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The links between housing markets and labour markets: positioning paper

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Executive Summary

This paper outlines current international understanding of the geographical links between job and housing markets within the modern metropolis and uses that to explore outcomes within Melbourne. The review shows that new economic and social forces have acted on the location of jobs and houses and have changed the geography of their linkages. The new outcomes will vary by type of job and skill level of worker.

Current insight on this issue can be obtained by using journey-to-work data to show trends in jobs by number, type and location along with the geography of their connections with housing, within and across regions.

If there is a set of new housing and labour market links in Melbourne, metropolitan policy will need to include more detail on the role of job accessibility and availability in urban outcomes. In effect the research reviewed here suggests that the geography of jobs now acts as a more powerful influence upon the spatial structure than may be recognised in some metropolitan areas.

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Introduction

This project is positioned at the intersection of two strands in housing and urban research within metropolitan areas. The first strand involves the geography of housing. Its thread is shaped, primarily, by the types of houses and the price of housing in different locations in a metropolitan area. The second strand is made up of jobs. Here the thread reflects the distribution of jobs of different types across the metropolitan area. The intertwining of these strands contributes to the structure of the metropolitan area. Many commentators view the contemporary form of this structure as urban sprawl, as housing (and population) have spread across a larger and larger area in most cities. In turn metropolitan policy has been designed to reduce the extent of urban sprawl through actions associated with higher density development of existing areas.

The core idea of the project is that the interpretations outlined above have been based on an inadequate understanding of the geographical links between the job and housing markets within the modern metropolis. The central tenet of the project is that new economic and social forces acting on the location of jobs and on houses have changed the way they interweave, so that a new pattern has evolved, one that has yet to be recognised in much metropolitan policy. A more precise concern of the project is to understand the geography of jobs, and the way that geography shapes other aspects of metropolitan development. The project will explore the location of jobs in detail and link that insight to housing market behaviour to expose the ways that housing market-labour market links have been shaped over the past decade.

Hence the project is designed to:

Describe and Explain

The changes in the geography of jobs and housing within a metropolitan area,

Analyse

The linkages between the geography of jobs and the geography of housing, and

Show

The policy implications for metropolitan planning.

The issue draws its relevance from the limited attention paid to jobs in the discussion of housing market change and of trends in metropolitan structure. That limited attention reflects in part the difficulty of obtaining information on employment numbers in parts of cities, while housing numbers and local population estimates are readily available. The lack of analysis of the geography of jobs limits policy makers' potential to understand the character of the modern metropolis, and perhaps constrains their capacity to change outcomes as they have not considered actions on job location. The location of jobs may be important too in that housing assistance may be less effective if housing is not located close to employment.

The starting point of the project is the simple idea that there were two types of job–housing links in metropolitan areas in the past. The first, and the one involving the largest number of people, was between central city jobs and suburban housing; the numbers travelling by public transport or by car in congested morning peaks provides an indication of the significance of that connection. This travel pattern was shaped by a variety of factors, including income and family size along with housing preferences. Second, there were local area or sub regional links between houses and jobs, often associated with manufacturing and population related service activities. The scale and significance of these links varied from city to city, with some cities experiencing strong intra- suburban links around what were eventually called edge cities while others had smaller but locally prominent connections.

This project will explore whether those simple perspectives have withstood the substantial changes that have occurred in the number, type and organisation of jobs, along with shifts in housing demand and preferences. These aspects provide the grist of the project. At the completion of the analysis a foundation for a new perspective on metropolitan policy will be laid. The analysis will draw on insights that extend current research on the geography of employment in metropolitan areas, and accommodate new housing market trends; its cutting edge will be an extension of current understanding of job-housing links in metropolitan areas in the 1990s.

The analysis of the project will be reported in three parts. One showing the basic geography of jobs, two, the links between jobs and housing within regions and three, reporting the links between changes in the numbers and types of jobs in regions and the residential re-location of the workforce. The insight provided by these findings will be used to suggest areas of change in policy at the broad as well as at the regional scale.

2. The Changing Geography of Employment

Guilano and Gillespie (1997) have suggested that there are two broad changes that have occurred in the geography of employment. The first is *dispersion*, where job growth has occurred away from the established metropolitan areas and the second is *decentralisation*, where job growth has occurred within new locations within metropolitan areas. As the focus of this project is on the metropolitan area of Melbourne, for the present purposes the critical change is decentralisation, and the discussion follows the evolution of ideas on this matter, shaping the new concerns that the project will address.

2.1. Established Perspectives on the Geography of Employment in Metropolitan Areas.

Three broad forces have reshaped the decentralisation of employment in metropolitan areas. The first was the establishment of large and small industrial plants in new suburban industrial areas beginning in the mid-1950s. Australian studies showed many of these plants were moving from inner city locations; in Melbourne, Rimmer's (1970) research showed they moved from inner to middle suburbs along clearly defined corridors. The geography in the moves enabled these firms to maintain contact with one another, something that Logan's (1964) research on Sydney showed was critical to the creation of the new industrial suburbs at the time. In addition connections with patterns of residential change were important. To illustrate, a survey of suburban industrial firms (Baillieu Knight Frank Research 1988:29) showed "the residential location of key members of staff is the most influential factor" in decisions about industrial re-location. That perspective means that housing market-labour market links are in fact part of the process of suburban job growth.

The early decentralisation was also shaped by technological change. New approaches to production in manufacturing, storage and warehousing often called for new buildings and more space (Baillieu Knight Frank 1988). That technological shift was also evident in retailing as the regional shopping centre emerged and attracted retail expenditure away from traditional central area shopping centres. Johnston and Rimmer 's (1969) case study of Chadstone provides an early insight into what has become a much stronger force. These regional shopping centres brought more employment to suburban areas as Ghosh and McLafferty (1991) show.

Finally population growth created demand for new services so that the suburbanisation of employment involved jobs outside retailing and manufacturing. Prominent among these areas was education and medical services as the Gipps et al (1996) research on jobs in Australian cities made clear.

Analysis of employment change in Australian metropolitan areas showed that these three forces (relocation and new investment, technological change and population growth) were felt across a range of industries and occupations in the 1970s (Alexander 1979) and continued into the 1990s (Gipps et. al. 1996). Generally the finance and corporate services sector experienced less change in this regard, although some suburbanisation of lower level office employment had occurred by 1980 (Daniels 1986).

The Australian experience replicated overseas outcomes. Stanback's (1991) early work on US metropolitan regions provided a good overview on the scale of decentralisation of jobs in that country. Job decentralisation also occurred in European metropolitan areas. Data assembled by Bovy in 1993 (presented in a table by Giulano and Gillespie 1997) for European cities between 1975 and 1985 shows a similar pattern of job loss in the core and gain in the suburbs. For London, Manchester and Birmingham, Spence and Frost (1995) showed that the core cities had lost jobs between 1971 and 1981.

When this research looked at the impact of job change upon housing location it found that job growth and housing growth in suburban locations were closely paired, and that there were increases in the share of the workforce employed locally within sub-regions or communities. That was especially so in the US as shown in the Stanback (1991) research and was reiterated in a number of studies that showed sub-centres and polycentric growth were very common in the 1960-1980 period; these are reviewed by Cervero (1995). The Spence and Frost study found that middle suburban jobs had strong links to middle and outer area residential areas, but also stressed the continued significance of the inner city as a work destination. O'Connor and Maher's (1979) work on Melbourne also showed that suburban job growth and suburban housing expansion were closely linked during the 1970s. The Melbourne outcomes reflected the steady expansion in suburban manufacturing and suburban population that was prominent in monitoring of job and housing development in the region by O'Connor and Maher (1988). McLoughlin's (1992) review of the planning of the metropolitan area provides a detailed account of this stage in the region's development.

The concern of the present project is whether those long established trends are still relevant, and in turn whether they have been associated with changes in the geography of the housing market. That concern is justified first because the broad economic structure of the economy has shifted since much of this early analysis was done. That shift has involved a reduced role for manufacturing in the overall employment structure, and the expansion in new sectors (Gipps et al 1996). There has also been a shift in production technologies within manufacturing that has reduced the role that the very large-scale plants play in overall production (Scott and Storper 1995). Taken together these influences may change the geography of employment. Second, commentary on urban change in recent years has suggested that inner area population change and urban regeneration has become more common, shifting the focus away from suburban locations (Department of Infrastructure 1998).

These two aspects could mean that there has been a redirection in the pattern of labour market-housing market links away from localised suburban self-containment either toward a more diffuse structure or perhaps toward a stronger inner city focus. If that is so, metropolitan policy may need to include new elements concerning job accessibility and availability, which in turn may be relevant to transport planning.

2.2 New Job Locations in a New Economy?

Over the last two decades, there has been major change in the structure of the economy. Summaries of this change have suggested there is now a “new economy”; a term which refers to the greater emphasis upon research and development and greater use of information technology and telecommunications in modern production systems (The Economist 1999). This outcome has been labelled a “fourth wave of economic development” by Clarke and Gaile (1998). There has been a lot of scepticism expressed concerning the significance and meaning of this terminology (The Economist 1999), but there is general agreement that some new conditions have been experienced, and patterns of productivity gains along with the period of economic growth that has been experienced by western economies support that general observation.

Reich (1992) provides a way to understand these changes by expressing them in terms of the occupations involved in this new form of production. His approach isolates those activities that involve creating or using knowledge in a non-standard way (the symbolic analysts) from those that routinely apply or disseminate it (the routine production worker). He also draws attention to the type of work rather than the type of product (or sector of the economy) as the key determinant of the vitality of local economies. This makes it possible to understand, for example, that the presence of modern high technology activity will have a greater impact on a location's prosperity if it involves, for example, research into and the creation of software (employing symbolic analysts) than if it involves call centre jobs (employing routine production workers). In turn, too, the local housing market impacts are likely to be very different in these two scenarios. These differences will emerge not only from the very different income levels associated with these activities, but from the possibility of clustering of other services (and hence more jobs) that are more likely around software firms than around call centres.

The new economic structure may have influenced the location decisions of firms and hence have been felt in a different geography of jobs. It is understood that new economy knowledge-intensive firms place a premium upon proximity to other firms and related activities. Recent research by Camagni (1991) and others shows that a significant constraint on location is a firm's ability to interact with others in a ‘milieu’ (using Maillat's 1991 term) with other innovative producers. Superficially this is not different from the earlier era of concentrations of manufacturers, but the reason is different. The concentration reflects the need for face-to-face contact for the sharing of information and ideas rather than the cost savings achieved in physical inter-firm linkages of goods and services stressed in earlier explanations of agglomerations (Camagni 1991). In many cities, the inner city and the CBD may provide the best place for this form of face to face contact, especially among those parts of the new economy that are dealing with services, which would be felt in a boost in jobs. Alternatively, the new needs of firms could be met in suburban industrial zones. Gordon et. al. (1998) suggest that the agglomeration economies needed by modern businesses are available anywhere within the metropolis rather than simply at its core, where they were once concentrated. They believe the ubiquity of the transport system has freed up labour as well as component and other service delivery and that suburban sites are as good as downtown for many businesses. This is an

observation confirmed by Guilano and Small's (1999) study of clusters of jobs in local centres in Los Angeles.

It is apparent that there are some new elements in the operation of the economy which have changed the mix and possibly the location of jobs within metropolitan areas. This provides the justification to seek a much better understanding of the current geography of employment. This will require knowledge of the relative importance of decentralisation and concentration influences on employment location. These aspects will be reviewed in turn.

2.3 Pressures that have Maintained Centralisation: Producer Services and the CBD

As the tertiary sector began to play a more prominent role in the economy of metropolitan areas (as seen in Daniels 1991 review of international experience), so substantial commercial redevelopment of the CBD and its surrounding locations began. These new buildings were linked to the expansion in the advanced corporate services and the finance sector, sectors that have long been at the heart of the inner city and especially CBD economy.

However, in recent years, change within the finance sector in its broadest sense has begun to generate strong dispersal forces. Immergluk (1999) has worked through the financial and corporate change in this industry, which has reduced the number of banks in the US and, at the same time, has undergone a complex de-skilling process as electronic forms of negotiations and transactions take the place of traditional banking. Taken together Immergluk believes that these changes provide powerful decentralisation forces on jobs in the cores of large cities. This pattern has been confirmed for New York by Rosen and Murray (1997) and O'Cleireacain (1997). The latter shows that New York City has lost 55,000 jobs (31 per cent) in commercial banking since 1988, when the national loss of jobs in that sector was just 7 per cent. This loss in jobs has been compensated by the incomes earned by the remaining employees as most are now involved in more complex market information and trading that draws together higher levels within corporations. The outcome of these changes is a more specialised finance economy in the CBD of places like New York and London. For the UK, Gillespie (1999) found that financial services now account for a large share of employment in a number of towns ringing London, although in absolute terms inner London is still the dominant employer of people in the finance industry.

The decentralisation (and in some cases the dispersion to other cities) of the lower wage part of the finance sector (the 'back office' functions) has been associated with use of telecommunication systems and information technology. Whether this new technology has led to the re-location of a broader range of higher order services is debateable. Green Leigh (2000) provides an up-to-date review of thinking on this matter. She finds most research recognises that the CBD continues to attract and hold high level corporate service activities, although many smaller firms that are part of what Castells (1996:381) has called 'secondary networks' are located in the inner city or suburban business parks. This observation is consistent with the idea that the CBD labour market has become a smaller more specialised one. It also reinforces

the idea that the scale and diversity of the CBD labour market is primarily shaped by its competitive position in national and global networks, rather than by its accessibility from the surrounding metropolitan area which was a major consideration in the past.

Hence there are some forces that are maintaining the centralised character of the metropolitan labour market. However these are operating in a context that involves a smaller, more specialised range of opportunities than in the past. The housing market consequences of this new context need to be explored. It is possible that the new specialised sectors are associated with new local residential development, and are part of a new role of the inner city in a restructured metropolitan area, as welcomed by Graetz and Mintz (1998). It is possible though that the new inner city housing preferences are not necessarily associated with local job growth. These alternative dimensions will be explored in more detail in the research that follows.

2.4 Pressures that Have Encouraged Suburban Development

Gillespie (1999) provides a checklist of pressures for suburban growth that will be reviewed in turn below. He recognises that population re-location continues to be an incentive for new services (and hence new jobs) to establish in suburban locations, and also acts as an incentive for firms that are seeking labour to move to suburban sites. These two dimensions have been discussed over a long period beginning with Kain's (1975) query on whether *jobs follow people or people follow jobs*, an issue that has recurred in the work of Steinnes (1977) and Simpson (1980). This old issue perhaps has a new element as people are now more mobile due to higher levels of car ownership, so local population growth may be linked to job developments in adjoining rather than local areas. This illustrates a new way that housing and labour market links may be made in this modern era. It is also possible that population trends in favour of inner areas may have an impact on job location trends as new higher income households stimulate new service sector growth (Department of Infrastructure 1998).

Another explanation for the decentralisation of employment is the provision of commercial land and buildings that meets the needs of modern business. Hartshorn and Muller (1992:152) have suggested that "the office park and the freeway oriented industrial park" acted as an attraction for firms looking for space. As the construction of commercial space diversified from simple shopping malls to include offices and entertainment facilities, and later research activities and warehouses, some locations matured along the lines described by Erickson (1983) into the "edge cities" identified by Garreau (1991). The provision of commercial space in suburban sites by developers remains a significant force today. For example, in the M4 corridor out of London the availability of space in Reading was expected to be important in a location decision of the computer firm Cisco Systems' European base (Estates Gazette 2000:120). Further, business parks are reported to be booming in a series of locations surrounding London like Bracknell and Wokingham as new commercial space can be found at lower cost and with high accessibility for labour and to other commercial activities (ibid.).

The provision of commercial office space has of course traditionally had a centralising effect as CBD sites have been the favoured locations of the property industry. Green Leigh (2000) has explored some of these dimensions in a study of

the commercial office space markets of Atlanta and Chicago. She finds that Chicago's role in advanced services far outstrips that of Atlanta because of its global and national significance. She also shows that the Chicago CBD has nearly twice as much *class A* office space as that found in the suburbs, while in Atlanta the reverse holds -- its suburban *class A* market is twice the size of that in its CBD. This insight illustrates how the differences in the commercial role of the suburbs and the CBD is shaped by the global or national significance of the metropolitan area in general terms.

The insight of the Green Leigh research has been broadened by a study of the location of office space in 13 of the largest US commercial real estate markets between 1979 and 1999 by Lang (2000). This research shows the cities' share of metropolitan office space significantly diminished by 1999. That outcome varied from city to city, but only New York and Chicago had "the majority of (metropolitan) office space located in the primary downtown" (Lang 2000:1). Four other cities were described as balanced, with equal central city and suburban shares of space: these were Boston, Washington, Denver, Los Angeles and San Francisco.

This research shows there has been substantial demand for office space in the suburbs of most large US cities. In turn, the geography of employment has shifted in favour of the suburban parts of these cities. It also reiterates the fact that a metropolitan area's role in the national hierarchy of cities is reflected in the geography of its employment which may be felt in particular housing market-labour market linkages in particular cities. The housing-job linkages in a global financial city like New York for example will be different to those in a regional manufacturing or distribution city like Atlanta. As Green Leigh (2000) shows, Atlanta's second-level role in the US urban system is reflected in a suburban focus in its office space; it is not surprising then that in Atlanta the intra-suburban links between housing and labour markets are strong. It is possible that differences of function and major economic activity between Sydney, with a strong financial sector (Daly 1999) and Melbourne, with a strong manufacturing and distribution role (O'Connor 1999), may be reflected in some distinctive patterns in regional labour and housing markets.

A wide range of other factors has been explored to provide reasons for changes in the links between jobs and residences within a metropolitan area. One line of enquiry has been changes in work practices (Gillespie, 1999). Research has shown part time employees generally have shorter work trips than full-time employees (Federal Highway Administration 1998) so it is possible that the rise of part-time work could be felt in more intra suburban work trips if employers move closer to the home location of staff. However, the availability of part-time work will not necessarily have a suburban focus. It is likely in fact that large numbers of part-time jobs are in the inner city (in tourism and entertainment and cleaning for example). The overall effect of this form of employment on job-housing links needs more analysis, and will be incorporated into this project as it progresses.

Another area of investigation has been the impact of information technology. Following this theme, Giuliano (1998) did not find a clear set of links between the IT use and the location of work and home. Her results suggest that there is a dual labour market of higher skilled flexible workers and lower skilled workers; the implications for residential location in relationship to work location varies from one group to the next, and from one type of work to the next. This complexity indicates

that simple ideas about the localisation of home-work travel, more telecommuting or less CBD commuting, as a result of IT adoption, are misleading.

Another theme in the investigation of links between local jobs and local housing was the differences in the travel-to-work for women as shown by Howe and O'Connor (1982). If that early finding still has relevance, it could mean that increased female labour force participation could be associated with more local and probably intra-suburban work trips. Rapson (1995) has shown that the differences between the travel patterns of men and women have weakened, although intra-suburban travel remains important for female workers.

Finally, Muller (1997) has noted that suburban job growth can be shaped by connections with the global economy, not something that was traditionally seen as part of the role of suburban areas. Of special significance in this respect has been the role that major international airports have played in the evolution of suburban economies. In many large cities, airports now act as a focus for commercial activity in exactly the same way that seaports in inner cities did in the past. The areas around Chicago, London and Los Angeles airports provide examples of this effect; the Botany region of Sydney provides a smaller scale example (Brain 1999).

The intensive service-sector development associated with the traffic through these airports has led them to emerge as very large employment nodes. This type of outcome clearly shows that globally-focussed activities can have a significant effect upon selected suburban locations.

This diverse set of ideas illustrates that the changes in the links between housing and jobs can emerge for many different reasons. The scope of the present project (controlled in part by the availability of data) will explore some of these aspects, in particular patterns of commercial construction and the differences between part time and full time employees.

2.5 Job location in the Modern Metropolis: an Overview of Recent Patterns.

Recent information on European experience shows that suburban development of employment has continued in the 1990s. An OECD review of urban trends in Germany shows that the suburban counties of that country's large and small urban regions accounted for 45 per cent of the total number of jobs in the old states or *lander* in 1994. They also grew at double the rate of the central areas between 1989 and 1993 (OECD, 1999). Breheny (1999) shows that in the UK there was a shift in jobs from the inner parts of the big cities toward middle rings and also beyond the city to smaller towns.

The experiences of individual cities confirm that outcome. In Barcelona, the core city has experienced a slow fall in its share of jobs from 54 per cent in 1975 to 52 per cent in 1990. The main gains have been felt in the first and second ring that makes up the metropolitan region; the second ring attracted 33 percent of the metropolitan area's industrial investment between 1988 and 1990 (Sanchez 1997:192). In Paris, "the greatest movement of traffic has been tangential: from suburb to suburb (Burgel

1997), while the job growth in a new urban periphery location was 40 per cent compared to 10 per cent in the CBD and La Defense area. In the US, decentralisation is continuing as new approaches to production, and new industries and activities continue to seek out suburban or metropolitan fringe locations. Katz (2000:8) has recently quoted a study that shows 97 per cent of new firm starts between 1991 and 1993 in 77 metropolitan areas were located outside central cities and observes “the bulk of cities did gain jobs but at a slower pace than their suburban neighbours”. . . Summarising these observations Katz (2000: 8) has noted that the “new economy is an exit ramp economy”, meaning that the new firms are attracted to the exits off the interstate highway systems, most of which are in the suburbs.

This review of the influences upon the geography of employment shows that the balance between centralisation and decentralisation of jobs in most metropolitan areas continues to favour decentralisation. The outcome is shaped in part by the type of industries and, in turn, the role of the metropolitan area in national and global business and is reflected in commercial building patterns. The organisation of work (especially the mix of part time and full time work) will be influential here. These factors will shape the distribution of jobs, and provide the foundation for labour market-housing market links. These factors will be explored in the case of Melbourne to establish the change in the geography of jobs over the 1986-1998 period.

3. Housing Demand in the Modern Metropolis

Housing demand is a vast area of research. For the current project, interest lies in the extent to which the choice of housing location is influenced by the location of jobs. Job location has been considered a general influence upon housing location for some time (for example see Warnes' (1972) studies of commuting behaviour and Simpson's (1980) discussion of job search behaviour where the employee scans jobs within a radius of a residential site). Job location however is probably less influential than price, and factors like housing status and dwelling quality, as suggested by Phe and Wakely (2000). With higher levels of car ownership workers are more mobile, can search over a larger area, and can seek out particular attributes in housing without much consideration of the location of their work. These new influences relate to attitudes to living space and the significance attached to particular places, or parts of cities, that have special significance because of prior knowledge, family ties or other personal values. These opinions have been expressed in such diverse places as the suburbs of Paris (Brun and Fagnani 1994), the suburbs of US cities (Downs 1999), and reflected in opinions expressed about suburban Melbourne and Sydney (McDonald and Moyle 1995).

If these opinions are accurate reflections of housing location choice and selection, we might find that the close pairing of jobs and houses in some parts of metropolitan areas, as identified in Melbourne in the 1970s by O'Connor and Maher (1979), may not be as strong as Forster (1999) predicted. If so the geography of employment need not figure in debate on metropolitan policy. Alternatively, of course job-housing links may in fact have remained as strong as they were in the earlier period. One purpose of this research is to establish whether there has been a change in the links between jobs and houses within our cities: has the link weakened, or has it remained as strong as in the past? The answers to that question (which may vary by type of job and skill level of worker) will be sought as this project progresses.

Attitudes to living space are connected to housing size, as individuals and families expect homes with more rooms and more features to carry out their daily lives than was the case of a generation before them. This can be illustrated by Australian experience. Maher (1995:8-9) observes that the "average size of new housing ... increased from 130 square metres in the early 1970s to 180 square metres now" reflecting "the need on the part of some households for large houses to cope with space demands contingent upon life cycle changes. This perspective is reinforced by the observation that the average size of houses in Australia has increased "by 24 percent in the past four years" (BIS Shrapnel quoted in *'The Age'* March 9 1998 page 3). Hence, on average Australians are continuing to consume more housing space even though their household size (number of persons per household) may be declining. On this point, Maher (1999) argues that the average outer suburban resident is not now 'pushed' to the fringe, but has moved in a conscious attempt to upgrade their housing. Coincidentally, that trend has been observed in the growth of new housing at the edge or outside Swedish (Warneryd 1999), Italian (Dematteis and Governa 1999) and US (Downs 1999) cities. This means the character of housing in the outer areas has shifted from an association with little more than shelter for the first home buyer to a larger new home, often built on a planned estate incorporating recreational facilities and subject to strict local architectural controls (Johnston 1997).

This demand could be a powerful influence reshaping housing market-labour market links as residents may look for local or regional jobs from these new estates.

In many circumstances researchers have found the housing preferences of the majority of home purchasers favour the middle and outer suburbs. This was the outcome of Wulff's (1993) review of housing preferences in Australia. It is reflected in trends in home location in Australian cities over the decade of the 1990s, as displayed in monitors of metropolitan development for Melbourne (O'Connor 1999) Sydney (Daly 1999) and Brisbane (Stimson et al 1999). The outcome is repeated in surveys of the satisfaction of many middle and outer suburban residents in Australian cities (McDonald and Moyle 1995). Elsewhere, a 'trilogy of space, place and proximity' is utilised to account for outer area residential location in Filion et al's (1999) study of the dispersed urban region of Kitchener, Canada. In this study, family life stage was found to be an important influence in the residential choice, as it was in work on Paris (Brun and Fagnani 1994) where suburban housing choices reflected family structure and lifestyles. Guilano (1999) reports some similar attitudes in suburban Orange County in California while for the aggregate US, von Hoffman (1991:1) showed "...more than 80 percent of the new housing took place in the suburbs" in 39 of that country's largest cities in 1986, 1991 and 1999.

Although the broad trends in numbers of houses built still favours the outer suburbs, as monitoring of construction in Melbourne (O'Connor 1999), Sydney (Daly 1999) and Brisbane (Stimson et al 1999) confirms, trends in house prices within most metropolitan areas in the 1990s would suggest that the inner and middle suburbs were the main focus of buyer attention. The inner city has dominated the trends in terms of value and in fact prices in some outer suburbs have been much less, in fact even negative in a number of locations as Burke and Hayward (2000) have shown in Melbourne. Although formal data is not at hand it is commonly reported that the same trend is even stronger in Sydney.

It is not clear whether the demand that has produced the price increases in the inner city parts of metropolitan areas is associated with the high level jobs discussed earlier, or whether it reflects a broader set of interests in housing consumption influenced by the fashion of inner city living as captured in the image of the *café society* (Department of Infrastructure 1998). Wyly and Hammel (1999) ascribe what they term a "truly staggering" recent wave of gentrification in US cities to changes in housing finance. Berry (1999), commenting on that work, believes the finance explanation is too simple and observes "the future of gentrification will depend on the viability of central city locations for well-paying white collar occupations". These alternative interpretations indicate that the surge in house prices that is so obvious in the inner parts of most metropolitan areas deserves more scrutiny, and may or may not be a local expression of housing market-labour market links. Of course, other changes such as tenancy and affordability are also relevant and could also reflect links to the labour market, but are covered in other research.

4. Toward New Housing Market-Labour Market Links?

As noted earlier, a simple summary of the 1970s housing market-labour market links involved two elements: local area links between jobs and houses, or commuting flows from suburbs to central city. It is likely that this set of images has much less relevance today. The change in the character and location of jobs, shifts in residential preferences and higher levels of daily mobility have the potential to create some very new patterns of travel. As a result, trip patterns have become more diffuse and the impact of local employment growth may now be felt in housing decisions in more distant locations.

Hints of the significance of that new outcome are captured by Guilano and Small's (1999) negative answer to the question "Is the journey to work explained by urban structure". It is apparent that other factors come into play as "many locational pairs have the same travel time enabling a wide variety of choice of housing and jobs with the same travel (dis) utility"(Levinson 1998:20). Levinson further observes that it is "the suburbanisation of jobs creating a polycentric or dispersed urban form (which serves to balance jobs and housing) rather than the further suburbanisation of houses (creating imbalance) which enables the commuting times to fall or remain steady". Research on job-house links in Holland recently has explored this new perspective a little further by utilising the concept of 'commuting tolerance' (Hooimeijer et al 2000). This research found that optimal sites for housing, given a dispersal of employment among the main cities of the Randstaat, were the suburban areas of these large cities, and locations between them, not their centres.

Another reason for a new set of links between jobs and houses is the possibility that electronic communication can be used to substitute for work travel. Gillespie and Richardson (2000) review the optimistic expectations of the 1970s and 1980s, which culminated in the idea of an "end of geography", and show that much of this optimism is unfounded. They conclude that ".....tele-working and teleservices seem to be developing hand-in-hand with lower-density, less nodal urban forms and with travel behaviour that is more car dependant than before" (p.243). This is a significant observation, as it provides an outcome that is consistent with the new diffuse city forms that have been implied in studies of job-housing links cited in the previous paragraph. Hence, the great attention paid to tele-working and related forms of communication-based urbanisation could be right for the wrong reason (Gillespie and Richardson 2000). These technologies are helping disperse the metropolitan area because they help people make even more complex linkages between their jobs and houses.

The research on job – housing links suggests that the earlier pattern of very local or even sub-regional connections between suburban jobs and suburban housing are not as significant as they once were. This interpretation is consistent with Forster's (1998) finding that the 1970s predictions of high levels of regional or local self containment, often expected to be linked to sub-centres in middle and outer suburbs, have not been fulfilled. He argues job- housing links have become more diffuse. Within this outcome, the role of the inner city and the CBD which has had some special experiences in both job and housing market performance, is not clear. It is possible that it remains as a special and smaller version of its past, with local rather than regional links between its jobs and housing. This new outcome means that the

policy to manage growth and change in metropolitan areas will need to incorporate a spatial perspective that captures the regional scale at which job and housing market links appear to be played out.

5. Policy Questions

As noted at the outset, attention to the housing responses associated with population trends and different housing needs has possibly been a stronger concern in recent metropolitan policy statements than the concern about the number and location of jobs. That can be seen in a review of policy documents on Sydney (New South Wales Government 1995) and Melbourne (State Government of Victoria 1995). However, the new patterns of job location may be an equally important element in shaping policy. It is possible that people may choose to live at high density, or through planning policy may be forced to, but that does not mean their jobs will be nearby, as the geography of employment is shaped by different influences. In turn, people may choose to live at low density, or be forced to do so due to limited opportunity at an affordable price, and once again their jobs may not necessarily be nearby. These alternative perspectives do not seem to have been considered in the adoption of higher density residential development. This applies in particular to renewed inner area concentrations of people and activity as a key element in the land use strategy for many metropolitan areas.

The identification of trends in jobs by number, type and location along with their connections with housing in a metropolitan area will provide insight on these matters. In the context of the AHURI research agenda the information will provide some insight on the consequences of housing assistance policy as it will be possible to see the way that employment is more or less connected to housing in different parts of the metropolitan area.

6. Research Questions and Methodology

The project has been established to provide insight on the links in the job and housing markets in an era when new forces are shaping job location, while new issues are involved in housing site selection. By looking across the period 1961-1998 (with special attention to 1986-1996) the project will attempt to answer the following questions:

What is the geography of employment in 1998 and how has that changed over the long period since 1961, and especially since 1986?

To what extent has the change in the location of population and housing between 1986 and 1996 been associated with change in the location of jobs? In particular has the link become more diffuse across the geography of the metropolitan area, or are strong local links still evident?

These questions will be framed separately for major industry and occupation groups.

They will be explored first for a set of regions that will be constructed as a framework of analysis, and that will be followed by data analysis and interpretation for individual municipalities.

The information will be used to discuss a number of policy questions:

What are likely to be the patterns of jobs and housing in metropolitan Melbourne in the immediate future?

What policy perspective should be taken on suburban and inner population change in the medium to long term?

The research will address broader questions about urban development. This will involve expressing a judgement on what are the key population and housing trends of the modern metropolitan area. That issue will require attention to ideas of continued suburbanisation versus increased density in established areas.

The project is based largely on journey-to-work data, produced by the ABS at each census. This information shows the number of workers moving between origins and destinations within and beyond the metropolitan area. That information is available for industry and occupation groups. It will be used to show the number of jobs, and the links between work locations and residential areas for each of these different groups. The sheer volume of information means that some aggregations of areas as well as types of jobs is essential to keep the analysis manageable. Details of the groups of industries and the groups of municipalities that are used in the analysis will precede the presentation of the results.

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