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Sensing cohesion or diversity? Examining the impact of ethnic diversity on cohesion and neighbour networks in urban communities

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Abstract

In the post 9/11 era, new types of public safety emergencies, coupled with a range of contemporary ethnic, religious, cultural and ideological issues, create challenges for developing and sustaining social capital in diverse urban settings. Robert Putnam (2007) suggests this is in part due to growing levels of ethnic diversity. Putnam argues that diversity increases the likelihood of social withdrawal which not only encourages the distrust of others (especially neighbours) but leads to a reduction in social interaction and civic participation. This paper tests this proposed relationship by using hierarchical cluster analysis, discriminant analysis and multinomial regression and drawing on administrative data and survey data from a nested design study that explores the perceptions, interactions and actions of 4,093 residents living in 147 suburbs in Brisbane, Australia. Controlling for key socio-demographic indicators, we assess whether ethnic diversity is associated with the erosion of social cohesion and trust and the attenuation of social networks in urban communities. We find that social perceptions of trust and intra-community relationships and interactions vary according to community type but that the relationship among these factors is not straight-forward as the literature would suggest.

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Introduction

In the wake of 9/11 and as nations begin to consider the impact of climate change induced migration, increasing diversity and immigration is viewed as a serious global challenge. As evidenced by the media and political rhetoric in many western countries, immigration, be it legal or illegal, is perceived as something that needs to be 'controlled' or 'reduced' (Money, 1997; Karvelas, 2010; Stutchbury, 2010). Two mutually reinforcing positions are evident in political discourse: that immigration puts a strain on finite material and economic resources and increased diversity leads to conflicting identities and values which can reduce social trust (Coenders, Lubbers, Scheepers and Verkuyten, 2008).

Concern with the consequences of increased diversity is not limited to the social or political sphere. In academe, scholars also debate the relationship between diversity and distrust. Most famously, Putnam (2007) argues that ethnic diversity, at least in the short term, has deleterious effects on a community's social capital as social cohesion, trust and the development of networks outside one's own reference group are attenuated in ethnically heterogeneous communities. For Putnam, ethnic diversity increases the likelihood of social withdrawal which in turn encourages the distrust of others and reduces social interaction and participation in civic activities/organisations, particularly in disadvantaged places. Put simply, Putnam suggests that "ethnic diversity itself seems to encourage hunkering" (2007: 155). This forms the central proposition of his constrict theory.

Studies in Britain, Canada and the United States provide some initial support for Putnam's constrict theory. Drawing on national probability surveys in the United States and Canada, Stolle et al (2008) find that white majorities in both countries are significantly more likely to report lower interpersonal trust when they live in neighbourhoods that are ethnically diverse. However, they find that interaction among neighbours decreases the negative effects of diversity on trust. Letki (2008) finds a similar relationship in Britain where people living

in areas with high levels of ethnic diversity report more negative attitudes towards neighbours. Yet, Lekti (2008), like others (see also Twigg, Taylor & Mohan, 2010), contends that this relationship is largely attributable to neighbourhood levels of social disadvantage.

The impact of social disadvantage on social cohesion and trust has a long sociological and criminological history. Most recent research reveals that residents living in disadvantaged communities are significantly more likely to distrust their neighbours than those living in middle class or affluent areas (see Sampson, Raudenbush & Earls, 1997; Ross, Mirowsky & Pribesh, 2001; Hipp, 2007, Putnam, 2007; Letki, 2008; Stolle, Soroka & Johnston, 2008; Hipp & Perrin, 2009). Ross et al (2001; 568) suggest that the powerlessness experienced by those living in disadvantaged areas "where resources are scarce and threats are common" encourages the development of mistrust and social withdrawal. Sampson and Morenoff (2006) proffer this is because disadvantage sets in motion a process that undermines key processes associated with community organisation. Thus, many conclude that the vulnerability associated with ethnic diversity is largely a factor of the relative disadvantage of a particular neighbourhood.

The goal of this paper is to examine the relationship between ethnic diversity, disadvantage and social cohesion. In particular we explore whether or not ethnically diverse places can be differentiated from other community types by their levels of trust, community ties and the frequency of exchange with neighbours. Two key questions therefore drive this study. The first asks whether communities with high levels of ethnic diversity are structurally distinct from their more homogenous counterparts. Here we are specifically interested in assessing the relationship between diversity and disadvantage across place. The second question is concerned with addressing whether residents in ethnically diverse places display the characteristics of 'hunkering' as proposed by Putnam (2007). In particular we ask whether people living in such communities report lower social cohesion and trust, as would be

predicted by constrict theory, and whether they have fewer social contacts and lower levels of social exchange with their neighbours when compared to other suburbs.

Drawing on a nested sample of 4,093 residents living in 147 urban suburbs[1] in Brisbane, Australia, we build on the current literature in three important ways. First, this paper examines the impact of ethnic diversity on perceptions of social cohesion and trust, but also considers the association between diversity and the density of intra community social ties and the frequency of contact with neighbours. Putnam (2007) suggests that diversity increases hunkering which refers to the withdrawal from social life. Theoretically, hunkering should be linked not only to lower social cohesion and trust but also to fewer ties and an infrequency of social exchange in ethnically diverse communities. To date, studies have not considered the relationship between ethnic diversity and perceptions, connections and interactions simultaneously.

Second, our research draws on these survey data to examine the relationships between community level trust, intra community relationships and exchange with neighbours. With the exception of a handful of studies (Sampson et al., 1997 and Letki, 2008), much of the research examining diversity and social cohesion and trust draws on survey data from city, state or national probability samples. As Letki (2008) suggests, such approaches cannot control for the variation associated with localised processes and contexts.

Finally, much of what we know about the diversity-trust association emerges from the North America. Examining the strength of this relationship in countries with different

[1] Suburbs are a meaningful unit of analysis in the Australian context, geographically and symbolically. Geographically, data is collected at the level of the state suburb from the Australian Bureau of Statistics and can be easily combined with nested survey data, such as the CCS. Symbolically, suburbs have an intrinsic meaning in the Australian context (Davison, 1994; Ferber, Healy and McAuliff, 1994) and are readily indefinable by residents. This was evidenced in a pilot test of the original CCS instrument which explored what the term *community* meant to residents. Results of the pilot indicated residents primarily interpret *community* as corresponding to the suburb in which they live (Mazerolle et al, 2006; Mazerolle, Wickes & McBroom, 2010).

political and historical contexts is essential in assessing whether the universalistic relationship between diversity and trust holds (Sturgis, Brunton-Smith, Read & Allum, 2010). Australia is a country with nearly 25 percent of its current population born overseas and many emigrating from Non-English speaking countries such as Greece, Italy, India, China, South Korea, Malaysia, the Philippines and Nepal. This paper therefore provides a much needed contrast to the US centric focus on the consequences of racial diversity and disadvantage on social trust, ties and exchange.

This paper proceeds with an overview of the diversity/distrust relationship as discussed in the current literature. It then provides a brief overview of the current immigration status in Australia. Next we detail the Community Capacity Study (CCS) and present the results of our analysis. We conclude this paper with a discussion of the implications of our findings for both Putnam's specific theory and the understanding of ethnicity and trust more broadly.

Diversity, disadvantage and distrust

In his Johan Skytte Prize Lecture, Robert Putnam (2007) claims that increasing ethnic diversity poses a significant threat to the development of social capital, at least for communities in Western Countries. In particular, he suggests that social cohesion, trust and the development of networks outside one's own reference group are attenuated in ethnically heterogeneous neighbourhoods. Though Putnam notes that structural disadvantage is likely to accentuate this relationship, he does not position it as central to his argument. Instead, he attempts to move beyond threat or conflict theories which suggest that perceived competition for resources reinforces the diversity distrust relationship. He further posits that social-psychological contact theories fall short in explaining the drop in social capital and challenges the notion that contact with non-group members increases out-group solidarity and

lowers ethnocentrism. Instead Putnam presents an alternative perspective. He argues that ethnic diversity increases the likelihood of social withdrawal which in turn encourages distrust of others (especially of neighbours regardless of ethnic background) resulting in a reduction in social interactions and participation in civic activities/organisations. He notes that whilst this withdrawal is universal, it is particularly evident in disadvantaged, high crime, ethnically heterogeneous neighbourhoods. In Putnam's view, "Ethnic diversity itself seems to encourage hunkering" (2007: 155) and it is 'hunkering' that he considers the most proximate mechanism associated with low social cohesion and trust in Western societies.

The link between ethnic diversity and lower social cohesion and trust has a long history in the social sciences with research concentrating on the breakdown in social control evidenced in highly diverse settings. Early in the 20th century, Shaw and McKay (1942) provided a strong foundation for understanding how neighbourhood structural conditions could lead to the concentration of social problems. For example, they found that neighbourhoods located in the zone adjacent to the central business district had high levels of crime and delinquency which were thought to be the consequence of concentrated poverty, high levels of residential stability and the racial/ethnic heterogeneity evident in these places. However, in contrast to Putnam's (2007) current position, diversity in and of itself was not considered the primary problem. Certainly intercultural distance and language barriers made it difficult for residents to communicate community norms and work collectively to achieve shared goals (Shaw & McKay 1942). But from this perspective, disadvantage and mobility were the structural neighbourhood drivers that encouraged contradictory standards of behaviour and the breakdown of community norms and conventional values.

Contemporary approaches continue to position disadvantage as the more salient driver of the ethnic diversity/distrust association. Sampson and Morenoff (2006) suggest that the inability of a community to realise common values and develop primary relationships is

directly related to the subsequent breakdown of community trust and social order. But they argue it is disadvantage that undermines social order as the association between neighbourhood ethnicity and lower social cohesion is pronounced when there is a perceived threat to valued resources.

Support for this premise exists predominantly in the US, yet international studies also find that disadvantage is the more important socio-demographic indicator associated with lower social cohesion and trust. Using the British Crime Survey and employing a multi-level modeling approach, Twigg, Taylor and Mohan (2010) examined the relationship between diversity and disadvantage and their independent impact on neighbourhood trust and informal social control. They found that economic deprivation was strongly and negatively associated with social cohesion and trust and informal social control, as was neighbourhood ethnic heterogeneity. However, disadvantage was by far the most powerful predictor with deprivation explaining substantially more variability in both measures (Twigg, Taylor & Mohan, 2010). Similarly, Lekti's (2008:120) study of 15,000 residents nested in 839 British neighbourhoods reveals that the 'quality of the context in which interactions take place' is important in generating trust and reciprocity and highlights both the direct and indirect effects of deprivation on each. Finally, in a study of 24 European countries, Lolle and Torpe (2011) find limited evidence that increased heterogeneity is accompanied by a decline in social trust. They suggest that variations in social trust at the level of the neighbourhood can be explained in part by individual characteristics and partly by the fact that ethnic minorities tend to cluster in neighbourhoods characterised by disadvantage, where resources are few, residential stability is low and crime is higher.

The impact of disadvantage on cohesion and trust is evident in the literature, though some suggest this relationship is more complex than current theorising allows, especially as it relates to ethnic diversity. Oliver and Wong (2003) point to the differential impact of socio-

economic status on trust in neighbourhoods comprising different ethnic compositions. Moreover, others point to the absence of interpersonal relationships as mediating the association between disadvantage, diversity and distrust (Stolle, Soroka & Johnston, 2008).

In one of the few studies that consider multi-ethnic settings, Oliver and Wong (2003) consider the applicability of the threat hypothesis in these contexts. Drawing on data from the Multi-City Study of Urban Equality, they examined the relationship between out-group animosity and one's own economic and cultural position and the economic context of the neighbourhood. Their findings suggest that neighbourhood level ethnic composition (measured by the percent of people from a minority background) is influential in predicting hostility towards others but note that this relationship is not straightforward. Contrary to the threat hypothesis, feelings of hostility towards out-groups were lower in neighbourhoods with higher ethnic diversity. Yet, this relationship differed by location (e.g. metropolitan areas), racial group and the economic composition of the area. In large metropolitan cities where in-group and out-group membership was comparable, participants reported low hostility towards others. But when in-group membership was high, animosity towards out-groups was also high. Further, and in partial support of the threat hypothesis, blacks and whites living in low status neighbourhoods held significantly more negative attitudes towards out-groups. Interestingly in high status neighbourhoods, Asian-Americans and Latinos displayed animosity towards minority out-groups (but not whites). Oliver and Wong (2003) conclude that racial attitudes are not just a function of a perceived threat (as measured by economic position), but are also influenced by particular neighbourhood and city context.

Though Oliver and Wong's (2003) study demonstrates the complexity associated with neighbourhood racial composition and perceptions of hostility, it does not consider the actual relationships between residents within these neighbourhoods that might lessen this association. As Stolle, Soroka and Johnston (2008) point out, studies assume people in

diverse neighbourhoods have more or less contact with ethnic minorities without considering actual ties or social exchange. In their cross-national comparison of neighbourhood ethnic diversity and trust, they find residents who talk more with their neighbours are impacted less by neighbourhood racial heterogeneity and report higher levels of trust. They suggest that the relationship between neighbourhood ethnic diversity and trust is therefore mediated by social ties. Although this study does not assess the causal direction of this relationship, Stolle and colleagues' (2008) highlight an important proposition of Putnam's theory: that ethnic diversity increases the likelihood of social withdrawal which negatively impacts upon trust.

Lancee and Donkers (2011) shed additional light on this relationship. They suggest that ethnic diversity impacts not only frequency but also quality of contact with neighbours, which in turn reduces social cohesion. The findings of this study indicate that ethnic diversity decreases frequency of contact with neighbours independent of other types of heterogeneity (such as religious or economic diversity). Lancee and Donkers (2011) conclude that ethnic diversity has a negative effect on quality of contact with neighbours and in line with Allport's intergroup theory, when values and norms are too different, conditions for optimal contact are not met.

Changing Ethnic Diversity in Australia and its Impact on Trust

Australia is a nation built on the migrant experience and comprises one of the most ethnicity diverse populations in the world (ABS, 2010). In 2010, there were approximately 22 million Australians, speaking 400 languages, identifying with more than 270 ancestries and observing a variety of cultural and religious traditions. Australia has a long history of immigration that is shaped by controversial government policies from the White Australia Policy (1901-1970) to the "Pacific Solution" (2001-2007) (Australian Department of Immigration and Multicultural and Indigenous Affairs, 2010a).

In Australia, migrants arrived in distinct waves: Eastern European refugees were followed by migrants from Western Europe, who were later replaced by migrants from the Mediterranean Basin and finally by Asians, initially coming from the Indian subcontinent, followed respectively by migrants from Lebanon and Indo-China (Australian Department of Immigration and Multicultural and Indigenous Affairs 2010b; Birrell & Rapson, 2002; Krupinski, 1984). At the last census, immigrants comprised approximately 23 percent of the Australian population with 16 percent of the population speaking a language other than English at home (Australian Government Department of Foreign Affairs and Trade, 2008; Department of Immigration and Citizenship, 2008). The greatest proportions of migrants come from England, New Zealand, China, Italy and Vietnam. Not surprisingly, the main metropolitan areas report higher proportions of overseas born residents than other Australian statistical divisions (Department of Immigration and Citizenship 2008) and as is the case in other countries, areas where migrants tend to settle are colloquially identified by the ethnic composition, for example 'Little Italy' or 'Chinatown' (Birrell & Rapson, 2002; Cheswick, Lee & Miller, 2001; Jupp, 1995). Yet unlike North American and European cities, Australia does not have 'ethnic ghettos' (Jupp, York & McRobbie, 1990). This is not to say that the geographic clustering of migrants is without consequence (Chiswick, Lee & Miller, 2001) as the spatial concentration of migrants is associated with poorer levels of language acquisition which in turn impacts the ability of new arrivals to participate in the labour force and the education system (Cheswick, Lee & Miller, 2001, Turner, 2008).

The extent to which increasing diversity in the Australian context leads to lower trust is not yet well understood. Only one study to date has expressly considered this relationship. Leigh (2006) examines factors affecting trust at the local and general level with the specific aim of estimating the impact of income inequality and ethnic and linguistic heterogeneity on levels of trust in the Australian context. He argues that ethnic diversity has a negative

influence on trust due to differing values and beliefs and an underlying fear of what is different or unknown, which in turn results in an inability of people to work together to enact informal social control. Thus when low levels of informal social control are present, and when neighbourhood norms are unclear, trust in neighbours declines. In particular Leigh (2006) shows that trust is strongly influenced by ethno-linguistic diversity finding that a one standard deviation increase in ethno-linguistic heterogeneity is associated with a 5% decrease in localised trust in Australian communities.

The Present Research

In sum, the literature suggests that ethnic diversity attenuates social exchange, impacts negatively on trust and cohesion and is accentuated in low socio-economic areas. Yet few studies test Putnam's argument in full as the focus remains predominantly on levels of social cohesion and trust, without simultaneously considering whether ethnic diversity also encourages hunkering. In the Australian context, the central propositions of Putnam's (2007) thesis remain virtually untested. The present research redresses these limitations and drawing on data from a community survey with an explicit nested design, it assesses whether ethnically diverse places can be differentiated by levels of social cohesion and trust, the density of intra-community social ties and the frequency of social exchange with neighbours.

Method

This paper draws on survey data from the 2nd wave of the Community Capacity Study (CCS). This is a longitudinal panel study of place that is supported by funding from the Australian Research Council (Mazerolle et al., 2006; Wickes et al., 2010). The overarching goal of the CCS is to understand and analyse the key social processes associated with the spatial variation of crime and victimization across urban communities over time.

The CCS longitudinal study is carried out in the Brisbane Statistical Division (BSD) located in Queensland, Australia. Brisbane is the state's capital and is the largest metropolitan area in Queensland and the 3rd largest in Australia with a population of approximately 1.9 million people. The BSD comprises several statistical sub-divisions including the more established inner city areas in addition to peri-urban areas that are experiencing large increases in population growth. Of relevance to the present study is the changing immigration picture in the Brisbane context. Of the 114,910 migrants who settled in Australia between July and December, 2008, approximately 20% took up permanent residence in Queensland, with the majority living in suburbs located in the BSD. Moreover, African refugees settling in Queensland under the government's Humanitarian program have settled predominantly in Brisbane's southern corridor (Australian Department of Immigration and Citizenship, 2010).

The CCS survey sample comprises 147 randomly drawn suburbs with populations ranging from 245 to 20,999 residents (total suburbs in Brisbane SD = 429 with a population ranging from 15 to 21,001) with many of the most ethnically diverse suburbs falling into this sample. For the CCS Wave 2, the total number of participants randomly selected from within these suburbs ranged from 12 to 54 people with a total sample size of 4,093 participants. Using Random Digit Dialing (RDD), the in-scope survey population comprised all people aged 18 years or over who were usually resident in private dwellings with telephones in the selected suburbs. The survey was conducted from 20th September 2007 to the 21st of May 2008. Trained interviewers administered the survey using Computer Assisted Telephone Interviewing (CATI). The overall consent rate was 47% (for further information see Wickes et al., 2010).

Data and Analytic Approach

In this paper, we progress our analysis in two stages, drawing on data from the 2006 Australian Bureau of Statistics (ABS) census and the CCS Wave 2 survey data. First, we

employ cluster analysis to identify neighbourhood typologies based on theoretically informed socio-demographic characteristics and to test the efficacy of these characteristics in predicting the clusters. We use Ward's clustering method followed by a descriptive discriminant analysis to ascertain major differences between the clusters and to determine which variables are primarily responsible for suburb classification (Baum 2004). The data used to conduct these analyses were drawn from the ABS 2006 census (univariate statistics for these census variables are noted in Appendix 1). In Australia, disadvantage, family and household composition, residential tenure and race and ethnicity are characteristics that reliably discriminate clusters of community types in Metropolitan areas (see Baum, 2004). Additionally, in the sociological literature, these characteristics are associated with levels of social trust and the development of intra-community networks (Letki, 2008; Twigg, Taylor & Mohan, 2010; Laurence, 2011), which are the social processes of direct concern to this paper. For these analyses we include the following variables:

SEIFA Index of Relative Disadvantage: To examine whether cluster types can be discriminated from each other on levels of disadvantage, we employ an index of relative disadvantage constructed by the ABS. This is a general socio-economic index that summarises a range of social and economic resources of people and households in a given area (ABS, 2006). It comprises indicators that assess the degree of low income, low education, unemployment and unskilled occupations in a particular geographic area. A low score on this index indicates that there are many a) households with low incomes, b) people without educational qualifications; and/or c) people working in low skilled occupations (ABS, 2006). As we want to assess the degree to which suburbs might differ in terms of their human and economic capital, this provides a reliable measure of socio-economic disadvantage.

Residential Mobility: To assess the degree to which suburb clusters can be differentiated from each other in terms of residential stability, we draw on a single variable from the ABS 2006 census data: the proportion of people living at a different address 5 years prior. Essentially, this measure captures the degree of out migration evident in a particular suburb between the 5 year census periods.

Household Composition: To assess family and household characteristics we use two census variables. The first is the median age of the population. Although, we note that other analyses in Australia have used the percentage of dependent aged persons in cluster analyses (Baum, 2004), we employ the median age of the suburb population as we wish to address the variation in age more broadly across suburbs. The second household composition variable included herewith is the proportion of families with dependent children. This captures both youth dependency and single and couple households with children which are important in discriminating clusters in Australian metropolitan areas (Baum, 2004).

Population Density: The CCS sample includes densely populated inner city suburbs and those that are located some distance from the city centre, which have lower population density. We therefore include a population density measure as we hypothesise that this will be a distinguishing physical characteristic of the CCS suburbs. This variable indicates total persons by square kilometre.

Ethnic Diversity: The final measure we employ in the cluster and discriminant analyses is the proportion of people from a non-English speaking background (NESB). Though we recognise that ethnic diversity encompasses more than just language and has been captured in the literature using indicators such as religion, place of birth or ancestry, for the purposes of this paper the language variable is the most appropriate for two reasons. First, in Australia the majority of Australian immigrants come from English speaking countries where the majority

population is Anglo-Saxon (Price, 1999). Thus using place of birth or ancestry indicators would not get at the new and more visible immigrant groups. Second place of birth data or ancestry variables do not account for Australian-born residents who identify with the cultural practices and values of the country of their parents' (or even grandparents) birth (Johnston, Forrest & Poulsen 2001).To this end we believe a measure of NESB residents will provide a clear statement of ethnic identity that may better capture the nuanced variations in cultural practices, norms, traditions and values of visible ethnic groups.

The second stage of the analyses for this paper involves fitting a multinomial logistic regression model using the clusters derived from the first analysis. The cluster analysis provides a descriptive account of the ecological differentiation of the CCS suburbs, thus we employed a multinomial logistic regression analysis to assess the relationship between socio-demographic characteristics and social processes. Multinomial logistic regression is similar to the familiar logistic regression, however, the multinomial distribution allows for *k* possible outcomes each with a probability *p_k* instead of allowing only two possible outcomes as is the case with the binomial distribution. The multinomial logistic model fits each *p_k* as a function of the covariates much like *p* is fit in binomial logistic regression. For this step of the analysis we draw on survey data from the 2nd Wave of the CCS, focusing on community trust, density of community networks and frequency of exchange with neighbours. These are operationalised as follows:

Social Cohesion and Trust: The first variable is the social cohesion and trust scale. This scale comprises five items from the Community Capacity Survey (see Appendix 2 for a list of the CCS items employed herewith and Appendix 1 for all univariate statistics). This scale is very reliable with a Cronbach's alpha of .75. Additionally, approximately 11 percent of the variation in this scale is attributed to differences between suburbs.

Density of Friends and Acquaintances: To capture density of friends/acquaintances respondents were asked to report how many neighbours they know by name: no neighbours; a few of them; most of them; or all of them. We used the suburb mean score for this variable in the multinominal regression model.

Frequency of Neighbour Exchange: To measure frequency of neighbour exchange, residents were asked to report how many times they had contact with neighbours in the previous week. Respondents were asked to report if they had contact: not at all; once; twice; three times or more. As with the previous variable, we used the suburb mean score in our final analysis.

Results

The first analysis employed Ward's clustering method (Ward 1963), an agglomerative method of hierarchical cluster analysis, which begins with each observation in a separate cluster. At each successive step, clusters that are closest together in Euclidean distance are combined to form a new aggregate cluster until the final cluster solution is produced which contains all observations. This method produces clusters with minimum within cluster variance. The resulting tree like structure is cut to select the clusters (Aldenderfer & Blashfield 1984). The best cluster solution was initially determined to be a six-group solution as indicated by the Calinski-Harabasz pseudo-F statistic (Calinski & Harabasz, 1974). However, in the case of identifying suburb typologies, as suggested by Hill et al. (1998) and Gittleman and Howell (1995), it is the face validity of the final cluster solution that is of most importance. After examining the results for three to seven clusters, based on the face validity of the cluster solution and the interpretability of the groups, we selected a cut point of five clusters (Baum 2004; Gittleman & Howell 1995 and Hill et al. 1998). Upon closer examination, the sixth group appeared to be a splinter of the reference group and was not meaningfully distinguishable. The resulting five clusters were all large enough to ensure

some stability to the statistical inferences and have distinctly identifiable socioeconomic profiles. The characteristics of these suburbs are found in Table 1. Their standardised cluster means are noted in Table 2. Appendix 3 displays the list of suburbs by clusters.

Table 1 here

Table 2 here

We then employed linear discriminant analysis to identify the linear combinations of census variables that best discriminate between clusters. Our findings indicated that over 90% of the observed variation in the clustering can be attributed to three principal factors (i.e. linear combinations of variables). The coefficients for these factors are in Table 3. All three factors load heavily on median age, signifying the importance of household composition for dictating group membership. The first factor loads most heavily on percent NESB residents indicating that ethnic composition contributes to cluster assignment. Similarly, heavy loading on SEIFA under the second factor and population density in the third factor indicates that suburb economic status and population density are highly influential in determining the final cluster solution. These primary factor loadings inform the clusters listed in Table 1.

Table 3 here

Finally we employed multinominal logistic regression to establish the degree to which each of the five identified suburb clusters could be distinguished in regards to perceptions of cohesion and trust and actual neighbouring behaviours. Multinomial logistic regression provided an analytic model to examine the relative importance of community trust, community networks and frequency of contact with neighbours in predicting group membership. In these models, Cluster 1 was deemed the reference category as it is the least

exceptional in regards to demographic characteristics. We then fit a model for the probability of inclusion in Clusters 2-5.

Results of this analysis show that suburbs that differ demographically also differ in regards to community processes (see Table 4). Model outcomes indicate the relative importance of perceived community cohesion and trust, community networks and frequency of neighbouring in determining assignment of suburbs to a specific cluster. Suburbs comprising Cluster 2 differ significantly from those in Cluster 1 in their response to the survey item examining community networks. Residents of suburbs in this cluster report knowing a significantly greater number of neighbours by name than residents of suburbs falling into Cluster 1 (β=0.968, $p < 0.05$, OR 2.63). This was the only factor that significantly affected the probability of membership in Cluster 2.

The probability of membership in Cluster 3 is impacted by all three measures. Residents of suburbs comprising this cluster are more likely to score higher on the social cohesion and trust scale than residents in Cluster 1 suburbs (β=1.381, $p< 0.01$, OR 3.98). Further, suburbs in Cluster 3 are distinguishable from those in the reference group by their higher mean number of neighbours known by name (β= 1.565, $p<0.001$, OR 4.78). However, interestingly, suburbs in this cluster report significantly lower frequency of contact with neighbours (β= -1.265, $p< 0.001$, OR 0.28).

Suburbs in Cluster 4, the "Disadvantaged and Ethnically Diverse" cluster, are distinct from the reference group on social cohesion and trust with significantly lower mean scores on the social cohesion and trust scale (β= -1.512, $p< 0.001$, OR = 0.22). Yet the reported density of intra-community relationships and the frequency of contact with neighbours were not significantly distinct from Cluster 1.

Table 4 here

Of equal interest to this research is Cluster 5. Like Cluster 4, Cluster 5 comprises disadvantaged suburbs though these clusters differ structurally in terms of their proportion of NESB (high in Cluster 4 but not 5) and their median age (higher in Cluster 5). Compared to the reference group, Cluster 5 differs in one important way. Like Cluster 4, residents of suburbs in Cluster 5 report significantly lower levels of social cohesion and trust (β= -1.147, $p<0.05$, OR = 0.32). This suggests that disadvantage has a similar impact on the *perception* of cohesion. However, residents of suburbs in Cluster 5 report knowing a significantly greater number of neighbours by name then residents of suburbs in the reference group (β= 2.149, $p<$ 0.001, OR = 8.58). Additionally, looking to the standardised cluster means, the number of neighbours known in Cluster 5 is higher than Cluster 4 (0.671 compared to -0.529). In sum, although Cluster 4 and 5 have the highest levels of disadvantage, only the suburbs that comprise Cluster 4 display reduced intra-community networks. This provides at least partial evidence that suburbs with high levels of NESB residents are more likely to report fewer connections than their disadvantaged English speaking counterparts.

Conclusion

The present research sought to empirically test the central propositions of Putnam's hunkering thesis and had two specific aims. The first was to explore whether ethnically diverse communities could be differentiated from other community types. Here we drew on administrative data to develop a community typology. Results indicated that in Brisbane, ethnically diverse and economically deprived suburbs clustered together as did disadvantaged suburbs with high proportions of English speaking residents. Second, we assessed whether the suggested universalistic relationship between diversity and trust holds in countries with different political and historical contexts (Sturgis, Brunton-Smith, Read & Allum, 2010). Using nested survey data and employing multi-nominal regression we simultaneously consider whether suburbs with high proportions of NESB residents reported fewer intra-

community ties, experienced less frequent social exchange and reported lower social cohesion and trust when compared to other community types, especially more homogenous, yet equally disadvantaged suburbs. Our findings demonstrated that there were key differences between perception and density of community ties.

The findings from this study extend the literature in three important ways. First, we find communities with high levels of ethnic diversity can be distinguished from homogenous counterparts. In the Australian context ethnically diverse areas are more likely to have many households with low incomes, people without educational qualifications, and/or people working in low skilled occupations. These characteristics are indicative of high levels of socio-economic disadvantage in heterogeneous communities as found in other western countries (ABS, 2006).

Second, our results indicate that perceptions of social cohesion are indeed low in diverse communities. In the ethnically diverse cluster, social cohesion and trust was the most significant characteristic associated with group membership. Moreover, compared to other clusters, this cluster had the lowest mean score on this scale. Yet, in contrast to Putnam's 'constrict' thesis, contact with fellow residents and intra-community ties were not attenuated in these areas. This suggests that although perceptions of social cohesion and trust were lower, this may not be the result of 'hunkering', but could be due to exogenous. For example, media and political discourse in Australia positions immigration as something that needs to be reduced and strongly controlled. As part of the policy platform for the 2010 election, the leader for the opposition publically stressed that not only will Australia "determine who comes to our country and the circumstances in which they come", but those that come "will make a contribution to our country and who are likely to feel proud of their new nationality" (The Australian, 25 July 2010). Speaking specifically about African migrants, the former Minister for Immigration, Kevin Andrews, suggested such groups posed a "problem and a

challenge" for social cohesion in Australia (Hon Kevin Andrews, 2007). Thus, it is entirely possible that decreases in social cohesion and trust is not necessarily driven by diversity in and of itself, but rather is influenced by the broader national discourses that surround it.

Lending some weight to the aforementioned thesis, we also that disadvantage may not be the key factor undermining the necessary processes associated with community organisation. Two clusters in our final cluster solution comprised suburbs with high levels of economic disadvantage and membership to each cluster group was associated with low social cohesion and trust. However, suburbs in the disadvantaged and homogenous cluster had significantly higher intra-community ties, and though not significant, a higher frequency of neighbourly exchange when compared to the cluster of suburbs with high proportions of residents from NESB. This supports Stolle and colleagues (2008) study, such that ties and neighbourly contact are reduced in ethnically diverse areas to a level beyond that which can be explained solely by economic disadvantage. Though studies demonstrate that poverty can 'negatively influence individuals' ability and willingness to engage in social activities with neighbours' (Letki, 2008: 100), our results suggest that the intra community ties necessary for social organisation are undermined more by ethnic diversity than disadvantage.

While our results provide tentative support for Putnam's thesis, some caveats are required. First, in this paper we draw on our cross-sectional data as administrative data is currently available at one time point (last census data collected in 2006). We cannot say that increasing diversity is associated with a decrease in community ties or social cohesion and trust. To fully explore this association, our future program of research will be instructive. Second, as with many telephone surveys, the participants in the CCS sample tend to be older, with higher levels of education and born in Australia (see Mazerolle et al., 2007). Thus, the patterns reflected in this study (and other survey research more broadly) may represent the views of English speaking residents and the diversity-distrust association may therefore hold more

strongly for an English speaking population. However, this is not a limitation of the study *per se* as it is possible that the attenuation of ties in ethnically diverse settings may have greater consequences for minorities who may not be able to develop the inter-ethnic networks essential for the development of bridging social capital. Thus intra group bonding or indeed hunkering among whites in ethnically diverse settings may accentuate the disadvantage experienced by particular minority groups in these communities.

Despite these limitations, our study underscores the importance of the neighbourhood composition in shaping both perceptions of social cohesion and trust and the development of the intra-community relationships that facilitate not only a sense of well-being and attachment to a neighbourhood, but allow for the regulation of community problems. While providing some support for the universalistic impact of ethnic diversity on social cohesion and trust, we would suggest that further research is required to ascertain who hunkers, what influences hunkering over time and how hunkering of particular groups might impact the availability of resources and the development of networks for the wider population in ethnically diverse communities.

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Table 1. Cluster Descriptions

Cluster Number	Cluster Name	Cluster Description
1	Average Young Families (reference group)	This cluster (n = 53, 36.05%) of suburbs typifies the 'average'. Suburbs in this cluster tend to have a lower median age and are slightly more likely to comprise families with dependent children than other suburbs. However, standardised group means across the six census variables were not significantly different from 0.
2	Densely Populated and Young	Suburbs in this group (n = 24, 16.33%) are the most densely populated. Group means indicate that suburbs in this cluster have slightly lower median age and residents are less likely to have children than the reference group. Suburbs in this cluster had the 2nd highest SEIFA score indicating low levels of disadvantage.
3	English Speaking, Advantaged and Sparsely Populated	This cluster (n = 36, 24.48%) typifies suburbs populated by English speaking residents and represents the least densely populated suburbs with low levels of disadvantage. Resident populations in this suburb cluster are stable.
4	Disadvantaged and Ethnically Diverse	Suburbs (n = 22, 14.96%) comprising this cluster are characterised by high levels of disadvantage, as indicated by a significantly negative mean SEIFA score. This cluster also has suburbs with a significantly higher percentage of residents from NESB backgrounds.
5	Older, English Speaking, Disadvantaged	This cluster (n = 13, 8.84%) comprises suburbs that have a significantly higher median age than suburbs in other clusters. It is also characterised by suburbs with high levels of disadvantage, as indicated by the negative mean SEIFA score.

Table 2. Standardised Group Means for the CCS Suburb Clusters

	Population density	% NESB	% different address 5 yrs ago	SEIFA	% families with dependent children	Median age
Cluster 1 Average, Young Families (reference group)	-0.133	-0.263	0.432	-0.139	0.570	-0.657
Cluster 2 Young, Densely Populated	1.433	-0.128	0.250	0.568	-0.511	-0.181
Cluster 3 English Speaking, Advantaged, Low Density	-0.910	-0.470	-0.724	0.851	-0.009	0.592
Cluster 4 Disadvantaged and Ethnically Diverse	0.551	1.851	-0.209	-1.170	0.080	-0.431
Cluster 5 Older, English Speaking, Disadvantaged	-0.525	-0.542	0.169	-0.868	-1.449	2.053

Table 3. Coefficients of linear discriminant functions

	Function 1	Function 2	Function 3	Function 4
Population density	0.196	-0.753	-1.355	0.220
% NESB	1.143	0.688	0.228	0.799
% different address 5 yrs ago	-0.237	0.326	-0.395	-0.733
SEIFA	-0.422	-0.993	0.234	0.797
% families with dependent children	0.133	0.113	0.244	0.029
Median age	-1.014	1.079	-0.804	0.408
Proportion of Variance Explained	0.4304	0.2769	0.1994	0.0933

Table 4. Results from the multinomial regression analysis using Cluster 1 as the reference group

	Cluster 2			Cluster 3			Cluster 4			Cluster 5		
	Densely Populated and Young			*English speaking, Advantaged and Sparsely Populated*			*Disadvantaged and Ethnically Diverse*			*Older, English speaking, Disadvantaged*		
Characteristics	*β*	*SE*	*Odds Ratio*	*β*	*SE*	*Odds Ratio*	*β*	*SE*	*Odds Ratio*	*β*	*SE*	*Odds Ratio*
Intercept	-.668*	0.289	0.512	-1.310***	0.406	10.23	-1.278***	0.373	0.279	-1.735***	0.452	0.176
Social Cohesion and Trust	-.178	0.399	.837	1.381*	0.548	3.979	-1.512***	0.420	0.220	-1.147*	0.516	0.318
Number of neighbours known by name	0.968*	0.414	2.633	1.565***	0.479	4.783	0.910^	0.478	2.482	2.149***	0.571	8.576
Contact with Neighbours in Previous Week	0.355	0.325	1.426	-1.265***	0.349	0.282	0.165	0.342	1.179	0.387	0.436	1.472

Appendix 1

Univariate Statistics 2006 ABS Census and CCS Survey

Variables	*N*	Mean	SD	Min	Max
Community-Level 2006 ABS Census					
SEIFA Disadvantage Score	147	1034.28	81.96	753.00	1154.00
% At Address 5 Years Ago	147	40.42	10.41	7.85	77.00
Population Density	147	8.93	8.26	0.10	33.82
Median Age	147	35.44	4.51	26.00	51.00
Proportion NESB	147	1.37	1.92	0.00	9.62
Proportion of total families with dependent children	147	43.16	6.58	28.18	59.65
Community-Level CCS Survey					
Social Cohesion and Trust Scale	147	0.80	0.26	0.11	1.30
Mean number of neighbours known by name (scale 1-4)	147	2.77	0.27	2.28	3.48
Mean frequency of contact with neighbours (scale 1-4)	147	2.11	0.28	1.42	2.74

Appendix 2

CCS Items

Social Cohesion and Trust Scale	Additional CCS Items
1. People around here are willing to help their neighbors? Would you say you strongly agree, agree disagree or strongly disagree? 2. This is a close-knit neighborhood? Would you say you strongly agree, agree disagree or strongly disagree? 3. People in this neighborhood can be trusted. Would you say you strongly agree, agree disagree or strongly disagree? 4. People in this neighborhood generally don't get along with each other. Would you say you strongly agree, agree disagree or strongly disagree? 5. People in this neighborhood do not share the same values. Would you say you strongly agree, agree disagree or strongly disagree?	*Density of Friends and Acquaintances* How many of your neighbours would you say you know by name? None of your neighbours; a few of them; most of them; all of them. *Frequency of Neighbour Exchange* How many times have you had contact with a neighbour in the previous week? Have not had contact; once; twice; three times of more.

Appendix 3

Suburb Clusters

Cluster Number	Suburbs
1	Strathpine , Bald Hills, Barellan Point, Tennyson, Daisy Hill, Capalaba, Yeerongpilly, Slacks Creek, Caboolture South, Lawnton, Bray Park, Belmont, Brendale, Burpengary, Rothwell, Alexandra Hills, Underwood, North Ipswich, Bellbird Park, Pine Mountain, Tanah Merah, Kallangur, Griffin, Loganholme, Camira, Petrie, Hillcrest, Upper Caboolture, Morayfield , Deception Bay, Loganlea, Waterford, Seventeen Mile Rocks, Redbank Plains, Collingwood Park, Dayboro, Boronia Heights, Regents Park, Meadowbrook, Forest Lake, Dakabin, Warner, Drewvale, Heritage Park, Mount Cotton, Parkinson, Narangba, Mango Hill, Springfield Lakes, Mackenzie, Eatons Hill, Springfield
2	Paddington, Kelvin Grove, Greenslopes, Red Hill, Annerley, Springwood, Jindalee, Corinda, Sherwood, Jamboree Heights, Newmarket, Chelmer, The Gap, Yeronga, Fairfield , Tarragindi, Shailer Park, Bardon, Cornubia, Ashgrove, Murrumba Downs, Graceville , Albany Creek, Sinnamon Park
3	Capalaba West, Whiteside, Mount Ommaney, Rochedale, Ellen Grove, Burbank, Sheldon, Clear Mountain, Kurwongbah, Forestdale, Camp Mountain, Mount Glorious, Chandler, Karalee, Kholo, Joyner, Ocean View, Thornlands, Draper, Wights Mountain, Cedar Creek, Samford Village, Upper Brookfield, Samford Valley, Mount Nebo, Samsonvale, Karana Downs, Mount Samson, Anstead, Mount Crosby, Bunya, Closeburn, Pullenvale, Highvale, Chuwar, Cashmere
4	Woolloongabba, Sunnybank Hills, Pallara, Salisbury, Gailes, Moorooka , Oxley, Stretton, Durack, Dutton Park, Runcorn, Calamvale, Dinmore, Kuraby, Browns Plains, Logan Central, Woodridge, Riverview, Inala, Kingston, Goodna, Doolandella
5	Sandstone Point, Toorbul, Donnybrook, Cleveland, Redbank, Meldale, Beachmere, Godwin Beach, Kippa-Ring, Bethania, Ningi, Ormiston, Caboolture