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Tracking neighbourhood change: establishing the links between change in neighbourhood social structure, built form and housing market performance

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As a result of rising land prices there has been considerable infill medium density housing development across the Adelaide Statistical Division (ASD). It is hypothesised that this may be having a negative impact on local neighbourhoods in terms of social structure, for example economic status and family makeup and in terms of local housing market performance. This paper will report on initial findings with regard to neighbourhood change across the ASD between two census periods (2001 and 2006) in terms of both social structure and housing form and will explore the extent to which such change is linked to local housing market performance.

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Introduction

As a result of rising land prices there has been considerable infill medium density housing development across the Adelaide Statistical Division (ASD). It is hypothesised that this may be having a negative impact on local neighbourhoods in terms of social structure, for example reduce diversity as measured by economic status and family makeup and in terms of local housing market performance (Bramley et al 2007; Yates, 2006). On the other hand concern has been expressed by government providers that such infill and renewal may reduce the stock of affordable housing, cause housing displacement and result in community disruption (AHIU 2008).

The identification and classification of urban areas along lines of social structure has been a productive area of housing research in that such analysis has allowed for a better understanding of residential submarkets (Reed, 2001; Lockwood & Coffee, 2006), buyer behaviour (Ibrahim & Ong, 2004), housing needs (Meen, 2001; Meen & Meen, 2003; Bunker, Holloway & Randolph, 2005) and social polarisation (Reynolds & Wulff, 2005). The origins of this approach lie in the early work of Shevky and Bell (1955) who used census data to apply social area analysis to Los Angeles and San Francisco and hypothesized that the social make up of these two cities could best be understood along the lines of socio-economic status, family status and ethnic status. These they termed 'social constructs'. This line of enquiry has been productive with other studies producing similar results using census data (Jones, 1969; Rees 1970). Murdie (1969) used the concept of social structure to produce a model in which the social constructs of economic status, family status and ethnic status were given a spatial dimension atop a 'physical space', implying that such social constructs could be distinguished by location.

This paper uses the technique of principal components analysis (SPSS 1993) to identify housing and social constructs using Australian Bureau of Statistics (ABS) census data for 2001 and 2006 for 380 suburbs across the ASD. As suggested by Bunker et al (2005, pg 781) such social constructs provide "the demand which drives the functioning of … submarkets". These constructs can be used to examine demographic change across the two census periods at neighbourhood level.

Next suburbs which have experienced higher increases of medium density development between the two census periods are identified and compared in terms of physical form, median house prices and socioeconomic makeup with the rest of the ASD. This analysis is an attempt to identify whether medium density housing investment has any impact on market performance at suburb level and if there are associated changes in neighbourhood social structure.

Data

ABS 2001 and 2006 census data for the ASD was used to identify social constructs based on principal component analysis. Some 144 variables which were consistent in their measurement across the two census periods were taken from the ABS Basic Community Profile for 380 suburbs within the ASD (Table 1). A number of these variables were based on those selected by the ABS in the construction of their Socio Economic Indexes for Areas (SEIFA). There are four SEIFA indexes (ABS 2006) which are used to track relative socioeconomic advantage and disadvantage, occupation and education and level of economic resources across statistical areas and are based on the ABS Census. However a number of other variables not included in the SEIFA indexes were used in this analysis in this paper in particular those pertaining to mobility, language and ethnicity and housing form. As well the number of variables used is rather more than those used in the SEIFA indexes which are based on a fairly narrow selection of variables, tend to be more particular to the census period in which they are constructed and are not suitable for comparison across census periods (ABS 2006). However the SEIFA indexes were used in the paper to investigate whether there were significant differences

within a census period between those suburbs which had experienced higher levels of flat and unit development and those that had not. Median price data for each suburb for all dwellings, detached dwellings and units for 2001 and 2006 was used to identify the impact, if any, of change in neighbourhood structure and dwelling type on housing market performance.

Analysis

First principal components analysis (PCA) was carried out using percentage values for 144 variables (Table 1) across 380 suburbs to identify the core components or factors that cumulatively help to explain the housing and social fabric of each suburb for 2001 and 2006. KMO and Bartlett tests indicated that both data sets were suitable for this type for analysis (Table 2, Table 3). Based on the criteria of eigen values greater than 1, eight factors were produced for the 2001 census representing some 78.8 percent of the variance (Table 4) and nine factors for the 2006 census, representing some 79.1 percent of the variance within the data set (Table 5). From these rotations six factors were identified for each data set based on the interpretation of those variables with factor loadings greater than .5. For the 2001 data set (Table 6) the factors were labelled in order of percentage of variance explained as Socio economic (based on the inclusion of variables representing items such as income, qualifications and occupation); Familism (based on variables representing such items as age and family structure); Mobility (based on variables covering dwelling change or stability in last 1 to 5 years); Ethnicity (based on language and place of birth); Medium Density Housing Authority (based on selection of housing form and housing authority dwellings) and finally Medium to High Density Other (representing higher density forms of private development).

These six factors represented some 70 percent of the overall variance (Table 4) which were considered adequate for the purposes of the analysis (Hair et al 1998). The final two factors were not able to be summarized adequately. The positive and negative ends of each factor were interpreted and then mapped to confirm the spatial distribution of the social structure (Figure 1,Figure 2,Figure 3,Figure 4).

Similar labels were able to be attached to the 2006 rotation (Figure 5, Figure 6, Figure 7, Figure 8) although the importance of the factors in terms of the variance explained by each was different (Table 5). As such the 2006 factors were labelled as Socio economic, Mobility, Ethnicity, Familism, Medium Density Housing Authority and Medium to High Density Other. These six factors represented some 68 percent of the overall variance. The final three factors were not able to be summarized adequately. Again the positive and negative ends of each factor were interpreted and then mapped (Figure 5, Figure 6, Figure 7, Figure 8).

Next those suburbs which had experienced higher levels of unit and flat development between 2001 and 2006 were identified. This was measured as the percentage change in the number of one and two storey flats, units and apartments between 2001 and 2006. This was the only variable representing medium density housing form that was consistent across the two census periods. The top quintile of the 300 suburbs able to be measured was then selected for further analysis. This 20 percent represented 62 suburbs which had experienced at least a fifty percent change in their volume of medium density development. These suburbs were then compared to the rest of the ABS within each census period using simple t test analysis of means (Table 8) assuming differences in variance for a number of items including census variables, factors representing neighbourhood social structure identified by the PCA, SEIFA indexes, for median house price and for median price change for all dwellings (Figure 10), and for houses only and for units only. Percentage difference in terms of the volume of medium density development for the ASD between 2001 and 2006 was also measured (Figure 9).

Results

The test for equality of means (Table 8) identifies that the suburbs which went on to experience large increases in medium density development in 2006 (> than 50 %) were distinguished, in 2001 from the rest of the ASD by lower volumes of higher density development (Sig>.05) and private rented accommodation (Sig>.05). They could also be identified by the low nature of their housing density (Sig >.1) that is, a higher volume of detached dwellings. These three factors may offer the potential for investment in terms of redevelopment and infill. However by 2006 these suburbs had achieved a stock of medium density development comparable with the rest of the ASD giving rise to substantial change in their built form within a five year period.

In terms of social structure as identified by the PCA, these suburbs could be distinguished by higher levels of mobility in 2001 and by relatively higher levels of Australian born in 2001 and in 2006. In 2001 these neighbourhoods could not be distinguished in terms of family structure but by 2006 they could be distinguished by a lower than average index of Familism (Sig >.1) as measured by the PCA. By 2006 they could be distinguished also from the rest of the ASD by lower levels of socio economic status (Sig >.05) and in terms of a lower score on the SEIFA index of Education and Occupation, which measures education levels and job skills. However, in 2006 these suburbs could be also distinguished by a higher level of home purchase (Sig >.05) and a lower level of private rented properties (Sig>.5).

In 2001 there was no distinction between suburbs in terms of the median price paid for all dwellings, detached dwellings or units. However by 2006 there was a distinction in the median price being paid for detached dwellings (Sig >.05) which was lower than that for suburbs which had not experienced an increase in the level of medium density development. However there was no distinction between those suburbs which had seen a large change in the volume of medium density development and those which had not, in terms of the percentage change in median price for all dwellings, detached dwellings or units.

As of 2001 these neighbourhoods could be distinguished (Sig >.05) by means of factors identified in the PCA, in terms of ethnicity and mobility and in 2006 in terms of ethnicity, familism and socio economic status. In terms of ethnicity, their social structure had not changed retaining a strong Australian born dimension, while in terms of mobility, familism and socio economic status there had been a shift. They could also be identified in terms of the level of dwellings being purchased (Sig >.05) and by the SEIFA Index for Education and Occupation (Sig > .05).

Therefore, in terms of change between 2001 and 2006 these 62 suburbs have experienced higher levels of medium density development, their neighbourhood structure has changed to become less family based and they can be distinguished in terms of a lower socio economic status and by means of a socio economic index which tracks job skills and education. The suburbs also show relatively lower levels of mobility and higher levels of home purchase.

In 2001 there was no distinction between these suburbs in terms of median price paid for all dwellings, detached dwellings or units but by 2006 there was a distinction in the median prices being paid for detached dwellings. However no other distinction could be identified between the census periods in terms of the level of median price increase for any category of dwelling. Dwellings, both detached and units, within suburbs which have seen major redevelopment show the same level of price increase as those which have not.

Conclusion

This paper is an introductory analysis only and further consideration would need to be made of the results of the PCA in term of detail about the nature of family structure and mobility and the level of difference within the SEIFA index of Education and Occupation. Overall it would appear that these neighbourhoods have experienced significant change in their built form, some change within their neighbourhood structure but are not experiencing any significant difference in terms of housing market performance.

As such there may be no winners or losers in terms of housing investment. Those who worry that medium density infill will dampen house prices significantly may have less to fear than they expect while those who are concerned that redevelopment signals the end of affordable housing may still find that that housing opportunities remain for those on lower incomes. Of most significance would appear to be the change in social structure which could increase the opportunities for social mix and diversity though that does not appear to be fully supported in this paper. Further analysis of the PCA results is required. There is also the opportunity through spatial analysis to identify any location influences which might be compensating for difference in housing form between neighbourhoods.

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Table 1 ABS Basic Community Profile Items

Table 1	
V1	People_aged_0_4_years
V2	People_aged_5_14_years
V3	People_aged_0_4
V4	People_aged_5_9
V5	People_aged_10_14
V6	People_aged_15_19
V7	People_aged_20_24
V8	People_aged_25_29
V9	People_aged_30_34
V10	People_aged_35_39
V11	People_aged_40_44
V12	People_aged_45_49
V13	People_aged_50_54
V14	People_aged_55_59
V15	People_aged_60_64
V16	People_aged_65_69
V17	People_aged_70_74
V18	People_aged_75_79
V19	People_aged_80_84
V20	People_aged_85_89
V21	People_aged_90_94
V22	People_aged_95_99
V23	People_aged_100_and_over
V24	People_Speak_other_language_at_home
V25	People_only_up_to_Year_8_Schooling
V26	People_Australian_Born
V27	People_Born_elsewhere
V28	People_Speak_English_Only
V29	People_Speak_other_language
V30	People_Uni_or_Tertiary_Qual
V31	People_Income_Neg_or_Nil
V32	People_Income_$wk_1_149
V33	People_Income_$wk_150_249
V34	People_Income_$wk_250_399
V35	People_Income_$wk_400_599
V36	People_Income_$wk_600_799
V37	People_Income_$wk_800_999
V38	People_Income_$wk_1000_1299
V39	People_Income_$wk_1300_1599
V40	People_Income_$wk_1600_1999
V41	People_Income_$wk_2000_or_more
V42	People_in_Group_Household
V43	People_Lone_Person_Household
V44	Families_Couple_No_Child
V45	Families_Couple_plus_Child_under_15

V46	Families_Couple_plus_No_Child_under_15
V47	Families_One_parent_family
V48	Dwellings_Separate_Houses
V49	Dwellings_1_Storey_Semi_Row_Terrace_Townhouse
V50	Dwellings__2_or_more_Storey_Semi_Row_Terrace_Townhouse
V51	Dwellings_1_or_2_Storey_Flats_Units_and_Appts
V52	Dwellings_3_Storey_Flats_Units_and_Appts
V53	Dwellings_4_or_more_Storey_Flats_Units_and_Appts
V54	Dwellings_Flats_Units_and_Appts_attached_to_house
V55	Dwellings_Other_Dwellings
V56	Dwellings_Fully_Owned
V57	Dwellings_Being_Purchased
V58	Dwellings_Rented_Real_Estate_Agent
V59	Dwellings_Rented_Housing_Authority
V60	Dwellings_Rented_Person_not_in_same_dwelling
V61	Dwellings_Rented_Coop_Comm_Church_housing
V62	Dwellings_Rented_Total
V63	Dwellings_Monthly_Loan_Payment_1_249
V64	Dwellings_Monthly_Loan_Payment__250_399
V65	Dwellings_Monthly_Loan_Payment_400_549
V66	Dwellings_Monthly_Loan_Payment_550_749
V67	Dwellings_Monthly_Loan_Payment_750_949
V68	Dwellings_Monthly_Loan_Payment_950_1199
V69	Dwellings_Monthly_Loan_Payment_1200_1399
V70	Dwellings_Monthly_Loan_Payment_1400_1599
V71	Dwellings_Monthly_Loan_Payment_1600_1999
V72	Dwellings_Monthly_Loan_Payment_2000_2999
V73	Dwellings_Monthly_Loan_Payment_3000_and_over
V74	Dwellings_Rented_at_0_49_Real_Estate_Agent
V75	Dwellings_Rented_at_0_49_Housing_Authority
V76	Dwellings_Rented_at_0_49_Person_not_in_same_household
V77	Dwellings_Rented_at_0_49_Coop_Comm_Church_housing
V78	Dwellings_Rented_at_50_99_Real_Estate_Agent
V79	Dwellings_Rented_at_50_99_Housing_Authority
V80	Dwellings_Rented_at_50_99_Person_not_in_same_household
V81	Dwellings_Rented_at_50_99_Coop_Comm_Church_housing
V82	Dwellings_Rented_at_100_139_Real_Estate_Agent
V83	Dwellings_Rented_at_100_139_Housing_Authority
V84	Dwellings_Rented_at_100_139_Person_not_in_same_household
V85	Dwellings_Rented_at_100_139_Coop_Comm_Church_housing
V86	Dwellings_Rented_at_140_179_Real_Estate_Agent
V87	Dwellings_Rented_at_149_179_Housing_Authority
V88	Dwellings_Rented_at_140_179_Person_not_in_same_household
V89	Dwellings_Rented_at_140_179_Coop_Comm_Church_housing
V90	Dwellings_Rented_at_180_224_Real_Estate_Agent
V91	Dwellings_Rented_at_180_224_Housing_Authority
V92	Dwellings_Rented_at_180_224_Person_not_in_same_household

V93	Dwellings_Rented_at_180_224_Coop_Comm_Church_housing
V94	Dwellings_Rented_at_225_274_Real_Estate_Agent
V95	Dwellings_Rented_at_225_274_Housing_Authority
V96	Dwellings_Rented_at_225_274_Person_not_in_same_household
V97	Dwellings_Rented_at_225_274_Coop_Comm_Church_housing
V98	Dwellings_Rented_at_275_349_Real_Estate_Agent
V99	Dwellings_Rented_at_275_349_Housing_Authority
V100	Dwellings_Rented_at_275_349_Person_not_in_same_household
V101	Dwellings_Rented_at_275_349_Coop_Comm_Church_housing
V102	Dwellings_Rented_at_350_449_Real_Estate_Agent
V103	Dwellings_Rented_at_350_449_Housing_Authority
V104	Dwellings_Rented_at_350_449_Person_not_in_same_household
V105	Dwellings_Rented_at_350_449_Coop_Comm_Church_housing
V106	Dwellings_Rented_at_450_549_Real_Estate_Agent
V107	Dwellings_Rented_at_450_549_Housing_Authority
V108	Dwellings_Rented_at_450_549_Person_not_in_same_household
V109	Dwellings_Rented_at_450_549_Coop_Comm_Church_housing
V110	Dwellings_Rented_at_550_and_over_Real_Estate_Agent
V111	Dwellings_Rented_at_550_and_over_Housing_Authority
V112	Dwellings_Rented_at_550_and_over_Person_not_in_same_househol
V113	Dwellings_Rented_at_550_and_over_Coop_Comm_Church_housing
V114	People_Same_usual_address_1_years_ago
V115	People_Lived_at_different_address_1_years_ago
V116	People_Same_usual_address_5_years_ago
V117	People_Lived_at_different_address_5_years_ago
V118	People_Postgrad_Degree
V119	People_Bachelor_Degree
V120	People_Agric_Forestry_and_Fishing
V121	People_Mining
V122	People_Manufacturing
V123	People_Elec_Gas_Water_and_Waste_services
V124	People_Construction
V125	People_Wholesale_Trade
V126	People_Retail_Trade
V127	People_Accommodation_Food_Service
V128	People_Transport_Postal_and_Warehousing
V129	People_Information_Media_and_Telecommunications
V130	People_Finance_Insurance_Services
V131	People_Rental_Hire_and_Real_Estate_Services
V132	People_Professional_Scientific_and_Tech_Services
V133	People_Admin_and_Support_Services
V134	People_Public_Admin_and_Safety
V135	People_Education_and_Training
V136	People_Employed_Total
V137	Workers_Managers
V138	Workers_Professionals
V139	Workers_Technicians_and_Trade_workers

V140	Workers_Community_and_personal_service_workers
V141	Workers_Clerical_and_administrative
V142	Workers_Sales_workers
V143	Workers_Machinery_operators

Table 2 KMO Test 2001

Table 3 KMO Test 2006

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.757
Bartlett's Test of Sphericity	Approx. Chi-Square	24859.254
	df	861
	Sig.	.000

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.729
Bartlett's Test of Sphericity	Approx. Chi-Square	26068.150
	df	1035
	Sig.	.000

Table 4 Total Variance Explained ASD 2001

Total Variance Explained			
Component	Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %
Socio Economic	8.767	20.875	20.875
Family Structure	5.722	13.623	34.498
Mobility	4.468	10.639	45.137
Ethnicity	4.137	9.851	54.988
Medium Density	3.347	7.97	62.957
High Density	3.127	7.445	70.402
7	1.909	4.544	74.946
8	1.658	3.947	78.893
Extraction Method: Principal Component Analysis.			

Table 5 Total Variance Explained ASD 2006

Total Variance Explained			
Component	Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %
Socio Economic	9.424	20.488	20.488
Mobility	5.293	11.506	31.993
Ethnicity	5.022	10.917	42.91
Family structure	4.649	10.107	53.017
Tenure	3.46	7.521	60.538
Medium Density	3.249	7.064	67.602
7	1.803	3.92	71.522
8	1.772	3.851	75.373
9	1.72	3.739	79.112
Extraction Method: Principal Component Analysis.			

Table 6 Rotated Component Matrix ASD 2001

Rotated Component Matrix(a)								
	Component							
Component Labels based on factor loadings >.5	Socio - economic	Familism	Mobility	Ethnicity	Medium Density Housing Authority	Medium to High Density - Other	7 (Not labelled)	8 (Not labelled)
People__Postgrad_Degree	0.939097							
People__Bachelor_Degree	0.928519							
People_Income_1500_or_more	0.921703							
People_Income_1000_1499	0.869109							
Workers__Professionals_and_Associate_Professionals	0.844393							
Dwellings_Monthly_Loan_Payment_2000_and_over	0.829091							
Workers__Laborers	-0.72527							
People_Uni_or_Tertiary_Qual	0.702474							
Dwellings_Monthly_Loan_Payment_16001799	0.701722							
Workers__Managers_and_Administrators	0.673607							
People_Income_1_39	0.52525							
Workers__Elementary_Clerical_Sales_and_Service_Workers	-0.51643							
People_aged_64_and_over		0.844793						
People_aged_5_9		-0.772037						
Families_Couple_No_Child		0.752098						
People_aged_0_4		-0.71581						
People__Lone_Person_Household		0.709347						
Dwellings_Being_Purchased		-0.657393						
People_aged_15_and_over		0.633596					0.62523	
Families_Couple_plus_Child_under_15		-0.587452						
Dwellings_Separate_Houses		-0.556256						
Dwellings_1_or_2_STOREY_Flats_Units_and_Appts								
People__Same_usual_address_5_years_ago			0.892975					
People__Lived_at_different_address_1_years_ago			0.868375					
People__Lived_at_different_address_5_years_ago			0.860743					
People__Same_usual_address_1_years_ago			0.756927					
Dwellings_Fully_Own			0.600275					
Dwellings_Rented_OTHER								
People_Speak_other_language_at_home				0.970444				
People_Speak_other_language				0.969624				
People_Speak_English_Only				-0.927052				
People_Australian_Born				-0.663841			0.56981	
People_only_up_to_Year_8_Schooling	-0.51149			0.583141				
Dwellings__1_STOREY_Semi_Row_Terrace_Townhouse					0.849341			
Dwellings_Rented_Housing_Authority					0.844531			
Families_One_parent_family	-0.56255				0.718017			
People__in_Group_Household						0.656058		
Dwellings_4_or_more_STOREY_Flats_Units_and_Appts						0.655368		

							0.642107		
Dwellings__2_or_more_STOREY_Semi_Row_Terrace_Townhouse							0.642107		
Dwellings_3_STOREY_Flats_Units_and_Appts							0.604206		
People_Income_80_119									0.7467
People_Income_40_79									0.5583

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

a	Rotation converged in 8 iterations.

Table 7 Rotated Component Matrix ASD 2006

Rotated Component Matrix(a)

Component Labels based on factor loadings >.5	Socio economic	Mobility	Ethnicity	Familism	Medium Density Housing Authority	Medium to High Density Other	7 (not labelled)	8 (not labelled)	9 (not labelled)
Workers_Professionals	0.9240757								
People_Bachelor_Degree	0.9182843								
People_Postgrad_Degree	0.9153801								
People_Income_1600_1999	0.8867018								
Dwellings_Monthly_Loan_Payment_2000_2999	0.868938								
People_Income_2000_or_more	0.8673729								
Workers_Laborers	-0.8612344								
Dwellings_Monthly_Loan_Payment_3000_and_over	0.7488834								
People_Income_150_249	-0.7292256								
People_Uni_or_Tertiary_Qual	0.6784718								
Workers_Managers	0.6717439								
Families_One_parent_family	-0.6343654				0.6131115				
People_Income_250_399	-0.5788372								
People_Same_usual_address_5_years_ago		0.8479199							
People_Lived_at_different_address_1_years_ago		-0.8410505							
People_Same_usual_address_1_years_ago		0.7649883							
People_Lived_at_different_address_5_years_ago		-0.7411817							
Families_Couple_plus_No_Child_under_15		0.7149782							
Dwellings_Rented_Real_Estate_Agent		-0.5616987				0.5194405			
People_Lone_Person_Household		-0.5207308							
Dwellings_Fully_Owned		0.5189413							
People_Speak_other_language			0.9708553						
People_Speak_other_language_at_home			0.9699772						
People_Speak_English_Only			-0.9559497						
People_Born_elsewhere			0.832075						
People_Australian_Born			-0.8188272						
Families_Couple_No_Child				0.8098307					
People_aged_70_74				0.7977909					

	Col1	Col2	Col3	Col4	Col5	Col6	Col7	Col8
People_aged_65_69			0.7547436					
Families_Couple_plus_Child_under_15			-0.7526134					
People_aged_5_9			-0.6142118					
People_aged_75_79			0.574836					
Dwellings_Being_Purchased			-0.5520084					
Dwellings_1_Storey_Semi_Row_Terrace_Townhouse				0.721638				
Dwellings_Rented_Housing_Authority				0.6967493				
Dwellings_Separate_Houses				-0.5870847				
Dwellings_3_Storey_Flats_Units_and_Appts					0.6925004			
Dwellings_4_or_more_Storey_Flats_Units_and_Appts					0.6524865			
People_in_Group_Household					0.6356057			
Dwellings__2_or_more_Storey_Semi_Row_Terrace_Townhouse					0.6327244			
People_aged_0_4_years						0.83464		
People_only_up_to_Year_8_Schooling						0.69543		
People_Income_1_149							-0.72681	
Workers_Clerical_and_administrative								0.64854
Workers_Sales_workers								0.58846
Dwellings_1_or_2_Storey_Flats_Units_and_Appts								

Extraction Method: Principal Component Analysis.
 Rotation Method: Varimax with Kaiser Normalization.

a	Rotation converged in 10 iterations.		
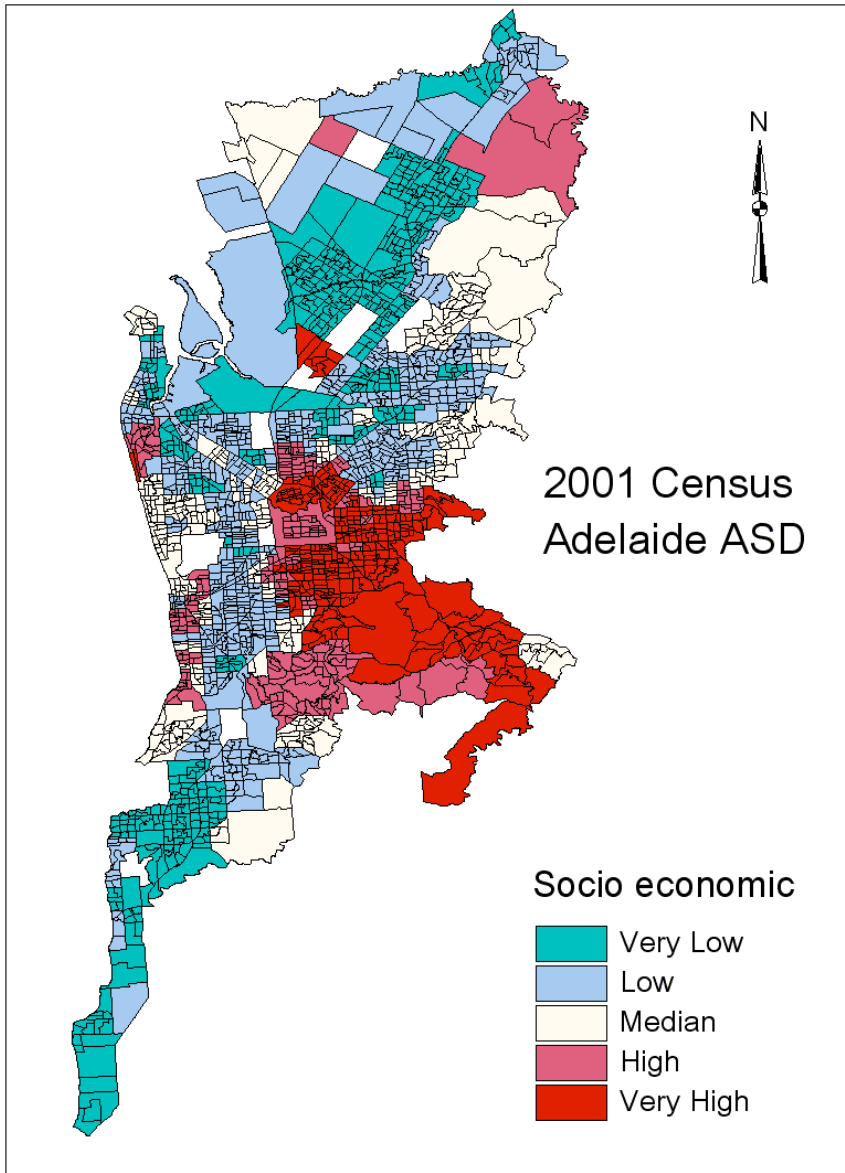
Figure 1 ASD 2001 Socioeconomic Factor 1
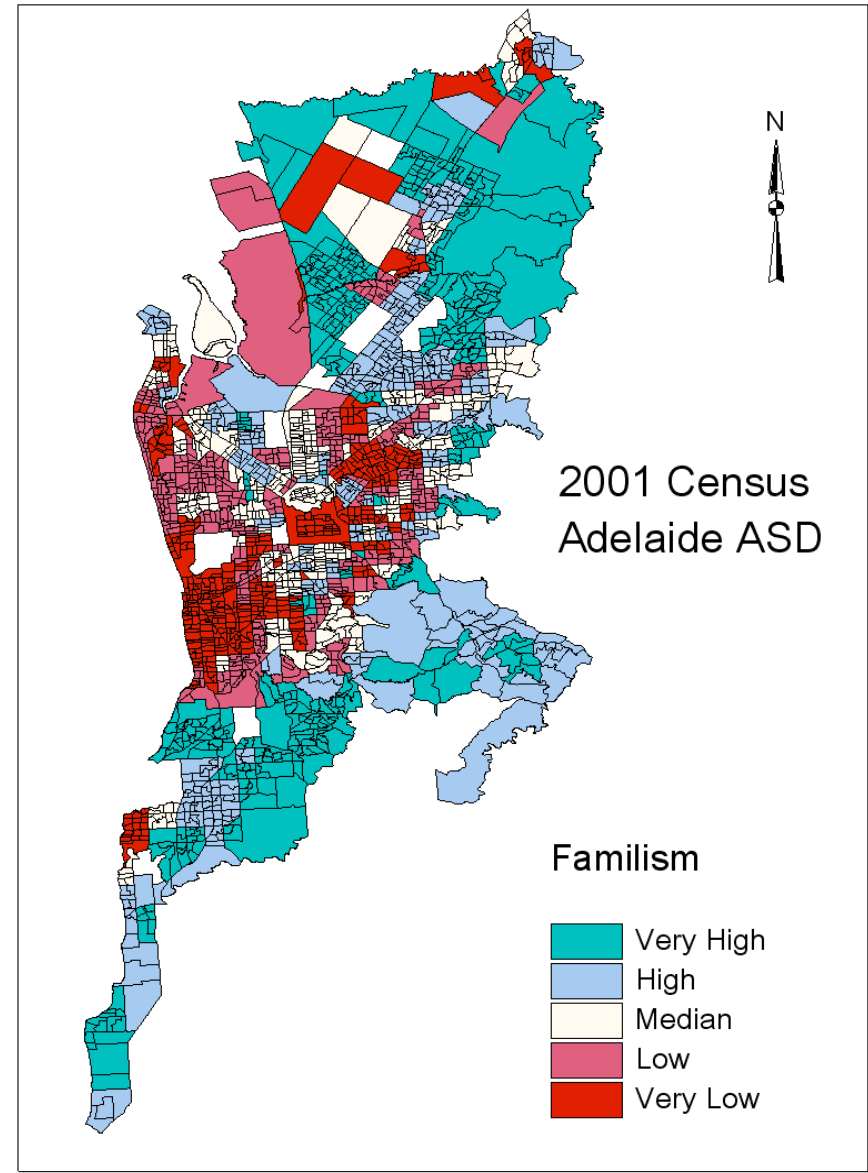
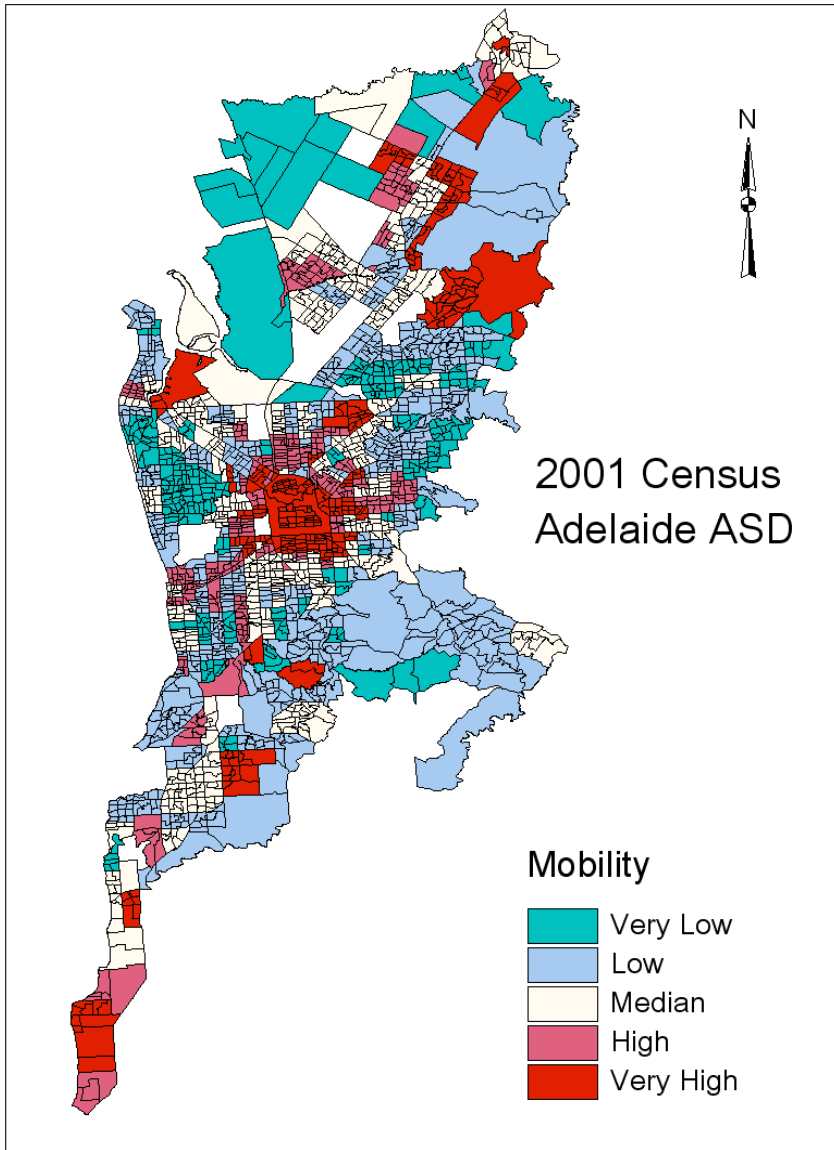**Figure 2 ASD 2001 Familism Factor 2**

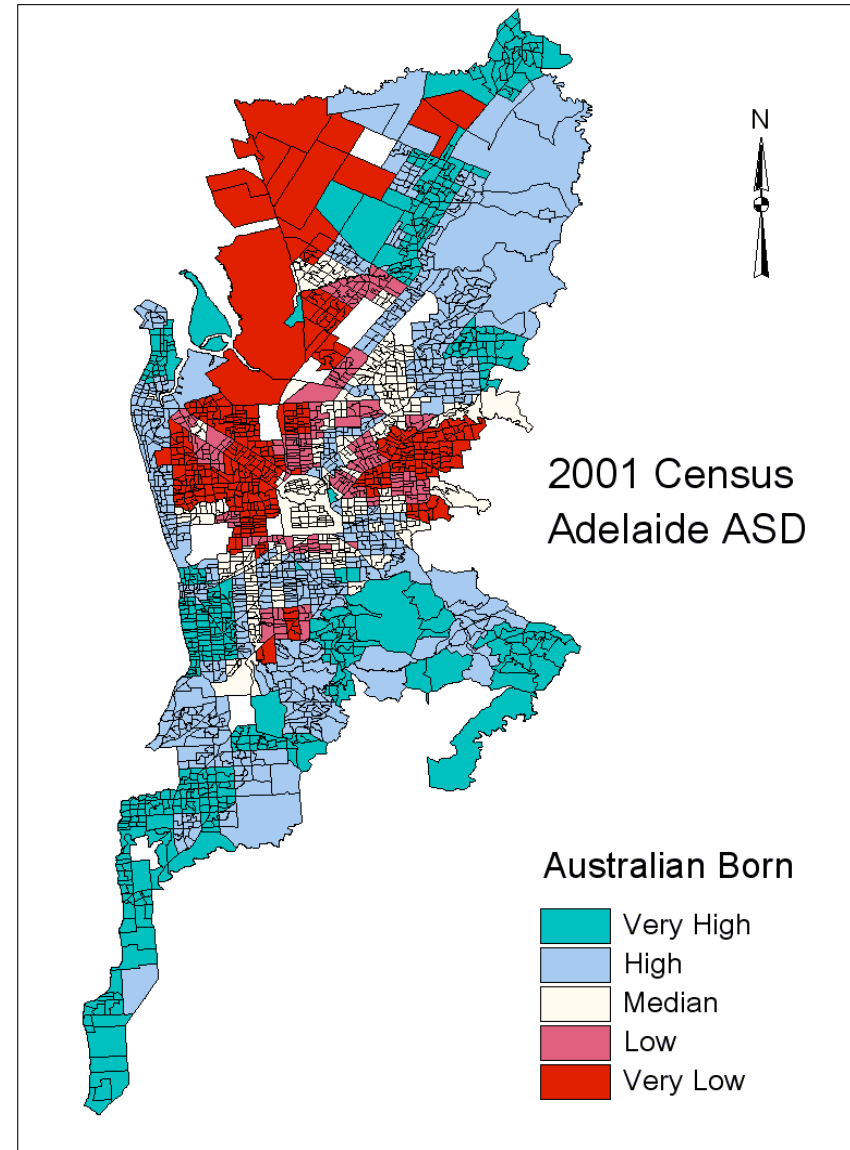**Figure 3 ASD 2001 Mobility Factor 3**

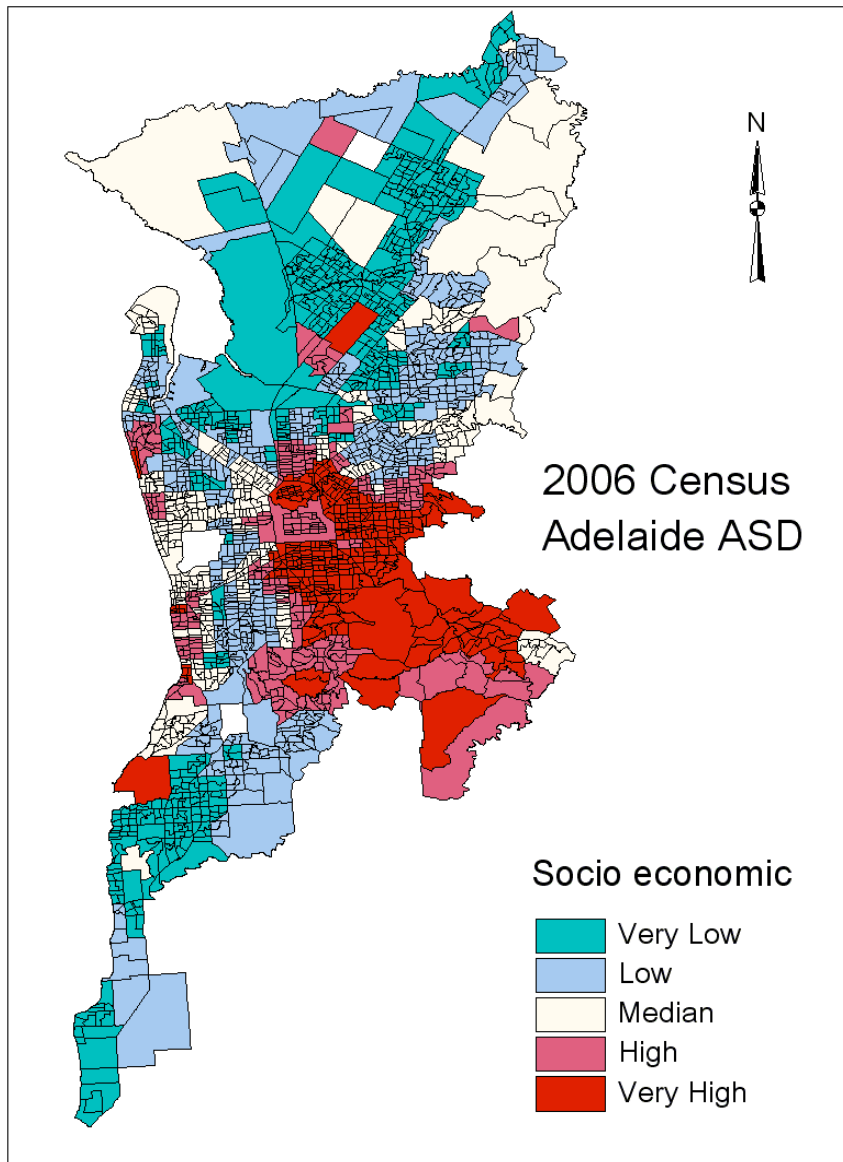**Figure 4 ASD 2001 Ethnicity (Australian born) Factor 4**
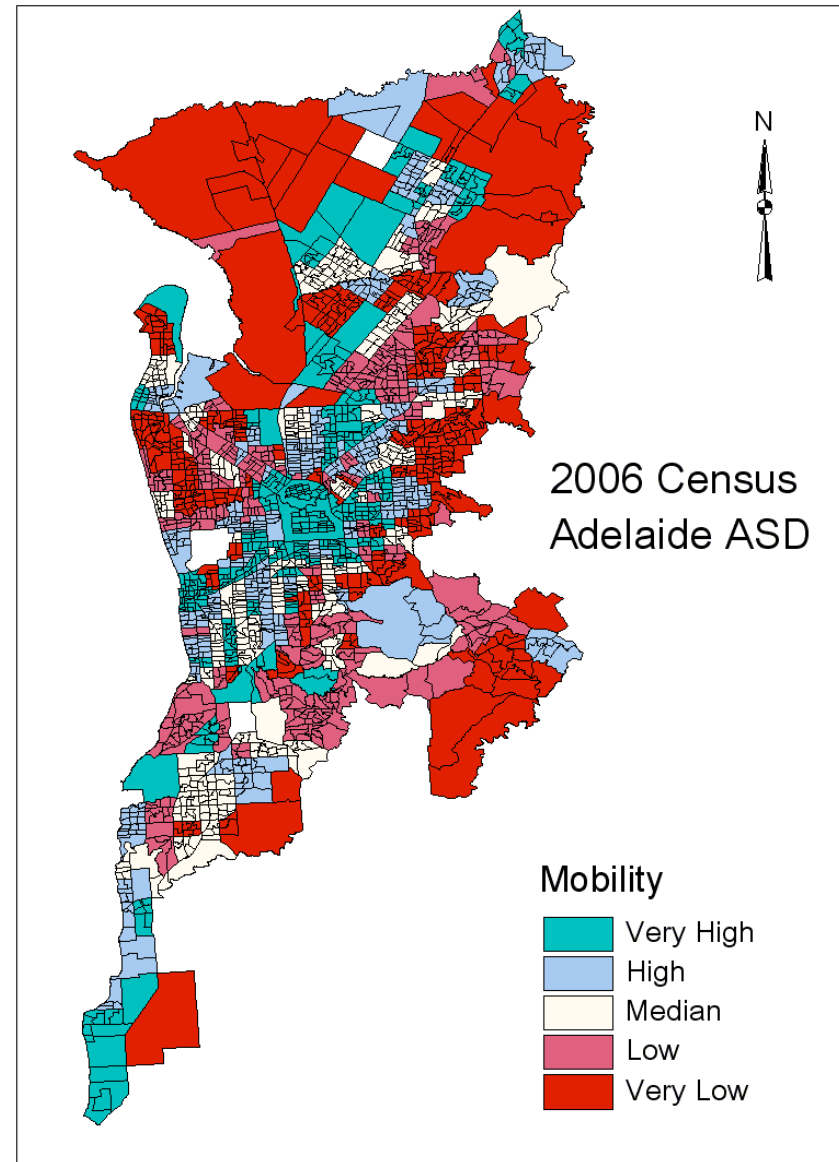
Figure 5 ASD 2006 Socio economic Factor 1

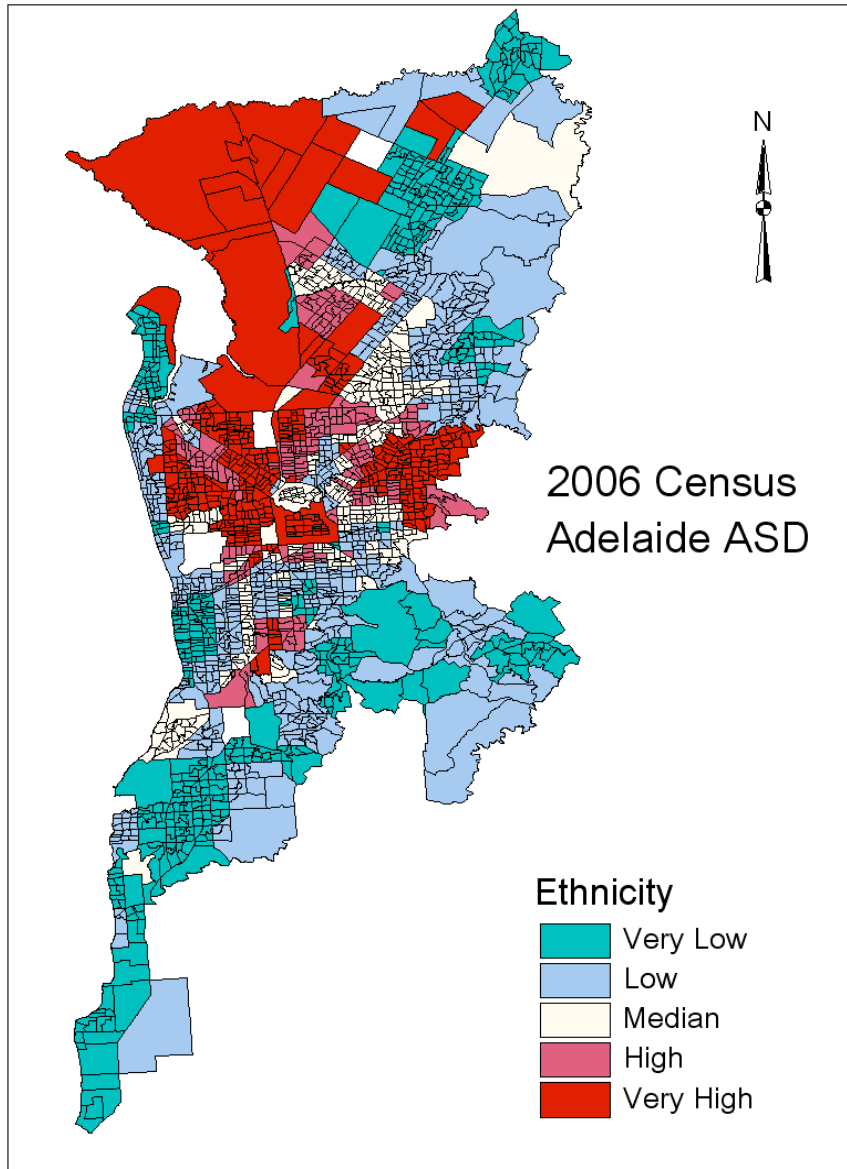Figure 6 ASD 2006 Mobility Factor 2
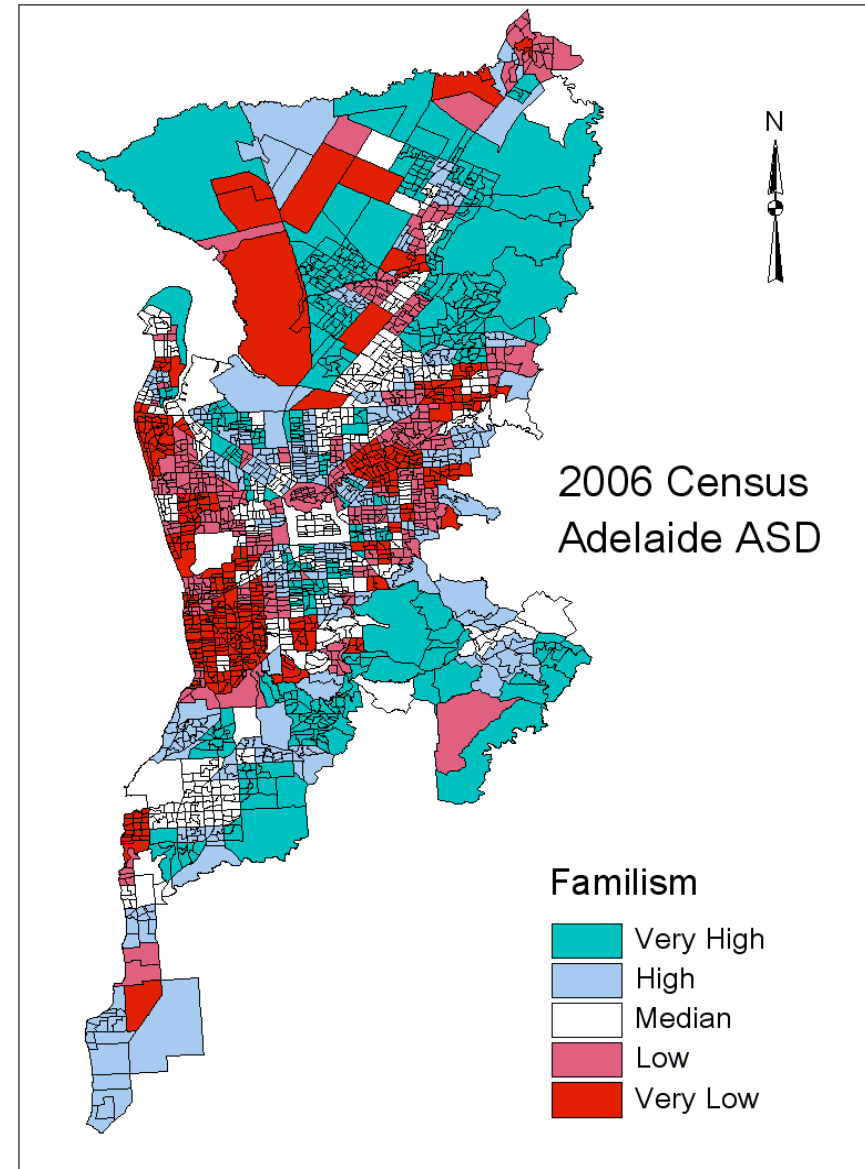
Figure 7 ASD 2006 Ethnicity Factor 3

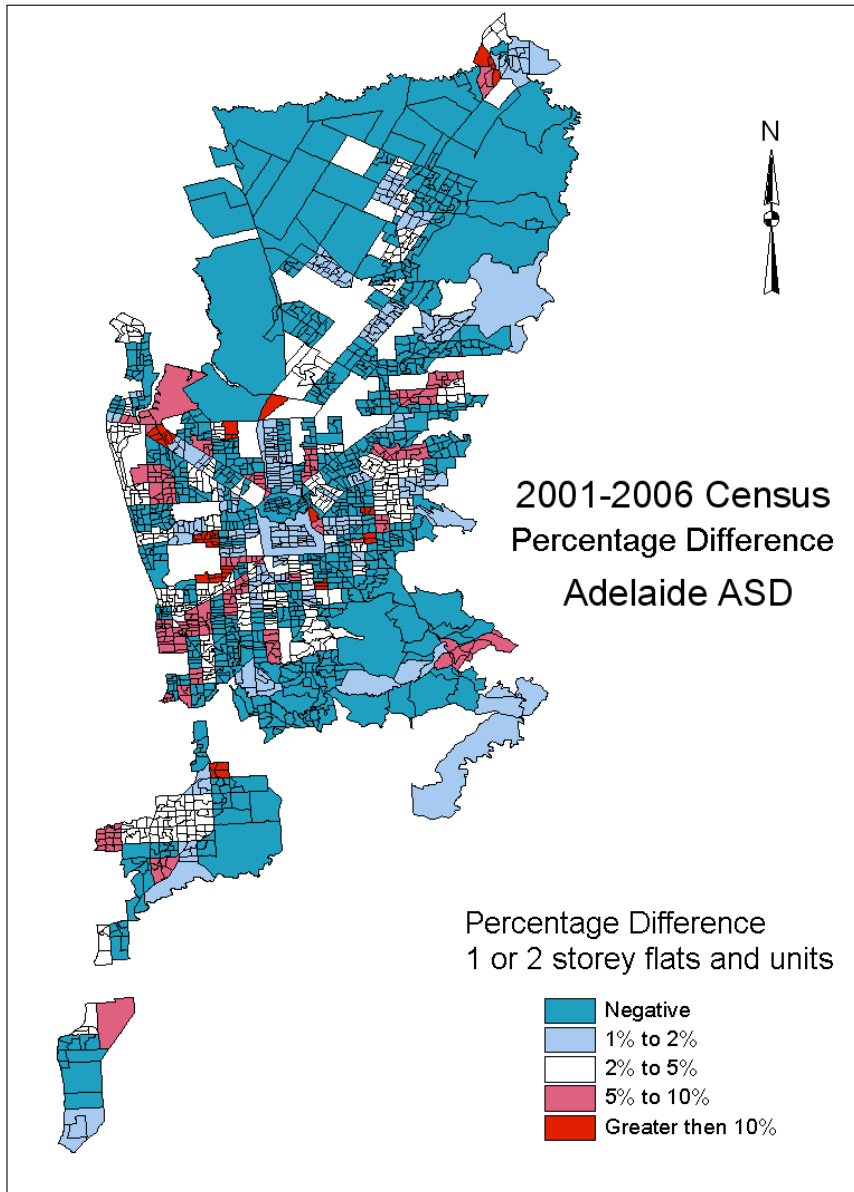**Figure 8 ASD 2006 Familism Factor 4**

Figure 9 Percentage difference 2001 to 2006 in 1 or 2 storey flats and units
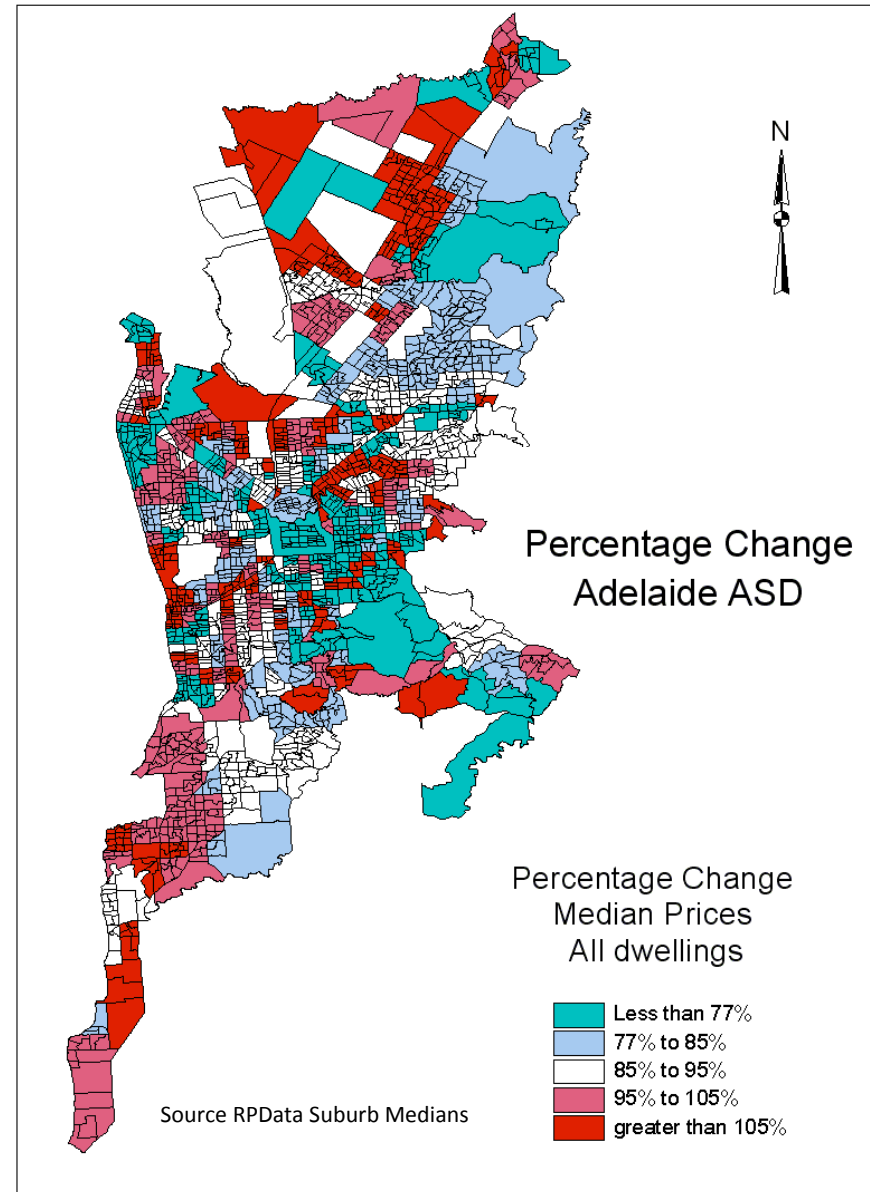

Figure 10 Percentage change median price 2001 to 2006 - houses & units

Table 8 Test for Equality of Means ASD 2001 & 2006

Levene's Test for Equality of Variances		
Independent Samples Test		
t-test for Equality of Means	t	Sig. (2-tailed)
Percentage_difference_in_1_or_2_STOREY_Flats_Units_Appts_2001_to_2006	9.252	0
Percentage_change_in_1_or_2_STOREY_Flats_Units_Appts_2001_to_2006	5.469	0
Dwellings_Rented_Other_2001	-4.258	0
Ethnicity_2001	-4.438	0
Ethnicity_2006	-4.473	0
Dwellings_1_or_2_STOREY_Flats_Units_and_Appts_2001	-8.949	0
Dwellings_Rented_Real_Estate_Agent_2006	-3.249	0.001
Dwellings_4_or_more_STOREY_Flats_Units_and_Appts_2001	-3.093	0.002
Dwellings_Flats_Units_and_Appts_attached_to_house_2001	-3.093	0.002
Dwellings_3_STOREY_Flats_Units_and_Appts_2001	-2.954	0.003
Dwellings_Being_Purchased_2001	2.986	0.004
SEIFA_Education_Occupation_2006	-2.658	0.009
Socio_Economic_2006	-2.501	0.014
Dwellings_Being_Purchased_2006	2.242	0.027
Median_price_detached_dwellings_2006	-2.173	0.032
Mobility_2001	-2.067	0.041
Dwellings_Separate_Houses_2001	1.951	0.054
Familism_2006	1.700	0.092
Familism_2001	-1.488	0.140