This study examines the process and pattern of spatial polarisation in Melbourne Australia between 1986 and 1996. We construct a five-category polarisation typology based on the relative change in the bottom and top ends of local suburban household income distributions. The suburbs are classified as either: increasing advantage, increasing middle income, stable, polarising or increasing disadvantage. The research then examines the relationship between the suburb classification and house prices over the same period. The spatial units are 327 Melbourne suburbs. The two primary data sources include Australian Bureau of Statistics (ABS) household income figures and Victorian state government house sale price data for 1986 and 1996. The maps reveal a contiguous sector of increasing advantage in Melbourne’s inner and nearby eastern suburbs encircled by an adjacent middle suburban ring characterised by growing disadvantage. Spatially this picture of polarisation corresponds closely with the map showing median house price change between 1986 and 1996. The polarisation categories are closely related to real quartile house prices with the highest house price increases in suburbs of increasing advantage and the lowest gains (or declines) in suburbs increasing in disadvantage.

INTRODUCTION

In this era of globalisation and rapid economic, political and social change, new patterns in the nature of social distributions in cities are emerging. In many urban regions, the numbers of low and high income households have been increasing at the expense of the middle income groups. This widening gap between the rich and the poor, alongside the decline of the middle class, has been termed ‘social polarisation’. The spatial translation of social polarisation into the urban landscape is described as socio-spatial polarisation. Because of the acknowledged role that geographic location plays in contributing to, and even intensifying, social advantage and disadvantage (Badcock 1984; Maher et al. 1992; Lee 1994; Van Kempen 1997), socio-spatial polarisation directly affects the well being of the population. Housing market operations play a fundamental role in generating socio-economic spatial patterns in cities (Van Weesep et al. 1992; Badcock 1995; Burbidge et al. 1996; Hamnett 1996; Andersen et al. 2000).

In Australia, the housing market is particularly important in understanding the links between socio-economic status and polarisation because of the economic and cultural significance that home ownership holds. Around 66 per cent of households either own their home outright or are purchasing (ABS 2002) and this figure has held steady since the 1960s. For most Australian households, their home is their single most valuable asset and the equity gained in the family
home provides an opportunity to acquire wealth and provide some financial security in retirement (Wulff 2000).

This study focuses on Melbourne, the capital city of the state of Victoria and, after Sydney, Australia’s second largest city. At the 2001 Australian Census, Melbourne recorded a population of 3.34 million residents (ABS 2002).

Figure 1 Location maps, Melbourne Australia
Vic Map Digital, Land Victoria; ABS (2002)
Melbourne’s urban form, similar to other Australian capital cities, is a low density sprawled metropolitan region. The metropolitan area covers 7,694 square kilometres and runs approximately 116 kilometres north to south and 122 kilometres east to west. Historically the major socio-spatial division in Melbourne has been between the working class northern and western suburbs of the city, and the more affluent eastern and southern regions. Socially, ‘the dividing line in Melbourne, in general terms, was the Yarra River’ (Burnley 1980 p. 228). During Melbourne’s establishment in the 1800s, the marshy environment and flat basalt plains to the west were less physically pleasing to the growing population than the better soils, undulating terrain, higher rainfall and coastal plain found in the east and south. As a consequence, the eastern and southern parts of the city drew in higher status residential development (Johnston 1966). Later, the location of public transportation (trains and trams) shaped city growth and, following the Second World War, the rapid rise in automobile ownership contributed to the continuing sprawl of the city. For the most part, however, the visible differential in socio-economic status in Melbourne was limited to two broad sectors of the city, divided by the Yarra River.

During the post war urbanisation process, Melbourne’s inner suburbs were largely working class and the housing stock consisted of 19th century terrace houses and semi-detached housing. In the 1970s these suburbs began to experience intense gentrification as the attractiveness of the location and the value of dwellings soared (Maher 1982). Several industrial and manufacturing sites dotted the northern and western suburbs (alongside newly constructed public housing estates of single detached dwellings). The south-eastern fringe also contained a post war public housing estate built to house the workers and their families in a new manufacturing plant. Most of the dwellings in these estates were ‘modest and low-cost’ three bedroom fibro houses (Burnley 1974; Wulff et al. 1983). In the meantime, the inner and middle-eastern suburbs continued as the high status locations.

During the 1980s and 1990s Melbourne’s neighbourhoods were influenced by economic, social and political shifts. According to Burbidge (2000) housing price increases and capital gains in real dollar terms have ‘had a substantial class bias’, favouring higher income groups and expensive locations more substantially than low income groups and lower priced areas. Growing divisions in the housing market also appeared between existing and aspiring home owners, particularly those in the inner Melbourne regions compared with others living in outer fringe suburbs (Burke et al. 1990). Maher (1994) identified distinct spatial differences in the distribution of house price changes in Melbourne in the late 1980s and argued that such differentials create inequities in: population and labour mobility; access to housing; the environment in which affordable housing is found; and access to public goods and services – all of which influence future urban development. Furthermore, a recent study that ranked Australian communities by their level of ‘opportunity’ or ‘vulnerability’ found that Melbourne contained a higher level of polarisation than found in other capital cities (Baum et al. 1999). Finally, aggregated household income data used in the current research also reveals growing economic polarisation within Melbourne over the decade 1986 to 1996. Figure 2 shows that at the aggregate city-level, Melbourne’s household income distribution became more polarised over the 10-year period. This is shown in the fact that both high and low income households increased in number, while the moderate and moderate-high household income categories changed negligibly. The polarising trend was weighted heavily at the low end of the household income distribution, with growth in both low and low-moderate
income households exceeding that of high income households. In fact, the absolute number of low income households increased by more than 84,000 over the ten year period: more than three times the number of high income households. Significantly, the number of moderate and moderate-high income households changed very little. Therefore, in a broad sense, Figure 2 characterises the widening ‘gap’ between Melbourne households in terms of their economic and social opportunities.

This paper examines the nature of socio-spatial polarisation in relationship to housing market changes for Melbourne suburbs between 1986 and 1996. In this analysis, polarisation refers to a dynamic process, whereby the patterns of change over time are of a polarising or dividing nature (Walks 2001). This study classifies ten-year trends in household income and house prices for each of 327 Melbourne suburbs. The paper first develops a five category polarisation typology based on the relative growth or decline in household income groups. This typology is then mapped and the association between the stages of polarisation and quartile house price changes within suburbs is discussed.

**RESEARCH DESIGN**

The unit of analysis is the suburb. The 327 Melbourne suburbs range in population size from around 650 households in growth areas to nearly 17,000 households in the more established areas and are the locations commonly referred to in real estate advertisements. Because many spatial polarisation studies have used very broad spatial units or city-level data, small area patterns tend to remain undetected. Dale et al. (1989), for example, used aggregate British data, and though they examined some regional differences they did not analyse *intra*-regional variations. In a paper on social polarisation and welfare state regimes, Hamnett (1996) also examined differences at a broad, British regional scale. Likewise, in Australia, Baum’s examination of social polarisation in Sydney used aggregate, city-level data (Baum 1997), and similarly, Murphy et al. (1994) employed city-level data to examine and compare social polarisation across a number of...
Australian cities. By using a finer spatial unit than most studies, and then mapping these results, issues such as spatial proximity, spatial contiguity and spatial concentration within metropolitan Melbourne can be addressed.

Two major data sources form the basis of the analysis. First, Australian Bureau of Statistics (ABS) household income data were obtained for both 1986 and 1996 (in A$ 1996). Real household income was disaggregated into five income categories (Table 1)\(^2\), with the categories defined to align closely with the household income quintile values for Australia in 1986 and 1996.

<table>
<thead>
<tr>
<th>Weekly household income category</th>
<th>1986</th>
<th>1986 (x 1.55 CPI)</th>
<th>1996</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>$0 - $172</td>
<td>$0 - $267</td>
<td>$0 - $299</td>
</tr>
<tr>
<td>Low – moderate</td>
<td>$173 - $287</td>
<td>$268 - $445</td>
<td>$300 - $499</td>
</tr>
<tr>
<td>Moderate</td>
<td>$288 - $498</td>
<td>$446 - $772</td>
<td>$500 - $799</td>
</tr>
<tr>
<td>Moderate – high</td>
<td>$499 - $766</td>
<td>$773 - $1,188</td>
<td>$800 - $1,199</td>
</tr>
<tr>
<td>High</td>
<td>$767 and over</td>
<td>$1,188 and over</td>
<td>$1,200 and over</td>
</tr>
</tbody>
</table>

Table 1 Gross weekly household income categories, 1986 and 1996
Derived from 1986 and 1996 Census questions on gross weekly income of all persons in the household aged 15 years or older. These categories were used in Yates et al. (2000).

The second data source consists of individual house price sales records from the Victorian Government’s Office of the Valuer General. The data set provides the price and address of each house sale in Melbourne in the calendar years of 1986 and 1996. Only residential dwellings coded as a separate ‘house’ were included in the analysis, thereby excluding units, flats or other dwelling types. In both 1986 and 1996, separate detached dwellings comprised around 75 per cent of the total dwelling stock in Melbourne. To analyse change in real prices over time, the Melbourne All Groups Consumer Price Index (CPI) was used to convert each 1986 house sale price into 1996 dollars.

Each individual house price record was cleaned and geocoded to its address point in the Melbourne metropolitan area\(^3\). Of the approximately 49,500 house sales in 1986, 86 per cent were geocoded to cadastral parcel level. In 1996, 89 per cent of just over 48,400 house sales were geocoded to the parcel level. Overall, 95 per cent of sales in both years have been geocoded to the suburb level. Once geocoded to this scale, the individual sales could be spatially aggregated to any set of user-defined areal units, in this case, the 327 Melbourne suburbs. The flow chart in Figure 3 summarises the data sources and data processing steps undertaken in the analysis.

Real median house prices for 1996 and house price growth between 1986 and 1996 are mapped by suburb. House prices for 1986 and 1996 are summarised according to real quartile values and quartile per cent changes for each polarisation type.

The polarisation typology is based on the changes in the household income distribution between 1986 and 1996 for each Melbourne suburb. This approach improves upon other methods that show household income distribution as an average, median or ratio value for individual spatial units. The latter do not reveal polarising trends within the spatial units. Polarisation is conceptualised in this research as a process of change at both ends of the household income structure: that is, the simultaneous increase in the number of households in both the low and high income categories. By mapping these results, the polarising trends within each suburb, and
the spatial relationships between and among the suburbs, are revealed. These growth rates were indexed according to principles of the shift-share approach. In other words, the growth rate is based upon the expected number of households in each category if the category were to maintain the same share of households in 1996 that it had in 1986.
The difference between this expected change, and the actual change, provides the adjusted index score. This score varies around 100. A score below 100 represents less than expected growth (or an absolute decline) in a household income category over time, while a score above 100 indicates that the category grew more than expected over the decade. In other words, a category with a score over 100 increased its share of households in the suburb. If the household income distribution in any particular suburb remained unchanged over the decade, then the number of households in each income category would be expected to change at the same rate as the overall household growth in that suburb. For example, if the number of households in a
suburb increased by 5 per cent between 1986 and 1996, then the number of households in each income category could also be expected to grow by 5 per cent. This would result in an unchanged income structure within the suburb.

This measure takes into account the disparity in household growth rates in the Melbourne metropolitan area. Figure 4 shows the household growth rates of Melbourne suburbs between 1986 and 1996. The map reveals the much higher household growth in Melbourne’s outer and fringe areas compared with the inner and middle areas.

**HOUSEHOLD INCOME POLARISATION IN MELBOURNE**

Figure 5 and Figure 6 present the indexed growth in the number of low and high income households. Figure 5 shows the per cent difference from the expected change in share of low income households (index score minus 100). As discussed, the expected change is the rate that corresponds with the overall household growth rate of the suburb. If the share of low income households in each suburb remained the same between 1986 and 1996 (between plus or minus 10 per cent), the map would be predominantly green. Figure 5 shows, however, that this is not the case.

Figure 5 reveals that all but 13 of Melbourne’s suburbs experienced greater than expected growth in households earning less than $300 per week. In the inner and adjacent eastern-middle suburbs, growth in low income households was relatively low compared with areas in the outer to fringe western and south-eastern suburbs.

The inner group of suburbs is surrounded by areas in which the number of low income households grew by 40 per cent more than expected. In several of the outer western and south-eastern suburbs, growth was 100 per cent or more than expected.

The outermost western and north-western suburbs are dominated by some of the highest above expected growth rates in low income households. The growth in low income households was more varied across the northern and eastern fringe, but generally at lower rates than in the west.

In contrast, Figure 6 presents the change in the number of high income households during the same period. The spatial picture differs substantially from the previous map related to low income households.

In the inner suburbs, high income households increased relatively more than in other parts of the metropolitan region. A small concentric ring of stable growth in high income households surrounds these suburbs.

Further beyond, there is another concentric ring displaying lower growth than expected in high income households. This is followed spatially by another ring of stable high income growth. This latter ring contains approximately half of all Melbourne suburbs.

The spatial concentrations mapped in Figure 5 and Figure 6 illustrate percentage change in household income levels over a ten year period. The percentage change figures, (also referred to as the indexed growth rates), are not based on the absolute real income positions of the suburbs at one point in time and, therefore, do not necessarily translate directly to concentrations of relative disadvantage or advantage. For example, greater than expected growth in the number of low income households that may occur in a high income suburb has different implications to a similar level of growth in a low income suburb. The focus on the change in household income
used in this study, however, highlights the ‘process’ of polarisation, and not the static income situation.

Figure 5 Per cent difference from expected change in low income households, Melbourne suburbs 1986 to 1996
*Residential development in these suburbs was sparse in 1986, thus excluding them from temporal analysis.
ABS Census of Population and Housing, 1986 and 1996
A TYPOLOGY OF POLARISATION

The polarisation typology is constructed by plotting the standardised change in low and high income households (Figure 7). This resulting scatter plot is then used to classify Melbourne suburbs into one of five polarising trends. As defined in this study, polarisation refers to the process whereby both the number of low and high income households increase during the same period in a suburb. Figure 7 shows the spread of suburbs with respect to the degree of change at the low and high ends of the household income structure. Each of Melbourne’s 327 suburbs is represented by a dot that positions it with respect to the difference from expected change in...
low (x-axis), and high (y-axis) income households. These positions are shown relative to the total Melbourne change that is represented by the point 0,0 in the chart.4

Figure 7 Melbourne suburbs plotted by adjusted indexed growth rates in low and high income households, 1986 to 1996
Derived from ABS Census of Population and Housing, 1986 and 1996

The quadrants in Figure 7 represent four broad types of change that occurred in the household income structures of Melbourne suburbs between 1986 and 1996:

- advantage increasing
- middle increasing
- polarising and
- disadvantage increasing.

Table 2 Summary of polarisation types
The fifth category, stable, refers to suburbs that underwent similar household income change over the decade to that of all Melbourne. These suburbs are identified by the box centred over point 0,0, that is, the position representing aggregate Melbourne change. If change in both low and high income households was within plus or minus 10 per cent of the aggregate Melbourne change, then the suburb was classified as ‘stable’. Table 2 summarises this categorisation of suburbs into the different polarisation types.

In Figure 8, Melbourne’s 327 suburbs are graphed showing the number and per cent distribution by polarisation type. Between 1986 and 1996, the household income structure of most Melbourne suburbs changed towards either growing advantage or growing disadvantage. Consequently, the polarisation types at either end of the continuum contain the two largest numbers of suburbs. Together, these polar ends account for almost two-thirds of Melbourne’s suburbs. Conversely, suburbs in which the middle income groups expanded constitute the smallest number. Polarising suburbs, that is, areas in which low and high income households grew relatively more than the Melbourne average, make up the third most numerous group. The spatial manifestation of this polarisation typology is revealed in Figure 9.

![Figure 8: Number and per cent distribution of Melbourne suburbs by polarisation type](image)

Some distinct spatial patterns and relationships emerge in Figure 9. For instance, of 316 suburbs, only 31 or around 10 per cent were classed as ‘stable’. Stable suburbs experienced change in their household income structure similar to that experienced at the aggregate city-level. This suggests that a city-level analysis disguises what has actually happened within the majority of Melbourne suburbs. To have so few suburbs reflecting the type of change measured at the aggregate Melbourne level suggests that other polarising trends were dominant between 1986 and 1996.
DISADVANTAGE INCREASING

Over the decade under study, Melbourne suburbs were more likely to show growing disadvantage than another polarisation type. This emphasises the very high Melbourne growth rate in low income households discussed above. One hundred and sixteen suburbs experienced ‘increasing disadvantage’, evidenced by a growth rate in low income households greater than that of all Melbourne, and a corresponding relative decline in high income households. ‘Disadvantage increasing’ suburbs form a contiguous perimeter around the inner and eastern-middle areas, extending also to the northwest and the southeast. This series of suburbs contains the post-war...
industrial estates and public housing developments in the north, west and southeast. Some possible explanations for this pattern are provided in Figures 10 and 11.

Figure 10 shows the percentage point increase in unemployment over the decade. The suburbs that experienced the greatest increases in unemployment are clustered around the post-war industrial estates. Overall, between 1986 and 1996, unemployment increased in Melbourne by 2.5 per cent. Clearly, residents in Melbourne’s western and northern suburbs suffered the greatest number of job losses over the decade.

![Figure 10 Percentage point change in unemployment, Melbourne suburbs 1986 to 1996](from ABS Census of Population and Housing, 1986 and 1996)
Concentrations of growing disadvantage, however, are also found in the north and eastern regions. Growing unemployment may account for some of this change in the northern region, however, the eastern region did not experience the same degree of job loss. Figure 11 shows the percentage point change in persons aged 65 years and over. An increase in this age group indicates an increase in retired persons and, consequently, lower income levels. An increase in the number of retired or elderly households will contribute to the growth in the number of low income households in a suburb and, as a result, increasing ‘disadvantage’. This is likely to be the case in the suburbs of the otherwise predominantly higher status eastern region.

Figure 11 Percentage point change in population aged 65 and over, Melbourne suburbs 1986 to 1996
ADVANTAGE INCREASING

In another 92 suburbs, the household income structure became relatively more advantaged over the decade. Figure 9 reveals that the majority of these suburbs are located in the inner and eastern-middle areas, forming a solid contiguous central nucleus. Notably, bordering this region of growing advantage is the solid ring of suburbs increasing in disadvantage. This sharp form of spatial polarisation can only be identified through mapping. In many cases, suburbs at opposing ends of the polarisation typology are actually adjacent, although ‘stable’ suburbs interrupt this relationship in some areas. In the on-going process of spatial polarisation, it is difficult to predict the socio-economic direction they will take in the next decade. Overall, the spatially exclusive nature of Melbourne’s inner and middle suburbs strengthened over the decade: a pattern typical of other large Australian cities and described by Badcock (2000 p.211) as the formation of a ‘cone of wealth’.

POLARISING AND MIDDLE INCREASING

The third largest group of suburbs are classified as polarising. Polarising suburbs are found predominantly in the outer and fringe regions of the metropolitan area. In the western and north western regions, polarising suburbs dominate along with suburbs of growing disadvantage. This relationship, in aggregate, documents a much greater growth in low rather than high income households. The fact that only around 18 per cent of Melbourne’s suburbs are defined as polarising suggests that polarisation in Melbourne is a process that occurs largely between rather than within suburbs. This inter-suburban trend can be characterised as a widening socio-economic gap between regions of growing advantage and growing disadvantage. The small number of ‘middle increasing’ suburbs, which are distributed without order or concentration in the metropolitan area, supports this interpretation of the nature of socio-spatial polarisation in Melbourne.

In summary, through the development of this typology of polarisation, a new map has been presented that reveals the socially polarising trends within Melbourne suburbs, and also the spatial patterns and relationships that exist between these suburbs. Two dominant socio-spatial trends emerge: a growing level of advantage found in the contiguous group of inner to middle suburbs; surrounding these areas, another contiguous series of suburbs within which disadvantage increased. Polarising suburbs are identified in the map, but are outnumbered by those growing in advantage or disadvantage. Thus, polarisation in Melbourne is largely a trend occurring between groups of suburbs characterised by advantage and disadvantage. Those suburbs where the middle income groups increased are the least numerous and show no distinct pattern in the landscape. The fast growing outer suburban regions tend to be either polarising or increasingly disadvantaged. This is a particularly strong pattern in the outer western region.

MELBOURNE HOUSE PRICES

At an aggregate level, Melbourne’s median house price remained steady over the ten-year period, recording only 2.3 per cent increase (Valuer General house price records). The two study years, 1986 and 1996, however, fall either side of major boom and bust periods in house price levels in Melbourne. Despite the overall stable median house price trend, at the suburb scale, a high level of spatial differentiation in the Melbourne housing market can be observed.
Figure 12 presents the median house prices of Melbourne suburbs in 1996. Suburbs in this map are classified by whether they fall above or below the 1996 aggregate Melbourne median of $130,000. The map reveals the stark spatial imbalance in median house price levels in Melbourne. The inner and eastern-middle suburbs enjoy the highest median values, while at the same distance from the CBD to the west and north, house prices tend to fall below even the aggregate median level. On most of the western and south-eastern fringe (generally the post-war industrial estate areas), median house prices showed the lowest values in the metropolitan area.
Figure 13 presents the per cent change in real median house price over the study decade. High median house price growth tends to be concentrated in the inner and the eastern-middle suburbs. This pattern extends further south incorporating a series of bayside suburbs. The suburban middle to outer ring of suburbs experienced little change in median house prices over the decade. This ring surrounds rapidly increasing house price areas of inner, and eastern-middle suburbs. Among these latter suburbs, only a few experienced moderate growth of between 10 and 20 per cent.

*The real median house price of Port Melbourne (directly south of the CBD) increased by 81 per cent

Victorian Office of the Valuer General house sale records 1986 and 1996
Spatially, this map suggests that median prices changed suddenly rather than gradually. Many of the middle to outer suburbs with little real change in median house price border those that experienced high growth over the decade. With distance from the CBD, the rate of median house price increases tended to decline. In relation to house price growth, therefore, it appears that the inner group of suburbs is setting itself apart from the surrounding middle to outer suburbs, signalling growing spatial polarisation between suburbs defined by house price growth rates.

Suburbs of house price decline are found clustered around the 1950s and 1960s manufacturing estates in the north, west and southeast. These suburbs have been identified previously as having experienced rapid growth in low income households and unemployment, absolute decline in high income households, very low median house prices in 1996, and in this instance, some of the greatest declines in house prices over the decade. This pattern of disadvantage supports the Melbourne findings of other research such as Baum et al. (1999). In their study of community opportunity and vulnerability, these regions were classified as extremely vulnerable, reflecting a strong connection to the old manufacturing economy.

POLARISATION AND THE HOUSING MARKET IN MELBOURNE

The final stage of this research examines how changing house prices, as a measure of housing market change, are reflected in trends of social polarisation in Melbourne. The focus now turns to the relationship between house prices and the polarisation typology.

Table 3 presents the quartile values and quartile per cent changes in real house prices for each of the polarisation types. The table demonstrates the relationship between the socially polarising trends based on household income change, and the changing nature of the housing market in these same regions between 1986 and 1996. All prices are in 1996 dollars.

<table>
<thead>
<tr>
<th>Quartile 1 1986</th>
<th>Increasing advantage</th>
<th>Middle increasing*</th>
<th>Stable</th>
<th>Polarising</th>
<th>Increasing disadvantage</th>
<th>Melbourne</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quartile 1 1996</td>
<td>$116,250</td>
<td>$112,375</td>
<td>$100,750</td>
<td>$106,270</td>
<td>$106,175</td>
<td>$106,950</td>
</tr>
<tr>
<td>Change in Q1 (%)</td>
<td>19.5</td>
<td>-4.0</td>
<td>-10.7</td>
<td>-10.6</td>
<td>-15.2</td>
<td>-6.5</td>
</tr>
<tr>
<td>Median 1986</td>
<td>$147,975</td>
<td>$136,400</td>
<td>$116,250</td>
<td>$123,225</td>
<td>$123,225</td>
<td>$127,100</td>
</tr>
<tr>
<td>Median 1996</td>
<td>$186,000</td>
<td>$150,000</td>
<td>$115,000</td>
<td>$118,000</td>
<td>$115,000</td>
<td>$130,000</td>
</tr>
<tr>
<td>Change in median (%)</td>
<td>25.7</td>
<td>10.1</td>
<td>-1.1</td>
<td>-4.2</td>
<td>-6.7</td>
<td>2.3</td>
</tr>
<tr>
<td>Quartile 3 1986</td>
<td>$209,260</td>
<td>$200,985</td>
<td>$142,600</td>
<td>$150,350</td>
<td>$151,900</td>
<td>$168,950</td>
</tr>
<tr>
<td>Quartile 3 1996</td>
<td>$265,000</td>
<td>$234,335</td>
<td>$151,000</td>
<td>$148,700</td>
<td>$148,500</td>
<td>$185,000</td>
</tr>
<tr>
<td>Change in Q3 (%)</td>
<td>26.6</td>
<td>16.6</td>
<td>5.9</td>
<td>-0.4</td>
<td>-2.2</td>
<td>9.5</td>
</tr>
<tr>
<td>No. of sales 1986 &amp; (%)</td>
<td>12,310 (26.0)</td>
<td>1,733 (4.0)</td>
<td>5,472 (11.6)</td>
<td>6,818 (14.4)</td>
<td>20,873 (44.1)</td>
<td>47,208 (100)</td>
</tr>
<tr>
<td>No. of sales 1996 &amp; (%)</td>
<td>12,951 (28.3)</td>
<td>1,813 (4.4)</td>
<td>5,207 (11.4)</td>
<td>7,455 (16.2)</td>
<td>18,202 (39.7)</td>
<td>45,608 (100)</td>
</tr>
</tbody>
</table>

*The house sales of Toorak have been excluded from the analysis of ‘Middle Increasing’ house price change. House prices in Toorak have always been consistently well above those of any other suburb and it was determined that this disparity in price would skew too far the results of this analysis.

Quartile 1 indicates the lower end of the housing market. Even at this price level, the only area to have experienced rising house prices is the region classified as ‘increasing advantage’. Conversely, lower quartile house prices declined to the greatest extent in areas classified at the
opposite end of the polarisation scale - those typified by increasing disadvantage. Furthermore, in 1986 the difference between the lowest quartile 1 house price and the highest was around $15,000. In 1996 however, this gap had widened to almost $50,000.

Similar trends are evident in the median and upper quartile house prices. In both cases, the areas growing in advantage experienced rapid house price growth, while those becoming increasingly disadvantaged declined the most. Thus, the housing market appears to reinforce the polarising trends identified in the typology. For each quartile, the gap between the highest and lowest house prices increased over the ten year period to such an extent that in 1996, the upper quartile house price in areas of increasing advantage was $116,500 more than the upper quartile house price in areas of increasing disadvantage. This figure surpasses the 1996 median house price in regions of increasing disadvantage ($115,000). The 1996 median house price in areas classified as stable, polarising, or disadvantaging, did not reach the lower quartile house price in regions of increasing advantage. These figures suggest that many households are essentially excluded from certain regions of the Melbourne housing market, and as depicted in Figure 13, this basically translates to the inner and middle suburbs.

Areas classified as ‘middle increasing’ have quartile house prices that are nearest to those recorded in the growing advantage regions. House prices in this group of suburbs declined slightly at the lower end of the market and the median and upper quartile prices increased moderately. Unfortunately, as shown in Figure 9, only 18 suburbs were identified as being of this type in 1996. In polarising regions, house prices decline was greatest at the lower quartile and least at the upper quartile.

The relationship between socio-spatial polarisation and house price change appears most marked in the suburbs grouped as growing in either advantage or disadvantage. In each quartile of the housing market, advantaged regions experienced significant house price growth, while the opposite happened in regions of increasing disadvantage. To further investigate this pattern, the following table disaggregates the two ends of the polarisation typology into rapid and steady growth.

<table>
<thead>
<tr>
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<th></th>
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<tbody>
<tr>
<td>Quartile 1 1986</td>
<td>$113,150</td>
<td>$146,790</td>
<td>$117,800</td>
<td>$135,000</td>
<td>$110,050</td>
<td>$97,650</td>
</tr>
<tr>
<td>Quartile 1 1996</td>
<td>$146,790</td>
<td>$113,150</td>
<td>$135,000</td>
<td>$117,800</td>
<td>$110,050</td>
<td>$97,650</td>
</tr>
<tr>
<td>Change in Q1 (%)</td>
<td>29.7</td>
<td>14.6</td>
<td>-12.8</td>
<td>-22.2</td>
<td></td>
<td></td>
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<tr>
<td>Median 1986</td>
<td>$141,050</td>
<td>$152,210</td>
<td>$127,875</td>
<td>$111,600</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Median 1996</td>
<td>$188,000</td>
<td>$185,000</td>
<td>$122,500</td>
<td>$94,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Change in median (%)</td>
<td>33.3</td>
<td>21.5</td>
<td>-4.2</td>
<td>-15.8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quartile 3 1986</td>
<td>$190,260</td>
<td>$217,000</td>
<td>$162,750</td>
<td>$130,200</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quartile 3 1996</td>
<td>$255,000</td>
<td>$270,000</td>
<td>$156,000</td>
<td>$120,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Change in Q3 (%)</td>
<td>34.0</td>
<td>24.4</td>
<td>-4.1</td>
<td>-7.8</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 4 Rapid and steady advantage and disadvantage by real quartile house price and house price change 1986 to 1996 ($1996)

SUBURBAN SOCIO-SPATIAL POLARISATION ARTICLES
Table 4 groups advantaged suburbs according to the degree of change in low and high income households. If a suburb experienced more than 20 per cent decline in low income households and a corresponding 20 per cent greater than expected change in high income households, these suburbs are defined as undergoing "rapid advantage". Figure 14 identifies 23 of these suburbs and all but one are located in the inner region. The remaining suburbs are classified as having experienced ‘steady’ growth in advantage. The inverse trend applies to the disadvantaged suburbs, of which 30 were places of rapidly growing disadvantage. These suburbs were mainly clustered around the post-war industrial estates and in some south eastern bay side suburbs.

Figure 14 Suburbs of rapid or steady advantage and disadvantage in Melbourne
Derived from ABS Census of Population and Housing, 1986 and 1996
Table 4 provides further evidence of the strong relationship between the polarisation in household income structure and house prices in Melbourne. In each case, the level of polarisation coincides with the rate of change in the housing market. House price growth is greatest in the upper quartile of the ‘rapid advantage’ regions, while house price decline is marked in the lower quartile of regions experiencing ‘rapid disadvantage’. Opposing ends of the socio-economic structure and the housing market appear to be moving further apart.

The quartile house prices suggest that Melbourne’s housing market reinforces the divisions emerging in the city’s household income structure. Badcock’s assertion that housing markets tend to reproduce and even amplify the economic inequalities that arise from the labour market appears true in the case of Melbourne (Badcock 1995). The intensification of such housing and economic inequalities has many implications for the socio-spatial structure of the city. In Melbourne, the concentration of rapid house price increases in the inner and middle suburbs delivers substantial capital gains to a spatially select group of home owners, which as shown in Figure 6, are already likely to be high income earners. Rising house prices in this region can also restrain the movement of lower-income residents and workers into this job-rich area. As OConnor et al. (2002 p.47) point out: ‘a major contradiction within contemporary metropolitan Melbourne is the existence of an economically significant region that is becoming increasingly inaccessible as a place of residence.’

Several distinct spatial patterns have emerged from the data and maps presented in this paper. In all maps, the inner-to-middle suburbs consistently present as a region of growing advantage. These suburbs are long-established, densely populated, and well-resourced with public services, facilities, jobs and infrastructure. This research underscores the increasingly exclusive nature of this region, which, if housing market trends continue, will effectively lock-out aspiring residents of even average household income. This pattern is not unique to Melbourne. Others have commented on the ‘residentially exclusive’ nature of the inner regions of many of Australia’s capital cities (OConnor et al. 2002); the ‘increasing dichotomy occurring between the inner and outer suburbs’ of these cities (Baum et al. 1999); and ‘a growing centralisation of wealth’ in many Australian cities (Badcock 2000). The spatial patterns identified here offer further Melbourne based support for these arguments.

The structurally vulnerable suburbs of the mid to outer-suburban, post-war industrial estates have also been consistently prominent, though unfortunately, for increasing levels of disadvantage, higher unemployment and lower median house prices. These suburbs also recorded significant real losses in house prices. Again, these findings support those of others, who have also identified that these areas are overwhelmingly bearing the costs, rather than enjoying the benefits, of economic restructuring (Baum et al. 1999; Burke et al. 2000; OConnor et al. 2002). The housing market clearly exacerbates broader labour market problems in these areas of Melbourne.

**CONCLUSION**

This study contributes to a growing body of research that documents increasing socio-spatial disparities in Australian cities. This paper aimed to determine the nature of socio-spatial polarisation in Melbourne between 1986 and 1996, and to discover how changes in the housing market, as shown in house prices, relate to spatial patterns of polarisation. Through constructing a polarisation typology, the changing household income structures of Melbourne suburbs have
been classified and a new map showing the socio-spatial patterns of polarisation in the Melbourne metropolitan area created. Socio-spatial polarisation in Melbourne is characterised by growing socio-economic advantage concentrated in the inner and eastern-middle suburbs, and surrounded by suburbs of increasing disadvantage, particularly in the west and the southeast. The metropolitan fringe suburbs present a more differentiated pattern. The housing market, once considered a channel through which home ownership might moderate socio-economic inequalities, is shown in this research to be exacerbating the inequalities generated by the labour market. Rising quartile house prices have most benefited areas already gaining in socio-economic advantage. At the opposite end of the polarisation scale, suburbs becoming increasingly disadvantaged have experienced the greatest absolute decline in house prices.

Overall, these findings have implications for the general level of socio-economic equity in Melbourne. If these trends identified between 1986 and 1996 continue, the operations of the housing market, and more specifically house prices, are likely to residentially divide Melbourne’s inner and middle suburbs from the surrounding metropolitan area. Such exclusivity will restrict the residential choices and movement of lower, and even average, income home buyers into this job and resource-rich region. Continuing house price inflation will only strengthen the borders of this increasingly high priced region and return capital gains of inequitable proportions to those already benefiting the most from structural labour market changes. In Melbourne, the likelihood of a residentially segregated, exclusive inner-suburban domain is strengthening. In other words, the inner suburbs could evolve into places where the lives of the residents are socially detached from the remainder of the population, and people become increasingly unaware of how ‘the other half lives’.

This is not to suggest, however, that all the suburbs outside this inner region are dominated by growing disadvantage. This research has shown that Melbourne is not a totally polarised city, divided only into rich and poor regions. The outer and fringe suburbs show a variety of polarising trends, median house prices, and levels of change in house prices. Many residents live and work in the outer and fringe suburbs and have little need to visit or utilise the services of the inner region. Nonetheless, concentrations of disadvantage have been identified in the outer regions. Urban policy developers need to work towards preventing further segregation, and possible isolation, of these disadvantaged areas. Saunders (2001) suggests that little is known about community attitudes to inequality or what should be done about it. These questions should constitute an important theme of future socio-spatial polarisation analysis. Ultimately, if polarising trends continue, and concentrations of advantage and disadvantage consolidate further, Melbourne residents will have to decide just what level of socio-spatial polarisation they are willing to tolerate.
ENDNOTES

1 Suburb boundaries were defined by the Victorian State Government Department of Infrastructure (DOI) for their publication Suburbs in Time (2000) (DOI 2000). To enable analysis of census data at this scale, the Census Collection Districts (CDs) – the smallest spatial unit at which census data are available - and associated data underlying each suburb were aggregated to the broader suburb boundary. When boundaries did not match, the share of the CD in each suburb that it intersected was calculated so that the associated data could be allocated accordingly (DOI 2000).

2 After indexing the 1986 values to 1996 dollars, it is not possible to match exactly the income ranges for both years. Consequently, the upper limits of the two lowest income categories are around 10 per cent below those in 1996, and as such, some caution should be taken when considering the precise growth rates of households in these income categories. The difference in these upper limits results, nonetheless, in a more conservative count of low and low to moderate income households rather than an inflation of these figures.

3 Geocode Mapping and Analysis Pty. Ltd. developed the algorithm that cleaned and geocoded the house price data set.

4 Household income change is standardised to the Melbourne level of change because, as shown in the map depicting difference from expected change in low income households (Figure 5), households earning less than $300 per week increased in almost every Melbourne suburb between 1986 and 1996. There was, then, a comprehensive metropolitan shift toward increased numbers of low income households. The aggregate Melbourne level of change, therefore, is used as an average or norm, to which suburban household income change is compared.

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