in the stage 1 analysis remain largely unchanged. In the within effects component of the model, an increasing presence of Muslim immigrants is significantly linked to less violent crime over time ($B=-0.024$ $p<0.001$). When holding neighbourhood context constant, the increasing presence of immigrants without a religious affiliation continues to be related to less violent crime within a neighbourhood over time ($B=-0.049$ $p<0.001$). Changes in other groups (Buddhists, Hindus and 'Others') have no significant effect on violent crime over time, nor does changes in religion diversity once controlling for neighbourhood features.

In the between effects component of the model, the concentration of Muslim immigrants continues to be significantly and negatively associated with violent crime across neighbourhoods even after controlling for broader neighbourhood factors ($B=-0.036$ $p<0.01$). This finding is particularly notable. Despite concerns surrounding the concentration of Muslim immigrants in Australian neighbourhoods, the results presented here suggest such anxieties are largely unwarranted. Areas with a greater presence of immigrants affiliated with 'Other' religions like Judaism also experience less violent crime ($B=-0.032$ $p<0.001$), as do areas with a greater average concentration of Buddhist immigrants ($B=-0.037$ $p<0.001$). Similar to the within effects component of the model, these effects are not limited to immigrants affiliated with a particular religion. Neighbourhoods with a greater concentration of immigrants who report no religious affiliation also encounter fewer violent crime problems ($B=-0.051$ $p<0.05$). After accounting for neighbourhood context, no significant relationship remains between the concentration of Christian immigrants and violent crime. The presence of Buddhist immigrants and Hindu immigrants continues to have no effect on violent crime across neighbourhoods. Yet, areas with a higher average level of religion diversity continue to experience more violent crimes – even after controlling for the socio-demographic and environmental features of neighbourhoods ($B=0.016$ $p<0.001$).

Brisbane

Relatively consistent patterns are seen in Brisbane. In the initial stages of modelling, only the immigration variables are included. The within effects component of the model shows areas with an increasing number of Hindu immigrants experience less violent crime over time ($B=-0.080$ $p<0.05$). Similarly, an influx of immigrants who report no religious affiliation is linked to fewer counts of

violence within a neighbourhood ($B=-0.045$ $p<0.01$). Increasing religious diversity is related to less violent crime over time ($B=-0.007$ $p<0.01$). Changes in the Buddhist, Muslim or 'Other' Religions population has no effect on violent crime over time in Brisbane.

In the between effects component of the model, only the presence of immigrants without a religious affiliation is significantly linked to violent crime. Specifically, areas with a greater presence of immigrants who report no religion encounter fewer violent crimes over time ($B=-0.156$ $p<0.001$). The average presence of immigrants affiliated with Buddhism, Christianity, Hinduism, Islam or 'Other' Religions is not significantly associated with violent crime across neighbourhoods. Yet, the findings suggest greater religion diversity is significantly and positively associated with more crime across Brisbane neighbourhoods. Thus areas with a more religiously diverse population report more violent crimes compared to areas with lower levels of religion diversity ($B=0.087$ $p<0.001$).

In the next stage of the analyses, the neighbourhood variables are entered into the model. After controlling for the broader neighbourhood context, change in the immigrant population with no religious affiliation remains a significant and negative predictor of violent crime over time ($B=-0.027$ $p<0.01$). Once these neighbourhood variables are included in the model, changes in the Hindu immigrant population are no longer significantly linked to changes in violent crime. I find no effect for all other religious affiliations. The relationship between changes in religion diversity and violent crime is no longer statistically significant after the socio-demographic and environmental features of neighbourhoods are considered.

In the between effects component of the model, no immigrant group is significantly associated with violent crime after accounting for context. Yet, the relationship between religion diversity and violent crime remains ($B=0.036$ $p<0.001$). This suggests areas with a greater average level of religious diversity experience more violent crimes than less religiously diverse neighbourhoods.

6.6 Interaction terms

To more fully examine the central tenets of the revitalisation thesis, a series of interaction terms are considered. In line with Study 1, I assess whether certain neighbourhood features moderate the relationship between ethnic group concentration and violent crime. Of particular interest is whether areas with a larger co-ethnic population fare better following an influx of immigrants. From the revitalisation perspective, increased immigration into popular immigrant settlement zones should have either a protective or null effect on crime as immigrants moving into these areas have greater

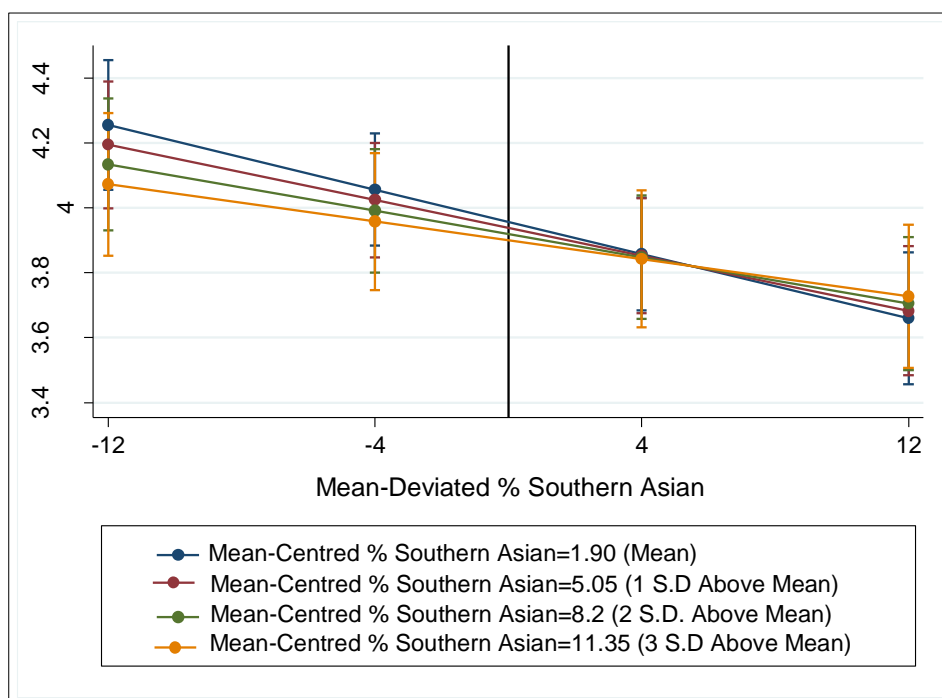
access to social ties, institutions and ethnic economies (Martinez et al., 2004; Ramey, 2013). To test this moderation effect, I include an interaction term in the model between the mean-deviated and mean-centred variables. In doing so, I establish whether changes in the concentration of a particular ethnic group (measured by the mean-deviated variable) differentially impact violent crime at varying levels of concentration (measured by the mean-centred variable). Table 6.13 and 6.14 present the results from these interaction models. Each interaction term was included in the full model and modelled separately. I focus solely on the groups that experienced a statistically significant increase in concentration over the period of study (i.e. the groups included in the within effects component of the model). I first discuss the language group interactions before turning to the religion groups.

Table 6.13 Changes in language concentration/diversity at different concentration levels

	SYDNEY (N=580)		BRISBANE (N=302)	
	B (SE)	p<	B (SE)	p<
MD Northern European X MC Northern European	-0.103 (0.03)		-0.017 (0.04)	
MD Southeast Asian X MC Southeast Asian	-0.000 (0.00)		-0.001 (0.00)	
MD Southwest and Central Asian X MC Southwest and Central Asian	-0.001 (0.00)		-0.004 (0.04)	
MD Southern Asian X MD Southern Asian	0.001 (0.00)	**	0.006 (0.01)	
MD Eastern Asian X MC Eastern Asian	-0.000 (0.00)		0.003 (0.00)	*
MD Language Diversity X MC Language Diversity	0.001 (0.000)		0.000 (0.00)	

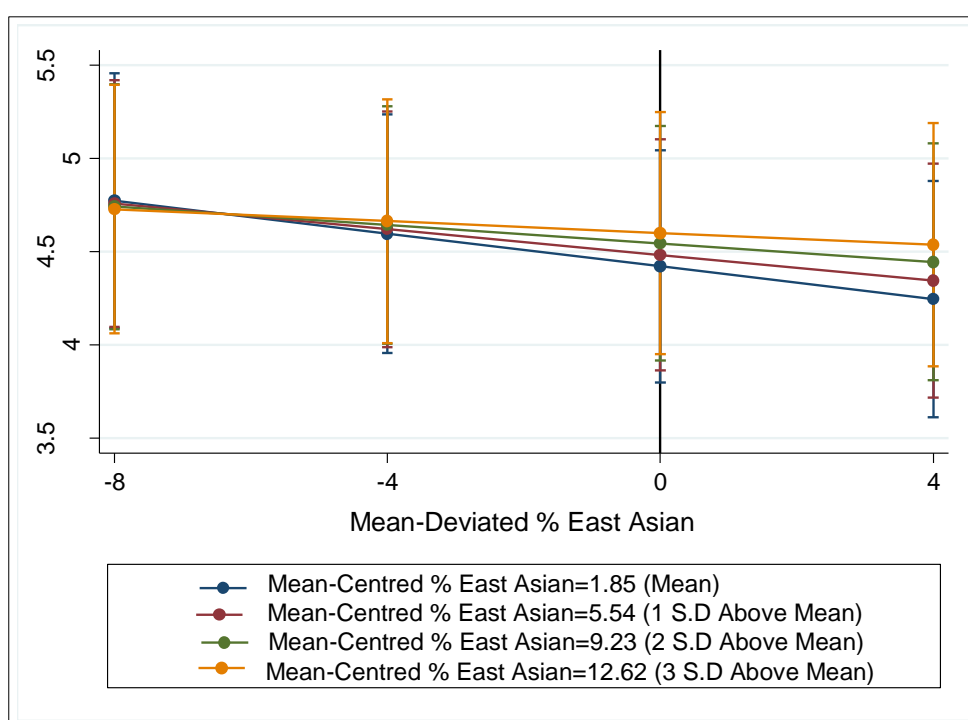
* p<0.05; ** p<0.01; ***p<0.001

Figure 6.9 Southern Asian languages interaction (Sydney)



In these language models, I find little evidence to suggest that the effect of an increase in language group concentration on crime is contingent on the size of a neighbourhood's ethnic population. There are two exceptions. In Sydney, the interaction between the mean-deviated and mean-centred measures for immigrants who speak Southern Asian languages is statistically significant ($B=0.001$ $p<0.01$). Here I find that an increase in the number of immigrants who speak Southern Asian languages has the greatest effect on violent crime in areas with a smaller average concentration of this group. However, once graphed it is clear that the size of the effect is negligible (see Figure 6.9).

Figure 6.10 Eastern Asian languages interaction (Brisbane)



In Brisbane, the interaction term between the mean-deviated and mean-centred variable for Eastern Asian languages is also statistically significant ($B=0.003$ $p<0.05$). The results here suggest that an increase in the number of immigrants who speak Eastern Asian languages exerts the largest protective effect on crime in neighbourhoods with a relatively small co-ethnic population (see Figure 6.10). As the level of concentration increases (for example, three standard deviations above the mean), an increase in this ethnic group has little effect on violent crime. Although it is important to again recognise that the size of the effect is relatively small.

Next I consider the interaction between the mean-deviated and mean-centred religion group variables. Table 6.14 presents the results of these interaction models. Similar to the language models,

I find limited evidence that the effect of an increase in religion group concentration on crime is dependent on the size of a neighbourhood's ethnic population. Yet there are a few exceptions - mainly in the Sydney context. Here I find a statistically significant relationship between the mean-deviated and mean-centred Buddhist interaction term and violent crime ($B=0.006$ $p<0.001$). As can be seen in Figure 6.11, an increase in the proportion of the population who are Buddhist immigrants has the greatest protective effect on violent crime in neighbourhoods with a smaller average Buddhist immigrant population. In neighbourhoods with a greater average concentration of Buddhist immigrants (three standard deviations above the mean), an influx of Buddhist immigrants is actually linked to a slight increase in the level of violent crime.

In these interaction models, I also find a statistically significant relationship between the mean-deviated and mean-centred Muslim variables and violent crime ($B=0.003$ $p<0.001$). Figure 6.12 demonstrates that all neighbourhoods experience a reduction in crime following an increase in Muslim immigration. However, an increase in the Muslim immigrant population exerts the largest protective effect on neighbourhood violence in places with a relatively low average level of Muslim concentration.

Table 6.14 Changes in religion concentration/diversity at different concentration levels

	SYDNEY (N=580)		BRISBANE (N=302)	
	B (SE)	p<	B (SE)	p<
MD Buddhist X MC Buddhist	0.006 (0.00)	***	0.010 (0.01)	
MD Hindu X MC Hindu	0.001 (0.00)		0.057 (0.03)	
MD Muslim X MD Muslim	0.003 (0.00)	***	-0.007 (0.01)	
MD No Religion X MC No Religion	0.003 (0.00)	***	0.006 (0.00)	*
MD Other Religions X MC Religions	-0.000 (0.00)		0.062 (0.09)	
MD Religion Diversity X MC Religion Diversity	0.000 (0.00)		0.001 (0.00)	

* $p<0.05$; ** $p<0.01$; *** $p<0.001$

Interestingly, the interaction between the mean-deviated and mean-centred variables for immigrants without a religious affiliation is significant in both cities. In Sydney, I find that neighbourhoods with fewer non-religious immigrants experience the largest decrease in crime following an influx of this group ($B=0.003$ $p<0.001$). Similar patterns are seen in Brisbane with the effect strongest in areas with lower levels of non-religious immigrant concentration ($B=0.006$ $p<0.001$). In this city, an increase in the non-religious immigrant population has little effect on violent crime in areas with a higher level of concentration.

Figure 6.11 Buddhist interaction (Sydney)

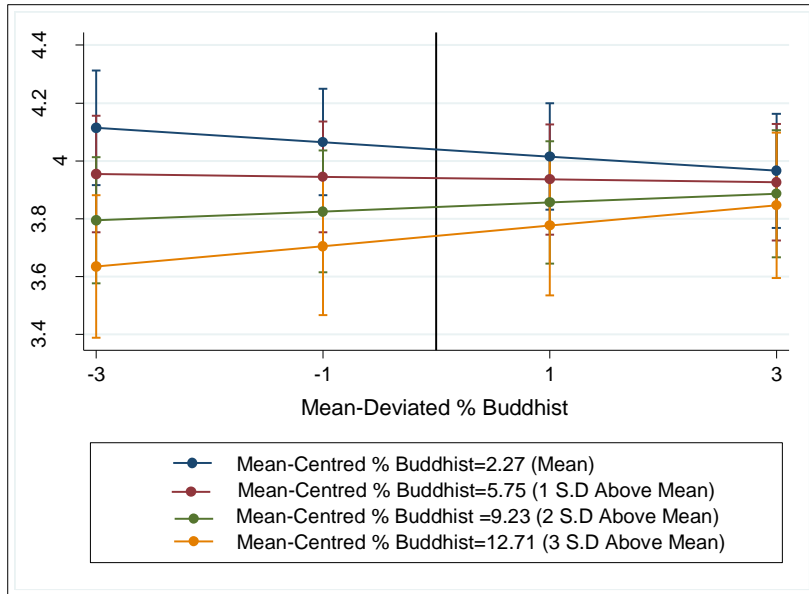


Figure 6.12 Muslim interaction (Sydney)

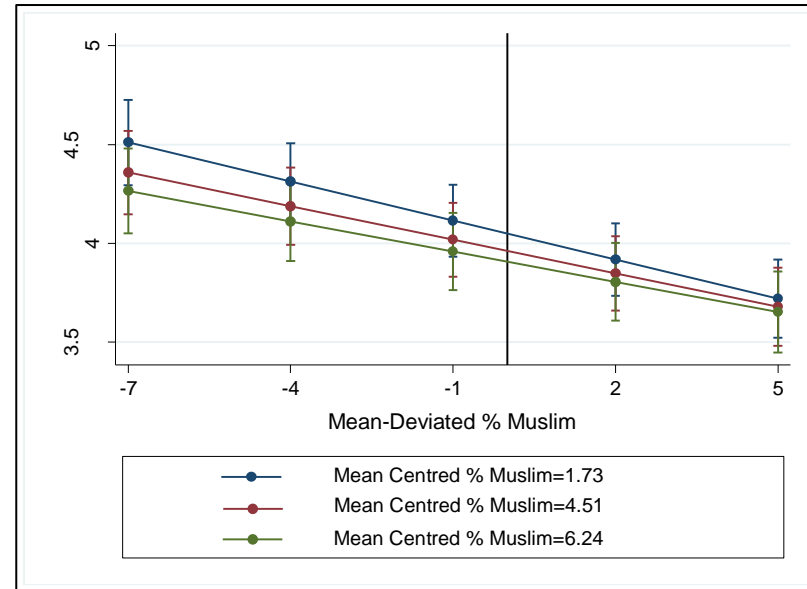


Figure 6.13 No Religion interaction (Sydney)

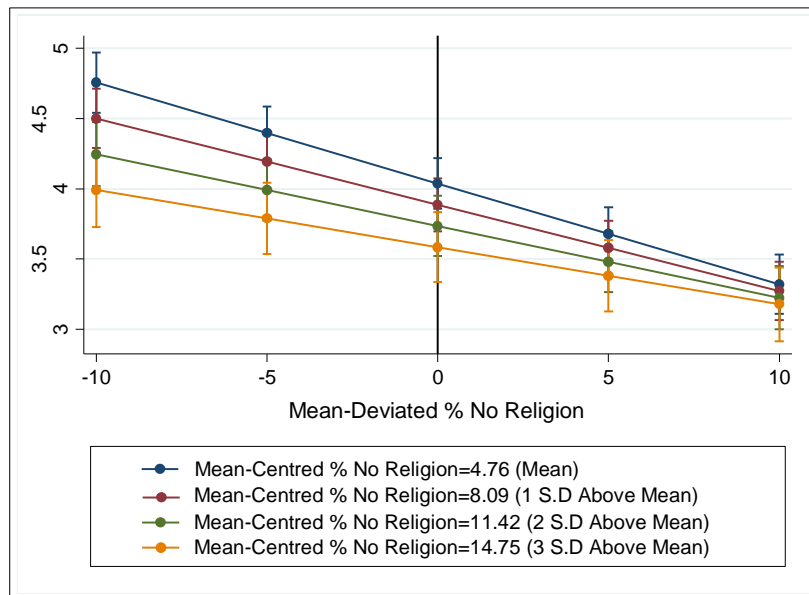
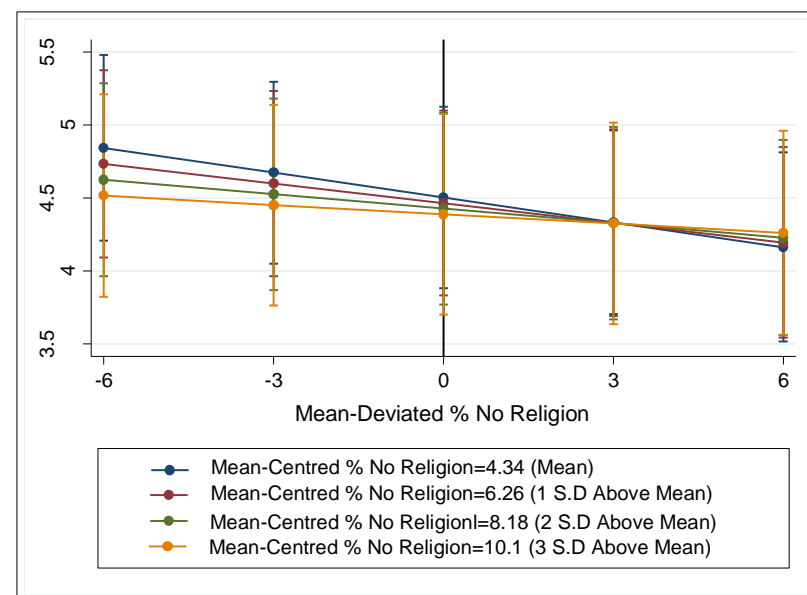


Figure 6.14 No Religion interaction (Brisbane)



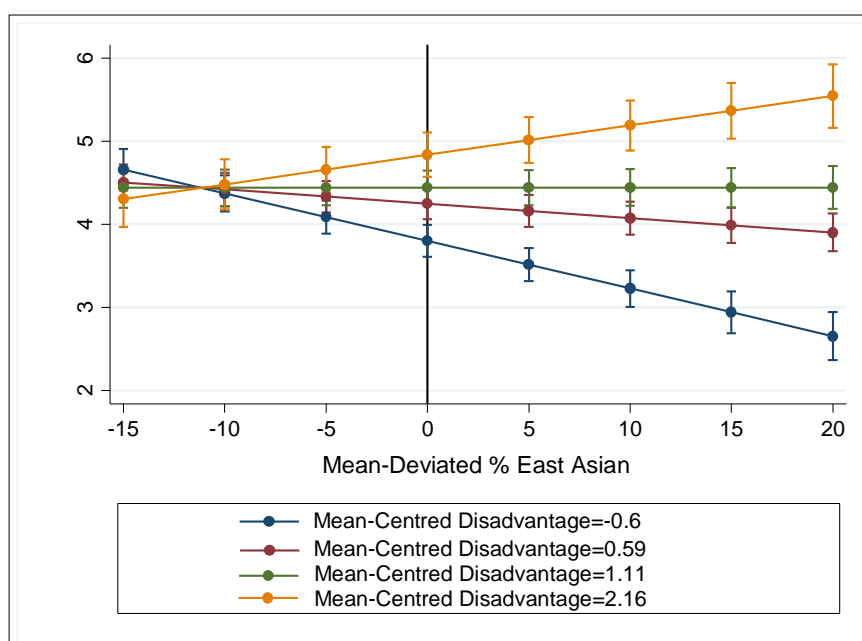
Consistent with Study 1, I also examine the potential moderating effect of disadvantage on the relationship between changes in ethnic group concentration/diversity and violent crime. Scholarship from the United States suggests the effect of immigrant growth is particularly strong in areas of concentrated disadvantage (MacDonald et al., 2013; Velez, 2009), as is the effect of ethnic diversity (Feldmeyer et al., 2016). This is because influxes of new immigrants into disadvantaged areas revitalises neighbourhood organisations and institutions, reinvigorates the local economy and strengthens social networks. Alternatively, an increased presence of immigrants in advantaged communities is thought to disrupt social networks and informal social control and subsequently increase crime (Velez, 2009).

Table 6.15 Changes in language concentration/diversity at different levels of disadvantage

	SYDNEY (N=580)		BRISBANE (N=302)	
	B (SE)	p<	B (SE)	p<
MD Northern European X MC Disadvantage	0.080 (0.03)		0.124 (0.05)	
MD South East Asian X MC Disadvantage	-0.006 (0.01)		-0.006 (0.02)	
MD South West Central Asian X MC Disadvantage	0.009 (0.01)		-0.025 (0.03)	
MD Southern Asian X MC Disadvantage	0.006 (0.00)		0.033 (0.02)	
MD Eastern Asian X MC Disadvantage	0.034 (0.00)	***	0.029 (0.02)	
MD Language Diversity X MC Disadvantage	0.00 (0.001)		0.002 (0.00)	

* p<0.05; ** p<0.01; ***p<0.001

Figure 6.15 Mean-deviated East Asian languages and mean-centred disadvantage (Sydney)



To test this effect, additional interaction terms between the mean-deviated ethnic group measure and the mean-centred level of disadvantage are added to the model. Specifically, I examine whether increases in ethnic group concentration have varying effects on crime at different levels of disadvantage. As can be seen in Table 6.15, this interaction term was not statistically significant for any language group with the exception of immigrants who speak Eastern Asian languages in Sydney ($B = 0.034, p < 0.001$).

Here I find that an increase in the immigrant population who speak Eastern Asian languages is associated with the largest reduction in violent crime in neighbourhoods characterised by low levels of disadvantage (i.e. areas where the level of disadvantage is one standard deviation or more below the mean) (see Figure 6.15). Yet in disadvantaged communities, an increase in the number of immigrants who speak Eastern Asian languages is linked to an increase in violent crime. However, it should be noted that this effect is only seen in highly disadvantaged communities - areas where the level of disadvantage is more than two standard deviations above the mean. Such neighbourhoods represent only a small proportion of the Sydney sample.

When considering the effect of increases in immigrant concentration by religious affiliation on violent across neighbourhoods with different levels of disadvantage, I again find few significant effects. In Sydney, increases in the Buddhist immigrant population differentially impact violent crime depending on the level of disadvantage ($B = 0.020, p < 0.05$). Figure 6.16 suggests that an increase in the Buddhist immigrant population in advantaged communities (neighbourhoods where the level of disadvantage is two standard deviations below the mean) is associated with a reduction in violent crime. However, in more disadvantaged communities, an increase in the Buddhist immigrant population is linked to a slight increase in the level of violent crime. In both cities, changes in the presence of non-religious immigrants differentially impacts violent crime at varying levels of neighbourhood disadvantage. In Sydney, an increase in the number of immigrants without a religious affiliation in advantaged neighbourhoods has a protective effect on violent crime ($B = 0.015, p < 0.001$). Similar effects are seen in Brisbane. However in this city, an increase in the non-religious immigrant population in disadvantaged communities is associated with a slight increase in crime ($B = 0.027, p < 0.05$).

Figure 6.16 Mean-deviated Buddhist and mean-centred disadvantage (Sydney)

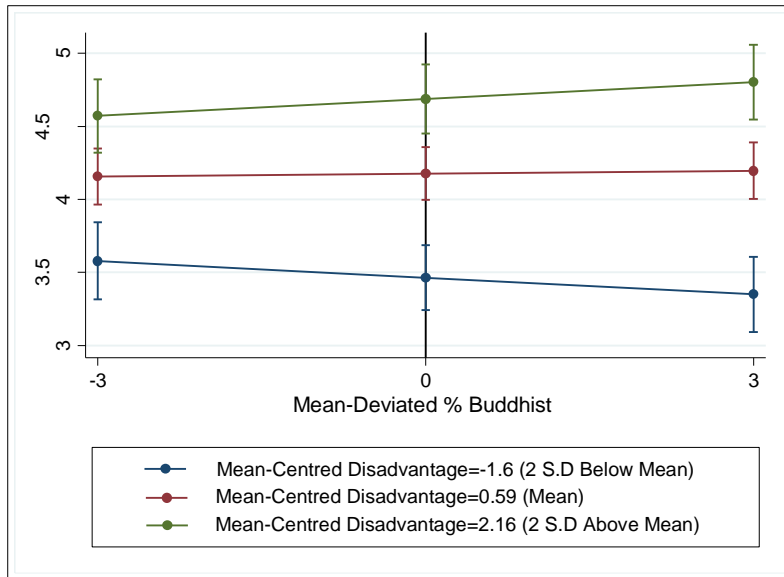


Figure 6.17 Mean-deviated No Religion and mean-centred disadvantage (Sydney)

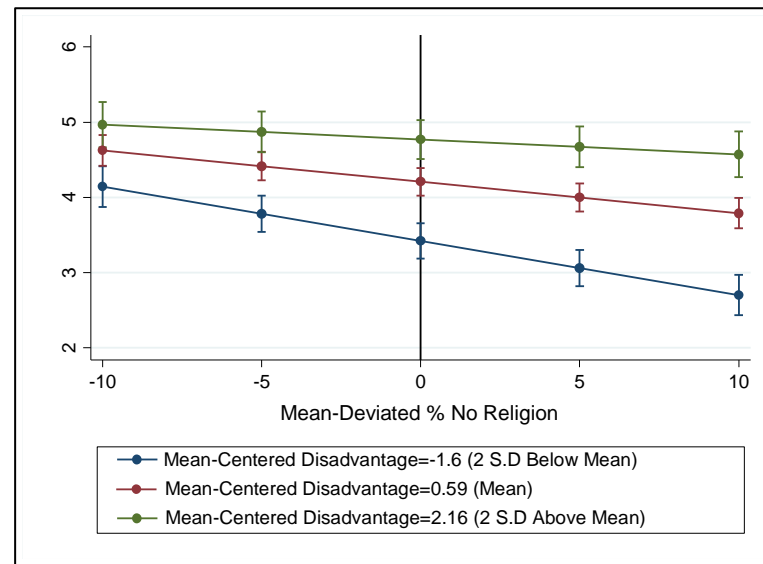


Figure 6.18 Mean-deviated No Religion and mean-centred disadvantage (Brisbane)

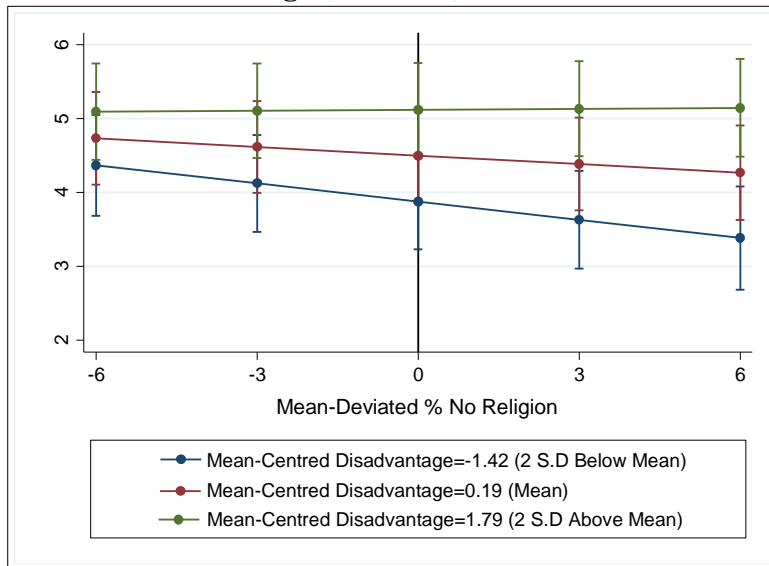


Figure 6.19 Mean-deviated religion diversity and mean-centred disadvantage (Brisbane)

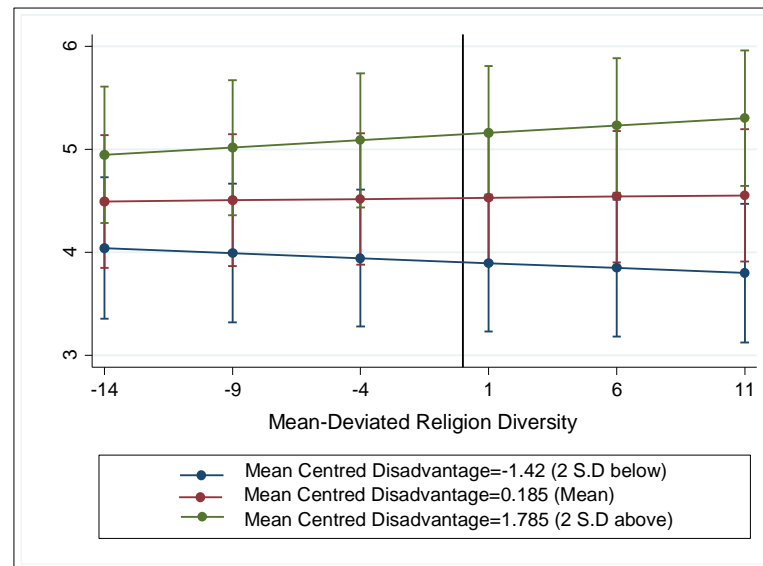


Table 6.16 Religion Group and Disadvantage Interactions

	SYDNEY (N=580)		BRISBANE (N=302)	
	B (SE)	p<	B (SE)	p<
MD Buddhist X MC Disadvantage	0.020 (0.01)	*	-0.021 (0.03)	
MD Hindu X MC Disadvantage	0.007 (0.01)		0.053 (0.03)	
MD Muslim X MC Disadvantage	0.009 (0.01)		-0.006 (0.01)	
MD No Religion X MC Disadvantage	0.015 (0.00)	***	0.027 (0.01)	*
MD Other Religions X MC Disadvantage	-0.016 (0.01)		0.104 (0.05)	
MD Religion Diversity X MC Disadvantage	-0.004 (0.00)		-0.022 (0.01)	**

* p<0.05; ** p<0.01; ***p<0.001

The effect of changes in religion diversity on violent crime also appears to be contingent on the level of neighbourhood disadvantage in Brisbane. Figure 6.19 demonstrates that increases in the level of religion diversity are linked to slightly more violent crime in more disadvantaged neighbourhoods (two standard deviations above the mean level of disadvantage). While in less disadvantaged areas (neighbourhoods where the level of disadvantage is two standard deviations below the mean), increases in the level religion of diversity are actually associated with a reduction in violent crime.

These findings suggest both the size of the co-ethnic population and the level of disadvantage differentially moderate the immigration-crime relationship in the Australian context in comparison to the United States. In Australia, the presence of established co-ethnics is not necessary in order for increases in ethnic groups to have a protective impact on violent crime. In fact in some cases, the effect of increases in ethnic group concentration are most pronounced in areas with a relatively small established co-ethnic presence. These findings are contrary to the arguments put forward in the revitalisation thesis which suggest areas with a more established co-ethnic population better absorb influxes of new immigrants. Further, I find little evidence to suggest that influxes of immigrants revitalise disadvantaged neighbourhoods. In most cases, the effect of increases in ethnic group concentration does not depend on the level of neighbourhood disadvantage. In the few cases where significant effects are found, I find the opposite to be true with increased ethnic group concentration in less disadvantaged neighbourhoods linked to the greatest reduction in violent crime. Taken together, these models suggest some of the key arguments of the revitalisation thesis do not hold in the Australian setting.

6.7 Site comparison

Once disaggregating the total immigrant concentration measure by language and religion, the conclusions drawn from Study 1 remain. Growth in the immigrant population – regardless of the

language or religion group under consideration - does not lead to more violent crime within a neighbourhood. Further, no language or religion group concentration is associated with more violent crime once the socio-structural and environmental features of neighbourhoods are considered. Indeed, the growth and concentration of some ethnic groups is actually linked to less violent crime. I thus find no evidence that increased immigration leads to more neighbourhood violence.

However, these models do highlight some additional differences between the two sites than what is seen in Study 1. For example, changes in the five language groups included in the within effects component of the model (Northern European, Southeast Asian, Southern Asian, Southwest and Central Asian and Eastern Asian languages) are linked to less violent crime over time in Sydney. While in Brisbane - with the exception of immigrants who speak Southern Asian languages - changes in language concentration have a null effect on violent crime over time. Thus the protective effect of increases in language group concentration over time is more prevalent in the Sydney context (yet is still not harmful in the Brisbane setting).

When considering the effect of language concentration across neighbourhoods there are again some differences between the two cities. For example, the concentration of immigrants who speak Northern European and Southern Asian languages is linked to less violent crime across Brisbane neighbourhoods but not across neighbourhoods in Sydney. Conversely, neighbourhoods with a greater concentration of immigrants who speak Southern European, Eastern Asian and Southwest and Central Asian languages experience fewer violent crimes in Sydney but not in Brisbane. For the most part, these differences may be a result of varying levels of concentration across neighbourhoods in the two sites. Neighbourhoods in Brisbane may not reach the level of concentration necessary in order for the presence of immigrants who speak Southern European, Eastern Asian or Southwest and Central Asian languages to have a protective effect on crime. Similarly, the concentration of immigrants who speak Northern European languages is slightly higher in the Brisbane context. The exception here is immigrants who speak Southern Asian languages. The concentration of this group across neighbourhoods is higher in the Sydney context compared to Brisbane - although is only significant in Brisbane.

Some consistencies are found across the two sites. For example, the concentration of immigrants who speak Southeast Asian languages is linked to less violent crime across both Brisbane and Sydney neighbourhoods. This group (comprised largely of Vietnamese) is well established in both cities - first arriving in Sydney during the 1970s and in Brisbane in the 1990s (Burnley, 2001). Before including the socio-structural and environmental variables, the concentration

of immigrants who speak 'Other' languages was linked to more crime across Sydney neighbourhoods (with no significant association found in Brisbane). After the controls were included, the concentration of immigrants who speak 'Other' languages is associated with significantly less violent crime across neighbourhoods in both sites. This finding in particular reinforces the importance of considering the broader neighbourhood context in immigration-crime research. The concentration of immigrants who speak Eastern European languages or English only is not significantly related to violent crime across neighbourhoods in either city.

Similar patterns are seen in the religion models. I find no evidence that increases in ethnic group concentration over time or the average level of ethnic group concentration is associated with more neighbourhood violence. Similar to the language models, I find that the growth of certain religious groups is actually linked to a reduction in violent crime over time. Moreover, once the broader features of neighbourhoods are considered, the concentration of groups is not linked to more neighbourhood violence. The models again indicate some differences between the two research sites with more significant effects found in the Sydney setting. Most notable, both growth in the Muslim immigrant population over time as well as higher average concentrations of Muslim immigrants is linked to lower violence in Sydney but has no effect on crime in Brisbane. This is likely due to the more sizeable presence of Muslims in Sydney compared to Brisbane.

While the concentration of particular ethnic groups is largely beneficial for crime, the effect of language and religion diversity is problematic in both cities. In Sydney, increasing language diversity within a neighbourhood is associated with more violent crime over time. This relationship remains once neighbourhood controls are included in the model. In Brisbane, the effect of changes in diversity (significant and negative initially) is non-significant after other neighbourhood factors are considered. When comparing across neighbourhoods, the effect of language diversity is consistent across the two sites. In both cities, areas with a higher average level of language diversity encounter greater crime problems, so too do more religiously diverse neighbourhoods. Thus in more ethnically diverse areas, residents appear unable to find the common ground necessary in order to collectively solve local problems. These findings highlight the opposing effects of concentration and diversity and provide empirical support for both disorganisation and revitalisation arguments.

6.8 Chapter summary

After accounting for ethnicity, the key takeaway message from Study 1 remains. Regardless of the ethnic group under consideration, neither the presence of immigrants nor influxes of

immigrants are related to more violent crime. In fact, both growth and concentration are significantly associated with less violent crime for certain ethnic groups. While I find greater variation between the two cities than in Study 1, I find little evidence to suggest neighbourhoods in the new destination city (Brisbane) fare worse following increases in ethnic group concentration than those in the established ethnic gateway city (Sydney). Rather, the protective effect of ethnic group growth is just stronger in the Sydney context.

Diversity however, appears to be more problematic especially when comparing across neighbourhoods. In Sydney, increasing language diversity is associated with more violent crime over time - even after accounting for neighbourhood context. When comparing between neighbourhoods, the effect of language diversity is consistent across the two sites. In both cities, areas with a higher level of language diversity encounter more crime problems. Similar effects are seen when considering religion diversity. While changes in religion diversity are not significantly related to violent crime over time, more religiously diverse neighbourhoods experience more violent crime.

Thus in both cities, more diverse neighbourhoods encounter more violent crime while at the same time, areas with a greater concentration of certain ethnic groups experience less violent crime. Rather than presenting the immigration revitalisation thesis and social disorganisation theory as a competing dichotomy, the results here suggest that each theory's hypothesised effects of immigration on violent crime can occur simultaneously. However, while increases in the concentration of ethnic groups are not linked to more crime in either city, whether this is due to a process of revitalisation is unclear – particularly as I find limited evidence in the interaction models to support the moderation effects outlined in the revitalisation thesis. I elaborate on the theoretical implications of these findings in Chapter 8.

Chapter Seven: Immigration, Segregation and Crime

7.1 Introduction

To date, most studies interested in untangling the immigration-crime nexus have examined whether immigrant concentration or growth in the immigrant population is linked to crime at the neighbourhood or city level (Chavez & Griffiths, 2009; Desmond & Kubrin, 2009; Feldmeyer, 2009; Feldmeyer & Steffensmeier, 2009; Kubrin & Ishizawa, 2012; Kubrin & Ousey, 2009; Martinez et al., 2010; Ramey, 2013; Stowell, 2007; Wadsworth, 2010). Internationally, there is a paucity of scholarship on the association between the segregation of immigrant groups and crime (see for exception Barranco, 2013; Feldmeyer et al., 2015). However, segregation differs from diversity and concentration as it is characterised by isolation and contains both structural and spatial elements (Massey & Denton, 1988; Morrill, 1991). Further, there are theoretical reasons to believe that immigrant segregation affects neighbourhoods in ways that either promote or inhibit crime.

Segregation is argued to weaken social controls and undermine a community's regulatory capacity through mechanisms associated with social inequality and social isolation (Peterson et al., 2009). As such, segregation is thought to contribute to higher rates of crime at both the local and city level. However, results from empirical scholarship testing the link between black-white segregation and crime in the United States are far from conclusive (see for example Krivo, Peterson & Kuhl, 2009; Peterson & Krivo 1993, 1999; Shihadeh & Flynn, 1996; Shihadeh & Maume, 1997). Further still, emerging evidence from this context indicates that immigrant enclaves may actually insulate communities from crime by providing residents with a "protective shell of resources" (Feldmeyer et al. 2015, p. 2). Thus the strong social networks prevalent in immigrant enclaves can potentially mediate the effect of isolation and deprivation on crime. This study brings together and empirically tests these conflicting viewpoints on the segregation-crime link.

Few studies have examined patterns of residential segregation in Australia (see for exception Johnston et al., 2007; Markus et al., 2009). In this setting, scholars find relatively low levels of residential segregation and suggest immigrant neighbourhoods are multicultural rather than dominated by a single birthplace (Markus et al., 2009). In their comparative analysis Johnston and colleagues (2007) found cities in Australia and New Zealand exhibited less segregation than those in Canada, the United States and the United Kingdom. With this in mind, an important starting point for this research is to establish whether or not immigrant groups are actually spatially separated in the Australian context. I therefore ask: (1) how are various immigrant groups spatially distributed across

Brisbane and Sydney and; (2) are immigrant neighbourhoods co-located within each city or isolated? These questions guide stage 1 of the analysis. Considering the lack of scholarship interested in residential segregation patterns in the Australian context, it is not particularly surprising there is also a dearth of research focused on the link between residential segregation and violent crime. Therefore after determining spatial segregation trends, I next examine the effect of immigrant group segregation on violent crime. Specifically I question: (3) how does the residential distribution of each immigrant group impact violent crime and; (4) is the co-location of immigrant neighbourhoods associated with more or less neighbourhood violence? These questions guide stage 2 of the analysis.

7.2 Defining and measuring segregation

Segregation is not accidental, but a consequence of purposeful behaviour. It is at once a structural and a spatial concept. The motivations for segregation are structural-that is, a desire to minimise interaction with certain other kinds of people. The most effective tool or manifestation is territorial separation (Morrill, 1991, p. 26).

Effectively measuring residential segregation is not a straightforward task. While an extensive range of indices are available, scholars disagree on the best approach due to varied understandings of *how* groups are separated from one another (Massey & Denton, 1988). In their landmark review, Massey and Denton (1988) proposed a multidimensional reconceptualisation of residential segregation. Here, the authors identified five different dimensions of group variation - evenness, exposure, concentration, centrality and clustering - arguing each dimension is both conceptually and empirically distinct (see Table 7.1). Measures of segregation are typically designed to tap into one of these five dimensions and thus Massey and Denton (1988, p. 312) contend that segregation should be measured by “a battery of indices” rather than a single measure.

Few studies interested in the effect of residential segregation on crime have employed spatialized segregation measures. Rather, studies continue to rely predominantly on traditional segregation indices, particularly the dissimilarity index and the exposure index (see for example Barranco, 2013; Feldmeyer et al., 2015; Feldmeyer, 2010; Lee & Ousey, 2005; Peterson & Krivo, 1993; Shihadeh & Flynn, 1996). These measures limit our understanding of the relationship between segregation and crime in two important ways. First, they are aspatial in nature and thus each neighbourhood unit is treated independently with the composition of nearby units ignored. As a consequence, relatively arbitrary administrative boundaries are treated as absolute barriers to interaction (Wong, 2016). This approach implicitly assumes residents will not crossover into neighbouring areas, yet in reality, residents regularly come into contact with nearby populations (Wong, 2002).

Table 7.1 Dimensions of segregation

Dimension	Description	Structural/Spatial
Evenness	Refers to the spread of ethnic/racial groups across a city. While some groups may be over or under represented in particular areas, others may be more evenly dispersed across the city. Commonly measured with the dissimilarity index.	Structural
Exposure	Refers to the degree to which minorities share their neighbourhood and/or neighbourhood boundaries with other groups and subsequently have opportunities for interaction. Groups with limited exposure are more likely to be isolated from majority group members.	Structural
Concentration	Refers to the density of ethnic/racial groups within a small areal unit. Some groups are more densely populated within neighbourhoods compared to others.	Structural
Centrality	Refers to the proximity of ethnic/racial groups to the city centre. In the United States and elsewhere, centralization is a common component of segregation as high levels of discrimination in the suburban real estate market limit minorities to living in declining and undesirable areas in the inner city.	Spatial
Clustering	Refers to how minority areas are distributed in respect to one another. When minority dominated neighbourhoods are adjacent to one another, they can form a contiguous ethnic enclave. Alternatively, immigrant neighbourhoods can be randomly scattered across the city.	Spatial

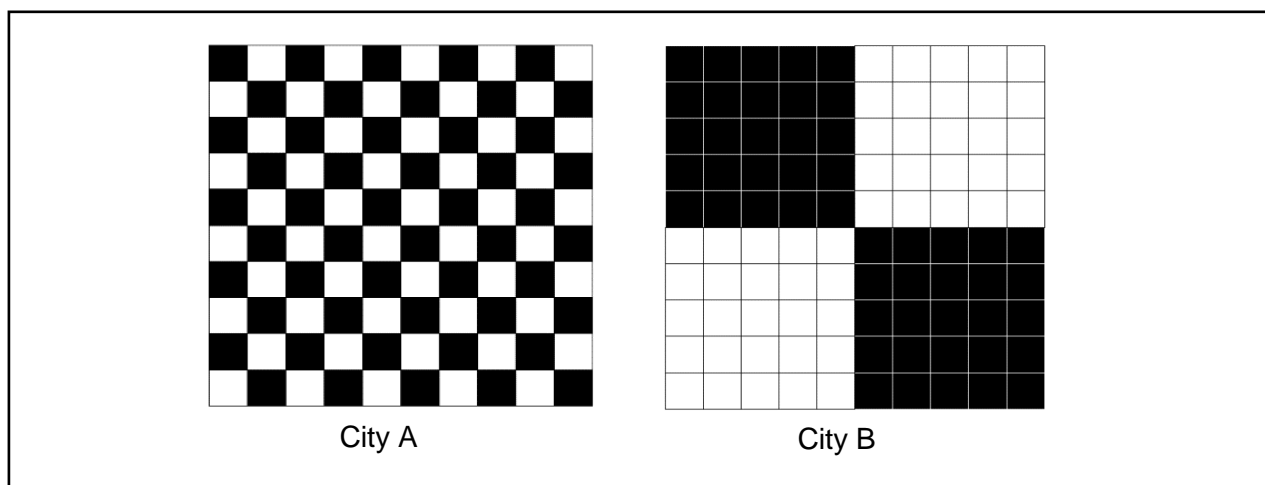
(Massey and Denton, 1988)

The failure to account for the relative position of areal units is widely referred to as “the checkerboard problem” and illustrated in Figure 7.1 (White, 1983). Here, the squares on the checkerboard represent individual neighbourhoods located within two hypothetical cities. While City A and City B each possess 50 black neighbourhoods and 50 white neighbourhoods, they present markedly different patterns of spatial segregation. Without accounting for where neighbourhoods are located in relation to one another, both would generate the same segregation score (Dawkins, 2004). Wong (2002) warns researchers can potentially overestimate the level of segregation by artificially imposing spatial separation amongst groups. To reduce the likelihood of inflating segregation, Wong (2002) recommends segregation measures allow individuals to interact with space by accounting for the conditions in nearby neighbourhoods (Wong, 2002).

Another key limitation of traditional segregation indices is that they are global and therefore provide a single number score which summarizes segregation patterns for an entire city (Reardon and O’Sullivan, 2004). While these measures are useful for comparing segregation levels *between*

cities, they fail to adequately capture local variations *within* cities. By ignoring local trends, Brown and Chung (2006, p. 126) argue global measures are “slighting if not losing, the spatiality of segregation.” They suggest that by moving from global to local indices, researchers can better understand how the spatial fabric of the city is delineated along ethnic lines (Brown and Chung, 2006).

Figure 7.1 Checkerboard problem



Considering the shortcomings of traditional segregation indices, the use of global measures like the dissimilarity index is not appropriate given the aims of this study. While decomposed spatialized versions of the dissimilarity index are available, these measures are convoluted and difficult to interpret. To address the research questions, I employ two highly spatialized yet underutilised local segregation measures: Location Quotients (LQs) and Local Moran’s I (LM-I). Brown and Chung (2006) argue that together, these two measures effectively capture four of Massey and Denton’s (1988) five dimensions of segregation.²⁰ As a measure of relative concentration, LQs tap into the *concentration-evenness* dimensions of segregation. LM-I on the other hand, measures the *clustering-exposure* dimension of segregation by assessing each areal unit in relation to neighbouring units. Taken together, these measures can capture the multidimensional nature of residential segregation at the local level.

7.3 Methods

Taking a cross sectional approach, this study utilises data from the 2011 ABS census and crime data provided by BOSCAR and the QPS. To address the research questions, the analysis is

²⁰ This study does not consider centrality. In the Australian context, inner city neighbourhoods are typically more affluent, thus proximity to the city center is not an indicator of discrimination and social disadvantage.

conducted in two stages. Stage 1 involves a descriptive analysis that considers the spatial distribution of immigrants across neighbourhoods located in the two research sites. Stage 2 presents a series of negative binomial regression models which firstly explore the bivariate relationship between immigrant segregation and violent crime and secondly examine the role neighbourhood contexts play in moderating these relationships.

Consistent with Study 1 and Study 2, the unit of analysis in Study 3 is the state suburb (N= 824 in Sydney and N= 429 in Brisbane). In line with previous chapters, specific criteria were used to determine appropriate neighbourhoods for inclusion. For the descriptive analysis (stage 1) in Study 3, neighbourhoods were included if their population exceeded 300 persons in 2011. This process generated a total sample of 768 neighbourhoods in Sydney and 384 neighbourhoods in Brisbane. In stage 2, the same criteria applied in the Study 1 and Study 2 analytic models was used. However, as Study 3 is cross sectional and draws only on data from 2011, a greater number of neighbourhoods met the minimum population requirement. Thus the analytic sample is slightly larger in Study 3 (N=598 in Sydney and N=313 in Brisbane) (see Chapter 4 for further information on the inclusion/exclusion criteria for the Study 3 neighbourhood sample).

7.4 Stage 1- Immigrant segregation across Sydney and Brisbane neighbourhoods

Variables

As segregation is (at least in part) the result of strong in-group preferences and a desire to live with culturally similar individuals (Emerson, Chai & Yancey, 2001; Morrill, 1991), the immigrant population was divided into four distinct groups determined by their language spoken at home. These groups include: immigrants who speak Asian languages, immigrants who speak European languages, immigrants who speak 'Other' languages and immigrants who speak English only. The language categories employed in Study 2 were therefore further aggregated into these broader categories for Study 3 to allow for greater variation in ethnic group size across neighbourhoods. Language was chosen over other indicators of ethnicity (namely region of birth or religion) for several reasons. First, in the Australian context, language can create a sense of otherness and can cause an individual to be perceived as an outsider (Anderson, 1991; Calhoun, 1992; Leigh, 2006; Wickes et al., 2013a). Second, the Study 2 models highlight a greater number of statistically significant relationships between language concentration and crime compared to religion and crime. Finally, preliminary analyses for this study revealed a tendency for immigrants from English speaking countries to settle in similar areas. By focusing on language rather than region of birth, this trend is captured. While

immigrants belonging to these broad language groups may not necessarily be able to communicate effectively with one another, it is argued that the degree of social and cultural distance immigrants from similar origins face will be less (although perhaps not for those who belong to the ‘Other languages category’).

Table 7.2 Collapsed language categories for Study 3

Collapsed Category	Broad Category	Description
European	Northern European	Celtic; German Related Languages; Dutch Related Languages; Scandinavian; Finish Related Languages (Excluded English)
European	Southern European	French; Greek; Iberian Romance; Italian; Maltese
European	Eastern European	Baltic; Hungarian; East Slavic; South Slavic; West Slavic;
Asian	Southeast Asian	Burmese; Hmong-Mien; Mon-Khmer; Tai; South-East Austronesian
Asian	Southern Asian	Dravidian; Indo-Aryan
Asian	Eastern Asian	Chinese; Japanese; Korean
‘Other’	Southwest and Central Asian	Irenic, Middle Eastern Semitic Languages; Turkic
‘Other’	‘Other’	American Languages, African Languages, Pacific Austronesian Languages; Oceanian Pidgins and Creoles; Papua New Guinea Languages.
English Only		English

LQ

LQs are a ratio measure of relative concentration. In this study, LQs are used to compare the share of a racial/ethnic group in a particular neighbourhood to their overall share in the city (Brown and Chung, 2006) (formula outlined in Chapter 4). Table 7.2 includes the denominator values used to create the LQs (i.e. the $(\frac{I}{P})$ component of the equation). These values represent each group’s size as a proportion of the total population in the city. Consistent with earlier chapters, these figures highlight significant differences in the composition of each city’s residential population. While in Sydney, immigrants who speak Asian languages comprise the largest foreign born group, in Brisbane, English only speaking immigrants are most dominant.

Table 7.3 City immigrant share

	SYDNEY	BRISBANE
Asian Languages	0.1337	0.0607
European Languages	0.0554	0.0280
'Other' Languages	0.4109	0.0164
English Only	0.1104	0.1435

A summary of the numerator values is provided in Table 7.3 (i.e. descriptives for the $\left(\frac{i_n}{t_n}\right)$ component of the equation). These values again reveal considerable differences in the ethnic composition of neighbourhoods located within the two research sites. Specifically, immigrants who speak languages other than English are far less common in Brisbane neighbourhoods in comparison to Sydney neighbourhoods.

Table 7.4 Neighbourhood immigrant share

	SYDNEY (N=769)				BRISBANE (N=384)			
	Mean	S.D	Min	Max	Mean	S.D	Min	Max
Asian Languages	0.0894	0.1068	0.0000	0.6002	0.0485	0.0630	0.0000	0.3977
European Languages	0.0486	0.0345	0.0000	0.1858	0.0247	0.0152	0.0000	0.0946
'Other' Languages	0.0287	0.0417	0.0000	0.2964	0.0129	0.0178	0.0000	0.1145
English Only	0.1130	0.0467	0.0283	0.2885	0.1389	0.0385	0.0287	0.2527

In the Stage 1 descriptive analysis, the LQ scores for each group are summarized. There is currently no statistical test available for determining a significant LQ value and studies vary considerably in identifying appropriate cut-off points (for example Miller et al., 1991 suggest 1.31 while Rengert, Ratcliffe & Chakravorty, 2005 suggest 2.0). To visually demonstrate spatial patterns, the LQ scores in this study are categorized into three distinct groups for the maps. These include: underrepresented (LQ <0.5), neutral (LQ 0.5-1.5) and overrepresented (LQ >1.5).

LM-I:

LM-I considers each neighbourhood unit in terms of the characteristics of neighbouring units and identifies statistically significant spatial outliers and clusters (Anselin, 1995). The LM-I procedure was conducted in ArcGIS (see Chapter 4 for further details). Areas are classified into five categories: High High (HH) clusters (high concentration surrounded by high concentration); Low Low (LL) clusters (low concentration surrounded by low concentration); High Low (HL) cluster (high concentration surrounded by low concentration); Low High (LH) cluster (low concentration surrounded by high concentration) or Non-Significant (NS). In this analysis, HH clusters represent

incidences of spatial clustering (i.e. the co-location of immigrant neighbourhoods) and HL indicate cases of spatial isolation. This variable is created for each of the four immigrant language groups.

Spatial distribution of immigrants across Sydney neighbourhoods

In Sydney, immigrants who speak Asian languages are unevenly distributed across the city with a mean LQ score of 0.67 (see Table 7.4). The LQ map reveals Asian speaking immigrants are mainly overrepresented in inner city and western neighbourhoods (see Figure 7.2). These relatively concentrated areas are then surrounded by a neutral buffer zone (neighbourhoods with their expected share of Asian immigrants). However, as the distance from the CBD increases, there appears to be a growing underrepresentation of Asian speaking immigrants. The LM-I analysis shows similar spatial trends (see Table 7.5). Of significant cluster types, HH clusters are most common. In fact, a total of 16.9% of Sydney neighbourhoods are classified as a HH cluster. The LM-I map shows HH clusters are located mostly in the inner city and western suburbs. Located adjacent to one another, many of these neighbourhoods form together to create a contiguous enclave. Well-established Asian neighbourhoods that attracted early waves of Asian migration during the 1970s and 80s (such as Cabramatta) remain popular settlement zones with neighbouring areas also labelled HH clusters.

Table 7.5 LQ values (Sydney)

SYDNEY (N=769)				
	Mean	S.D	Min	Max
Asian Languages	0.67	0.80	0.00	4.49
European Languages	0.88	0.62	0.00	3.36
'Other' Languages	0.70	1.02	0.00	7.21
English Only	1.02	0.42	0.26	2.61

Immigrants who speak European languages are slightly more dispersed across Sydney neighbourhoods (mean LQ score= 0.88). However, there are neighbourhoods in Sydney where European immigrants account for more than three times their expected share of the population. Similar to Asian speaking immigrants, immigrants who speak European languages are relatively concentrated in and around the Sydney CBD with two large clusters of overrepresented neighbourhoods in this area (see Figure 7.2). Interestingly, these neighbourhoods are distinct from those identified as relatively concentrated Asian neighbourhoods. The LQ map also shows a greater number of neutral areas for immigrants who speak European languages which suggests this group is more evenly distributed across the city. Yet, several areas on the outskirts of the city are marked as having an underrepresentation of immigrants who speak European languages. The LM-I analysis

reveals similar spatial trends. HH clusters are again the most common of the significant cluster types (13.28% of neighbourhoods) and thus neighbourhoods with a strong presence of European residents tend to be located nearby one another. As can be seen in Figure 7.3, HH clusters for immigrants who speak European languages tend to reflect historical migratory trends (particularly neighbourhoods located east of the CBD). For example, Leichardt - where many Italian small businesses were established during the 1970s - continues to be a prime location for immigrants who speak European languages (Collins, 2006).

Table 7.6 Results of LM-I Analyses (Sydney)

SYDNEY (N=768)					
	HH	HL	LL	LH	NS
Asian Languages	13.28%	0.00%	0.13%	0.00%	86.59%
European Languages	13.28%	0.00%	3.91%	0.39%	82.81%
‘Other’ Languages	11.46%	0.00%	0.00%	0.00%	88.54%
English Only	13.02%	0.00%	10.42%	0.00%	76.56%

Immigrants who speak ‘Other’ languages are underrepresented in most Sydney neighbourhoods (mean LQ score of 0.70). Looking at the LQ map, it is evident that most neighbourhoods host less than their expected share of immigrants who speak ‘Other’ languages with only a few overrepresented areas identified. However, one neighbourhood (Fairfield) reported an LQ value of 7.21 therefore hosting over seven times its expected share of immigrants who speak ‘Other’ languages. This neighbourhood is one of the most popular resettlement zones for humanitarian immigrants in Australia. In 2016, 3,000 new refugees were resettled in this neighbourhood and surrounding areas (ABS, 2011a; Hunter, 2017). Due to the conditions surrounding their migration, it is likely humanitarian immigrants have fewer economic and social resources upon arrival compared to immigrants who arrived through the family or skilled stream. The LM-I analysis classified 11.46% of neighbourhoods in Sydney as HH clusters for immigrants who speak ‘Other’ languages. HH cluster zones for this group are located further away from the CBD and include some of Sydney’s most notoriously disadvantaged and stigmatized areas such as Macquarie Fields, Mt Druitt and Claymore. The history of these neighbourhoods is worth highlighting. Originally built as public housing estates in the 1960s and 70s by the New South Wales government, decades later, they comprise some of Australia’s most impoverished communities (Groenhart, 2012).

As the most established immigrant group in Australia and culturally quite similar to the native born population, the settlement patterns of English speaking immigrants are distinct to other groups. Akin to an “invisible” migrant group (Collins, 2006), the mean LQ value (1.02) suggests this

Figure 7.2 Concentration-evenness dimension (LQ) Sydney

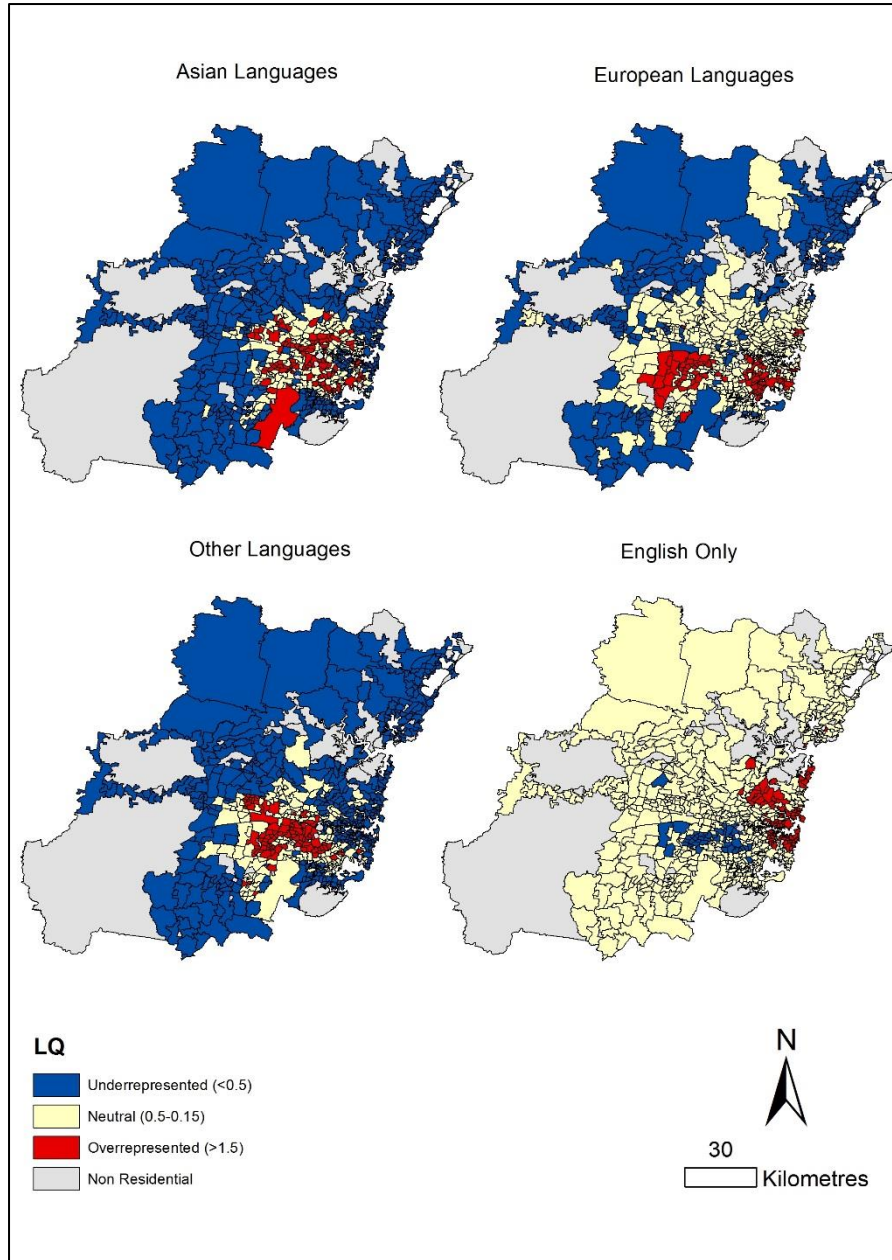
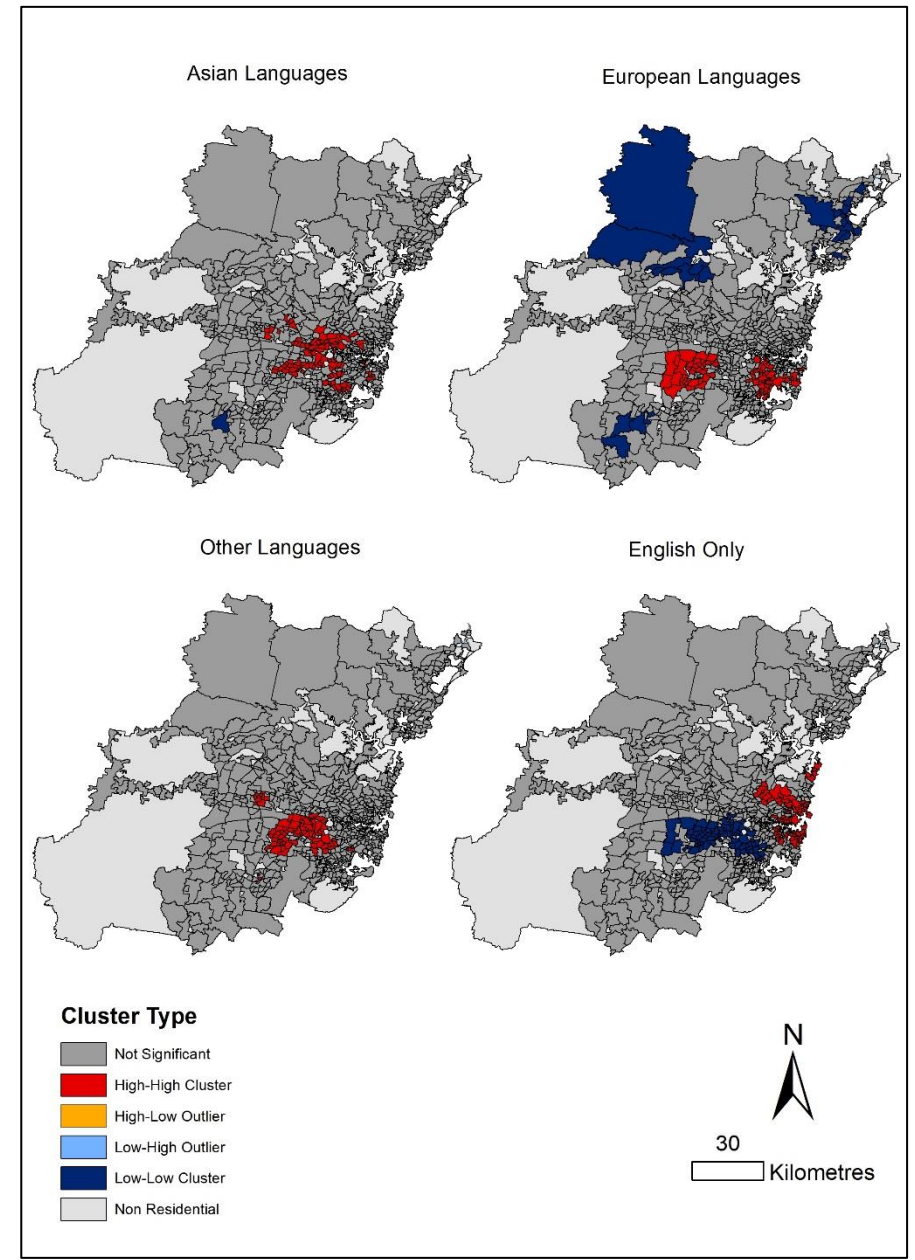
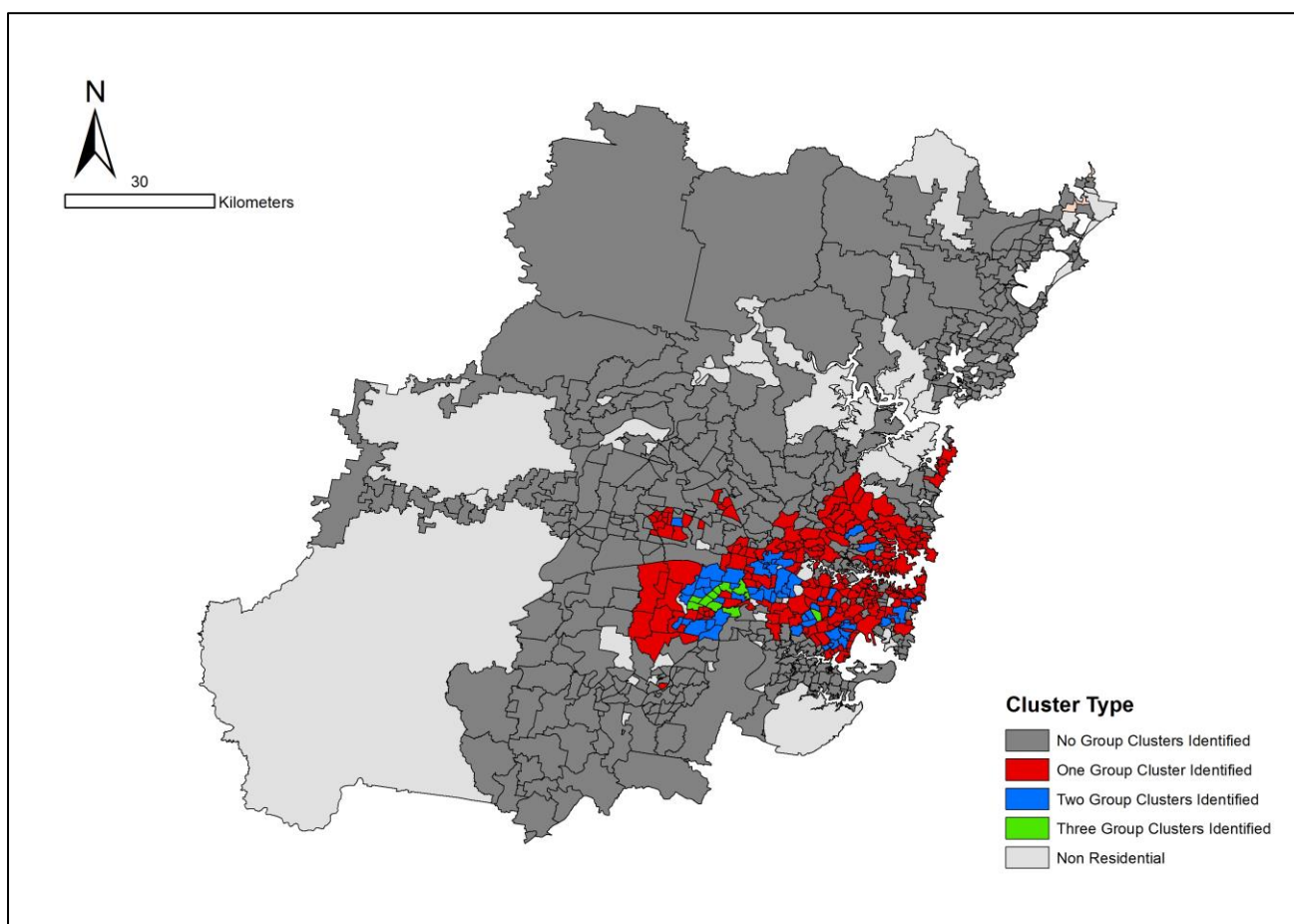


Figure 7.3 Clustering-exposure dimension (LM-I) Sydney



group is quite evenly dispersed across the city. The LQ map further reinforces this finding with the majority of neighbourhoods classified as neutral. Areas that are overrepresented are located along the coastline and harbor while some neighbourhoods in and around the CBD are underrepresented. Similar trends are identified in the LM-I analysis. A total of 13.02% of neighbourhoods are classified as HH clusters for immigrants who speak English only. These neighbourhoods include some of the most affluent areas in Australia including Darling Point, Vaucluse and Edgecliffe where the median house price sits in the millions. Another key trend identified in the settlement patterns of immigrants who speak English only is their absence in more linguistically diverse immigrant areas. In Sydney, 10.42% of neighbourhoods are classed as LL clusters for immigrants who speak English only. As can be seen on the LM-I map, these statistically significant LL clusters for English only speaking immigrants are well aligned with HH Asian, HH European and HH ‘Other’ clusters.

Figure 7.4 Overlap between HH clusters in Sydney



As Australian neighbourhoods are often described as multicultural an additional map was created based on the LM-I cluster type. This process helped determine the degree of overlap in the HH clusters between the different ethnic groups. Over half of the neighbourhood sample in Sydney

identified no significant group cluster - with this particularly common in the outer regions. As can be seen in Figure 7.4, single group clusters are the most common cluster type with just under one third of the neighbourhood sample highlighted as a HH cluster for just one ethnic group. Overlap between groups is fairly uncommon. In fact, less than 10% of neighbourhoods are classified as a HH cluster for two or three ethnic groups and no single neighbourhood is identified as a HH cluster for all four groups. Table 7.7 describes a further breakdown of the cluster overlap.

Table 7.7 Degree of overlap of clusters across ethnic groups in Sydney (N=768)

Cluster Count	No. Neighbourhoods
No Group Clusters Identified	457 (59.51%)
One Group Cluster Identified	240 (31.25%)
Two Group Clusters Identified	60 (7.81%)
Three Group Clusters Identified	11 (1.43%)
Four Group Clusters Identified	0 (0.00%)

Spatial distribution of immigrants across Brisbane neighbourhoods

On average, neighbourhoods in Brisbane have less than their expected share of immigrants who speak Asian languages (mean score 0.80) (see Table 7.8). Relatively long standing Asian neighbourhoods like Macgregor, Runcorn, Stretton, Sunnybank and Sunnybank Hills all host Asian speaking populations five or more times their expected share. As can be seen on the LQ map, immigrants who speak Asian languages are overrepresented in inner city neighbourhoods and neighbourhoods located on the south side of Brisbane (see Figure 7.5). Like in Sydney, the LQ analysis shows a neutral buffer zone surrounding these relatively concentrated areas. Areas located on the outskirts of the city have less than their expected share of Asian immigrants. Consistent patterns are seen in the LM-I analysis. HH clusters are the most common significant cluster type (10.42%) and form a large contiguous enclave on Brisbane’s south (see Figure 7.6). Similar to Sydney, many of the neighbourhoods identified as a HH cluster in Brisbane reflect historical trends in Asian migration. The neighbourhoods that received the first wave of Asian immigrants to Brisbane during the 1990s continue to attract a sizeable Asian immigrant presence with spillover seen in surrounding neighbourhoods.

Figure 7.5 Concentration-evenness dimension (LQ) Brisbane

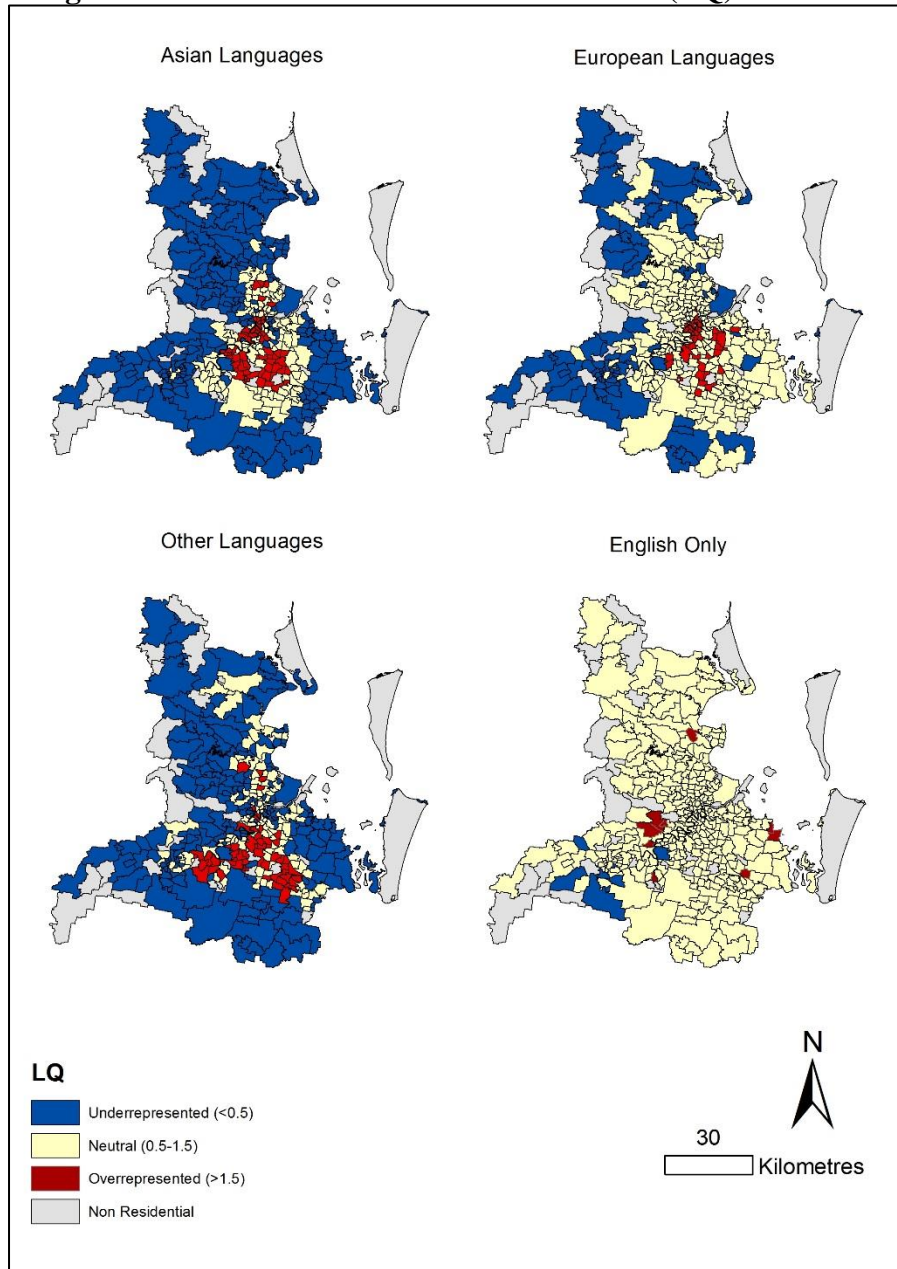


Figure 7.6 Clustering-exposure dimension (LM-I) Brisbane

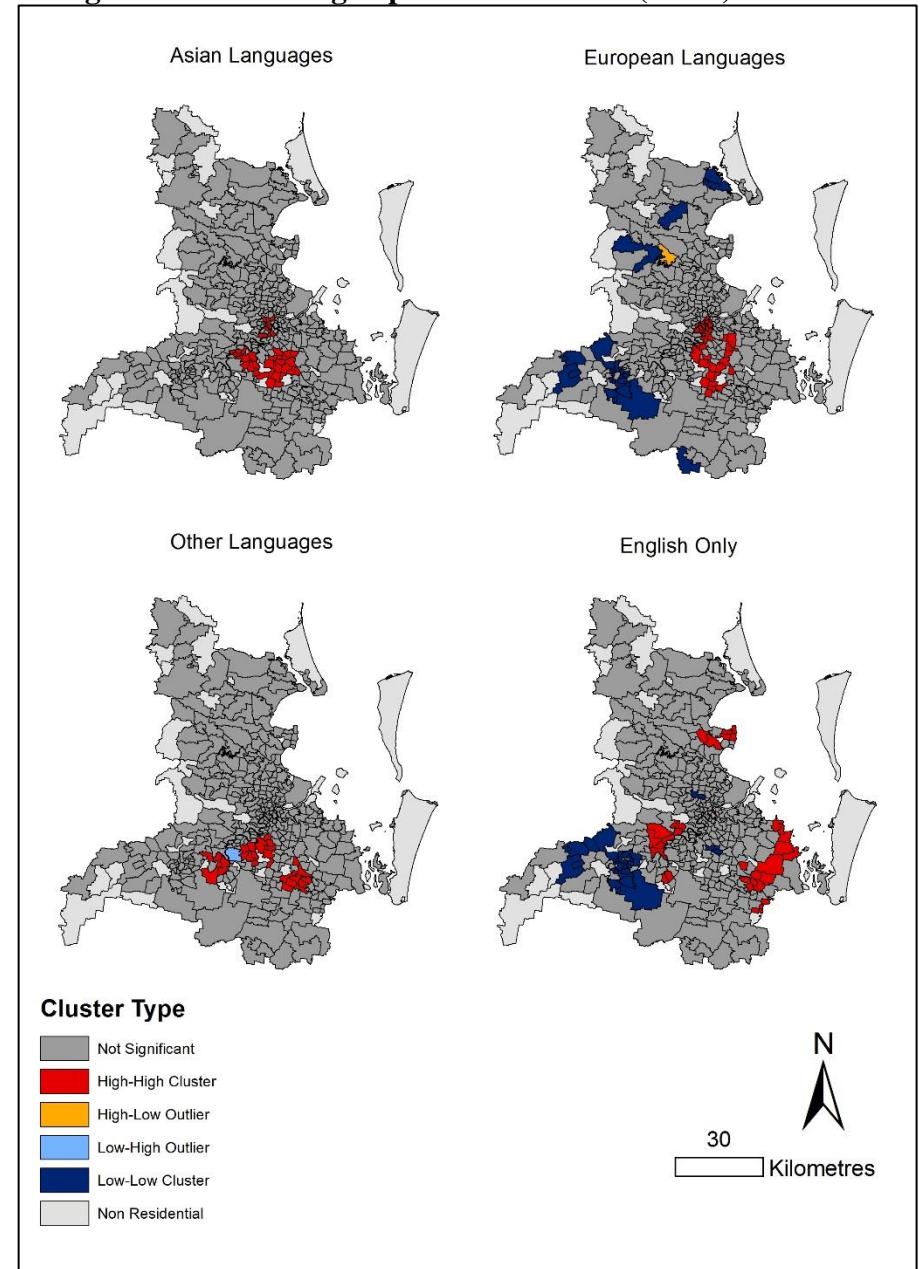


Table 7.8 LQ values (Brisbane)

BRISBANE (N=384)				
	Mean	S.D	Min	Max
Asian Languages	0.80	1.04	0.00	6.55
European Languages	0.88	0.54	0.00	3.37
'Other' Languages	0.79	1.09	0.00	7.00
English Only	0.97	0.27	0.20	1.76

Compared to Asian speaking immigrants, immigrants who speak European languages are more evenly distributed across the city (mean LQ score= 0.88). While a few areas on Brisbane's south are relatively concentrated, most neighbourhoods have their expected share of European speaking immigrants. Immigrants who speak European languages are underrepresented in neighbourhoods located along the city boundaries. The LM-I analysis classified 10.16 % of Brisbane neighbourhoods as HH clusters for immigrants who speak European languages. The LM-I map shows a y-shaped grouping of HH cluster neighbourhoods on Brisbane's south side. While in a similar vicinity to the neighbourhoods identified as HH clusters for Asian speaking immigrants, these neighbourhoods are not completely overlapping. One HL cluster for immigrants who speak European languages is highlighted in north Brisbane. Another interesting trend concerning this population is the relatively high number of LL clusters identified. In Brisbane, 8.07% of neighbourhoods are classed as a LL cluster for immigrants who speak European languages. These neighbourhoods are particularly common in Brisbane's western suburbs.

Table 7.9 Results of LM-I analyses (Brisbane)

BRISBANE (N=384)					
	HH	HL	LL	LH	NS
Asian Languages	10.42%	0.00%	0.00%	0.00%	89.58%
European Languages	10.16%	0.26%	8.07%	0.00%	81.51%
'Other' Languages	7.29%	0.00%	0.00%	0.26%	92.45%
English Only	8.85%	0.78%	8.85%	0.00%	82.81%

Immigrants who speak 'Other' languages are underrepresented across Brisbane neighbourhoods (mean LQ score= 0.79). Four neighbourhoods in Brisbane (Goodna, Logan Central, Riverview and Woodridge) host over five times their expected share of immigrants who speak 'Other' languages. Of the neighbourhoods included in this analysis, these four suburbs fall within the top 5% most disadvantaged. Furthermore, visa category data indicates that Woodridge in particular is a popular settlement area for humanitarian immigrants in Brisbane. In fact, 9% of immigrants who arrived to Brisbane on humanitarian visas between 2000 and 2011 settled in this neighbourhood

(ABS, 2011a). The LQ map shows that immigrants who speak 'Other' languages are mainly overrepresented in neighbourhoods south of the Brisbane River. These neighbourhoods are further south compared to the relatively concentrated Asian and European areas or slightly west. A handful of neighbourhoods on Brisbane's north side also have an overrepresentation of immigrants who speak 'Other' languages. These neighbourhoods are quite scattered and do not share a common boundary. For the most part, neighbourhoods in Brisbane have less than their expected share of immigrants who speak 'Other' languages, suggesting this group is highly concentrated in just a handful of neighbourhoods. The LM-I analysis highlights similar trends although the neighbourhoods identified as overrepresented on Brisbane's north side are not classified as statistically significant clusters. Many of the areas highlighted as HH clusters for immigrants who speak 'Other' languages are neighbourhoods with high levels of social disadvantage.

Similar to Sydney, immigrants who only speak English display very distinct settlement patterns compared to other immigrant groups. This immigrant population is widely scattered across Brisbane neighbourhoods with the average LQ score 0.97. The LQ map classifies most neighbourhoods as neutral zones. This further reinforces the argument that this group is quite evenly distributed across neighbourhoods in Brisbane. In the LM-I analysis, 8.85% of Brisbane neighbourhoods are identified as HH clusters for English only speaking immigrants. These neighbourhoods however are located further away from the CBD compared to the HH clusters for Asian and European speaking immigrants. These HH clusters tend to fit into one of three categories: (1) areas with low population density and plentiful acreage (such as Pullenvale and Mount Cotton); (2) areas along the coastline (like Redcliffe); or (3) newly developed master planned estates (for example Northlakes and Brookwater). Thus these neighbourhoods reflect clear preferences by this group for certain lifestyles whether that is living on a larger property, near the beach or in a master planned estate. There are also a number of neighbourhoods identified as LL clusters for immigrants who speak English only (5.85% of neighbourhoods). Similar to immigrants who speak European languages, these neighbourhoods are located in Brisbane's western suburbs.

Like Sydney, an additional map was created to consider the degree of overlap between HH clusters in Brisbane (see Figure 7.7). The patterns here are largely consistent with what is seen in Sydney. Single clusters are again most common and comprise 19.79% of the Brisbane neighbourhood sample. Only 6.25% of neighbourhoods are identified as a HH cluster for two immigrant groups and just three suburbs are highlighted as a HH cluster for three groups. No

neighbourhood is classified as a HH cluster for all groups. Table 7.10 provides a further breakdown of the overlap between HH clusters.

Figure 7.7 Overlap between HH clusters in Brisbane

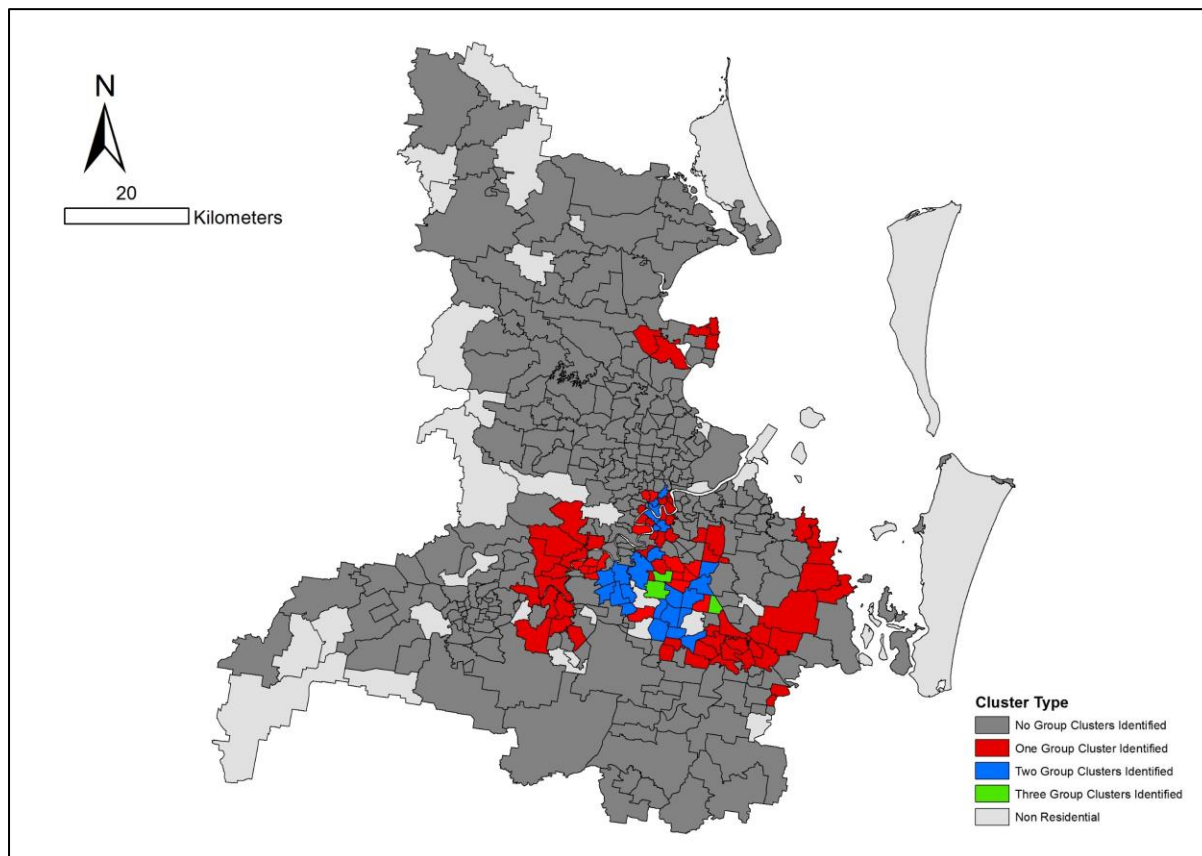


Table 7.10 Degree of overlap of HH clusters across ethnic groups in Brisbane (N=384)

Cluster Count	Number of Neighbourhoods
No Group Clusters Identified	281 (73.18%)
One Group Cluster Identified	76 (19.79%)
Two Group Clusters Identified	24 (6.25%)
Three Group Clusters Identified	3 (0.78%)
Four Group Clusters Identified	0 (0.00%)

Site comparison

Overall local segregation patterns are more pronounced in Sydney with fewer clusters identified in Brisbane. In Brisbane, 73.18% of the suburb sample present no significant clustering compared to 59.51% in Sydney. In both cities, single group clusters are most common. This could indicate either strong in-group preferences amongst Australia’s immigrant population or varying abilities to compete in the property market. While these suburbs may score highly on diversity

indices, such measures treat each birthplace as equally different and fail to account for differing levels of social distance between groups. In other words, a neighbourhood dominated by different Asian groups is markedly less diverse than one comprised of immigrants from Europe, Asia and Africa. When considering broad regional measures that capture the residential distribution of immigrant groups (LQs) and where immigrant neighbourhoods are located in relation to one another (LM-I), this study finds neighbourhoods differentially attract certain ethnicities.

In both sites, English only speaking immigrants are the most dispersed linguistic group. This trend is expected as they share a language with the native born population. It is also common for English only speaking immigrants to be absent from areas identified as clusters for other non-English speaking language groups. Indeed, their low concentration is statistically significant in Sydney’s LM-I analysis – with LL clusters for English only speaking immigrants well aligned with HH clusters for Sydney’s Asian, ‘Other’ and European population. This spatial patterning may reflect a preference amongst English speaking immigrants to settle with culturally similar individuals (i.e. the native population) and minimise interaction with other ethnic groups. This finding is in line with segregation studies in the United States where group preferences are found to drive segregation patterns to a certain extent. In particular, whites’ preference for living with other whites is found to be stronger than black’s preference for living with other blacks (Emerson et al., 2001). These preferences might translate to the Australian setting given the clear spatial separation of English only speaking immigrants from other ethnic groups.

Another key factor associated with segregation in the United States is disadvantage. Here, segregation reflects the varying ability of different groups to compete for space due to unequal access to economic resources (Kaplan & Woodhouse, 2005; Morill, 1991). In this analysis, the association between neighbourhood disadvantage and segregation varies across ethnic groups and between the two cities. Table 7.11, lists the correlations between each immigrant group’s LQ value (included here as a continuous variable) and the level of neighbourhood disadvantage.

Table 7.11 Correlation between disadvantage and immigrant segregation

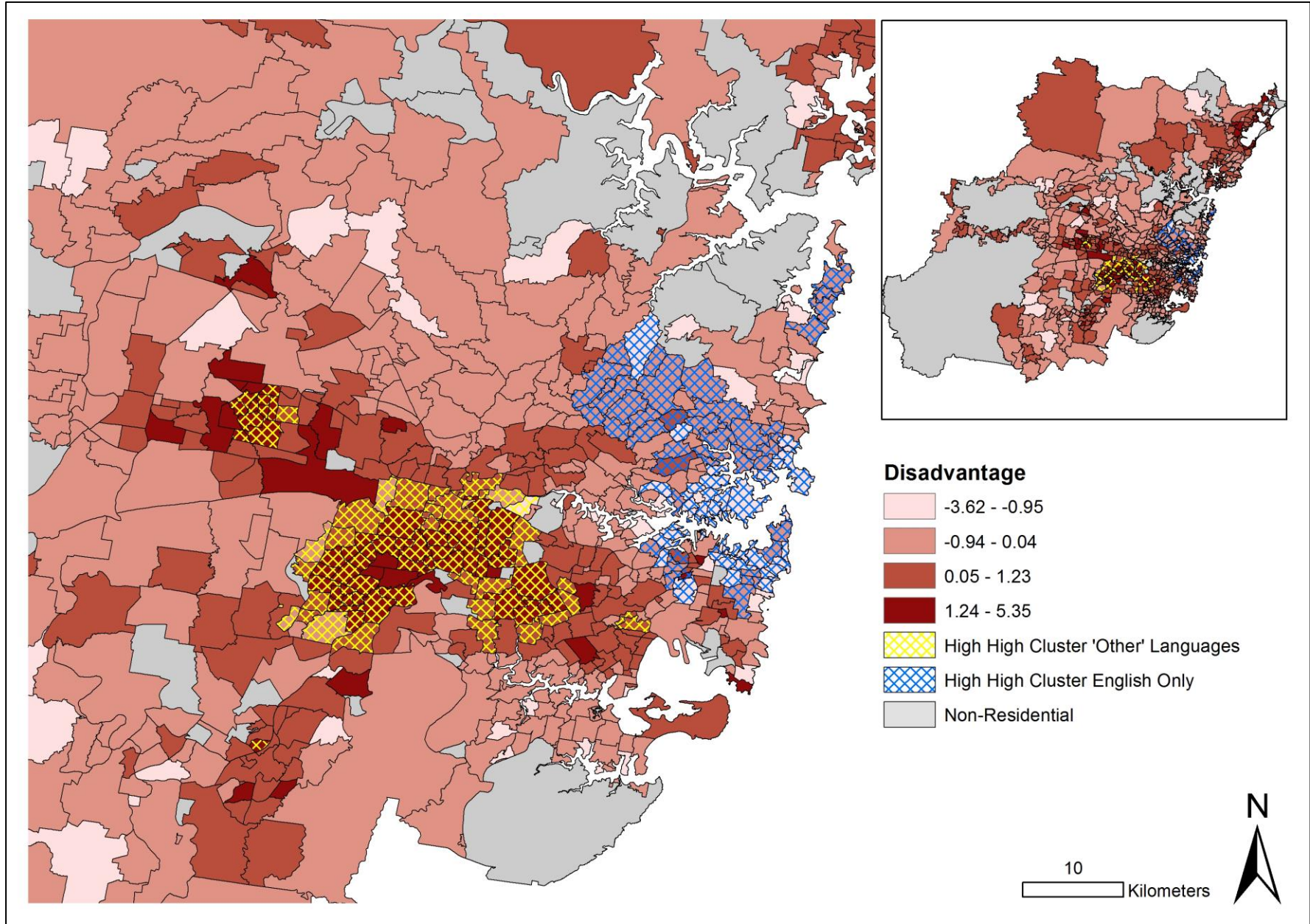
	SYDNEY (N=769)	BRISBANE (N=384)
Asian languages LQ	0.27	0.17
European languages LQ	0.03	-0.07
‘Other’ languages LQ	0.55	0.48
English only LQ	-0.66	-0.16

In Sydney, the relationship between disadvantage and the presence of immigrants who speak 'Other' languages is relatively strong at 0.55 - particularly compared to the other immigrant groups. Similarly, the presence of immigrants who speak 'Other' languages is positively linked to disadvantage in Brisbane (0.48). Settling in primarily lower income neighbourhoods may indicate that this group possesses fewer resources. It is also important to note that this broad 'Other' category includes immigrants who speak African and Middle Eastern languages. Immigrants who originate from these regions enter Australia primarily via the humanitarian migrant stream. To aid with settlement, these immigrants are placed by the Australian government in certain localities which have well established resources for resettlement. Thus the segregation patterns of this group are additionally shaped by macro level government policy.

Conversely, the proportion of immigrants who speak English only is negatively associated with disadvantage in both cities. In Sydney, the LQ score for English only speaking immigrants is particularly strong at -0.66. Choosing to live in the most desirable and sought after areas in Sydney suggests these immigrants possess much greater access to economic capital compared to the other ethnic groups. However, while the relationship is in the same direction, it is considerably weaker in the Brisbane context at -0.16. This may be explained by differing motivations for migration (ABS, 2011). Sydney draws a high volume of skilled immigrants with many global businesses situating their Australian headquarters in the city (Collins, 2006). English only speaking immigrants in Sydney may therefore have greater access to more lucrative positions and employment, which in turn affects their settlement practices and purchasing power. Brisbane on the other hand, is less of an economic hub and thus may not attract English only speaking immigrants with similar economic resources. Rather, as noted earlier, English only speaking immigrants in the Brisbane setting may be drawn to neighbourhoods that facilitate certain lifestyles. The relationship between Asian segregation and disadvantage is not particularly strong in either city (0.27 in Sydney and 0.17 in Brisbane). Nor is the relationship between European segregation and disadvantage (0.06 in Sydney and -0.07 in Brisbane).

Figure 7.8 provides a visual representation of the relationship between immigrant segregation and disadvantage in Sydney. Focusing in on the two ethnic groups most strongly correlated with disadvantage, this map highlights the spatial separation of immigrants who speak 'Other' languages and immigrants who speak English only and the varying degrees of disadvantage (or lack thereof) these groups face.

Figure 7.8 Disadvantage and segregation in Sydney



7.5 Stage 2: Negative binomial models

Analytic Strategy

I employ negative binomial regression to determine the relationship between immigrant segregation and crime across Brisbane and Sydney neighbourhoods. In all models, the total population residing in the neighbourhood is included as the exposure variable. Further information on the analytic strategy for Study 3 is provided in Chapter 4. The models are stepped out in two stages. In stage 1, the segregation measures are entered into the model in order to consider the relationship between segregation and violent crime. In stage 2, the neighbourhood variables are included in order to see if relationships between segregation and crime remain once controlling for other neighbourhood characteristics. All neighbourhood variables employed to compare between neighbourhoods in Study 1 and 2 are retained for Study 3. This process helps tease apart the relationship between immigrant segregation and crime before and after accounting for neighbourhood context.

Results: Sydney

In the initial stages of modelling, only the LQ measures are included (see Model 1 in Table 7.12). Without controlling for neighbourhood contextual features, the results suggest areas with a greater relative share of immigrants who speak Asian or European languages do not experience more violent crime. Similarly, no significant relationship is found between neighbourhoods that exhibit a greater relative presence of English only speaking immigrants and violent crime. However, neighbourhoods with a larger relative presence of immigrants who speak 'Other' languages encounter significantly more violent crime ($B=0.209$ $p<.001$).

In Model 2, the socio-demographic and environmental features of neighbourhoods are included. Once accounting for the socio-structural and environmental features of neighbourhoods, the relative concentration of immigrants who speak 'Other' languages is no longer significant. However interestingly, the relative concentration of immigrants who speak European languages is positively associated with violent crime ($B=0.099$ $p<.01$). Thus once including the neighbourhood features that we know are linked to violent crime, the uneven dispersion of this language group is associated with more neighbourhood violence. Additionally, once including the neighbourhood control variables, hosting a greater share of Asian speaking immigrants is significantly and negatively linked to violent crime ($B=-0.059$ $p<.05$). In other words, neighbourhoods with more than

their expected share of immigrants who speak Asian languages encounter fewer violent crime problems. The residential distribution of immigrants who speak English only remains non-significant.

In addition to these segregation measures, several neighbourhood factors are associated with greater violent crime across Sydney neighbourhoods. Specifically, areas with a higher level of disadvantage experience significantly more violent crime ($B=0.220$ $p<.001$). A greater Indigenous presence is also linked to more neighbourhood violence ($B=0.087$ $p<.001$). Areas with more renters similarly encounter greater violent crime incidents ($B=0.027$ $p<.001$). Population density is also problematic for violent crime, with more densely populated areas experiencing more violence ($B=0.007$ $p<.001$). A neighbourhood's distance from the CBD is positively linked to violent crime meaning that as the distance from the CBD increases, so too does violence ($B=0.07$ $p<.001$). Conversely, other neighbourhood factors were linked to lower counts of violent crime. In particular, areas with a greater presence of young males encounter fewer violent crimes ($B=-0.033$ $p<0.05$). Similarly areas with more land use classified as residential record fewer violent crimes ($B=-0.009$ $p<.001$). The number of residents at a different address five years ago has no effect on violent crime across Sydney neighbourhoods.

In Model 3, the cluster variables are included in place of the LQ variables and the neighbourhood variables are omitted. Here neighbourhoods identified as a HH cluster for Asian speaking immigrants and English only speaking immigrants are not significantly related to violent crime. Yet neighbourhoods identified as a cluster for immigrants who speak 'Other' languages are significantly linked to more violent crime ($B=0.807$ $p<.001$). Alternatively, neighbourhoods classed as a HH cluster for Europeans are negatively associated with crime ($B=-0.195$ $p<.05$).

Once controlling for neighbourhood contexts, HH cluster neighbourhoods for immigrants who speak European languages or 'Other' languages are no longer significantly associated with violent crime. In Model 4, neighbourhoods identified as HH clusters for Asian speaking immigrants are negatively associated with violent crime once these additional variables are considered ($B=-0.176$ $p<.05$). Thus, while non-significant in Model 3, once accounting for context, these clusters experience less violent crime. The differences uncovered between the two segregation measures (particularly in terms of the effect of European immigrant segregation) further highlight the need to consider multiple dimensions of segregation. Focusing on one measure of segregation alone may fail to capture some of these nuances. It is also important to note that these segregation measures account

Table 7.12 Predicators of violent crime across Sydney neighbourhoods (N=598)

	Model 1	Model 2	Model 3	Model 4
	B (SE)	B (SE)	(SE)	B (SE)
Asian Languages LQ	-0.010 (0.04)	-0.059 (0.04) *		
European Languages LQ	0.113 (0.05)	0.099 (0.04) **		
‘Other’ Languages LQ	0.209 (0.02) ***	0.004 (0.03)		
English Only LQ	-0.068 (0.08)	-0.143 (0.08)		
Asian Languages Cluster			-0.079 (0.09)	-0.176 (0.06) *
European Languages Cluster			-0.195 (0.08) *	-0.001 (0.06)
‘Other’ Languages Cluster			0.807 (0.09) ***	0.007 (0.07)
English Only Cluster			-0.078 (0.09)	-0.081 (0.07)
Disadvantage		0.220 (0.05) ***		0.277 (0.04) ***
% Indigenous		0.087 (0.02) ***		0.065 (0.02) **
% Young Males		-0.033 (0.01) *		-0.032 (0.01) *
% Renting		0.027 (0.00) ***		0.028 (0.00) ***
% Different Address (5yrs)		0.003 (0.00)		0.001 (0.00)
Population Density		0.007 (0.00) ***		0.007 (0.00) ***
Distance to CBD		0.007 (0.00) **		0.005 (0.00) **
% Residential Land Use		-0.009 (0.00) ***		-0.009 (0.00) ***
Intercept	-4.850 (0.12) ***	-5.439 (0.22) ***	-4.888(0.04) ***	-5.418 (0.17) ***
/lnalpha	-0.642 (0.06)	-1.815 (0.07)	-0.636 (0.06)	-1.797 (0.07)
Alpha	0.53 (0.03)	0.163 (0.01)	0.529 (0.03)	0.166 (0.01)
Log likelihood	-2681.30	-2318.10	-2679.99	-2363.83
Pseudo R ²	0.010	0.128	0.010	0.127
Likelihood ratio test of alpha	0.00	0.00	0.00	0.00
Chibar2(01)	1.5e +04***	4944.38***	1.5e+04***	4864.55***

* p<0.05; ** p<0.01; ***p<0.001

for only a relatively small amount of the variation in violent crime. The addition of the socio-structural variables increased the pseudo - R^2 from 0.029 and 0.020 in Model 1 and Model 3 respectively to 0.128 in Model 2 and 0.127 in Model 4. Thus other neighbourhood factors such as the level of disadvantage and population density are more central to explaining the variations in violent crime across neighbourhoods.

Results: Brisbane

The same modelling procedure is followed for Brisbane. In Model 1 (see Table 7.13), the LQ measures are included. Here we see areas with a greater relative presence of immigrants who speak 'Other' languages encounter more violence ($B=0.250$ $p<.001$). Conversely, the presence of immigrants who speak English only is negatively linked to crime ($B=-0.846$ $p<.001$). Similarly areas with a larger relative presence of immigrants who speak Asian language experience less violence ($B=-0.118$ $p<.001$). In Model 2, I include the neighbourhood variables. After controlling for neighbourhood contexts, no significant relationships between these segregation measures and violent crime remain. The relative concentration of immigrants who speak Asian languages, European languages, 'Other' languages or English only has no significant effect on violent crime across Brisbane neighbourhoods.

However, several statistically significant relationships between the neighbourhood socio-structural variables and violent crime are evident. Similar to Sydney, disadvantage is a strong predictor of violent crime across Brisbane neighbourhoods ($B=0.201$ $p<.01$). The more highly disadvantaged an area, the more likely it will experience violent crime. Areas with a greater presence of Indigenous residents also report more violent crimes ($B=0.034$ $p<.05$). Areas with more renters similarly encounter more neighbourhood violence ($B=0.046$ $p<.001$).

Contrary to what is known from the broader neighbourhood effects literature, the number of residents at a different address five years ago is negatively linked to violent crime in Brisbane ($B=-0.020$ $p<.01$). In other words, areas with higher levels of population turnover experience less violent crime. No significant effect is seen in Sydney. On average, levels of mobility are higher across Brisbane neighbourhoods compared to Sydney (mean: 40.85% compared to 33.70%). Further investigation shows that this mobility in Brisbane is driven largely by population growth. Indeed 35.64% of the neighbourhood sample in Brisbane experienced positive growth greater than 10% between 2001 and 2011 and recorded an above average level of residential mobility. This is compared to just 22% of Sydney neighbourhoods. Therefore the number of residents at a different

Table 7.13 Predicators of violent crime across Brisbane neighbourhoods (N=313)

	Model 1		Model 2		Model 3		Model 4	
	B (SE)		B (SE)		B (SE)		B (SE)	
Asian Languages LQ	-0.118 (0.05)	*	0.013 (0.05)					
European Languages LQ	0.148 (0.10)		0.073 (0.10)					
'Other' Languages LQ	0.250 (0.05)	***	-0.033 (0.04)					
English Only LQ	-0.846 (0.19)	***	-0.097 (0.18)					
Asian Languages Cluster					-0.124 (0.16)		-0.112 (0.12)	
European Languages Cluster					0.393 (0.16)	*	0.083 (0.11)	
'Other' Languages Cluster					0.623 (0.17)	***	-0.128 (0.13)	
English Only Cluster					-0.415 (0.15)	**	-0.132 (0.13)	
Disadvantage			0.201 (0.07)	**			0.184 (0.06)	**
% Indigenous			0.034 (0.02)	*			0.036 (0.02)	*
% Young Males			0.023 (0.02)				0.027 (0.02)	
% Renting			0.046 (0.01)	***			0.042 (0.01)	***
% Different Address (5yrs)			-0.020 (0.01)	**			-0.017 (0.01)	**
Population Density			0.007 (0.01)				0.008 (0.01)	
Distance to CBD			0.015 (0.01)	**			0.015 (0.00)	**
% Residential Land Use			-0.010 (0.00)	***			-0.011 (0.00)	***
Intercept	-5.131 (0.18)	***	-6.243 (0.33)	***	-5.719 (0.05)	***	-6.308 (0.29)	***
/lnalpha	-0.702 (0.09)		-1.512 (0.11)		-0.596 (0.09)		-1.527 (0.11)	
Alpha	0.496 (0.05)		0.219 (0.02)		0.551 (0.05)		0.217 (0.02)	
Log likelihood	-1134.05		-1017.17		-1148.44		-1031.71	
Pseudo R ²	0.026		0.110		0.013		0.114	
Likelihood ratio test of alpha	0.00		0.00		0.00		0.00	
Chibar2(01)	2158.49***		793.18***		2527.93***		778.60***	

*** p<0.001; ** p<0.01; * p<0.0001

address five years ago does not necessarily reflect an unstable residential population in Brisbane but rather represents new and developing areas.

Consistent with Sydney, a neighbourhood's distance from the CBD was positively and significantly related to violent crime in Brisbane ($B=0.015$ $p<.001$). This suggests that areas located further away from the CBD experience more violence. This finding reflects the layout of Brisbane with more affluent and desirable neighbourhoods located in and around the city centre while more disadvantaged communities with cheaper rents and available social housing are situated further away from the CBD. Residential land use is also an important predictor of violent crime in Brisbane neighbourhoods ($B=-0.010$ $p<.001$). As non-residential land use increases, so too does violent crime. Similar to Sydney the presence of young males had no effect on violent crime across Brisbane neighbourhoods. Unlike Sydney, population density was not a significant predictor of violent crime in Brisbane.

Next the LQ measures are omitted and the LM-I clusters are entered into the model (see Model 3, Table 7.13). These cluster measures indicate similar patterns to Model 1. Before considering other neighbourhood factors, neighbourhoods classed as a HH cluster for immigrants who speak European languages are linked to more neighbourhood violence ($B=0.393$ $p<.05$). Similarly, areas identified as a HH cluster for immigrants who speak 'Other' languages are positively associated with violent crime ($B=0.623$ $p<.001$). Neighbourhoods highlighted as a HH cluster for English only speaking immigrants experience fewer violent crimes ($B = -0.415$ $p<.01$). Neighbourhoods classified as a cluster for immigrants who speak Asian languages are not significantly associated with violent crime. In Model 4, the neighbourhood variables are included. Here the findings are similar to Model 2. Once controlling for the socio-demographic and environmental conditions of neighbourhoods, none of the segregation measures are significantly related to violent crime. Whether an area is identified as a HH cluster does not appear to be problematic for neighbourhood violence.

Site comparison

The results suggest that immigrant segregation has a different effect on violent crime across the two cities. In Brisbane, all of the significant relationships I find in the initial models are mediated by the neighbourhood variables. This is not the case in Sydney. By comparison, the relationship between immigrant segregation and crime is less clear-cut in this context. Both the LQ and LMI measures for Asian speaking immigrants are linked to significantly less crime. This suggests that both the residential distribution of the Asian speaking immigrant population and the co-location of Asian neighbourhoods protects communities from violent crime.

However, for European speaking immigrants, the relationship between segregation and crime varies depending on the measure employed. This is not overly surprising as the two measures tap into different processes. Specifically I find neighbourhoods that host more than their expected share of immigrants who speak European languages encounter more violent crime; however the co-location of neighbourhoods popular for European immigrants has no effect. This suggests that it is the residential distribution of the European population rather than the spatial patterning of neighbourhoods that matters most for crime. This variation reinforces the need to use multiple measures of segregation when assessing its effects on crime at the neighbourhood level.

Prior to controlling for neighbourhood factors, the segregation of immigrants who speak 'Other' languages (measured both by *LM-I* and the LQ score) is a significant predictor of violent crime. However once accounting for neighbourhood context (in particular, disadvantage) this relationship is no longer statistically significant. This finding in particular highlights the importance of considering the broader neighbourhood context.

7.6 Chapter summary

By moving from the global to the local level, this study illuminates spatial segregation trends that are not captured by traditional indices. Indeed, global segregation indices constructed during the preliminary stages of this study revealed limited segregation in either city. However, when moving to the local level, the results of both the LQ and *LM-I* analyses reveal clear spatial trends and show very distinct differences in where ethnic groups choose to settle. The LQ analysis shows that immigrant groups from non-English speaking backgrounds are not randomly distributed across the city, but are overrepresented in certain communities. Yet the degree of dispersion varies considerably between groups. Additionally, immigrants who speak English only are quite evenly spread across the city landscape. The *LM-I* analysis highlights similar spatial trends with the co-location of immigrant neighbourhoods relatively common in both cities. Most notable here was the prevalence of single group clusters in both sites. These findings could reflect strong in-group preferences to settle with culturally similar individuals or varying abilities to compete in the property market.

The results of the analytic models indicate immigrant segregation differentially impacts crime in the two cities. In Brisbane, the relationship between segregation and crime does not remain statistically significant once the context of the neighbourhood is considered - this finding was consistent regardless of the segregation measure employed and the ethnic group under examination. It is likely that in Brisbane- the new destination city- segregation levels have not reached the required threshold to impact crime. The relationship between immigrant segregation and crime is

more complex in Sydney and varies depending on the segregation measure utilised and the group under consideration. This variance highlights the need to empirically examine multiple dimensions of segregation when testing its effects on neighbourhood crime.

Reflecting on the implications for theory and policy, the following chapter discusses the results of the three empirical studies. In addition, the limitations of this thesis are addressed with areas for future research highlighted.

Chapter Eight: Discussion and Conclusions

8.1 Introduction

Those who support restrictive immigration policies tend to cite four key reasons for their anti-immigration stance: (1) immigrants threaten a nation's cultural identity; (2) immigrants place a strain on the economy; (3) immigrants take jobs from natives and; (4) immigration increases crime rates (Mayda, 2006; McLaren & Johnson, 2007; Sides & Citrin, 2007). In this thesis, I have robustly tested the latter - the presumption that increased immigration leads to increased crime. The consequences of these perceptions are far-reaching. Election results worldwide show growing public support for anti-immigration parties who propagate the myth of the criminal immigrant and the crime-generating effects of immigration. Once in power, these conservative governments capitalise on the public's fear of immigration to garner support for restrictive immigration policies, deportation practices and hard-line anti-terrorism strategies (Mears 2001; Sniderman et al., 2004; Stumpf, 2006). Consequently, certain immigrant groups are marginalised in their local community and face discrimination in both the workforce and housing market (Chavez & Griffiths, 2009; Mayda, 2006; Semyonov et al., 2004; Sniderman et al. 2004). These negative stereotypes can motivate the use of racial profiling practices by police (Epp et al., 2014) and incite ethnically motivated crimes (Beneck & Martin, 2016; Corcoran & Smith, 2017; Southern Poverty Law Center, 2016). There is also evidence to suggest residents in immigrant neighbourhoods are more fearful of crime (Hooghe & Vroome, 2016) and perceive more crime and disorder (Wickes et al., 2013a). Understanding the actual association between immigration and crime is thus important given the widespread and damaging effects of this perceived link.

In his ASC presidential address Sampson (2013, p. 25) called for a "relentless focus on context" in the study of neighbourhoods and crime. I argue this is particularly important in evaluating the immigration-crime link. International migration trends demonstrate a high degree of variability in immigrant composition not only across national contexts but also within. Each setting's immigrant population is shaped by a range of factors including geography, immigration policy, histories of colonisation, shared languages, economic opportunities as well as proximity to conflict/ humanitarian crises. These macro-level conditions are likely to determine the significance and direction of the immigration-crime relationship at the neighbourhood and city level.

The central aim of my thesis was therefore to unpack the dynamic role national, city and neighbourhood contexts play in shaping the relationship between immigration and crime over time.

In particular, I questioned whether theories of immigration and crime derived from the United States experience translate well to other settings like Australia. In a country with high levels of ethnic diversity and a largely skilled immigrant population, would similar relationships to the United States unfold? To answer this question, I conducted three quantitative studies, which together considered how immigrant growth, concentration, diversity and segregation impacts violent crime across over 800 neighbourhoods located in two cities: Sydney - an established immigrant gateway and Brisbane- a relatively new immigrant destination site (Singer, 2004).

Although Australia is a nation of immigrants, very little is known about the impact of immigration on neighbourhood crime. To bridge this gap and set a baseline for Australian research, I employed broad measures of total immigrant concentration and total immigrant growth in Study 1. I also utilised an innovative hybrid modelling approach to simultaneously examine whether increases in immigrant concentration over time influence changes in violent crime *within* a neighbourhood while also considering whether levels of immigrant concentration are linked to more or less crime *between* neighbourhoods. I therefore questioned whether it is *increases* in the immigrant population that matter for neighbourhood crime or simply the average level of immigrant concentration. Study 1 thus advances the international literature by testing both of these distinct effects at the same time.

Study 1 also builds on previous scholarship by robustly examining (in a non-United States setting) whether the effect of increases in immigrant concentration are contingent on the neighbourhood context in which they occur. Rather than dichotomising neighbourhoods as new and established (see for example Harris & Feldmeyer, 2013; Light, 2017; Painter-Davis, 2015), I capitalised on the hybrid modelling approach utilised in Study 1 to assess whether the effect of increases in immigrant concentration on violent crime depends on the size of the immigrant population. This approach recognises that immigrant concentration occurs on a continuum and avoids the need to define appropriate cut points for what constitutes a ‘new’ versus ‘established’ neighbourhood context. Such blunt classification may potentially undermine previous work by failing to capture the considerable variance in levels of immigrant concentration across place.

Study 2 progresses international immigration-crime scholarship in two important ways: first, by considering the potential for group specific effects and second, by assessing *both* concentration and diversity effects. The immigration-crime literature to date, has largely focused on broad measures of total/recent immigrant concentration (see for example Feldmeyer and Steffensmeir, 2009; Lee et al., 2001; Martinez et al., 2008; Martinez et al., 2010; Wadsworth, 2010) or more focused measures of percent Latino/Hispanic/Mexican (see for example Feldmeyer, 2009; Harris &

Feldmeyer, 2013; Light, 2017) - with other groups often ignored (see for exception Kubrin et al., 2016). However, immigrants do not represent a monolithic group. Considering the high degree of heterogeneity in the immigrant population, in Study 2 I disaggregated immigrant concentration by two key indicators of ethnicity - language and religion. By capturing the presence of culturally similar immigrants in a given neighbourhood, these measures provide a better test of the revitalisation thesis which emphasises the importance of co-ethnics for integrating new arrivals and the formulation of strong social networks.

Secondly I advanced current empirical scholarship in Study 2 by comparing these group specific concentration effects to the effect of ethnic diversity on violent crime. From the social disorganisation view, ethnically diverse immigrant populations are particularly damaging to a community's regulatory capacity as language barriers and cultural differences impede residents ability to come together to collectively solve local problems like crime. To determine whether neighbourhoods with a greater mixture of ethnic groups encounter more crime, I included two diversity indices (language diversity and religion diversity) in the Study 2 models. By assessing both concentration and diversity effects side by side, Study 2 robustly examines the central tenets of both the revitalisation thesis and social disorganisation theory.

Study 3 also progresses the current literature both theoretically and methodologically. In this study, I explored a largely unexamined aspect of the immigration-crime nexus - the effect of immigrant group segregation on crime. To date, most studies have relied solely on measures of concentration or growth, with the effect of immigrant segregation on crime (particularly at the neighbourhood level) unexplored. Acknowledging the limitations of traditional segregation indices and the multidimensional nature of residential segregation, I drew on two underutilised yet highly spatialized measures of local segregation - Location Quotients and Local Moran's I. As a starting point for this study, I first established trends in local segregation across the two sites (identifying segregation patterns often missed by traditional global indices) before considering the consequences of immigrant group segregation for violent crime.

In the remainder of this chapter, I discuss the key findings of these three empirical studies and highlight the implications for theory and policy. I conclude this chapter, and this thesis by considering the limitations of this research and identify future directions for immigration-crime scholarship.

8.2 Key findings

This thesis was interested in determining the effect of immigration on violent crime across over 800 neighbourhoods located in two Australian cities: Sydney - an established immigrant gateway and Brisbane - a relatively new destination site. The results of the three empirical studies comprising this thesis all point to similar conclusions: regardless of how immigration is conceptualised (measured by growth, concentration or segregation) or the ethnic group under consideration (with ethnicity defined by both language and religion) - there is little evidence to suggest immigration is linked to greater violent crime in either city. However, the effect of ethnic diversity on crime is more problematic, particularly when comparing across neighbourhoods. I discuss the key findings of each of the three empirical studies before turning to the broader socio-structural and environmental factors linked to violent crime in Australian neighbourhoods.

Growth, concentration and crime

In Study 1 I asked three questions. First, how do changes in immigrant concentration impact violent crime within a neighbourhood over time? Second, do neighbourhoods with a higher concentration of immigrants encounter more or less violent crime? And finally, do neighbourhood factors moderate the immigration-crime relationship? Overall I find no evidence in either city to suggest that increases in the immigrant population over time are linked to greater neighbourhood violence or that neighbourhoods with a greater concentration of immigrants experience more violent crime. In fact, even after accounting for the broader neighbourhood context, growth in the immigrant population is associated with less violence within Brisbane and Sydney neighbourhoods over time. On the other hand, average levels of immigrant concentration are not significantly related to violent crime. These findings therefore indicate that it is the process of an *influx* of immigrants into a neighbourhood that is most consequential for crime rather than simply the degree of concentration. Despite differences in immigration histories and immigrant composition, these findings were consistent across both sites. As immigration is monitored at the national level, the similarities across sites may be reflective of Australia's tightly controlled immigration policy which is focused on recruiting highly skilled immigrants and protecting Australia's borders.

When more closely examining the caveats of context, important differences between the two research sites were found. In the United States, scholars argue that an influx of new immigrants will differentially affect crime depending on the size of the immigrant population (Martinez et al., 2004; Ramey, 2013) and the level of neighbourhood disadvantage (Velez, 2009). Specifically, it is argued that neighbourhoods with a larger immigrant population will more easily 'absorb' new arrivals whereas neighbourhoods with fewer immigrants may struggle to facilitate integration (Portes and

Rumbaut, 2006; Ramey, 2013; Singer, 2004). Neighbourhood disadvantage is also argued to moderate the immigration-crime relationship with the effect of immigration on crime thought to be particularly strong in disadvantaged communities where immigrants are seen to revitalise local institutions and networks (Velez, 2009).

Like research elsewhere, the findings of this thesis suggest the effect of changes in immigration on crime is contingent on the broader neighbourhood context in which they occur - at least in the Sydney context. In this city, I find that the size of the immigrant population and the level of disadvantage does matter for how changes in immigration impact neighbourhood violence - although not as predicted in the revitalisation thesis. Contrary to theoretical expectations, I find the crime-reducing effect of an influx of immigrants is most pronounced in areas with fewer established immigrants and in the least disadvantaged communities. These effects are not significant in Brisbane, perhaps because levels of immigrant concentration and disadvantage do not reach the required threshold in this city. Nevertheless, this indicates that a large and established immigrant population is not required in order for changes in immigrant concentration to insulate communities from crime. As these findings do not align with theoretical predictions or prior research in the United States, they suggest context may matter in different ways for how the immigration-crime relationship plays out in Australia. Together, these findings raise questions about the applicability of the revitalisation thesis in the Australian setting.

Group specific and diversity effects

Study 2 posed similar questions to Study 1 although the focus here was on establishing whether the immigration-crime relationship varies across different ethnic groups. First, I asked how do changes in immigrant group concentration and diversity impact changes in violent crime over time within a neighbourhood. Second, I questioned whether neighbourhoods with a higher concentration of certain immigrant groups or higher levels of diversity report more or less violent crime. And finally, I asked whether the effect of changes in immigrant concentration and diversity vary across different neighbourhood contexts (namely, in neighbourhoods with few immigrants versus neighbourhoods with more immigrants and in more versus less disadvantaged neighbourhoods).

After disaggregating the total immigrant concentration measure by immigrant language and religion, I find no evidence that the growth or concentration of any ethnic group is associated with more neighbourhood violence after adjusting for neighbourhood context. Net of neighbourhood controls, several growth and concentration measures are significantly associated with *less* violent crime. While total immigrant concentration levels have a null effect on crime in Study 1, in Study 2

I find areas with a greater concentration of certain groups encounter fewer violent crimes. While I find fewer significant relationships in Brisbane, there is little evidence to suggest neighbourhoods in this new destination city with a typically Anglo-Saxon immigration history have fared worse following unprecedented growth in the Asian population. Indeed growth in the immigrant population who speak Southern Asian languages is actually associated with a significant drop in violent crime within Brisbane neighbourhoods over time.

Similar results are seen when examining the immigrant population by religious affiliation. In Sydney, an influx of Muslim immigrants into a neighbourhood is associated with a significant decrease in violent crime, so too is an influx of immigrants without a religious affiliation. Moreover, areas with a greater average concentration of immigrants affiliated with Buddhism, Islam, 'Other' religions or No Religion experience fewer violent crimes. Both growth and concentration in these religious groups has little impact on crime in Brisbane. Only an influx in the immigrant population with no religious affiliation is significantly associated with changes in violent crime over time. No religious group concentration is significantly linked to violent crime in Brisbane. These findings are important given current political rhetoric. While Australian politicians like Pauline Hanson explicitly link Muslim immigration to violent crime (Commonwealth of Australia, Senate, 2016, p. 939), I find no evidence to substantiate these claims. If anything, the presence of Muslims makes communities safer when holding all else equal in Sydney.

In addition to considering these group specific effects, I also assessed the effect of ethnic diversity on crime within and between neighbourhoods. Here I find that the effect of ethnic diversity contrasts the effect of ethnic group concentration. In Sydney, increasing language diversity is associated with more violent crime over time independent of the broader neighbourhood context. By comparison, changes in language diversity have no effect on crime in Brisbane once context is considered. However, linguistically diverse neighbourhoods in both cities experience greater violence, pointing to a break down in regulatory capacity in areas with greater diversity. Similar effects are seen when considering religion diversity. While changes in religion diversity are not significantly related to violent crime over time, more religiously diverse neighbourhoods report greater violent crime. Thus in both cities, more diverse neighbourhoods encounter more violent crime while at the same time, areas with a greater concentration of certain ethnic groups experience less violent crime. I consider the theoretical implications of these findings in section 8.3.

Segregation and crime

In Study 3, I examined the effect of immigrant group segregation on violent crime. Four key questions guided this study. The first two were related to identifying general trends in spatial

segregation in Brisbane and Sydney as previous (albeit limited) scholarship indicates low levels of ethnic segregation in Australia. Specifically I asked, how are various immigrant groups spatially distributed across Brisbane and Sydney neighbourhoods? And, do immigrant neighbourhoods tend to be co-located or spatially isolated? After determining these spatial trends, the last two questions focused on the effect of segregation on crime. Here I questioned whether the residential distribution of various immigrant groups impacts crime and if the co-location of immigrant neighbourhoods is associated with more or less neighbourhood violence.

The LQ analysis assessed the residential distribution of each language group throughout the city. The findings indicate that these groups from non-English speaking backgrounds are not evenly dispersed but rather overrepresented in particular neighbourhoods. However, the degree of dispersion varies considerably between groups with English only speaking immigrants quite evenly spread while immigrants who speak 'Other' languages are highly concentrated in just a few neighbourhoods. The LM-I analysis illuminates similar spatial trends with the co-location of immigrant neighbourhoods relatively common in both cities. Isolated immigrant neighbourhoods are rare. Interestingly, single group clusters are most prevalent in both sites (neighbourhoods identified as an immigrant cluster for just one ethnic group). Thus, contrary to previous research, I find Australian neighbourhoods differentially attract certain ethnic groups.

There are two key potential explanations for these findings. First, this spatial patterning may reflect in-group preferences and the desire to settle with culturally similar people thereby limiting interactions with other ethnic groups (Emerson et al., 2001). This is most evident amongst the English only speaking group who tend to avoid neighbourhoods popular for Asians, Europeans and 'Others'. Interestingly, this finding is consistent with the settlement patterns of whites in segregation studies in the United States (Emerson et al., 2001). Another potential explanation for these segregation patterns is the varying ability of different immigrant groups to compete for space due to unequal access to economic capital (Morill, 1991). There is evidence to suggest some immigrant groups in Australia possess fewer resources than others. In particular, immigrants who speak 'Other' languages appear to settle predominantly in neighbourhoods stigmatized by high rates of disadvantage and crime. On the other hand, immigrants who speak English only tend to reside in neighbourhoods with low levels of disadvantage, particularly in Sydney. This trend points to greater access to economic capital amongst this group. Stage 1 of Study 3 therefore suggests that some of the mechanisms which drive segregation patterns in the United States may apply to the Australian context.

After determining these spatial trends, I explored their consequences for violent crime. The results suggest that immigrant segregation has a different effect on violent crime across the two cities. In Brisbane, no statistically significant relationship remains once the context of the neighbourhood is considered. This finding is consistent regardless of the segregation measure utilised or group under examination. As a relatively new immigrant destination, it is likely that levels of residential segregation do not reach the threshold necessary to impact violent crime in Brisbane. These findings align with Feldmeyer and colleagues (2017) research in the United States which found no direct relationship between immigrant segregation (measured by isolation and exposure) and violence at the census place level. However in Sydney, the relationship between immigrant segregation and crime is far more complex and dependent on the measure of segregation employed and the group under examination. When accounting for neighbourhood features, the segregation of certain immigrant groups, namely immigrants who speak Asian languages, is associated with significantly *less* violent crime. In contrast, the uneven residential distribution of immigrants who speak European languages is linked to *more* neighbourhood violence. Yet the spatial co-location of European neighbourhoods has no significant effect on crime. This variance reinforces the need to consider multiple groups and measures when examining the effect of segregation on crime at the neighbourhood level. Indeed, further research is needed in order to better understand the reasons why the segregation of various immigrant groups differentially impacts neighbourhood crime.

The broader neighbourhood context

It is important to recognise that when examining the spatial distribution of crime, immigrant concentration and diversity account for only a small amount of the overall variation. Rather, other factors such as disadvantage and land use play a much more instrumental role in explaining violent crime across neighbourhoods. The evidence presented here suggests disorganised neighbourhoods, characterised by disadvantage, diversity and residential instability (Shaw & McKay, 1942) tend to experience the greatest share of violent crimes. For the most part, the neighbourhood factors linked to violent crime are fairly consistent across both sites and across all three studies that comprise this thesis. Disadvantage in particular emerged as a strong predictor of violent crime. In both cities, I find increasing disadvantage within a neighbourhood over time²¹ is associated with an increase in violent crime. Further still, I find reported incidents of violent crime are higher in more disadvantaged neighbourhoods when compared to areas with lower levels of disadvantage. These

²¹ In Sydney, this was significant in the Study 2 models only when disaggregating the immigrant concentration measure by ethnic groups and controlling for diversity.

findings are consistent with previous scholarship (Bursik & Grasmick, 1993; Krivo & Peterson, 1996; Lee et al., 2001; Sampson, Morenoff & Raudenbush, 2005).

There is also some evidence to suggest residentially unstable neighbourhoods encounter more crime. From a social disorganisation view, the findings suggest renters may be less invested in the community and in turn, less willing to intervene in neighbourhood crime. However, the other key measure of residential instability - those at a different address five years ago - is not associated with more crime in either site. This is likely because changes in the population (particularly in the Brisbane context) do not necessarily represent an unstable residential population. Instead, the presence of new residents may point to population growth and urban renewal. This point is further reinforced by the protective effect of increasing population density in the two cities. Land use is also consistently associated with violent crime across the three studies. In both Brisbane and Sydney, residential neighbourhoods appear to present fewer opportunities for violent crime.

8.3 Theoretical implications

To date, the bulk of empirical immigration-crime scholarship has focused on testing concentration effects over diversity effects (see for exception Feldmeyer et al., 2016; Graif & Sampson, 2009; Kubrin et al., 2016). Given that social disorganisation theory is more concerned with the effect of ethnic diversity on crime (rather than the effect of ethnic concentration) testing these diversity effects is important when evaluating the efficacy of this theory. Although there is a tendency to conflate concentration and diversity measures, it is important to recognise that they tap into two very different aspects of neighbourhood life. As such, there are reasons to believe these two processes will differentially impact neighbourhood crime. According to the revitalisation thesis, the presence of co-ethnics may insulate communities from crime by strengthening social networks and providing residents with a “protective shell” of resources (Harris & Feldmeyer, 2013, p. 203). Ethnic diversity on the other hand (which immigration directly contributes to) is likely to have the opposite effect. Social disorganisation theory predicts higher crime in more ethnically diverse areas. This is because cultural differences between immigrant groups, language barriers and in-group preferences cause residents to “hunker down,” and avoid neighbourly interactions (Feldmeyer et al., 2016; Putnam, 2007; Wickes et al., 2013b). As such, residents in ethnically diverse neighbourhoods are less likely to look out for their neighbours and intervene in social problems. In turn, this lack of informal social control leads to higher crime.

The findings of this thesis are consistent with such arguments and previous scholarship (Feldmeyer et al., 2016). In the Australian context, ethnic group concentration is not linked to more crime and in some cases can reduce crime. However, ethnic diversity is associated with greater

neighbourhood crime. In both cities, neighbourhoods with a higher average level of language and religion diversity encounter more violent crime while at the same time, areas with a higher average concentration of certain immigrant groups experience less violent crime. These findings therefore highlight the divergent effects of ethnic concentration and diversity on neighbourhood violence. This suggests that each theory's hypothesised effect of immigration on violent crime can occur simultaneously. Measuring ethnic concentration and diversity effects is thus important in order to more fully understand how immigration impacts neighbourhood structures in ways that both promote and inhibit crime.

Like the United States, the findings indicate that immigrant concentration does not lead to higher violent crime in Australian neighbourhoods. Whether this relationship is due to a process of revitalisation is unclear and requires further investigation. From a revitalisation perspective, it is expected that immigrant neighbourhoods exhibit particularly strong social networks which help foster shared expectations for informal social control (Feldmeyer et al., 2017). As a result, immigrant neighbourhoods should experience less crime. The relationship between immigration and crime is thus theorised to be indirect. However, the measures included in this thesis (similar to most previous scholarship) do not explicitly test the effect of immigrant concentration on the neighbourhood social processes important for the regulation of crime (such as collective efficacy). Rather the analyses provided here model the effect of immigrant concentration (and diversity) on crime alongside a series of neighbourhood controls. As such, these models test the direct effect of immigration on crime when holding disadvantage, land use and other key predictors of violence constant. While the findings suggest that immigrant concentration is not linked to more crime (regardless of how it is conceptualised), these results do not explain *why* this relationship exists. Whether or not immigration actually shapes collective efficacy (or other neighbourhood social processes) and thus indirectly impacts crime is unknown.

However, this is a limitation of immigration-crime scholarship more broadly. To date, only a handful of studies have tested the indirect effect of immigration on crime (see for example, Burchfield & Silver, 2013; Feldmeyer et al., 2017; Kubrin & Desmond, 2015). Further still, these studies find limited support for the argument that immigrant neighbourhoods possess particularly strong social ties and high levels of collective efficacy. Kubrin and Desmond (2015, p. 13) suggest these results "raise more questions than they answer." Specifically, if immigrant neighbourhoods do not exhibit particularly high levels of social capital, what explains the protective effect of immigrant concentration on crime? This missing link in the current study and indeed the lack of conclusiveness in the emerging international literature makes it difficult to determine whether the protective effect of immigration on crime in Australian neighbourhoods is due to a process of

revitalisation. I note this as an important area for future research.

Beyond the revitalisation thesis, there are other explanations which may explain the protective effect of immigration on crime in both Australia and the United States. In particular, the push/pull factors which influence migratory decisions may account for some of the similarities found across the two contexts (Tonry, 1997). As most immigrants in Australia are highly skilled and secure employment before arrival, the foreign born population in this setting largely represents the “motivated immigrant” outlined in the selection effects thesis (DIBP, 2015). The point based program of migration effectively *selects* immigrants who have high stakes in conformity and possess a strong desire to avoid contact with the criminal justice system. Likewise, the United States attracts a large volume of immigrant workers, (albeit low skilled) as well as immigrants hoping to reunite with close family members. Despite notable differences in socio-economic and legal status, immigrants in both settings are *pulled* to the host country in search of a better livelihood for themselves and their family, motivated by the prospect of achieving upward social mobility. By adding to the share of the population who is particularly responsive to deterrent mechanisms and thus less likely to offend, increased immigration is unlikely to lead to higher neighbourhood crime in these contexts (Sampson, 2008). However in other countries like Germany, a large proportion of immigrants are *pushed* from their country of origin as a consequence of conflict/humanitarian crisis. Such groups often lack both social and economic resources upon arrival, face high levels of anti-immigrant sentiment and experience high levels of posttraumatic stress (Kubrin et al., 2016; Martens, 1995; Tonry, 1997). These circumstances make these groups particularly vulnerable to crime. Further still, their presence in neighbourhoods may shift social structures in ways that generate crime (for example, by exacerbating levels of neighbourhood disadvantage).

Such arguments are consistent with the group specific effects identified in this thesis. For the most part, immigration is not associated with more neighbourhood crime - even when disaggregating by language and religion or when looking at measures of growth, concentration or segregation. This lack of variability in the findings across different ethnic groups is not particularly surprising. Despite considerable differences in immigrant ethnicity, most immigrant groups entering Australia are economically motivated (Spinks, 2016). For example, visa category data indicates that immigrants from Asia (particularly China and India) are mainly entering Australia via the skilled stream (DIBP, 2014a; 2015a; 2016a). Thus despite their social and cultural distance from the native population, the increasing presence of Asian immigrants actually reduces crime in some cases (for example, Indian immigrants in Brisbane and Chinese immigrants in Sydney). These findings therefore provide some preliminary evidence that the push/pull factors which drive migratory

decisions may have important consequences for crime and explain some of the variation found across different ethnic groups.

Yet as it stands, the most commonly employed theoretical models used to explain the immigration-crime relationship (such as social disorganisation theory and the immigration revitalisation thesis) do not sufficiently address the variability in motivations for migration (Tonry, 1997). Research which evaluates the immigration-crime connection in a cross cultural, comparative framework is thus needed in order to further understand how the broader processes of immigration and immigration policy at the national level differentially influence crime outcomes within cities and neighbourhoods.

8.4 Policy implications

Taken together, the results of this thesis suggest that immigration does not directly increase violent crime. Nevertheless, the presence of particular immigrant groups in a neighbourhood is linked to heightened perceptions of crime and disorder and greater fear of crime (Hooghe & De Vroome, 2016; Wickes et al, 2013a). Reassuring residents of the benefits of immigration (and indeed dispelling the myth of the criminogenic effects of immigration) is thus worthwhile to ensure immigrant concentration does not indirectly impact neighbourhood crime as a result of these anxieties. Yet current rhetoric and action by the Australian government does nothing to expunge these fears. Announcing changes to Australian citizenship requirements earlier this year (immigrants must now be a permanent resident for four years rather than 12 months and pass an English proficiency test), Prime Minister Malcolm Turnbull requested only “Australian patriots” apply (Kelly, 2017). These changes (and the language used to discuss immigration issues more broadly) are thinly veiled attempts by the Turnbull government to appear tough on border protection and national security issues. However, such rhetoric only further reinforce perceptions of immigrants as threats, cause the public to question the intentions of immigrants and provides a significant barrier to integration by delaying access to citizenship (Hainmueller, Hangartner & Pietrantuono, 2015).

The results of this thesis suggest communities characterised by indicators of social disorganisation (i.e. disadvantage, diversity and instability) experience the greatest share of violent crime. An extensive body of research suggests that collective efficacy can help insulate communities from violence – regardless of the socio-demographic conditions of the neighbourhood. In other words, even in disadvantaged neighbourhoods, high levels of collective efficacy can reduce the occurrence of violent crime (Sampson et al., 1997). In essence, collective efficacy comprises two parts: (1) social cohesion and trust and; (2) a perceived willingness to intervene in local

problems. With this in mind, community organising programs which work to strengthen social networks and encourage informal social control amongst residents may help reduce crime in high risk communities. Given the crime-generating effect of ethnic diversity, finding opportunities to promote cultural awareness and celebrate local traditions within ethnically diverse neighbourhoods may help dissolve the cultural barriers between residents and lay a foundation for community members to reach the level of mutual understanding and trust required for informal social control. Ideally, such programs should be run by local residents rather than imposed by external agencies and focus on empowering the community to take part in decision making processes (Wickes, 2017).

In fostering collective efficacy, scholars argue social ties alone are not enough to prevent crime. Sabol, Coulton, and Korbin (2004) suggest it is not only important to foster bonds between residents in disadvantaged neighbourhoods but to also engage external agencies who can provide institutional support from government and police. Ohmer (2016, p.684) argues that “although social capital and social cohesion are considered conditions for collective efficacy, residents must take action for collective efficacy to be realised.” This means that for crime reduction to occur, residents must also be encouraged to intervene. Yet to date, there have been few attempts by researchers translate this theory into practice (see for exception Ohmer, Warner & Beck, 2010; Ohmer, 2016).

For the most part, studies tend to find that neighbourhood crime prevention programs work best in low crime, middle class neighbourhoods (Hirschfield & Bowers, 1997). Effectively implementing such initiatives in crime prone, disadvantaged areas (i.e. the places that need this type of intervention the most), is much more challenging (Sampson, 2012). One program with promising results focused on improving attitudes towards intervention in a low income neighbourhood in Atlanta (Ohmer et al., 2010). As part of the program, residents were involved in a series of training seminars which focused on encouraging intervention in community problems in addition to teaching conflict resolution techniques. While the sample size of the program was small, the pre-post test showed a significant increase in attitudes towards intervening suggesting participants were more likely to intervene in community problems following involvement in the program. Building on this work in a more recent study, Ohmer (2016) implemented a multi-stage program in a racially diverse low income neighbourhood in Atlanta. Focusing specifically on building capacity for collective action, the findings of the program revealed participants perceived higher levels of social capital and social cohesion and were also more willing to intervene in local problems after their involvement in the training program and the community project. Drawing on this research, similar programs could be implemented in high-risk Australian neighbourhoods such as Fairfield and Woodridge which are characterised by high rates of disadvantage, diversity and crime.

8.5 Limitations and future research

While this thesis advances immigration-crime scholarship in several, important ways, it is not without its limitations. First, the results presented here are largely dependent on the unit of analysis chosen: the state suburb. While Australians tend to perceive their state suburb as their local neighbourhood (Mazerolle et al., 2007), it is important to recognise that these findings may vary across different geographies. This potential variability is referred to as the Modifiable Areal Unit Problem (MAUP) and consists of two key components: (1) the scale effect and (2) the zonation effect (Openshaw & Taylor, 1979; Wong, 2004). The scale effect refers to variations in the findings at different geographic scales. For example, if we employ a smaller unit of analysis such as the SA1 (similar to the block group in the United States) or a larger unit of analysis such as the local government area, would similar relationships unfold? Considering crime is highly clustered not only across neighbourhoods but within, if the unit of analysis is too large, empirical analyses may misrepresent the immigration-crime association (Hipp, 2007). As the concentration and segregation of ethnic groups is a multi-scalar phenomenon (Fowler, 2016), future research should consider and compare the immigration-crime connection at various geographic scales to better understand how (and potentially why) these relationships vary at different spatial granularities.

The zonation effect flags the potential for differences in the results when comparing unit boundaries at the same spatial scale (Wong, 2004). This is particularly important for this thesis as I relied on administrative boundaries which were delineated for non-research purposes. As such, these boundaries may not accurately reflect the spatial concentration of immigrant groups but rather artificially divide an immigrant area into multiple neighbourhoods. Advances in statistical and mapping techniques offer new avenues for overcoming the limitations of administrative boundaries. Arguing against the use of nonoverlapping boundaries, Hipp and Boessen (2013) introduced egohoods as an alternative strategy for defining neighbourhoods. Conceptualised as “waves washing across the surface of the city,” their findings show that the egohood approach can better explain the positive relationship between inequality and crime compared to block groups or census tracts (Hipp and Boessen, 2013, p. 289). Incorporating such an approach in future immigration-crime research is worthwhile, particularly given the tendency for immigrant neighbourhoods to be co-located.

It is also important to note that the results of this thesis do not represent the offending rates of particular immigrant groups. I cannot conclude that certain immigrant groups offend at a higher or lower rate than others - any suggestion of this would be an ecological fallacy. Rather, data that disaggregates the overall violent crime measure by offender immigrant status is required to more

fully understand the immigration-crime relationship. An important question for future research is whether or not there is racial/ethnic invariance in the effect of immigration on crime in Australia. In other words, does immigrant concentration, growth or segregation impact the offending rates of all immigrant groups (as well as natives) equally? Evidence from the United States suggests variability between groups exists (Feldmeyer & Steffensmeier, 2009; Lee et al., 2001) yet these questions are rarely explored in other contexts.

Like many other immigration-crime studies to date (Akins et al., 2009; Feldmeyer, 2009; Feldmeyer & Steffensmeier, 2009; Kubrin & Ishizawa, 2012; Kubrin & Ousey, 2009; Lee & Martinez, 2002; Martinez et al., 2010; Martinez et al., 2008), this study focused solely on violent crime. Yet evidence suggests that the immigration-crime relationship varies depending on the crime type under examination (Bell et al., 2013; Kubrin et al., 2016; Stansfield, 2014). In particular, some argue that immigrant concentration is associated with more instrumental forms of offending (such as robbery and theft) compared to expressive crimes (such as assault and homicide) (Bell et al., 2013). Examining other crime types and how the results compare is an important area for future Australian research. Moreover, this study relied on an aggregated measure of violent crime comprised of all homicides, assaults and robberies within a given neighbourhood. Given the different opportunity structures for different crime types, Andresen and Linning (2012) argue against using broad categories when considering spatial variations in crime. However, violent crime is a relatively rare event, particularly in the Australian context. This aggregation was therefore necessary in order to avoid a large number of zero cell counts in the dependent variable. Nevertheless, it is important to recognise the use of this broad crime measure is a potential limitation of the study.

As mentioned in section 8.3, I did not consider the indirect effects of immigration on the community social processes important for the regulation of crime. Also worth noting is that I did not consider how immigration indirectly impacts levels of poverty, diversity and residential instability within a given neighbourhood. Whether or not increased immigration changes neighbourhood structures in a meaningful way and this in turn influences crime is unclear. This is particularly important given the relatively strong association between the immigrants who speak 'other' languages and violent crime. These immigrants (more so than other groups) appear to be settling in highly disadvantaged neighbourhoods with a history of high crime rates. Employing modelling strategies which test for the indirect effects on immigration on crime will further improve our understanding of the immigration-crime nexus.

While this study is longitudinal and employs data from over three time points, I was not able

to account for the endogeneity/selection bias in immigrant settlement location. In other words, the modelling strategy employed does not address the potential for crime patterns to shape immigration patterns or for immigrants to self-select into already low crime neighbourhoods. This is problematic as we know that immigrants are not randomly distributed across the city but rather select certain communities for settlement. In some cases, immigrants with fewer resources may be left with little choice but to settle in high crime neighbourhoods while other immigrant groups may purposely avoid moving into such areas (MacDonald et al., 2013). Such issues with endogeneity are widely recognised by immigration-crime scholars as a potential limitation of this research (Bell et al., 2013; MacDonald et al., 2013; Ousey & Kubrin, 2014). Better accounting for the challenges posed by endogeneity is an important avenue for future immigration-crime research.

Rather than focusing solely on the ethnic background, future research should also consider the circumstances under which immigrants arrive as well as employment and education status - this will help disentangle the effect of poverty from the effect of ethnicity. In a similar vein, making use of visa category data will potentially offer an improved understanding of variations in the immigration-crime relationship across different contexts. It is likely that an immigrant population who en masse move for work or family reunification will differentially impact crime rates compared to an immigrant population who are forced to migrate. Yet to date, few studies empirically test this assumption (see for exception Bell et al., 2010; Jaitman and Machin, 2013; Stansfield, 2014). Tapping into the push/pull factors which drive migratory decisions is thus an important next step for future immigration-crime research.

Finally, this thesis focuses on a relatively small temporal window spanning from 2001 to 2011. To better understand how changes in immigration impact changes in violent crime over time, extending this time frame in future studies is worthwhile. In doing so, such research could examine the extent to which the same relationships hold over large spans of time that transcend various economic and political cycles (Adelman et al., 2017) – although it is noted that challenges with data concordance make this a difficult task.

8.6 Concluding comments

With 244 million people currently residing outside of their country of birth (United Nations Department of Economic and Social Affairs (UNDESA), 2015) and the number of persons forcibly displaced by violence and conflict at the highest recorded level since World War II (UNHCR, 2015), this line of research helps us understand the implications of increased immigration on neighbourhood crime. While the general public may fear that increased immigration will increase crime rates (Fetzer, 2000; Haller et al, 2009; Mayda, 2006; McLaren & Johnson, 2007; Sides &

Citrin, 2007), the findings of this thesis suggest such concerns are largely unjustified. While ethnic enclaves are often viewed as undesirable and associated with a range of social problems (Markus et al., 2009), I find ethnic group concentration is not linked to more violent crime. In fact, some ethnic group concentrations may actually operate as a protective shield against neighbourhood violence, at least in the Australian setting. Yet the differential effect of concentration and diversity indicates that the two measures tap into very different components of neighbourhood life. Thus immigration may simultaneously be impacting neighbourhood structures in ways that both positively and negatively impact violent crime. Further work is therefore needed to advance the study of these dynamics at the local level in order to develop policy responses that prevent crime in high risk neighbourhoods where the population may be struggling to effectively regulate unwanted behaviour.

References

- Adelman, R., Reid, L. W., Markle, G., Weiss, S., & Jaret, C. (2017). Urban crime rates and the changing face of immigration: Evidence across four decades. *Journal of Ethnicity in Criminal Justice, 15*(1), 52-77.
- Akins, S., Rumbaut, R. G., & Stansfield, R. (2009). Immigration, economic disadvantage, and homicide: A community-level analysis of Austin, Texas. *Homicide Studies, 13*(3), 307-314.
- Alaniz, M. L., Cartmill, R. S., & Parker, R. N. (1998). Immigrants and violence: The importance of neighbourhood context. *Hispanic Journal of Behavioural Sciences, 20*(2), 155-174.
- Albrecht, H.J. (1997). Ethnic minorities, crime and criminal justice in Germany. *Crime and Justice, 21*, 31-39.
- Allison, P. (2009). *Fixed effects regression models*. Los Angeles: Sage Publications.
- Altman, J. C., Biddle, N., & Hunter, B. (2008). *How realistic are the prospects for 'closing the gaps' in socioeconomic outcomes for Indigenous Australians?* Canberra: Centre for Aboriginal Economic Policy Research.
- Almeida, J., Johnson, R. M., McNamara, M., & Gupta, J. (2011). Peer violence perpetration among urban adolescents: Dispelling the myth of the violent immigrant. *Journal of Interpersonal Violence, 26*(13), 2658-2680.
- American Immigration Council. (2014). How the United States immigration system works. Retrieved from <http://www.immigrationpolicy.org/just-facts/how-united-states-immigration-system-works-fact-sheet>
- Andersen, M. (2012). International immigration, internal migration, and homicide in Canadian provinces. *International Journal of Offender Therapy and Comparative Criminology, 57* (5), 632-657.
- Andresen, M. A., & Linning, S. J. (2012). The (in) appropriateness of aggregating across crime types. *Applied Geography, 35*(1), 275-282.

- Anderson, B. (1991). *Imagined communities: Reflections on the origin and spread of nationalism*. New York: Verso.
- Anselin L. (1995). Local indicators of spatial association – LISA. *Geographical Analysis*, 27, 93–115.
- Ang, I. (2003). The anxious nation in the new century. In D. Walker, Jayasuriya D. L. & Gothard, J. *Legacies of White Australia: Race, culture and nation*. Western Australia: University of Western Australia Press.
- Aoki, Y., & Todo, Y. (2009). Are immigrants more likely to commit crimes? Evidence from France. *Applied Economics Letters*, 16(15), 1537-1541.
- Australian Bureau of Statistics. (1961). Census of the Commonwealth of Australia. Retrieved from: <http://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/2107.01961?OpenDocument>
- Australian Bureau of Statistics. (1971). Census of Population and Housing, 1971. Retrieved from: <http://abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/2105.01971?OpenDocument>
- Australian Bureau of Statistics. (1981). Census of Population and Housing, 1981. Retrieved from: <http://abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/2103.01981?OpenDocument>
- Australian Bureau of Statistics (1986). Census of Population and Housing, 1986. Retrieved from: <http://abs.gov.au/ausstats/abs@.nsf/productsbyCatalogue/1A9E458F439B5229CA2574CF0013E898?OpenDocument>
- Australian Bureau of Statistics. (1991). Census of Population and Housing, 1991. Retrieved from: <http://abs.gov.au/ausstats/abs@.nsf/productsbyCatalogue/A0EE79408680F351CA2574C100174B03?OpenDocument>
- Australian Bureau of Statistics (1996). 1996 Census Data. Retrieved from: <http://abs.gov.au/websitedbs/censushome.nsf/home/historicaldata1996?opendocument&navpos=280>

- Australian Bureau of Statistics (2001a). 2001 Census Data. Retrieved from:
<http://www.abs.gov.au/websitedbs/censushome.nsf/home/historicaldata2001?opendocument>
- Australian Bureau of Statistics (2001b). Australian standard geographical classification (ASGC), 2001. Retrieved from: <http://www.abs.gov.au/ausstats/abs@.nsf/0/4BF2827AC128BF62CA256AD4007F680C?opendocument>
- Australian Bureau of Statistics (2006). Collection District (CD). Retrieved from:
<http://www.abs.gov.au/AUSSTATS/abs@.nsf/bb8db737e2af84b8ca2571780015701e/413876f3bae9cc70ca25720a000c428b!OpenDocument>
- Australian Bureau of Statistics (2007). Population growth: Past, present and future. Retrieved from:
<http://www.abs.gov.au/AUSSTATS/abs@.nsf/Lookup/4102.0Main+Features10Jun+2010>
- Australian Bureau of Statistics (2009). Temporary migrants in Australia. Retrieved from:
<http://www.abs.gov.au/AUSSTATS/abs@.nsf/Previousproducts/3416.0Main%20Features52009?opendocument&tabname=Summary&prodno=3416.0&issue=2009&num=&view=>
- Australian Bureau of Statistics (2010). Crime victimisation, Australia 2008-2009. Retrieved from:
<http://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/4530.02008-09>
- Australian Bureau of Statistics (2011a). 2011 Census Data via Tablebuilder. Retrieved from:
<http://www.abs.gov.au/websitedbs/censushome.nsf/home/tablebuilder>
- Australian Bureau of Statistics. (2011b) State Suburbs. Retrieved from:
<http://www.abs.gov.au/ausstats/abs@.nsf/0/2C6132C0B332C336CA2578D40012CF76>
- Australian Bureau of Statistics. (2012). Reflecting a nation: Stories from the 2011 Census. Retrieved from <http://www.abs.gov.au/ausstats/abs@.nsf/Lookup/2071.0main+features902012-2013>
- Australian Bureau of Statistics. (2014a). Where do migrants live? Retrieved from
<http://www.abs.gov.au/ausstats/abs@.nsf/Lookup/4102.0main+features102014>

- Australian Bureau of Statistics. (2014b). Correspondences. Retrieved from <http://www.abs.gov.au/websitedbs/D3310114.nsf/home/Correspondences>
- Australian Bureau of Statistics. (2015) Consumer price index, Australia, Mar 2017. Retrieved from: <http://www.abs.gov.au/ausstats/abs@.nsf/mf/6401.0>
- Australian Human Rights Commission. (2014). Immigration detention and human rights. Retrieved from: <https://www.humanrights.gov.au/our-work/asylum-seekers-and-refugees/projects/immigration-detention-and-human-rights>
- Australian Institute of Criminology. (2015). Indigenous justice in focus. Retrieved from: http://www.aic.gov.au/crime_types/in_focus/Indigenous_justice.html
- Barranco, R. E. (2013). Latino immigration, interaction, and homicide victimisation. *Sociological Spectrum*, 33(6), 534-553.
- BBC News. (2017, February 27). Reality check: Is Malmo the ‘rape capital’ of Europe. Retrieved from: <http://www.bbc.com/news/uk-politics-39056786>
- Beckley, A. Kardell, J. & Sarnecki, J. (2014). Immigration and crime in Sweden. In S. Pickering and Ham, J (eds). *The Routledge handbook on crime and international migration* (pp. 41-54). Oxon and New York: Routledge.
- Bell, B., Fasani, F., & Machin, S. (2013). Crime and immigration: Evidence from large immigrant waves. *Review of Economics and Statistics*, 21(3), 1278-1290
- Bell, B., & Machin, S. (2013). Immigrant enclaves and crime. *Journal of Regional Science*, 53(1), 118-141.
- Benček, D., & Martin, C. (2016). Explaining hate crimes against refugees in Germany: Regional spill-overs or local determinants? Retrieved from: https://www.cpig.uni-kiel.de/de/aktuelles/Regional_spill-overs.pdf
- Benier, K., & Wickes, R. (2016). The effect of ethnic diversity on collective efficacy in Australia. *Journal of Sociology*, 52(4), 856-873.

- Benton-Short, L., Price, M. D., & Friedman, S. (2005). Globalization from below: the ranking of global immigrant cities. *International Journal of Urban and Regional Research*, 29(4), 945-959.
- Bersani, B. E. (2014a). An examination of first and second generation immigrant offending trajectories. *Justice Quarterly*, 31(2): 315-343.
- Bersani, B. E. (2014b). A game of catch-up? The offending experience of second-generation immigrants. *Crime & Delinquency*, 60(1), 60-84.
- Bertone, S. (2009) Immigration and the labour market in Australia. In J.P. Nieuwenhuysen, Higley, J., and Neerup, S. *Nations of immigrants: Australia and the USA compared* (pp. 86-99). United Kingdom: Edward Elgar Publishing.
- Bianchi, M., Buonanno, P., & Pinotti, P. (2012). Do immigrants cause crime? *Journal of the European Economic Association*, 10(6), 1318-1347.
- Bircan, T., & Hooghe, M. (2011). Immigration, diversity and crime: an analysis of Belgian national crime statistics, 2001-6. *European Journal of Criminology*, 8(3), 198-212.
- Birrell, B. (2009) Immigration policy in Australia. In J.P. Nieuwenhuysen, Higley, J. and Neerup, S. *Nations of immigrants: Australia and the USA compared* (pp. 70-85). United Kingdom: Edward Elgar Publishing. 70-85
- Blau, P. M. (1977). *Inequality and heterogeneity: A primitive theory of social structure*. New York: Free Press.
- Booth, A. L., Leigh, A., & Varganova, E. (2012). Does ethnic discrimination vary across minority groups? Evidence from a field experiment. *Oxford Bulletin of Economics and Statistics*, 74(4), 547-573.
- Boyd N. (2000). *The beast within: Why men are violent*. Vancouver, BC: Greystone Books.

- Breunig, R. Deutscher, N. & To, H. T. (2017). The relationship between immigration to Australia and labour market outcomes of Australian-born workers. *Economic Record*, 93 (301), 255-276.
- Burchfield, K. B., & Silver, E. (2013). Collective efficacy and crime in Los Angeles neighbourhoods: Implications for the Latino paradox. *Sociological Inquiry*, 83(1), 154-176.
- Burgess, E. The growth of the city. In R. E. Park., E. W. Burgess and R. D. McKenzie. *The City*. Chicago: University of Chicago Press.
- Burnley, I. (2001). *The impact of immigration on Australia: A demographic approach*. United Kingdom: Oxford University Press.
- Bursik, R. (2006) Rethinking the Chicago school of criminology. In Marinez and Valenzuela (eds) *Immigration and Crime: Ethnicity, Race and Violence* (pp. 20-35). New York: NYU Press.
- Bursik, R. J., & Grasmick, H. G. (1993). Economic deprivation and neighbourhood crime rates, 1960-1980. *Law & Society Review*, 27(2), 263-284.
- Butcher, K. F., & Piehl, A. M. (1998a). Cross-city evidence on the relationship between immigration and crime. *Journal of Policy Analysis and Management*, 17(3), 457-493.
- Butcher, K. F., & Piehl, A. M. (1998b). Recent immigrants: Unexpected implications for crime and incarceration. *ILR Review*, 51(4), 654-679.
- Butcher, K. F., & Piehl, A. M. (2007). *Why are immigrants' incarceration rates so low? Evidence on selective immigration, deterrence, and deportation*. NBER Working Papers 13229, National Bureau of Economic Research, Inc.
- Breton, R. (1964). Institutional completeness of ethnic communities and the personal relations of immigrants. *American Journal of Sociology*, 70(2), 193-205.
- Breunig, R., Hasan, S., & Salehin, M. (2013). The immigrant wage gap and assimilation in Australia: does unobserved heterogeneity matter? *Economic Record*, 89(287), 490-507.

- Brown, L. A., & Chung, S. Y. (2006). Spatial segregation, segregation indices and the geographical perspective. *Population, Space and Place*, 12(2), 125-143.
- Browning, C. R., Dietz, R. D., & Feinberg, S. L. (2004). The paradox of social organisation: Networks, collective efficacy, and violent crime in urban neighbourhoods. *Social Forces*, 83(2), 503-534.
- Calhoun, C. (1993). Nationalism and ethnicity. *Annual Review of Sociology*, 19, 211-39.
- Chavez, J. M., & Griffiths, E. (2009). Neighbourhood dynamics of urban violence: Understanding the immigration connection. *Homicide Studies*, 13(3), 261-273.
- Chavez, M., Whiteford, S., & Hoewe, J. (2010). Reporting on immigration: A content analysis of major US newspapers' coverage of Mexican immigration. *Norteamérica*, 5(2), 111-125.
- Chishti, M & Mittelstadt, M. (2016) Unauthorised immigrants with criminal conviction: Who might be a priority for removal? Retrieved from:
<http://www.migrationpolicy.org/news/unauthorized-immigrants-criminal-convictions-who-might-be-priority-removal>
- Chishti, M. & Pierce, S. (2017). Despite little action yet by Trump administration on sanctuary cities, states and localities rush to respond to rhetoric. Retrieved from:
<http://www.migrationpolicy.org/article/despite-little-action-yet-trump-administration-sanctuary-cities-states-and-localities-rush>
- Colic-Peisker, V. (2011). 'Ethnics' and 'Anglos' in the labour force: Advancing Australia fair?. *Journal of Intercultural Studies*, 32(6), 637-654.
- Colic-Peisker, V., & Robertson, S. (2015). Social change and community cohesion: an ethnographic study of two Melbourne suburbs. *Ethnic and racial studies*, 38(1), 75-91.
- Collins, J. (2006). The changing political economy of Australian immigration. *Tijdschrift voor economische en sociale geografie*, 97(1): 7-16.

- Collins, J., & Poynting, S. (2000). *The other Sydney: Communities, identities and inequalities in Western Sydney*. Sydney: Common Ground.
- Commonwealth of Australia. Senate. (2016). Parliamentary debates (Official Hansard). Retrieved from: http://parlinfo.aph.gov.au/parlInfo/download/chamber/hansards/16daad94-5c74-4641-a7307f6d74312148/toc_pdf/Senate_2016_09_14_4436_Official.pdf;fileType=application%2Fpdf#search=%22chamber/hansards/16daad94-5c74-4641-a730-7f6d74312148/0139%22
- Connolly, K (2016, June 19). Frauke Petry: The acceptable face of Germany's new right? Retrieved from: <https://www.theguardian.com/world/2016/jun/19/frauke-petry-acceptable-face-of-germany-new-right-interview>
- Connor, P. (2016). Number of refugees to Europe surges to record 1.3 million in 2015. Retrieved from: <http://www.pewglobal.org/2016/08/02/number-of-refugees-to-europe-surges-to-record-1-3-million-in-2015/>
- Connor, P., & Koenig, M. (2013). Bridges and barriers: Religion and immigrant occupational attainment across integration contexts. *International Migration Review*. 47(1), 3-38.
- Corcoran, H. & Smith, K. (2017). Hate crime, England and Wales, 2015/16. Retrieved from: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/559319/hate-crime-1516-hosb1116.pdf
- Cowger, S. Bolter, J. & Pierce, S. (2017). The first 100 days: Summary of major immigration actions taken by the Trump administration. Retrieved from: <http://www.migrationpolicy.org/research/first-100-days-summary-major-immigration-actions-taken-trump-administration>
- Dawkins, C. J. (2004). Measuring the spatial pattern of residential segregation. *Urban Studies*, 41(4), 833-851.
- De Jong, G. F., & Madamba, A. B. (2001). A double disadvantage? Minority group, immigrant status, and underemployment in the United States. *Social Science Quarterly*, 82(1): 117-130.

Desmond, S. A., & Kubrin, C. E. (2009). The power of place: Immigrant communities and adolescent violence. *The Sociological Quarterly*, 50(4), 581-607.

Department of Immigration and Border Protection (2014a). 2013-14 Migration program report. Retrieved from: <https://www.border.gov.au/about/reports-publications/research-statistics/statistics/live-in-australia/migration-programme>

Department of Immigration and Border Protection. (2014b). Australia's offshore humanitarian program: 2013-2014. Retrieved from: <https://www.border.gov.au/about/reports-publications/research-statistics/statistics/live-in-australia/humanitarian-programme>

Department of Immigration and Border Protection (2015a). 2014-15 Migration program report. Retrieved from: <https://www.border.gov.au/about/reports-publications/research-statistics/statistics/live-in-australia/migration-programme>

Department of Immigration and Border Protection. (2015b). Australia's offshore humanitarian program: 2014-2015. Retrieved from: <https://www.border.gov.au/about/reports-publications/research-statistics/statistics/live-in-australia/humanitarian-programme>

Department of Immigration and Border Protection (2016a). 2015-16 Migration program report. Retrieved from: <https://www.border.gov.au/about/reports-publications/research-statistics/statistics/live-in-australia/migration-programme>

Department of Immigration and Border Protection. (2016b). Australia's offshore humanitarian program: 2015-2016. Retrieved from: <https://www.border.gov.au/about/reports-publications/research-statistics/statistics/live-in-australia/humanitarian-programme>

Department of Immigration and Border Protection. (2017) Australia's response to the Syrian and Iraqi humanitarian crisis. Retrieved from: <https://www.border.gov.au/Trav/Refu/response-syrian-humanitarian-crisis>

Department of Immigration and Border Protection. (2013c). New Zealanders in Australia. Retrieved from: <https://www.border.gov.au/about/corporate/information/fact-sheets/17nz#d>

Department of Immigration and Citizenship. (2010a). 2009-10 Migration program report. Retrieved from: <https://www.border.gov.au/about/reports-publications/research-statistics/statistics/live-in-australia/migration-programme>

Department of Immigration and Citizenship. (2010b). Australia's offshore humanitarian program: 2009-2010. Retrieved from: <https://www.border.gov.au/about/reports-publications/research-statistics/statistics/live-in-australia/humanitarian-programme>

Department of Immigration and Citizenship. (2011a). 2010-11 Migration program report. Retrieved from: <https://www.border.gov.au/about/reports-publications/research-statistics/statistics/live-in-australia/migration-programme>

Department of Immigration and Citizenship. (2011b). Australia's offshore humanitarian program: 2010-2011. Retrieved from: <https://www.border.gov.au/about/reports-publications/research-statistics/statistics/live-in-australia/humanitarian-programme>

Department of Immigration and Citizenship. (2012a). 2011-12 Migration program report. Retrieved from: <https://www.border.gov.au/about/reports-publications/research-statistics/statistics/live-in-australia/migration-programme>

Department of Immigration and Citizenship. (2012b). Australia's offshore humanitarian program: 2011-2012. Retrieved from: <https://www.border.gov.au/about/reports-publications/research-statistics/statistics/live-in-australia/humanitarian-programme>

Department of Immigration and Citizenship. (2012c). Temporary entrants and New Zealand citizens in Australia. Retrieved from: <https://www.border.gov.au/about/reports-publications/research-statistics/statistics/live-in-australia/temporary-entrants-in-australia>

Department of Immigration and Citizenship. (2013a). 2012-13 Migration program report. Retrieved from: <https://www.border.gov.au/about/reports-publications/research-statistics/statistics/live-in-australia/migration-programme>

Department of Immigration and Citizenship. (2013b). Australia's offshore humanitarian program: 2012-2013. Retrieved from: <https://www.border.gov.au/about/reports-publications/research-statistics/statistics/live-in-australia/humanitarian-programme>

- Dovey, W.R. (1952). *First report of the committee established to investigate conduct of migrants*. Australian Government: Canberra.
- Dovey, W.R. (1955). *Second report of committee established to investigate conduct of migrants*. Australian Government: Canberra.
- Dovey, W.R. (1957). *Third report of committee established to investigate conduct of migrants*. Australian Government: Canberra.
- Dubin, R. (2009). Spatial weights. In S. Fotheringham and Rogerson, P. A. *The SAGE handbook of spatial analysis* (pp. 125-159). California: SAGE Publications.
- Dutton, D. (2002). *One of us?: A Century of Australian citizenship*. Sydney: UNSW Press.
- Ebaugh, H. R., & Chafetz, J. S. (2000). Structural adaptations in immigrant congregations. *Sociology of Religion*, 61(2), 135-153.
- Emerson, M. O., Chai, K. J., & Yancey, G. (2001). Does race matter in residential segregation? Exploring the preferences of white Americans. *American Sociological Review*, 66(6), 922-935.
- Epp, C. R., Maynard-Moody, S., & Haider-Markel, D. P. (2014). *Pulled over: How police stops define race and citizenship*. Chicago and London: University of Chicago Press.
- Ewing, W. A., Martínez, D. E., & Rumbaut, R. G. (2015). The criminalisation of immigration in the United States. Retrieved from: https://www.americanimmigrationcouncil.org/sites/default/files/research/the_criminalization_of_immigration_in_the_united_states.pdf
- Feldmeyer, B. (2009). Immigration and violence: The offsetting effects of immigrant concentration on Latino violence. *Social Science Research*, 38(3), 717-731.
- Feldmeyer, B. (2010). The effects of racial/ethnic segregation on Latino and Black homicide. *The Sociological Quarterly*, 51(4), 600-623.

- Feldmeyer, B., Harris, C. T. & Lai, D. (2016). Language use and violence: Assessing the relationship between linguistic context and macro-level violence. *Sociological Forum*, 31(2), 267-290.
- Feldmeyer, B., Harris, C. T., & Scroggins, J. (2015). Enclaves of opportunity or “ghettos of last resort?” Assessing the effects of immigrant segregation on violent crime rates. *Social Science Research*, 52, 1-17.
- Feldmeyer, B., Madero-Hernandez, A., Rojas-Gaona, C. E., & Sabon, L. C. (2017). Immigration, collective efficacy, social ties, and violence: Unpacking the mediating mechanisms in immigration effects on neighbourhood-level violence. *Race and Justice*. 47(1), 3-30.
- Feldmeyer, B., & Steffensmeier, D. (2009). Immigration effects on homicide offending for total and race/ethnicity-disaggregated populations (White, Black, and Latino). *Homicide Studies*, 13(3), 211-226.
- Ferraro, V. (2016). Immigration and crime in the new destinations, 2000–2007: A test of the disorganizing effect of migration. *Journal of Quantitative Criminology*, 32(1), 23-45.
- Ferris, E. & Kirisci, K. (2016). *The consequences of chaos: Syria’s humanitarian crisis and the failure to protect*. Washington D.C: The Brookings Institution.
- Fetzer, J. S. (2000). *Public attitudes toward immigration in the United States, France, and Germany*. United States of America: Cambridge University Press.
- Fitzgerald, J., Curtis, K. A., & Corliss, C. L. (2012). Anxious publics worries about crime and immigration. *Comparative Political Studies*, 45(4), 477-506.
- Foner, N. & Alba, R. (2008). Immigrant religion in the US and Western Europe: Bridge or barrier to inclusion? *International Migration Review*, 42(2), 360-392.
- Forrest, J. & Dunn, K. (2006). Racism and intolerance in Eastern Australia: A geographic perspective. *Australian Geographer*, 37(2), 167-186.

- Forrest, J., & Dunn, K. (2011). Attitudes to diversity: new perspectives on the ethnic geography of Brisbane, Australia. *Australian Geographer*, 42(4), 435-453.
- Forrest, J., Hermes, K., Johnston, R., & Poulsen, M. (2012). The housing resettlement experience of refugee immigrants to Australia. *Journal of Refugee Studies*, 26(2), 187-206.
- Foster, S., Giles-Corti, B., & Knuiman, M. (2010). Neighbourhood design and fear of crime: a social-ecological examination of the correlates of residents' fear in new suburban housing developments. *Health & Place*, 16(6), 1156-1165.
- Fowler, C. S. (2016). Segregation as a multi-scalar phenomenon and its implications for neighbourhood-scale research: The case of south Seattle 1990–2010. *Urban Geography*, 37(1), 1-25.
- Francis, R. D. (1972). Migrant imprisonment rates in NSW since federation. *Australian & New Zealand Journal of Criminology*, 5(4), 206-219.
- Francis, R. D. (1981). *Migrant crime in Australia*. St. Lucia: University of Queensland Press.
- Francis, R. (2014). *Birthplace, migration and crime: The Australian experience*. London: Palgrave Macmillan.
- Francis, R. D., Armstrong, A. & Totikidis, V. (2006). *Ethnicity and crime: A state-wide analysis by local government areas*. Melbourne: Centre for International Corporate Governance Research.
- Gil de Zúñiga, H., Correa, T., & Valenzuela, S. (2012). Selective exposure to cable news and immigration in the US: The relationship between FOX News, CNN, and attitudes toward Mexican immigrants. *Journal of Broadcasting & Electronic Media*, 56(4), 597-615.
- Glaeser, E. L. & Sacerdote, B. (1996). Why is there more crime in cities? *National Bureau of Economic Research* (working paper no.5430).
- Golder, M. (2016). Far right parties in Europe. *Annual Review of Political Science*, 19, 477-497.

- Graif, C., & Sampson, R. J. (2009). Spatial heterogeneity in the effects of immigration and diversity on neighbourhood homicide rates. *Homicide studies*, 13(3), 242-260.
- Greene, W. (2008). Functional forms for the negative binomial model for count data. *Economics Letters*, 99(3), 585-590.
- Groff, E. (2011). Exploring 'near': Characterizing the spatial extent of drinking place influence on crime. *Australian & New Zealand Journal of Criminology*, 44(2), 156-179.
- Grubestic, T. H., Pridemore, W. A., Williams, D. A., & Philip-Tabb, L. (2013). Alcohol outlet density and violence: the role of risky retailers and alcohol-related expenditures. *Alcohol and Alcoholism*, 48(5), 613-619.
- Hagan, J., & Palloni, A. (1999). Sociological criminology and the mythology of Hispanic immigration and crime. *Social Problems*, 46(4), 617-632.
- Hainmueller, J., Hangartner, D., & Piortantuono, G. (2015). Naturalization fosters the long-term political integration of immigrants. *Proceedings of the National Academy of Sciences*, 112(41), 12651-12656.
- Haller, M., Jowell, R., & Smith, T. W. (2009). *The International Social Survey Programme 1984-2009: Charting the Globe*. USA and Canada: Routledge.
- Hällsten, M., Szulkin, R., & Sarnecki, J. (2013). Crime as a price of inequality? The gap in registered crime between childhood immigrants, children of immigrants and children of native Swedes. *British Journal of Criminology*, azt005.
- Harries, K. (2006). Property crimes and violence in United States: An analysis of the influence of population density. *International Journal of Criminal Justice Sciences*, 1(2), 24-34.
- Harris, C. T., & Feldmeyer, B. (2013). Latino immigration and White, Black, and Latino violent crime: A comparison of traditional and non-traditional immigrant destinations. *Social Science Research*, 42(1), 202-216.

- Hazelhurst, K. M. (1987). *Migration, ethnicity, and crime in Australian society*. Canberra: Australian Institute of Criminology.
- Hipp, J. R. (2007). Block, tract, and levels of aggregation: Neighbourhood structure and crime and disorder as a case in point. *American Sociological Review*, 72(5), 659-680.
- Hipp, J. R., & Boessen, A. (2013). Egohoods as waves washing across the city: a new measure of “neighbourhoods”. *Criminology*, 51(2), 287-327.
- Hirschfield, A., & Bowers, K. J. (1997). The effect of social cohesion on levels of recorded crime in disadvantaged areas. *Urban Studies*, 34(8), 1275-1295.
- Hirschi, T., & Gottfredson, M. (1983). Age and the explanation of crime. *American Journal of Sociology*, 89(3), 552-584.
- Hirschman, C. (2004). The role of religion in the origins and adaptation of immigrant groups in the United States. *International Migration Review*, 38(3), 1206-1233.
- Hooghe, M., & De Vroome, T. (2016). The relation between ethnic diversity and fear of crime: An analysis of police records and survey data in Belgian communities. *International Journal of Intercultural Relations*, 50, 66-75.
- Hunter, F. (2017, January 16). Half of Australia’s 12,000 Syrian and Iraqi refugees to be settled by just one Sydney council. Retrieved from <http://www.smh.com.au/federal-politics/political-news/half-of-australias-12000-syrian-and-iraqi-refugees-to-be-settled-by-just-one-sydney-council-20170116-gts7i0.html>
- Ihlanfeldt, K. R. (2003). Rail transit and neighbourhood crime: the case of Atlanta, Georgia. *Southern Economic Journal*, 70(2), 273-294.
- International Organisation of Migration. (2015). How the world views migration. Retrieved from: https://publications.iom.int/system/files/how_the_world_gallup.pdf
- Jacobs, L. (2016). Patterns of criminal threat in television news coverage of ethnic minorities in Flanders (2003–2013). *Journal of Ethnic and Migration Studies*, 43(5), 809-829.

- Jaitman, L. & Machin, S. (2013). Crime and immigration: new evidence from England and Wales. *IZA Journal of Migration*, 2(1), 1-23.
- Janzen, R., Chapman, M. D., & Watson, J. W. (2012). Integrating immigrants into the life of Canadian Urban Christian congregations: Findings from a national survey. *Review of Religious Research*, 53(4), 441-470.
- Jayasuriya, L. (2012). *Transforming a 'White Australia': Issues of racism and immigration*. New Delhi: SSS Publications.
- Johnson, H. (2005). *Experience of crime in two selected migrant communities*. Canberra: Australian Institute of Criminology.
- Johnston, R., Poulsen, M., & Forrest, J. (2007). The geography of ethnic residential segregation: a comparative study of five countries. *Annals of the Association of American Geographers*, 97(4), 713-738.
- Jupp, J. (1995). From 'White Australia' to 'Part of Asia': Recent shifts in Australian immigration policy towards the region. *International Migration Review*, 29(1), 207-228.
- Jupp, J. (2002). *From white Australia to Woomera: The story of Australian immigration*. United Kingdom: Cambridge University Press.
- Kaplan, D. H., & Woodhouse, K. (2005). Research in ethnic segregation II: Measurements, categories and meanings. *Urban Geography*, 26(8), 737-745.
- Kardell, J., & Martens, P. L. (2013). Are children of immigrants born in Sweden more law-abiding than immigrants? A reconsideration. *Race and Justice*, 3(3), 167-189.
- Kelly, J. (2017, June 13). Turnbull calls on new citizens to be 'patriots.' Retrieved from: <http://www.theaustralian.com.au/national-affairs/immigration/turnbull-calls-on-new-citizens-to-be-patriots/news-story/237c5f964378323d960ff6f736c1348d>
- Kelly, M. (2000). Inequality and crime. *Review of Economics and Statistics*, 82(4), 530-539.

- Kenny, M. & Davies, S. (2015). Fact check: Did 1200 refugees die at sea under Labour? Retrieved from: <https://theconversation.com/factcheck-did-1200-refugees-die-at-sea-under-labour-38094>
- Killias, M. (2009). Paradise lost? New trends in crime and migration in Switzerland. In W. McDonald (eds). *Immigration, crime and justice* (pp. 33-45). United Kingdom: Emerald Group Publishing Limited.
- Kim, S. H., Carvalho, J. P., Davis, A. G., & Mullins, A. M. (2011). The view of the border: News framing of the definition, causes, and solutions to illegal immigration. *Mass Communication and Society*, 14(3), 292-314.
- Kopan, T. (2017, April 26) Trump admin rolls out immigration related crime victims office. Retrieved from: <http://edition.cnn.com/2017/04/26/politics/voice-immigration-victims-office/>
- Krivo, L. J., & Peterson, R. D. (1996). Extremely disadvantaged neighbourhoods and urban crime. *Social Forces*, 75(2), 619-648.
- Krivo, L. J., Peterson, R. D., & Kuhl, D. C. (2009). Segregation, racial structure, and neighbourhood violent crime. *American Journal of Sociology*, 114(6), 1765-1802.
- Kroet, C. (2017, March 3). Dutch PM Rutte fends off far right but loses seats. Retrieved from: <http://www.politico.eu/article/dutch-pm-rutte-comes-first-in-election-but-loses-seats-exit-poll/>
- Kubrin, C. E., & Desmond, S. A. (2015). The power of place revisited: why immigrant communities have lower levels of adolescent violence. *Youth Violence and Juvenile Justice*, 13(4), 345-366.
- Kubrin, C. E., Hipp, J. R., and Kim, Y. A. (2016). Different than the sum of its parts: Examining the unique impacts of immigrant groups on neighbourhood crime rates. *Journal of Quantitative Criminology*, 1-36.

- Kubrin, C. E., & Ishizawa, H. (2012). Why some immigrant neighbourhoods are safer than others: Divergent findings from Los Angeles and Chicago. *The ANNALS of the American Academy of Political and Social Science*, 641(1), 148-173.
- Kubrin, C. E., & Ousey, G. C. (2009). Immigration and homicide in urban America: What's the connection?. In W. McDonald (ed). *Immigration, crime and justice* (pp. 17-32). United Kingdom: Emerald Group Publishing Limited.
- Lancee, B., & Dronkers, J. (2011). Ethnic, religious and economic diversity in Dutch neighbourhoods: Explaining quality of contact with neighbours, trust in the neighbourhood and inter-ethnic trust. *Journal of Ethnic and Migration Studies*, 37(4), 597-618.
- Lee, M. T. & Martinez, R. (2002). Social disorganisation revisited: Mapping the recent immigration and black homicide relationship in northern Miami. *Sociological Focus*, 35(4), 363-380.
- Lee, M. T., & Martinez, R. (2009). Immigration reduces crime: An emerging scholarly consensus. In W. McDonald (ed). *Immigration, crime and justice* (pp. 3-16). United Kingdom: Emerald Group Publishing Limited.
- Lee, M. T., Martinez, R., & Rosenfeld, R. (2001). Does immigration increase homicide? *The Sociological Quarterly*, 42(4), 559-580.
- Lee, M. R., & Ousey, G. C. (2005). Institutional access, residential segregation, and urban black homicide. *Sociological Inquiry*, 75(1), 31-54.
- Lehti, M. (2015). Crime rates of non-resident foreigners in Finland, 2009–2012. *Journal of Scandinavian Studies in Criminology and Crime Prevention*, 16(2), 194-202.
- Leigh, A. (2006). Trust, inequality and ethnic heterogeneity. *Economic Record*, 82(258), 268-280.
- Ley, D. (2008). The immigrant church as an urban service hub. *Urban Studies*, 45, 2057-2074.
- Ley, D., & Murphy, P. (2001). Immigration in gateway cities: Sydney and Vancouver in comparative perspective. *Progress in Planning*, 55(3), 119-194.

- Levitt, P. (2007). *God needs no passport: Immigrants and the changing American religious landscape*. New York and London: The New Press.
- Light, M. T. (2017). Re-examining the relationship between Latino immigration and racial/ethnic violence. *Social Science Research*, 65, 222-239.
- Livingston, M. (2008). A longitudinal analysis of alcohol outlet density and assault. *Alcoholism: Clinical and Experimental Research*, 32(6), 1074-1079.
- Logan, J. R., & Messner, S. F. (1987). Racial residential segregation and suburban violent crime. *Social Science Quarterly*, 68(3), 510.
- Lubbers, M., Scheepers, P. and Wester, F. (1998). Ethnic minorities in Dutch newspapers 1990-5: Patterns of criminalisation and problematisation. *Gazette (Leiden, Netherlands)*, 60(5), 415-431.
- Makkai, T., & Taylor, N. (2009). Immigrants as victims of crime: The Australian experience. In W. McDonald (ed). *Immigration, Crime and Justice* (pp. 95-105). Emerald Group Publishing Limited.
- Markus, A. (2012). Mapping social cohesion national report 2012. Retrieved from <http://scanlonfoundation.org.au/wp-content/uploads/2014/07/mapping-social-cohesion-national-report-2012.pdf>
- Markus, A. (2013). Mapping social cohesion national report 2013. Retrieved from: <http://scanlonfoundation.org.au/wp-content/uploads/2014/07/mapping-social-cohesion-national-report-2013.pdf>
- Markus, A. (2012). Mapping social cohesion national report 2012. Retrieved from: <http://scanlonfoundation.org.au/research/surveys/>
- Markus, A. (2015). Australians today: The Australia @ 2015 Scanlon Foundation Survey. Retrieved from: <http://scanlonfoundation.org.au/australians-today/>

- Markus, A. (2016). Mapping social cohesion national report 2016. Retrieved from: <http://scanlonfoundation.org.au/wp-content/uploads/2016/11/2016-Mapping-Social-Cohesion-Report-FINAL-with-covers.pdf>
- Markus, A. (2017). Asylum seekers: onshore. Retrieved from: <https://www.monash.edu/data/assets/pdf.../asylum-seekers-onshore-fact-sheet.pdf>
- Markus, A. Jupp, J. and McDonald, P. (2009). *Australia's immigration revolution*. New South Wales: Allen and Unwin.
- Martens, P. L. (1997). Immigrants, crime, and criminal justice in Sweden. *Crime and Justice*, 21, 183-255.
- Martens, P., & Holmberg, S. (2005). *Crime among persons born in Sweden and other countries*. Stockholm: National Council for Crime Prevention.
- Martinez, R., & Lee, M. (2000). On Immigration and Crime. *Criminal Justice* 1, 486-524.
- Martinez, R., Lee, M. T., & Nielsen, A. L. (2004). Segmented assimilation, local context and determinants of drug violence in Miami and San Diego: Does ethnicity and immigration matter? *International Migration Review*, 38(1), 131-157.
- Martinez, R., Stowell, J. I., & Lee, M. T. (2010). Immigration and crime in an era of transformation: A longitudinal analysis of homicides in San Diego neighbourhoods, 1980–2000. *Criminology*, 48(3), 797-829.
- Martinez, R., Stowell, J. I., & Cancino, J. M. (2008). A tale of two border cities: Community context, ethnicity, and homicide. *Social Science Quarterly*, 89(1), 1-16.
- Mason, G. (2012). Naming the 'R' word in racial victimisation: Violence against Indian students in Australia. *International Review of Victimology*, 18(1), 39-56.
- Massey, D. S. & Denton, N. A. (1988). The dimensions of residential segregation. *Social Forces*, 67(2), 281-315.

- Mayda, A. M. (2006). Who is against immigration? A cross-country investigation of individual attitudes toward immigrants. *The Review of Economics and Statistics*, 88(3), 510-530.
- Mazerolle, L., Wickes, R., & McBroom, J. (2010). Community variations in violence: The role of social ties and collective efficacy in comparative context. *Journal of Research in Crime and Delinquency*, 47(1), 3-30.
- Mazerolle, Lorraine, R. Wickes, S. Rombouts, J. McBroom, T-K. Shyy, K. Riseley, R.J. Homel, R. Stimson, A. Stewart, N. Spencer, J. Charker, & Robert J. Sampson. (2007). *Community variations in crime: A spatial and econometric analysis: Technical report no. 1 study methods and basic statistics*. Australian Research Council.
- McCausland, R., & Vivian, A. (2010). Why do some Aboriginal communities have lower crime rates than others? A pilot study. *Australian & New Zealand Journal of Criminology*, 43(2), 301-332.
- McCord, E. S. & Ratcliffe, J. H. (2009). Intensity value analysis and the criminogenic effects of land use features on local crime patterns. *Crime Patterns and Analysis*, 2(1), 17-30.
- McCosker, A., & Johns, A. (2014). Contested publics: Racist rants, bystander action and social media acts of citizenship. *Media International Australia*, 151(1), 66-72.
- MacDonald, J. M., Hipp, J. R., & Gill, C. (2013). The effects of immigrant concentration on changes in neighbourhood crime rates. *Journal of Quantitative Criminology*, 29(2), 191-215.
- McKie, R. (2017, February 19). Far-right leader Geert Wilders calls Moroccan migrants ‘scum’ <https://www.theguardian.com/world/2017/feb/18/geert-wilders-netherlands-describes-immigrants-scum-holland>
- McLaren, L., & Johnson, M. (2007). Resources, group conflict and symbols: explaining anti-immigration hostility in Britain. *Political Studies*, 55(4), 709-732.
- McMaster, D. (2001). *Asylum seekers: Australia's response to refugees*. Melbourne: Melbourne University Press.

- McNair, B. (2016) Here she comes again- how do we handle Pauline Hanson. Retrieved from: <https://theconversation.com/here-she-comes-again-how-do-we-handle-pauline-hanson-65468>
- Meaney, N. (1995). The end of 'white Australia' and Australia's changing perceptions of Asia, 1945–1990. *Australian Journal of International Affairs*, 49(2), 171-189.
- Mears, D. P. (2001). The immigration-crime nexus: Toward an analytic framework for assessing and guiding theory, research, and policy. *Sociological Perspectives*, 44(1), 1-19.
- Melossi, D., De Giorgi, A., & Massa, E. (2009). The “normality” of “second generations” in Italy and the importance of legal status: a self-report delinquency study. In W. McDonald (ed) *Immigration, Crime and Justice* (pp. 47-65). United Kingdom: Emerald Group Publishing Limited.
- Menjívar, C. (2003). Religion and immigration in comparative perspective: Catholic and Evangelical Salvadorans in San Francisco, Washington, DC, and Phoenix. *Sociology of religion*, 64(1), 21-45.
- Miller, M. M., Gibson, L. J., & Wright, N. G. (1991). Location quotient: A basic tool for economic development analysis. *Economic Development Review*, 9(2), 65.
- Morenoff, J. D., & Astor, A. (2006). Immigrant assimilation and crime. In R. Martinez & Valenzuela, A (eds) *Immigration and crime: Race, Ethnicity, and Violence* (pp. 36-63). New York and London: New York University Press.
- Morenoff, J. D., Sampson, R. J., & Raudenbush, S. W. (2001). Neighbourhood inequality, collective efficacy, and the spatial dynamics of urban violence. *Criminology*, 39(3), 517-558.
- Morrill, R. (1991). On the measure of geographic segregation. *Geography Research Forum*, 11, 25-36.

- Mujcic, R. & Frijters, P. (2013). Economic choices and status: measuring preferences for income rank. *Oxford Economic Papers*, 65(1), 47-73.
- Mukherjee, S. (1999). Ethnicity and crime. *Trends and Issues in Crime and Criminal Justice/Australian Institute of Criminology*. Canberra: Australian Institute of Criminology.
- Murray, R. K., & Swatt, M. L. (2013). Disaggregating the relationship between schools and crime: A spatial analysis. *Crime & Delinquency*, 59(2), 163-190.
- Nelson, J., MacDonald, H., Dufty-Jones, R., Dunn, K., & Paradies, Y. (2015). Ethnic discrimination in private rental housing markets in Australia. In R. Dufty-Jones and Rogers, D. (eds) *Housing in 21st-century Australia: People, practices and policies* (pp. 39-56). England: Ashgate Publishing Limited.
- Neumann, K. (2015). *Across the seas: Australia's response to refugees: A history*. Victoria: Black Inc. Books.
- Nielsen, A. L., Lee, M. T., & Martinez, R. (2005). Integrating race, place and motive in social disorganisation theory: Lessons from a comparison of black and Latino homicide types in two immigrant destination cities. *Criminology*, 43(3), 837-872.
- Nielsen, A. L., & Martinez R. (2003). Reassessing the alcohol-violence linkage: Results from a multiethnic city. *Justice Quarterly*, 20(3), 445-469.
- Nielsen, A. L., & Martinez, R. (2009). The role of immigration for violent deaths. *Homicide Studies*, 13(3), 274-287.
- Oberwittler, D., & Wikström, P. O. H. (2009). Why small is better: Advancing the study of the role of behavioural contexts in crime causation. In D. Weisburd, Bernasco, W. and Bruinsma, G. (eds) *Putting crime in its place* (pp. 35-59). New York: Springer New York.
- Ohmer, M. L. (2016). Strategies for Preventing Youth Violence: Facilitating Collective Efficacy Among Youth and Adults. *Journal of the Society for Social Work and Research*, 7(4), 681-705.

- Ohmer, M. L., Warner, B. D., & Beck, E. (2010). Preventing violence in low-income communities: Facilitating residents' ability to intervene in neighbourhood problems. *J. Soc. & Soc. Welfare*, 37, 161.
- Organisation for Economic Co-operation and Development (OECD). (2012). Indicators of integration 2012: Australia. Retrieved from: <https://www.oecd.org/migration/integration-indicators-2012/keyindicatorsbycountry/name,217269,en.htm>
- Organisation for Economic Co-operation and Development (OECD). (2016). Foreign-born population. Retrieved from: <https://data.oecd.org/migration/foreign-born-population.htm>
- Office for National Statistics. (2017). Super Output Area (SOA). Retrieved from: <http://webarchive.nationalarchives.gov.uk/20160105160709/http://www.ons.gov.uk/ons/gui-de-method/geography/beginner-s-guide/census/super-output-areas--soas-/index.html>
- Openshaw, S., & Taylor, P. J. (1979). A million or so correlation coefficients: three experiments on the modifiable areal unit problem. *Statistical Applications in the Spatial Sciences*, 21, 127-144.
- Osgood, D. W. (2000). Poisson-based regression analysis of aggregate crime rates. *Journal of Quantitative Criminology*, 16(1), 21-43.
- Ousey, G. C. & Kubrin, C. E. (2009). Exploring the connection between immigration and violent crime rates in US cities, 1980–2000. *Social Problems*, 56(3), 447-473.
- Ousey, G. C., & Kubrin, C. E. (2014). Immigration and the changing nature of homicide in US cities, 1980–2010. *Journal of Quantitative Criminology*, 30(3), 453-483.
- Ousey, G. C., & Kubrin, C. E. (2017). Immigration and crime: Assessing a contentious issue. *Annual Review of Criminology*, (0).
- Painter-Davis, N. (2015). Immigration effects on violence contextualized: The role of immigrant destination type and race/ethnicity. *Sociological Perspectives*, 59(1), 130-152.

- Palmer, D. L. (1996). Determinants of Canadian attitudes toward immigration: More than just racism? *Canadian Journal of Behavioural Science*, 23(3), 180-192.
- Palmer, C., Ziersch, A., Arthurson, K., & Baum, F. (2005). "Danger lurks around every corner": fear of crime and its impact on opportunities for social interaction in stigmatised Australian suburbs. *Urban Policy and Research*, 23(4), 393-411.
- Papadopoulos, G. (2010, January). *Property crime and immigration in England and Wales: evidence from the Offending, Crime and Justice Survey*. Paper presented at Padua-CEPR Conference, Milan. Retrieved from www.cepr.org/meets/wkcn/2/2413/papers/Papadopoulos.pdf
- Payton, M. (2016, September 19). Anti-immigrant AfD will become Germany's third biggest party, claims deputy leader. Retrieved from: <http://www.independent.co.uk/news/world/europe/anti-immigrant-afd-will-become-germanys-third-biggest-party-angela-merkel-cdu-according-to-its-a7316926.html>
- Peterson, R. D., & Krivo, L. J. (1993). Racial segregation and black urban homicide. *Social Forces*, 71(4), 1001-1026.
- Peterson, R. D., & Krivo, L. J. (1999). Racial segregation, the concentration of disadvantage, and black and white homicide victimisation. *Sociological Forum*, 14(3), 465-493.
- Peterson, R. D., & Krivo, L. J. (2009). Segregated spatial locations, race-ethnic composition, and neighbourhood violent crime. *The Annals of the American Academy of Political and Social Science*, 623(1), 93-107.
- Peterson, R. Krivo, L., & Browning C. (2009). Segregation and race/ethnicity inequality in crime: New directions. In F. Cullen, Wright, J. P. & Blevins, K. (eds) *Taking stock: The status of criminological theory* (pp. 169- 187). United States of America: Transaction Publishers.
- Pettifor, A. (2017). Brexit and its consequences. *Globalizations*, 14(1), 127-132.

- Pew Research Center. (2009). Most Mexicans see better life in U.S. – One in three would migrate. Retrieved from: <http://www.pewglobal.org/2009/09/23/most-mexicans-see-better-life-in-us-one-in-three-would-migrate/>
- Pew Research Center (2015). On views of immigrants, Americans largely split along party lines. Retrieved from: <http://www.pewresearch.org/fact-tank/2015/09/30/on-views-of-immigrants-americans-largely-split-along-party-lines/>
- Pew Research Center (2016) Trump voters want to build the wall, but are more divided on other immigration questions. Retrieved from: <http://www.pewresearch.org/fact-tank/2016/11/29/trump-voters-want-to-build-the-wall-but-are-more-divided-on-other-immigration-questions/>
- Pew Research Center (2017). Religious landscape study. Retrieved from: <http://www.pewforum.org/religious-landscape-study/>
- Pierce, S. & Meissner, D. (2017). Revised Trump executive order and guidance on refugee resettlement and travel ban. Retrieved from <http://www.migrationpolicy.org/research/revised-trump-executive-order-and-guidance-refugee-resettlement-and-travel-ban>
- Police Accountability Project. (2017). Racial profiling. Retrieved from: <http://www.policeaccountability.org.au/issues-and-cases/racial-profiling/>
- Portes, A., Fernández-Kelly, P. & Haller, W. (2009). The adaptation of the immigrant second generation in America: A theoretical overview and recent evidence. *Journal of Ethnic and Migration Studies*, 35(7), 1077-1104.
- Portes, A. & Rumbaut, R. G. (2006). *Immigrant America: a portrait*. California and London: University of California Press.
- Portes, A., & Zhou, M. (1993). The new second generation: Segmented assimilation and its variants. *The Annals of the American academy of Political and Social Science*, 530(1), 74-96.

- Price, M. & Benton-Short, L. (2008). *Migrants to the metropolis: the rise of immigrant gateway cities*. New York: Syracuse University Press.
- Putnam, R. D. (2007). E pluribus unum: Diversity and community in the twenty-first century the 2006 Johan Skytte Prize Lecture. *Scandinavian Political Studies*, 30(2), 137-174.
- Ramey, D. M. (2013). Immigrant revitalisation and neighbourhood violent crime in established and new destination cities. *Social Forces*, 92(2), 597-629.
- Reardon, S. F., & O'Sullivan, D. (2004). Measures of spatial segregation. *Sociological Methodology*, 34(1), 121-162.
- Refugee Council of Australia (2014). Offshore program. Retrieved from:
<http://www.refugeecouncil.org.au/getfacts/seekingsafety/resettlement/offshore-program/>
- Reid, L. W., Weiss, H. E., Adelman, R. M. & Jaret, C. (2005). The immigration–crime relationship: Evidence across US metropolitan areas. *Social Science Research*, 34(4), 757-780.
- Rengert, G. F., & Lockwood, B. (2009). Geographical units of analysis and the analysis of crime. In D. Weisburd, Bernasco, W. and Bruinsma, G (eds). *Putting crime in its place* (pp. 109-122). New York: Springer New York.
- Rengert, G. F., Ratcliffe, J., & Chakravorty, S. (2005). *Policing illegal drug markets: geographic approaches to crime reduction*. Monsey, NY: Criminal Justice Press.
- Richter, K. (2016, April 24). Germany's far-right AfD is here to stay. Retrieved from:
<http://www.politico.eu/article/germanys-far-right-afd-is-here-to-stay/>
- Robertson, K., Hohmann, J., & Stewart, I. (2005). Dictating to one of us: The migration of Mrs. Freer. *Macquarie Law Journal*, 5, 241-275.
- Rowe, E. & O'Brien, E. (2014). 'Genuine' refugees or illegitimate 'boat people': Political constructions of asylum seekers and refugees in the Malaysia Deal debate. *Australian Journal of Social Issues*, 49(2): 171-242.

- Rumbaut, R, Gonzales, R, Komaie, G, Morgan, C & Tafoya-Estrada, R. (2006). Immigration and incarceration: Patterns and predictors of imprisonment among first- and second generation young adults. In R. Martinez and A. Valenzuela (eds). *Immigration and crime: Race, ethnicity and violence* (pp.64-89) New York: New York University Press.
- Rydgren, J. (2008). Immigration sceptics, xenophobes or racists? Radical right-wing voting in six West European countries. *European Journal of Political Research*, 47(6), 737-765.
- Sabol, W. J., Coulton, C. J., & Korbin, J. E. (2004). Building community capacity for violence prevention. *Journal of Interpersonal Violence*, 19(3), 322–340.
- Sampson, R. J. (2006). How does community context matter? Social mechanisms and the explanation of crime rates. In P-O Wikström and R. J Sampson (eds). *The Explanation of Crime: Context, mechanisms, and development* (pp. 31-60). New York: Cambridge University Press.
- Sampson, R. J. (2008). Rethinking crime and immigration. *Contexts*, 7(1), 28-33.
- Sampson, R. J. (2012). *Great American city: Chicago and the enduring neighbourhood effect*. Chicago and London: The University of Chicago Press.
- Sampson, R. J. (2013). The place of context: A theory and strategy for criminology's hard problems. *Criminology*, 51:1-31.
- Sampson, R. J., & Groves, W. B. (1989). Community structure and crime: Testing social-disorganisation theory. *American Journal of Sociology*, 94(4), 774-802.
- Sampson, R. J., Morenoff, J. D. & Raudenbush, S. (2005). Social anatomy of racial and ethnic disparities in violence. *American Journal of Public Health*, 95(2), 224-232.
- Sampson, R. J., Raudenbush, S. W., & Earls, F. (1997). Neighbourhoods and violent crime: A multilevel study of collective efficacy. *Science*, 277(5328), 918-924.

- Sampson, R. J., & Raudenbush, S. W. (1999). Systematic social observation of public spaces: A new look at disorder in urban Neighbourhoods. *American Journal of Sociology*, 105(3), 603-651.
- Santa Ana, O. (2013). *Juan in a hundred: The representation of Latinos on network news*. Austin: University of Texas Press.
- Sargeant, E., Wickes, R., & Mazerolle, L. (2013). Policing community problems: Exploring the role of formal social control in shaping collective efficacy. *Australian & New Zealand Journal of Criminology*, 46(1), 70-87.
- Schnepf, S. V. (2008). Inequality of learning amongst immigrant children in industrialised countries (HWWI Research Paper, No. 1-12). Retrieved from <https://www.econstor.eu/bitstream/10419/48198/1/640310206.pdf>
- Semyonov, M., Raijman, R., Tov, A. Y., & Schmidt, P. (2004). Population size, perceived threat, and exclusion: A multiple-indicators analysis of attitudes toward foreigners in Germany. *Social Science Research*, 33(4), 681-701.
- Shaw, C. R., & McKay, H. D. (1942). *Juvenile Delinquency and Urban Areas: A Study of Rates of Delinquents in Relation to Differential Characteristics of Local Communities in American Cities*. Chicago, IL: University of Chicago Press.
- Shihadeh, E. S., & Barranco, R. E. (2010). Latino employment and black violence: the unintended consequence of US immigration policy. *Social Forces*, 88(3), 1393-1420.
- Shihadeh, E. S., & Flynn, N. (1996). Segregation and crime: The effect of black social isolation on the rates of black urban violence. *Social Forces*, 74(4), 1325-1352.
- Shihadeh, E. S., & Maume, M. O. (1997). Segregation and crime: the relationship between black centralization and urban black homicide. *Homicide Studies*, 1(3), 254-280.
- Sides, J., & Citrin, J. (2007). European opinion about immigration: The role of identities, interests and information. *British Journal of Political Science*, 37(03), 477-504.

- Simon, R. J., & Lynch, J. P. (1999). A comparative assessment of public opinion toward immigrants and immigration policies. *International Migration Review*, 33(2), 455-467.
- Singer, A. (2004). *The rise of new immigrant gateways*. Washington, DC: Brookings Institution Press.
- Sinning, M., & Vorell, M. (2011). There goes the neighbourhood? People's attitudes and the effects of immigration to Australia. Retrieved from: <https://ssrn.com/abstract=1898073>
- Skardhamar, T., Aaltonen, M., & Lehti, M. (2014). Immigrant crime in Norway and Finland. *Journal of Scandinavian Studies in Criminology and Crime Prevention*, 15(2), 107-127.
- Sniderman, P. M., Hagendoorn, L., & Prior, M. (2004). Predisposing factors and situational triggers: Exclusionary reactions to immigrant minorities. *American Political Science Review*, 98(1), 35-49.
- Southern Poverty Law Center. (2016). Ten days after: Harassment and intimidation in the aftermath of the election. Retrieved from: <https://www.splcenter.org/20161129/ten-days-after-harassment-and-intimidation-aftermath-election>
- Spinks, H. (2016). Migration and humanitarian program. Retrieved from: http://www.aph.gov.au/AboutParliament/Parliamentary_Departments/Parliamentary_Library/pubs/rp/BudgetReview201516/Migration
- Stansfield, R. (2014). Safer cities: A macro-level analysis of recent immigration, Hispanic-owned businesses and crime rates in the United States. *Journal of Urban Affairs*, 36(3), 503-518.
- Stark, R. (1987). Deviant places: A theory of the ecology of crime. *Criminology*, 25(4), 893-910.
- Stowell, J. (2007) *Immigration and crime: The effects of immigration on criminal behaviour*. LFB Scholarly Publishing LLC.
- Stowell, J. I., & Martinez R. (2009). Incorporating ethnic-specific measures of immigration in the study of lethal violence. *Homicide Studies*, 13(3), 315-324.

- Stowell, J. I., Messner, S. F., McGeever, K. F., & Raffalovich, L. E. (2009). Immigration and the recent violent crime drop in the United States: A pooled, cross-sectional time-series analysis of metropolitan areas. *Criminology*, 47(3), 889-928.
- Stucky, T. D., & Ottensmann, J. R. (2009). Land use and violent crime. *Criminology*, 47(4), 1223-1264.
- Stumpf, J. P. (2006). The crimmigration crisis: Immigrants, crime, and sovereign power. *American University Law Review*, 56(2), 367-419.
- Swedish Migration Agency. (2017). Statistics. Retrieved from: <https://www.migrationsverket.se/English/About-the-Migration-Agency/Facts-and-statistics-/Statistics.html>
- Tavan, G. (2005). Long, slow death of white Australia. *Sydney Papers*, 17(3/4), 135-139.
- Taylor, R. (2015). *Community criminology: Fundamentals of spatial and temporal scaling, ecological indicators and selectivity bias*. New York: NYU Press.
- Terrazas, A. (2010). Mexican immigrants in the United States. Retrieved from: <http://www.migrationpolicy.org/article/mexican-immigrants-united-states-2>
- Tran, N. (2005). *Immigration and crime: Do Asian immigrants bring more crime to Australia?* Canberra: The Australian National University.
- Thomas, P. M. (2011). Theoretical articulation on immigration and crime. *Homicide studies*, 15(4), 382-403.
- Tonry, M. (1997). Ethnicity, crime, and immigration. *Crime and Justice*, 21, 1-29.
- United States Census Bureau (2012). Geographic terms and concepts- census tract. Retrieved from: https://www.census.gov/geo/reference/gtc/gtc_ct.html
- United Nations Department of Economic and Social Affairs (UNDESA). (2015). Trends in international migration, 2015. United Nations. Retrieved from <http://www.un.org/en/>

[development/desa/population/migration/publications/populationfacts/docs/MigrationPopFacts20154.pdf](http://www.unhcr.org/development/desa/population/migration/publications/populationfacts/docs/MigrationPopFacts20154.pdf)

- United Nations High Commissioner for Refugees (UNHCR) (2015). Worldwide displacement its all time high as war and persecution increase.” Retrieved from <http://www.unhcr.org/558193896.html>
- Van Noije, L., & Kessels, R. (2011). Verdachten, slachtoffers en onveiligheidsgevoelens. *Jaarrapport integratie*, 203-226.
- Vaughn, M. G., Salas-Wright, C. P., DeLisi, M., and Maynard, B. R. (2014). The immigrant paradox: Immigrants are less antisocial than native-born Americans. *Social Psychiatry and Psychiatric Epidemiology*, 49(7): 1129-1137.
- Vazsonyi, A. T., & Killias, M. (2001). Immigration and crime among youth in Switzerland. *Criminal Justice and Behaviour*, 28(3): 329-366.
- Velez, M. B. (2009). Contextualizing the immigration and crime effect an analysis of homicide in Chicago neighbourhoods. *Homicide Studies*, 13(3), 325-335.
- Vélez, M. B., & Lyons, C. (2012). Situating the immigration and neighbourhood crime relationship across multiple cities. In C. Kubrin, Zatz, M and Martinez, R (eds). *Punishing Immigrants: Policy, Politics, and Injustice*, (pp. 159-77). New York and London: New York University Press.
- Von Hofer, H., Sarnecki, J., & Tham, H. (1997). Minorities, crime, and criminal justice in Sweden In I. H. Marshall (ed). *From minorities, migrants, and crime: Diversity and similarity across Europe and the United States* (pp. 62-85). London and New Delhi: SAGE Publications.
- Wadsworth, T. (2010). Is immigration responsible for the crime drop? An assessment of the influence of immigration on changes in violent crime between 1990 and 2000. *Social Science Quarterly*, 91(2), 531-553.
- Walker, P. M., & Hewstone, M. (2008). The influence of social factors and implicit racial bias on a generalised own-race effect. *Applied Cognitive Psychology*, 22(4), 441-453.

- Walsh, K. (2001). *The changing face of Australia: a century of immigration 1901-2000*. NSW: Allen & Unwin.
- White, M. J. (1983). The measurement of spatial segregation. *American Journal of Sociology*, 88(5), 1008-1018.
- Whyte, S. (2014, December 26). More than 62,000 people living illegally in Australia. Retrieved from: <http://www.smh.com.au/federal-politics/political-news/more-than-62000-people-living-illegally-in-australia-20141226-12dxod.html>
- Wickes, R. (2017). Social disorganisation theory: Its history and relevance to crime prevention. In B. E. Teasdale and M. S. Bradley (eds) *Preventing crime and violence, volume 2: Advances in prevention science series* (pp. 57-66). Switzerland: Springer Press.
- Wickes, R., Hipp, J. R., Zahnow, R., & Mazerolle, L. (2013a). "Seeing" minorities and perceptions of disorder: Explicating the mediating and moderating mechanisms of social cohesion. *Criminology*, 51(3), 519-560.
- Wickes, R., Zahnow, R., White, G., & Mazerolle, L. (2013b). Ethnic diversity and its impact on community social cohesion and neighbourly exchange. *Journal of Urban Affairs*, 36(1), 51-78.
- Wolff, K. T., Baglivio, M. T., Intravia, J., & Piquero, A. R. (2015). The protective impact of immigrant concentration on juvenile recidivism: A statewide analysis of youth offenders. *Journal of Criminal Justice*, 43(6), 522-531.
- Wong, D. W. (2002). Spatial measures of segregation and GIS. *Urban Geography*, 23(1), 85-92.
- Wong, D. W. (2004). The modifiable areal unit problem (MAUP). In J. Donald, Warf, B. and Hansen, K. (eds). *Worldminds: Geographical perspectives on 100 problems* (pp. 571-575). Netherlands: Springer.
- Wong, D. W. (2016). From aspatial to spatial, from global to local and individual: Are we on the right track to spatialize segregation measures? In F. Howell, Porter, J. and Matthews, S.

(eds). *Recapturing space: New middle-range theory in spatial demography* (pp. 77-98).
Mississippi: Springer International Publishing.

Wundersitz, J. (2010). *Indigenous perpetrators of violence: Prevalence and risk factors for offending*. Canberra: Australian Institute of Criminology.

Zahnow, R., Wickes, R., Haynes, M., & Mazerolle, L. (2013). Change and stability in ethnic diversity across urban communities: Explicating the influence of social cohesion on perceptions of disorder. *Australian & New Zealand journal of criminology*, 46(3), 335-356.

Zhang, H. (2014). *Immigration and crime: Evidence from Canada* (CSLRN Working Paper Series). Vancouver: Vancouver School of Economics.

Zimring, F. E. (2009). Delinquency, opportunity and the second generation immigrant puzzle. *Contemporary Issues in Criminal Justice Policy*, 247, 1-6.

Zong, J. and Batalova, J. (2016). Frequently requested statistics on immigrants and immigration in the United States.” Retrieved from: <http://www.migrationpolicy.org/article/frequently-requested-statistics-immigrants-and-immigration-united-states#MexicanImmigrants>