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Socio-economic advantage and disadvantage across Australia's Metropolitan cities

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INTRODUCTION

Cities represent the spatial reflection of wider social processes. Across the history of research into cities there has been widespread acceptance of the way in which a study of the residential spatial structure of urban areas reflects the broader structure of society. Early illustrates how the city reflects a mosaic of social areas, each representing a combination of characteristics which at an aggregate scale reflects the broad influences underway in society at any one point in time (see for example Timms 1971). A significant level of research has flowed from this early analysis. One area of consistent interest has been the way in which social disadvantage and inequality has its reflection in the socio-spatial structure of cities. Within Australian cities this research has focused on statistical analyses of individual cities (Stilwell 1989, Baum and Hassan 1993, Foster 1986) as well as analysis of patterns focusing on all cities (Hunter and Gregory 1996, Baum et al. 1999).

Not surprisingly, what a lot of this research points to is that the social structure of Australian cities, like cities in other countries, has not been immune to the range of social, economic and policy transitions that have characterised much of Australia's recent past. Concern with understanding these processes and the different patterns they have produced is reflected in growing body of empirical studies that have been a feature of academic journals over the past decade. The focus of these studies has ranged from questions of segregation, spatial inequality, disadvantage or social polarisation to the concept of social exclusion. While semantics differ, such studies have been concerned with pretty much the same general issues, including locating the impact of social and economic transitions within a given spatial and socioeconomic context.

Among contemporary Australian work the findings of Gregory and Hunter (1995) are taken as reflecting the overall shape of changing social and economic structure of Australian urban and regional areas (see also Badcock 1995; Forster 1992; Murphy and Watson 1994; Stilwell 1993; Walmsley and Weinand 1997). Gregory and Hunter (1995) using income data for collectors districts, statistical local areas and statistical divisions found that between 1976 and 1991 there was a significant shift in the income distribution

towards much more inequality between high and low income localities. Reporting on these findings Gregory (1995: 5) suggests that

Looking across the CDs [collectors districts] from low to high SES areas, the pattern of income changes, measured in terms of 1995 prices, is quite smooth... The income gap between the top and bottom 5 per cent of CDs has almost doubled and has widened by \$20,144 (92 per cent). This very significant pattern indicates that the forces making for increased income inequality across households exert a strong and systematic neighbourhood effect.

Whilst, the work by Hunter and Gregory (1995) sets a useful benchmark regarding the contemporary situation, the research has been attacked for several reasons, including that the authors fail to provide any spatial representation of the 'winner' and 'loser' locations and hence make it difficult to respond with appropriate policy prescriptions (Badcock 1997).

Other studies have however mapped the existence of disadvantage and inequality and have illustrated that the outcomes of recent social and economic change reflect important spatial patterns (Baum and Hassan 1993; Stilwell 1989; Forster 1986; Stimson et al 1998). The general flavour of these studies is that there appears to be significant changes occurring in the economic and social landscape of Australia's cities and towns with certain areas accumulating a disproportionate share of disadvantage over the past three decades. Baum and Hassan (1993) illustrate that in Adelaide, the outcomes of economic restructuring during the late 1970s and early 1980s resulted in localities on the northern and southern fringes of the metropolitan area becoming more unequal in terms of income and access to viable employment opportunities. Similarly, the recent work by Stimson et al. (1998) illustrates that in similar ways to earlier work, data for the period 1986 to 1996 shows that a "clear differentiation has continued in the pattern of performance of population and employment change. Changes in regional shares display spatial concentrations and biases which point to clear regional 'winners' and 'losers'" (Stimson et al. 1998: 55).

An important contribution of many of these studies has been in pointing to the multidimensional nature of the problems associated with inequality and disadvantage.

Rather than viewing the impacts of broader changes simply in terms of a single dimension such as poverty or income, many of the studies address a range of social indicators when considering changes. For instance Jamrozik and Boland (1993), used a number of indicators in identifying disadvantaged communities. They comment that the selection of their social indicators was based on the “assumption that certain population characteristics of demographic, socioeconomic and cultural nature tend to occur together, creating a network and an interplay of causal relationships” (Jamrozik and Boland 1993: 53). Furthermore in a later publication, Jamrozik et al. (1995: 131) assert that “This spatial division is not simply a socioeconomic one but a class division, as *the differences between affluent and poor suburbs are multidimensional*, creating cumulative and compound power differentials in the command over resources through time”. Similarly studies by Baum and Hassan (1993), Stilwell (1980) and others have used a range of factors accounting for socio-cultural and demographic factors that may be associated with disadvantage. By considering disadvantage and inequality to be multidimensional, these studies have drawn attention to the cumulative effect of disadvantage. Cumulative disadvantage is seen to occur in situations

whereby a series of handicapping factors tend to reinforce each other and to generate a seemingly irreversible process of deteriorating levels of living, in material as well as in psychosocial terms, affecting families for one or more generations (United Nations 1978: 2)

Following on from these studies, the framework adopted for the current analysis calls for an acknowledgment of the transitions occurring in local communities and the ways these are related to the broader changes that have occurred in social and economic life over the past few decades. While these changes are numerous, they are neatly captured by Mingione (1996, 15) who has observed:

...new tensions result from the varying impact of post-fordist economic accumulation based on globalisation and the increasingly important role of services...the decline in stable employment in big manufacturing factories and the increasing heterogeneity and instability of householding and demographic arrangements... [In addition] the intervention of differently structured welfare

states... nowhere appears able to respond to the increasing pressure generated by post-fordist problems.

For us that observation called for consideration of what Benassi et al. (1997) have referred to as three interconnected themes:

- Changes in the economic system
- Transitions in households and demographic structures;
- Shifts in welfare state and public policy

Conceptually, the association between these changes and local community socio-economic performance links changes taking place in social life, which tend to be most dominant at the individual or household level, to changes at the aggregate level of local communities. The key is that these changes, as expressed at an aggregate level can be used to determine the position of one community, relative to all others along a continuum ranging from advantage to disadvantage.

The current paper is set within the context of these preceding studies. It takes data from the 2001 Australian Bureau of Statistics and combines this with selected time series data to provide an analysis of the patterns of advantage and disadvantage across Australia's major cities.

Data and Methods

The methodology used in this paper follows closely that used by Baum et al. (1999) in their analysis of 1996 census data. It takes a two-part multivariate analysis (cluster analysis followed by discriminant analysis) to develop a typology of localities based on Statistical Local Areas (SLAs). Essentially, the clustering operation groups SLAs that match on selected socio-economic variables and the stepwise discriminant analysis is then used to address the variables which best distinguish between the clusters. This type of analysis has been used in a number of research papers (Hill et al. 1998, Baum et al. 1999) and has proved useful in defining the spatial structure of cities across a range of social, demographic and economic indicators.

Table 1: socio-economic variables used in the analysis

Socio-economic change	<ul style="list-style-type: none"> ▪ % of persons living at a different address (residential turn-over) ▪ percentage point change in unemployment rate ▪ percentage point change in full time employment ▪ percentage point change in part time employment
Occupational characteristics	<ul style="list-style-type: none"> ▪ % Science professions with post school qualifications ▪ % social professions with post-school qualifications ▪ % business professions with post-school qualifications ▪ % of labourers, tradespersons and basic clerical with out post school qualifications (vulnerable occupations)
Industry characteristics	<ul style="list-style-type: none"> ▪ % new economy ▪ % old economy ▪ % mass goods and services ▪ % mass recreation
Human capital	<ul style="list-style-type: none"> ▪ % persons with education to year ten
Income	<ul style="list-style-type: none"> ▪ % high income households (>\$1500) ▪ % low income households (<\$399 per week) ▪ Median individual income
Unemployment and labour force participation	<ul style="list-style-type: none"> ▪ Labour force participation (male and female) ▪ % unemployed ▪ youth unemployment
Household / family measures	<ul style="list-style-type: none"> ▪ % work rich families ▪ % work poor families ▪ Age dependency rate ▪ Youth dependency rate ▪ Recent arrivals ▪ % with poor English skills
Housing	<ul style="list-style-type: none"> ▪ % public housing ▪ % renters suffering financial housing stress ▪ % home owners suffering financial housing stress

A range of data is presented as part of the analysis. These data were associated with the urban areas' economic performance, as they were expressed in residents' and individuals' characteristics and with socio-economic and socio-cultural characteristics of households and residents more generally. In general, these variables correspond to

those found in research on the economic and social transformations of cities and their communities and have been widely used elsewhere. The variables are set out in table one. Of the 29 variables 29 were used in the final analysis. The indicator accounting for professionals with post secondary school education in business was omitted due to its high correlation with other variables in the analysis. This variable is however used in the final discussion.

1. Economic and social change

The importance of including measures of economic and social change in an analysis of advantage and disadvantage has been clearly demonstrated in other research (i.e. see Baum et al. 1999). The analysis here uses three measures, the change in the level of unemployment, the change in the level of full time and part time employment and the level of residential movement occurring (residential turnover). The first three indicators are considered across the decade 1991 to 2001, while the indicator associated with residential mobility takes account of persons moving in the five years prior to 2001.

2. Occupation

Data on occupation is available from CData in several formats and is cross tabulated with other variables including education. Preliminary analysis of the data suggested a high degree of correlation between occupation and education attainment, which would render the analysis less stable. Given this, the occupation variable used in this analysis combined both occupation and formal levels of human capital. The following indicators were used and are considered to be reflective of important changes in the occupational characteristics of the Australian workforce.

- professionals, managers and paraprofessionals with secondary school qualifications in
 - sciences,
 - social sciences,
 - business;
- Labourers, tradespersons and elementary clerical workers without any post school qualification.

3. Industry

Like data on occupation, data on industry is provided in several formats. To distinguish between major industry classifications the indicators included in this analysis followed an earlier classification by O'Connor and Healy (2001). Four broad industry categories are included; new economy, old economy, mass goods and services and mass recreation.

5. Income

An obvious measure to include in an analysis of advantage and disadvantage is income. Here income is measured using the proportion of households earning high and low incomes and the level of median individual incomes. High incomes are considered to be weekly incomes in excess of \$ 1500, while low incomes are those below \$ 399.

6. Workforce engagement

Engagement in the workforce is an important indicator of advantage and disadvantage and has been included in several studies (see Baum et al. 1999). Here several measures of workforce engagement are included;

- labour force participation (male and female),
- unemployment
- youth unemployment.

7. Human capital

As measures of human capital are included in the measure for occupation, only one additional human capital measure is included- the proportion of people with low education (year ten or less).

8. Household and family measures

Several measures accounting for household, family and demographic characteristics that may be implicated in disadvantage are included. Four variables measure the extent to which adults in families with children are employed or unemployed,

- Work rich households (couples and single parents)
- Work poor households (couples and single parents),

While two measures of dependency are also included,

- Age dependency
- Youth dependency.

Two other measures- recent arrivals and the extent to which people have poor English skills- are also included.

9. Housing

The importance of housing and its association with advantage and disadvantage has been included in a number of studies of inequality and difference (see Baum et al. 1999). Three measures were included, one accounting for the proportion of public housing tenants and two accounting for households suffering from housing financial stress. Housing financial stress is considered for both households paying rent and those paying a mortgage. The definition of housing financial stress follows from the National Housing Strategy (1991). Here, a household is considered to be suffering from financial stress if it is in the bottom 40% of income earners and is paying more than 30% of its income on housing (rent or mortgage).

Selection of spatial units

Analysis of the appropriate indicators can be undertaken for existing administrative units (ABS collector districts or Statistical Local Areas) or for new areas created for the study. Generally Australian Bureau of Statistics data is available at levels of aggregation from CDs (approx. 200-300 dwellings) to state and national level. Given the focus on localities, Statistical Local Areas (SLAs) provide the most appropriate unit of analysis¹. In all 255 SLAs across the major metropolitan cities of Sydney, Melbourne, Brisbane, Perth, Adelaide, Hobart and Canberra are used. The city boundary is defined as the relevant Statistical Division.

¹ In the case of Brisbane, SLAs were combined to equate to Brisbane City council electoral wards, while for Canberra Statistical subdivisions are used. This is because of the large number of small SLAs included within both of these cities.

Analysis

The analysis of the variables across the 255 SLAs in Australia's major capital cities using the methodology outlined above results in several pieces of output. Firstly, the clustering exercise provides groups of SLAs based on the similarity shared across several measures. The discriminant analysis then provides background into the differences between the clusters and can be used to consider the place of particular clusters within the overall urban structure. Here two pieces of output are used- the structure matrix which illustrates the variables that discriminate between the clusters, and the functions assessed at the cluster centroids, which illustrates how the clusters differ. To further consider the differences between the clusters, mean scores for the significant discriminating variables is presented. This allows for an understanding of the major differences between the clusters to be considered.

A Typology of Advantage and Disadvantage across Australia's Metropolitan Cities

The analysis presented in this cluster resulted in seven clusters. A cursory analysis of the clusters and the SLAs within each cluster does provide some insight into the patterns identified. However, the structure matrix from the discriminant analysis (table 2) and the mean discriminant function score for each cluster (table 3) can be used to consider in more detail the differences.

The discriminant functions

The discriminant analysis resulted in six functions with the first 4 accounting for 92.5 percent of the variance. Each was significantly different from zero at the 0.01 critical level. The structure matrix (table 2) shows the correlation between the variables included in the model and the 6 resultant functions (one minus the number of clusters). In terms of interpretation of the clusters the first 3 functions are most useful and an analysis of the variables associated with these functions suggests that the majority of the differentiation between the clusters is accounted for by occupation and industry of employment, engagement in the labour force and the extent that there has been population turnover.

Table 2: Correlations between the discriminant variables and the canonical discriminant function

Function	% variance explained		Correlation coefficient
Occupation/industry	53.4	<ul style="list-style-type: none"> ▪ Vulnerable occupations 	-0.612
		<ul style="list-style-type: none"> ▪ Social professions 	0.591
		<ul style="list-style-type: none"> ▪ Mass recreation industry 	0.576
		<ul style="list-style-type: none"> ▪ New economy industries 	0.497
		<ul style="list-style-type: none"> ▪ Old economy industry 	-0.452
		<ul style="list-style-type: none"> ▪ Work rich one parent families 	0.284
<i>Also correlated with: youth dependency (-0.456); Science professions (0.426)</i>			
Residential change	16.1	<ul style="list-style-type: none"> ▪ Persons change address 	-0.347
		<ul style="list-style-type: none"> ▪ Change in full-time employment 	-0.198
<i>Also correlated with: unemployment rates (-0.047); work poor couple families (</i>			
Labour force disengagement	13.4	<ul style="list-style-type: none"> ▪ Unemployed persons 	0.663
		<ul style="list-style-type: none"> ▪ Work poor one parent families 	0.562
		<ul style="list-style-type: none"> ▪ Youth unemployment 	0.485
		<ul style="list-style-type: none"> ▪ Female labour force participation 	-0.444
		<ul style="list-style-type: none"> ▪ High household income 	-0.403
		<ul style="list-style-type: none"> ▪ English proficiency 	0.308
		<ul style="list-style-type: none"> ▪ Households suffering rental stress 	0.192
<i>Also correlated with: work poor couple families (0.569); low household income (0.491); male labour force participation (-0.474); mean individual income (-0.419); public rental (0.412); work rich couples (-0.366); mortgage financial stress (0.352); change in unemployment (-0.283) Recent arrivals (0.199).</i>			
Age dependency	9.5	<ul style="list-style-type: none"> ▪ Age dependency 	-0.427
Part time work	5.6	<ul style="list-style-type: none"> ▪ Change in part-time employment 	0.346
Mass goods and services industries	1.9	<ul style="list-style-type: none"> ▪ Mass goods and services industries 	0.447
<i>Also correlated with: low education (-0.399)</i>			

The first function accounts for 53.4 per cent of the variance and is associated with the employment characteristics of an area in terms of both occupation and industry. Considering the significant variables included in the final step-wise discriminant model, the function is negatively associated with the measure of vulnerable occupations and

employment in old economy industries and positively associated with employment in social professions, the mass recreation industry and new economy industries.

The second function is associated with the level of residential turnover and accounts for 16 per cent of the variance. It is negatively associated with the proportion of people who had changed their address in the inter-census period and the change in full-time employment.

The third function accounts for 13.4 per cent of the variance and is associated with engagement in the work force and the impacts of engagement. It is positively associated with unemployment, the presence of work poor families, youth unemployment, poor English proficiency and the proportion of persons suffering from rental stress. It has negative correlations with female labour force participation and high income households.

The final three functions are characterised by lower levels of explained variance and represent the presence of aged persons relative to the population (9.5%), the change in part time work (5.6%) and the presence of persons in the mass goods and services industries (1.9%).

Interpreting the clusters

The data presented in tables 3 and 4 can be used to interpret the clusters. Table three presents the centroids of the clusters for each function. These can be used to determine the extent to which a particular cluster scores highly on any given discriminant function and therefore how clusters might differ from each other. To aid interpretation Z-scores were calculated for each mean and the significant means marked with an asterisk (*). Table four provides the means for all the variables in the analysis across the clusters. Across the 255 SLAs distinct clusters of advantage and disadvantage become evident. The analysis identifies 3 clear clusters of advantaged localities, three clusters of disadvantaged localities and one clusters that may be considered average- not showing extremes of advantage or disadvantage.

Table 3: Functions at group centroids

Clusters	Functions					
	1	2	3	4	5	6
1	-0.937	0.785	0.08	-1.264	-0.949	-0.186
2	6.782*	-3.177*	0.866	1.004	-1.260	-0.374
3	2.901*	0.182	1.309	-1.354	1.523	0.428
4	1.936	2.084	-1.390	1.377	0.094	0.115
5	-3.979	1.566	4.941*	2.484	0.677	-1.180
6	-2.150*	-1.662	-1.561	-0.035	0.912	-0.521
7	-3.326*	-1.283	0.513	0.902	-0.420	1.050

* significant at 0.90 level

Cluster details-socio-economic advantage

The three groups of advantaged SLAs (clusters 2,3,4) account for 38 per cent of the SLAs included in the analysis. At a general level these clusters were characterised by variables generally associated with varying levels of socio-economic advantage including high incomes, favourable employment characteristics and a general low level of social malaise. A closer inspection of these clusters does however indicate some differences.

Cluster 2: New economy core city.

Cluster two contained 18 SLAs in Sydney, Melbourne, Brisbane and Perth (see appendix 1) and accounted for 18.4 percent of the socio-economic advantaged SLAs. The SLAs included in this cluster are Leichhardt and Sydney inner (Sydney), Melbourne inner and Stonnington-Prahran (Melbourne), Central (Brisbane) and Perth inner (Perth). A general analysis of the variables presented in table 4 suggests that this cluster is associated with an occupational structure associated with the new economy, positive levels of labour force participation and engagement and generally low levels of social disadvantage. The cluster is also characterised by transition and change in population. Reflecting this the cluster was significantly positively related to function one (Occupation/

industry; 6.782)) and negatively to function two (residential turnover: -3.177), suggesting that what most set this cluster apart was employment in industries and occupations associated with the new economy and high residential turnover. When considering the key variables associated with the first two discriminant functions this cluster recorded an above average proportion of social professionals (16.39 %), persons employed in mass recreation industries (11.98%), employment in new economy industries (33.94%) and work rich one-parent families (9.44 %). The cluster records below average levels of employment in vulnerable occupations (7.32%) and employment in old economy industries (6.81 %). The cluster also records above average rates of residential turnover (62.69%) and change in full-time employment (3.49%) reflecting the significant association with function 2.

Other variables, while not significantly associated with the cluster in terms of the discriminant analysis (i.e. were not associated with function 1 or 2), were significant in terms of the cluster's characteristics. The cluster recorded the highest share of professionals with post secondary education in business (13.23%), recorded the lowest share of persons employed in the mass goods and services industries (27.87%) and the lowest proportion of persons with low levels of education (7.60%). Reflecting the nature of the occupational structure the cluster recorded the highest median individual income (\$624.50- average) and the highest proportion of high income households (33.74%). The cluster also recorded below average levels of disadvantaged including unemployment (5.86%) and low income households (17.94%).

Cluster 3: Transitional advantaged suburbia

Cluster three consisted of 34 (35% of the total advantaged) SLAs located in all of the metropolitan cities. The significant mean score on the first function (occupation / industry: 2.901), together with relatively high means on function three (1.309), four (-1.354) and five (1.523) suggests that this cluster might be considered in terms of a collection of transitional localities and can often be associated with gentrifying activities. The SLAs included in this cluster are Marrickville and Ashfield (Sydney), Moonee Valley-Essendon and Glen Eira Caulfield (Melbourne), Dutton Park and East Brisbane

(Brisbane), Adelaide and Unley East (Adelaide), Claremont and Vincent (Perth) and Hobart inner (Hobart).

Reflecting the high score on the first function this cluster records an above average proportion of social professionals (14.43 %), persons employed in mass recreation industries (9.74%), employment in new economy industries (22.06%) and work rich one-parent families (8.22 %). The cluster records below average levels of employment in vulnerable occupations (11.75%) and employment in old economy industries (7.46 %).

Reflecting the transitional nature of this group of SLAs the cluster recorded above average rates of residential turnover (51.01%). The cluster also recorded above average levels of unemployment (7.25%), youth unemployment (13.74%), work poor one-parent families (13.07%), low income households (22.30%) and age dependency (14.07%), which when contrasted with the indicators of advantage are illustrative of the transitional nature of this cluster.

Cluster 4: Advantaged suburbia

Cluster 4 represents a large group of generally advantaged SLAs (46) found in all metropolitan cities except Hobart. Individual SLAs included Randwick, hunter's Hill and Lane Cove in Sydney, Belconnen and Woden Valley in Canberra, Boroondara-Kew and Stonnington-Malvern in Melbourne, Pullenvale and the Gap in Brisbane, Burnside-North-East and Mitcham Hills in Adelaide and Cambridge and Nedlands in Perth. While this cluster did not record any significant mean function scores, it did record relatively high means on function one (1.936), two (2.084), three (-1.390) and four (1.377). The individual indicator means for this cluster suggest that the localities might be taken to represent a list of advantaged places across the cities involved. The cluster records the lowest level of unemployment (4.45%) and youth unemployment (9.88%) and has high levels of income- high income households (33.90%) and median individual income (\$508.20). The occupational structure of this cluster is characterised by high proportions of professionals and workers in new economy industry sectors. The cluster records the highest level of employment in mass goods and services industries (40.11%) and science professionals (16.75%). The cluster has the highest proportion of work-rich

couple with children families (17.83%) and the lowest level of households suffering from either rental financial stress (18.70%) or mortgage stress (5.91%). Against these positive indicators the cluster did record a fall in the percentage of full-time workers (-1.15 points) a below average increase in the percentage of part-time workers (5.84 points) and unemployed (-2.67 points).

Cluster details-socio-economic disadvantage

Three clusters of SLAs (clusters 5,6 and 7) could be characterised as being disadvantaged across various socio-economic measures. In total, 83 SLAs were included in these two groups accounting for 32.5% of the total. Contrasting with the three advantaged clusters discussed above, these clusters were more likely to be characterised by variables pointing to lower socio-economic status and disadvantage including high levels of unemployment, engagement in old economy sectors and low incomes.

Cluster 5: high disadvantage

Cluster 5 included 10 SLAs (23.5 % of the total disadvantaged) that were among the most disadvantaged localities across all metropolitan cities. The SLAs were located in Sydney (Fairfield, Auburn), Melbourne (Brimbank-Sunshine, Hume-Broadmeadows), Adelaide (Playford-Elizabeth, Onkaparinga-North Coast) and Hobart (Derwent Valley). The cluster has a significant negative score on the first function (occupation/ industry: - 3.979) and a significant positive score on the third function (labour force disengagement: 4.941) suggesting that the localities in this cluster are characterised by occupational/ industry structures associated with the old economy and high levels of labour force disengagement. The cluster also scores relative high means on function 2 (1.566) and function 4 (2.484). The cluster records the lowest percentages of persons in social professions (3.16%), and those employed in new economy industries (13.12%) and it records the highest percentages of persons employed in old economy industries (21.53%) and vulnerable occupations (27.38%). The cluster also records the lowest proportion of work rich single parent families (4.88%). These are among those variables associated with the first function. Over and above these indicators, the cluster also records significant percentages on the variables associated with function 3. This cluster

records the highest proportions of unemployed (15.09%), youth unemployment (23.47%), work-poor one parent families (21.92%), households in rental financial stress (24.08%) and persons with poor English skills (1.63%). The cluster also records the lowest percentage of high income households (8.92%) and the lowest female labour force participation rate (40.58%).

Other non-significant factors are also illustrative of this cluster's disadvantaged position. For example the cluster recorded the highest proportion of people with basic education (48.93%), work poor couple families (17.95%), households in public rental accommodation (13.48%), low income households (28.64%) and low median individual incomes (\$249.50). The cluster also recorded the lowest level of male labour force participation (59.55%), persons employed in science professions (6.22%) and work rich couple families (9.91%). This cluster also recorded the lowest level of residential turnover (38.50%)

Cluster 7: disadvantaged suburbia

Cluster 7 contains 33 SLAs (76.7% of the disadvantaged SLAs) that represent generally disadvantaged localities. The SLAs are located in Sydney (Liverpool, Penrith) Melbourne (Brimbank-Keilor, Knox-North), Brisbane (Richlands, Ipswich), Adelaide (Playford-East Central, Tea Tree Gully-Central), Perth (Wanneroo-South, Armadale) and Hobart (Brighton). The cluster is negatively associated with function one suggesting disadvantage in terms of occupational structure. It also has relatively high means for function 2 (-1.283) and function 6 (1.050). The cluster records above average levels of employment in vulnerable occupations (22.82%), together with employment in old economy industries (17.08%). It also records below average percentages of social professions (4.13%), employment in new economy industries (13.88%) and mass recreation industries (13.88%) and work rich single-parent families (5.63%).

Over and above these significant variables, the cluster also records above average levels of unemployment (8.86%), youth unemployment (15.92%), and low income households (19.48%) and low levels of female labour force participation (52.51%), and high income households (13.77%).

Cluster 6: working poor communities

Cluster 6 contained 44 SLAs (17 % of the total) located in Sydney (Camden, Blacktown-North), Melbourne (Knox-South, Cardinia-North), Brisbane (Acacia Ridge, Pine Rivers), Adelaide (Marion-South, Onkaparinga-Hills), Perth (Mundaring, Joondalup-North) and Hobart (Kingsborough). The cluster did not have any significant means on the discriminant functions, although it did have negative means on the first three functions. The cluster had characteristics which reflected relative strong labour market engagement (low unemployment, high labour force participation, work-rich households), but lower levels of socio-economic advantage (especially when compared to the advantaged clusters). The cluster had below average levels of high income households (19.11%) and median individual incomes (\$406.32) and households facing housing financial stress (rent-20.69%; mortgage-10.98%). To a large extent this cluster might represent localities characterised by Australia's working poor.

Marginal cluster*Cluster 1: Middle suburbia*

One cluster (cluster 1) represented middle suburbia. The 44 SLAs in this cluster were located in Sydney (Hurstville, Parramatta), Melbourne (Moreland-Coburg, Darebin-Preston), Brisbane (Moorooka, Deagon), Adelaide (Tea Tree Gully-South, Marion-Central) Perth (Bassendean, Stirling-Central) and Hobart (Belmont, Clarence). The cluster had no significant function means suggesting that this cluster might be thought of as the average cluster of SLAs and as such it is difficult to pinpoint the factors driving the process of change. In terms of the factors driving the difference between the clusters this group of SLAs records percentages close to the means for all clusters and reflects some advantage and disadvantage.

CONCLUDING COMMENTS

This paper has used a two stage methodology-cluster analysis followed by discriminant analysis- to develop a typology of advantage and disadvantage across Australian major metropolitan cities. The methodology used is an extension of previous work by Hill et al. (1998) and Baum et al. (1999) and provides a useful way of categorising localities and

determining the factors that most discriminate between the categories. The analysis presented 7 groups or clusters of SLAs representing 3 advantaged groups, 3 disadvantaged groups and 1 marginal group. The analysis showed that variables associated with occupation and industry of employment, residential turnover and disengagement from the labour market were important in driving the differences between the groups.

Considering the results, it is clear that a complex social and economic landscape has, not surprisingly continued to characterise the metropolitan cities of Australia. What is most obvious is that like earlier periods of social and economic change, there have been clear winners and losers from recent stages of social and economic transitions. Put simply, although the national economic tide has risen, not all boats have begun to float. While this paper has focussed on both the advantaged and disadvantaged, it is the concentration of disadvantaged in particular localities that is disturbing. These patterns are not new and have been a concern for some years. They are disturbing for a number of reasons including the sheer waste of human capital. As the Organisation for Economic Co-operation and Development (1998: 11) has noted

Deprived areas, which have grown in number in recent years, limit the opportunities and prospects of people who live in them. Without a vision of their potential, a nation [not] only bears the costs, but fails to realise the possibilities inherent in these places and their populations.

To address these costs and failed possibilities, policy is needed which goes beyond simply parachuting solutions into localities from outside. New initiatives are needed which engage the local community, provide flexible means for rejuvenating localities and which take due regard of the multi-faceted nature of the problem. These policies also need to be of a long-term nature. Disadvantaged communities need to be offered a trajectory out of vulnerability. It is of little benefit if those localities most in need are simply re-cycled- "being placed on side-tracks or carousels- only to appear again in similar situations" (Green 1997: 517).

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Table 4: Cluster profiles- advantaged clusters

	2	3	4	Total
Function 1				
<i>Occupation, vulnerable occupations</i>	7.32	11.75	11.08	16.11
<i>Occupation, social professions with post school qualifications</i>	16.39	14.43	13.24	9.27
<i>Industry, mass recreation</i>	11.98	9.74	7.44	7.26
<i>Industry, new economy</i>	33.94	22.06	23.58	19.31
<i>Industry, old economy</i>	6.81	7.46	7.17	11.06
<i>Work rich one-parent family</i>	9.44	8.22	6.49	6.61
Dependency - youth (divisor 15-64y old population)	13.96	21.97	29.31	29.13
Occupation, science professions with post school qualifications	15.03	15.62	16.75	12.05
Function 2				
<i>Address different to 5 years ago</i>	62.69	51.01	43.42	45.11
<i>Change in full-time employment (1991-2001)</i>	3.49	0.20	-1.15	-0.70
Function 3				
<i>Unemployed persons</i>	5.86	7.25	4.45	6.95
<i>Work poor one-parent family</i>	16.52	13.07	7.71	12.48
<i>Youth unemployment rate</i>	11.84	13.74	9.88	13.18
<i>Labour force participation - total females</i>	58.70	56.33	58.73	54.73
<i>Household weekly income High (\$1500+)</i>	33.74	22.55	33.90	21.64
<i>English proficiency (divisor total population)</i>	0.83	0.69	0.48	0.56
<i>Affordability stress, rent</i>	19.44	22.13	18.70	20.54
Work poor couple family with children	7.55	8.17	5.58	8.40
Household weekly income Low (Neg/Nil - \$399)	17.94	22.30	13.02	19.04
Labour force participation - total males	67.40	67.74	72.34	69.38
Median individual income categories	624.50	431.85	508.2	422.64
Tenure - Rent Gov authority	5.09	4.10	2.33	4.61
Work rich couple family with children	14.38	13.78	17.83	14.39
Affordability stress, mortgage	8.17	8.02	5.91	9.12
Change in unemployment (1991-2001)	-5.94	-5.57	-2.67	-4.22
Arrived in Australia since 1996 (divisor total population)	9.79	5.38	4.16	4.11
Function 4				
<i>Age dependency</i>	10.39	14.07	12.40	12.21
Function 5				
<i>Change in part-time (1991-2001)</i>	4.20	7.43	5.84	6.77
Function 6				
<i>Industry, mass goods and services</i>	27.87	39.91	40.11	36.44
Education - year 10 or below	17.60	27.29	26.84	35.97
Additional variables				
Occupation, business professions with post school qualifications	13.23	7.92	9.34	6.31

Table 5 (cont): Cluster profiles –disadvantaged clusters

	5	6	7	Total
Function 1				
<i>Occupation, vulnerable occupations</i>	27.38	18.77	22.82	16.11
<i>Occupation, social professions with post school qualifications</i>	3.16	5.89	4.13	9.27
<i>Industry, mass recreation</i>	5.66	5.52	5.20	7.26
<i>Industry, new economy</i>	13.12	14.04	13.88	19.31
<i>Industry, old economy</i>	21.53	12.82	17.08	11.06
<i>Work rich one-parent family</i>	4.88	5.48	5.63	6.61
Dependency - youth (divisor 15-64y old population)	33.70	37.07	35.53	29.13
Occupation, science professions with post school qualifications	6.22	9.23	7.57	12.05
Function 2				
<i>Address different to 5 years ago</i>	38.50	45.99	41.26	45.11
<i>Change in full-time employment (1991-2001)</i>	-1.78	-1.48	-0.90	-0.70
Function 3				
<i>Unemployed persons</i>	15.09	6.12	8.86	6.95
<i>Work poor one-parent family</i>	21.92	9.55	14.33	12.48
<i>Youth unemployment rate</i>	23.47	12.08	15.92	13.18
<i>Labour force participation - total females</i>	40.58	58.26	52.51	54.73
<i>Household weekly income High (\$1500+)</i>	8.92	19.11	13.77	21.64
<i>English proficiency (divisor total population)</i>	1.63	0.17	0.44	0.56
<i>Affordability stress, rent</i>	24.08	20.07	20.69	20.54
<i>Work poor couple family with children</i>	17.95	6.21	9.90	8.40
<i>Household weekly income Low (Neg/Nil - \$399)</i>	28.64	15.25	19.48	19.04
<i>Labour force participation - total males</i>	59.55	74.84	70.66	69.38
<i>Median individual income categories</i>	249.50	406.32	367.68	422.64
<i>Tenure - Rent Gov authority</i>	13.48	2.37	7.00	4.61
<i>Work rich couple family with children</i>	9.91	14.94	13.25	14.39
<i>Affordability stress, mortgage</i>	14.65	9.93	10.98	9.12
<i>Change in unemployment (1991-2001)</i>	-5.17	-3.89	-4.75	-4.22
<i>Arrived in Australia since 1996 (divisor total population)</i>	4.61	2.14	2.61	4.11
Function 4				
<i>Age dependency</i>	12.55	8.30	8.61	12.21
Function 5				
<i>Change in part-time (1991-2001)</i>	8.21	7.19	7.43	6.77
Function 6				
<i>Industry, mass goods and services</i>	30.81	34.50	34.62	36.44
<i>Education - year 10 or below</i>	48.93	43.08	45.00	35.97
Additional variables				
<i>Occupation, business professions with post school qualifications</i>	2.39	3.79	3.06	6.31

Table 6 (cont): Cluster profiles- Average cluster

	1	Total
Function 1		
<i>Occupation, vulnerable occupations</i>	17.35	16.11
<i>Occupation, social professions with post school qualifications</i>	7.76	9.27
<i>Industry, mass recreation</i>	7.02	7.26
<i>Industry, new economy</i>	18.18	19.31
<i>Industry, old economy</i>	11.03	11.06
<i>Work rich one-parent family</i>	6.60	6.61
Dependency - youth (divisor 15-64y old population)	27.74	29.13
Occupation, science professions with post school qualifications	11.18	12.05
Function 2		
<i>Address different to 5 years ago</i>	41.03	45.11
<i>Change in full-time employment (1991-2001)</i>	-1.18	-0.70
Function 3		
<i>Unemployed persons</i>	7.20	6.95
<i>Work poor one-parent family</i>	13.93	12.48
<i>Youth unemployment rate</i>	13.34	13.18
<i>Labour force participation - total females</i>	51.16	54.73
<i>Household weekly income High (\$1500+)</i>	17.13	21.64
<i>English proficiency (divisor total population)</i>	0.65	0.56
<i>Affordability stress, rent</i>	20.98	20.54
<i>Work poor couple family with children</i>	9.89	8.40
<i>Household weekly income Low (Neg/Nil - \$399)</i>	22.51	19.04
<i>Labour force participation - total males</i>	66.12	69.38
<i>Median individual income categories</i>	370.93	422.64
<i>Tenure - Rent Gov authority</i>	5.26	4.61
<i>Work rich couple family with children</i>	13.26	14.39
<i>Affordability stress, mortgage</i>	9.81	9.12
<i>Change in unemployment (1991-2001)</i>	-3.98	-4.22
<i>Arrived in Australia since 1996 (divisor total population)</i>	3.88	4.11
Function 4		
<i>Age dependency</i>	15.74	12.21
Function 5		
<i>Change in part-time (1991-2001)</i>	6.94	6.77
Function 6		
<i>Industry, mass goods and services</i>	37.42	36.44
<i>Education - year 10 or below</i>	40.35	35.97
Additional variables		
<i>Occupation, business professions with post school qualifications</i>	5.42	6.31

Cluster 1**Sydney**

Botany Bay (C)
 Hurstville (C)
 Kogarah (A)
 Rockdale (C)
 Sutherland Shire (A) - East
 Bankstown (C)
 Canterbury (C)
 Holroyd (C)
 Parramatta (C)
 Ryde (C)
 Gosford (C)
 Wyong (A)

Melbourne

Moonee Valley (C) - West
 Moreland (C) - Coburg
 Moreland (C) - North
 Banyule (C) - Heidelberg
 Banyule (C) - North
 Darebin (C) - Preston
 Manningham (C) - West
 Monash (C) - South-West
 Monash (C) - Waverley East
 Monash (C) - Waverley West
 Whitehorse (C) - Box Hill
 Whitehorse (C) - Nunawading
 Whitehorse (C) - Nunawading
 Maroondah (C) - Ringwood
 Glen Eira (C) - South
 Kingston (C) - North
 Kingston (C) - South
 Frankston (C) - West
 Mornington P'sula (S) - South

Brisbane

Moorooka
 Wishart
 Bracken Ridge
 Deagon
 Merchant
 Wynnum-Manly
 Doboy
 Enoggera

Holland Park

McDowall

Northgate

Redcliffe

Adelaide

Port Adel. Enfield (C) - East
 Port Adel. Enfield (C) - Inner
 Tea Tree Gully (C) - South
 Charles Sturt (C) - Coastal
 Charles Sturt (C) - Inner East
 Charles Sturt (C) - Inner West
 Charles Sturt (C) - North-East
 Port Adel. Enfield (C) - Coast
 West Torrens (C) - West
 Campbelltown (C) - East
 Campbelltown (C) - West
 Norw. P'ham St Ptrs (C) - East
 Holdfast Bay (C) - South
 Marion (C) - Central
 Marion (C) - North
 Mitcham (C) - West

Perth

Bassendean (T)
 Bayswater (C)
 Joondalup (C) - South
 Stirling (C) - Central
 Stirling (C) - Coastal
 Melville (C)

Hobart

Belmont (C)
 Canning (C)
 Clarence (C)
 Glenorchy (C)
 Sorell (M) - Pt A

Appendix: Cluster membership clusters 1 to 7

Cluster 2

Sydney

Leichhardt (A)

South Sydney (C)

Sydney (C) - Inner (1) & Remainder

Waverley (A)

Woollahra (A)

Mosman (A)

North Sydney (A)

Manly (A)

Melbourne

Melbourne (C) - Inner

Melbourne (C) - S'bank-D'land

Melbourne (C) - Remainder

Port Phillip (C) - St Kilda

Port Phillip (C) - West

Stonnington (C) - Prahran

Yarra (C) - North

Yarra (C) - Richmond

Brisbane

Central

Perth

Perth (C) - Inner (1) Remainder

Cluster 3

Sydney

Marrickville (A)

Ashfield (A)

Blue Mountains (C)

North Canberra

Melbourne

Hobsons Bay (C) - Williamstown

Maribyrnong (C)

Moonee Valley (C) - Essendon

Moreland (C) - Brunswick

Darebin (C) - Northcote

Boroondara (C) - Hawthorn

Glen Eira (C) - Caulfield

Brisbane

Dutton park

Grange

East Brisbane

Hamilton

Morningside

Toowong

Adelaide

West Torrens (C) - East

Adelaide (C)

Norw. P'ham St Ptrs (C) - West

Prospect (C)

Unley (C) - East

Unley (C) - West

Holdfast Bay (C) - North

Perth

Claremont (T)

Mosman Park (T)

Subiaco (C)

Vincent (T)

Stirling (C) - South-Eastern

East Fremantle (T)

Fremantle (C) - Inner (1) Remainder

South Perth (C)

Victoria Park (T)

Hobart

Hobart (C) - Inner (1) Remainder

Cluster 4

Sydney

Randwick (C)
Sutherland Shire (A) - West
Burwood (A)
Concord (A)
Drummoyne (A)
Strathfield (A)
Hunter's Hill (A)
Lane Cove (A)
Willoughby (C)
Baulkham Hills (A)
Hornsby (A)
Ku-ring-gai (A)
Pittwater (A)
Warringah (A)

Canberra

Belconnen
Woden Valley
Weston Creek-Stromlo
Tuggeranong
South Canberra
Gungahlin-Hall

Melbourne

Nillumbik (S) - South
Nillumbik (S) - South-West
Nillumbik (S) Bal
Boroondara (C) - Camberwell
Boroondara (C) - Camberwell
Boroondara (C) - Kew
Manningham (C) - East
Bayside (C) - Brighton
Bayside (C) - South
Stonnington (C) - Malvern

Brisbane

Chandler
Jamboree
Pullenvale
The Gap
Walter Taylor

Adelaide

Playford (C) - Hills
Adelaide Hills (DC) - Central

Adelaide Hills (DC) - Ranges

Burnside (C) - North-East
Burnside (C) - South-West
Walkerville (M)
Mitcham (C) - Hills
Mitcham (C) - North-East

Perth

Cambridge (T)
Cottesloe (T) & Peppermint G
Nedlands (C)

Cluster 5

Sydney

Fairfield (C)
Auburn (A)

Melbourne

Brimbank (C) - Sunshine
Hume (C) - Broadmeadows
Gr. Dandenong (C) - Dandenong

Adelaide

Playford (C) - Elizabeth
Playford (C) - West Central
Port Adel. Enfield (C) - Port Adelaide
Onkaparinga (C) - North Coast

Hobart

Derwent Valley (M) - Pt A

Cluster 6**Sydney**

Camden (A)
Wollondilly (A)
Hawkesbury (C)
Blacktown (C) - North
Melton (S) - East (1) Bal (4)
Wyndham (C) - South
Wyndham (C) - West
Hume (C) - Craigieburn
Hume (C) - Sunbury
Whittlesea (C) - North

Melbourne

Knox (C) - South
Maroondah (C) - Croydon
Yarra Ranges (S) - Central
Yarra Ranges (S) - North
Yarra Ranges (S) - South-Wes
Cardinia (S) - North
Cardinia (S) - Pakenham
Cardinia (S) - South
Casey (C) - Berwick
Casey (C) - South
Frankston (C) - East
Mornington P'sula (S) - East
Mornington P'sula (S) - West

Brisbane

Acacia ridge
Runcorn
Caboolture-Pinerivers
Pine Rivers
Logan
Redlands
North Gold Coast

Adelaide

Playford (C) - West
Tea Tree Gully (C) - North
Marion (C) - South
Onkaparinga (C) - Hills
Onkaparinga (C) - Reservoir

Perth

Kalamunda (S)
Mundaring (S)

Swan (C)

Joondalup (C) - North
Wanneroo (C) - North-East
Wanneroo (C) - North-West
Cockburn (C)
Serpentine-Jarrahdale (S)

Hobart

Kingborough (M) - Pt A

Cluster 7**Sydney**

Liverpool (C)
Campbelltown (C)
Penrith (C)
Blacktown (C) - South-East
Blacktown (C) - South-West

Melbourne

Brimbank (C) - Keilor
Hobsons Bay (C) - Altona
Wyndham (C) - North
Whittlesea (C) - South
Knox (C) - North
Casey (C) - Cranbourne
Casey (C) - Hallam

Brisbane

Richlands
Ipswich

Adelaide

Gawler (M)
Playford (C) - East Central
Salisbury (C) - Central
Salisbury (C) - Inner North
Salisbury (C) - North-East
Salisbury (C) - South-East
Salisbury (C) Bal
Tea Tree Gully (C) - Central
Tea Tree Gully (C) - Hills
Onkaparinga (C) - Hackham
Onkaparinga (C) - Morphett
Onkaparinga (C) - South Coast
Onkaparinga (C) - Woodcroft

Perth

Wanneroo (C) - South
Kwinana (T)
Rockingham (C)
Armada (C)
Gosnells (C)

Hobart

Brighton (M)

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