# Chapter 3 Settlement



## Australia's early settlement legacy

The growth in Australia's cities, discussed in the **Population** chapter and shown by Figure 3.1 – not only over the last decade but also over the last century – has also seen a marked decline in the proportion of the population living in regional towns and rural areas (BITRE 2014). While population growth is a factor, Australia's settlement history illustrates the strong role that changing economic conditions have had on the distribution of population across the country.



### Figure 3.1 Population urbanisation trends 1911–2013

Source: ABS 2008, 2014.

Note: Capital cities based on Greater Capital City Statistical Areas (GCCSAs) for 1971 onwards. Populations for previous years are based on earlier boundaries and may be inconsistent with GCCSAs. Major centres based on Significant Urban Areas (SUAs) for 1991 onwards. Populations for previous years are based on earlier boundaries and are generally inconsistent with SUAs. Since early European settlement the importance of building cities and towns stood out as a distinctive feature of Australia's settler colonies (Mcintyre 1999). In a dramatic decline between 1850 and 1870, 30 per cent of rural settlers and miners moved into the rapidly-growing towns and cities (Blainey 1994). By the 1880s, half of the Australian population lived in towns. This figure rivalled Britain's urbanisation rate and surpassed those of the United States and Canada.

#### Ballarat, mid-1880s



Source: ©The Sovereign Hill Museums Association. Reproduced with permission.

The decline in rural population that continued throughout the Twentieth Century resulted in the concentration of population in so-called "sponge" regional cities that we see today (Salt 2001). This growth pattern partly explains the increased population of regional cities such as Ballarat and Bendigo, as well as several locations along the Queensland coast, with each drawing population from their surrounding rural and small town hinterland (BITRE 2014a).

#### Early Infrastructure

For the most part, Australia's cities have a long settlement history. Their initial locations were chosen based on a range of geographical, political, historical and cultural factors. With the exception of Canberra, all of Australia's

capital cities are located on the coast and have significant port infrastructures. Many sites were initially chosen to provide easy access to natural resources, both as a means of supporting the local population and for export.

Once early city infrastructure was established – most notably the port infrastructure – other activities clustered around it. Through further investments made in infrastructure – waste treatment plants and sports stadiums, airports and electricity grids, the advantage of high levels of urbanisation has been reinforced over time.

Over the years that followed the establishment of Australia's cities, many billions of dollars of private and public funds were invested in their infrastructure. For example, the rail networks of both Sydney and Melbourne were constructed for the most part in the late 19th century and early 20th century.

In recent decades, patronage on Sydney and Melbourne's rail networks has increased markedly (Figure 3.2). This increase has been driven by a range of factors, including the emergence of the CBD based knowledge economy, improved transit infrastructures, rising fuel prices and road congestion factors. In Melbourne in particular, rail patronage has increased by almost 63 per cent (an increase of 83 million trips per year) in a decade despite the general trend toward dependency on cars in our cities (SOAC 2012). This increased use of rail networks in Melbourne is in excess of what could be expected given Melbourne's 18 per cent population growth over the same period.

In tandem with the increase in rail patronage, there have been changes in the built form around the rail network, with intensification and expansion of the central business district (CBD) as well as an increase in higher-density housing development along transport corridors and around train stations. The construction of Melbourne's inner city rail loop in the 1980s played a big part in improving CBD jobs access; previously losing out to competitive suburban center job locations.



Figure 3.2 Rail passenger journeys, selected capital cities, 1900–2013

Source: BITRE 2014b.

As shown in Figure 3.2, the earlier peak in rail passenger journeys in Melbourne and Sydney occurred in the late 1940s and early 1950s and on a much smaller population base. The rail patronage resurgence exhibited in Sydney and Melbourne, and in Perth since 2009, also demonstrates the stepped change in infrastructure requirements that occurs as cities grow beyond certain population thresholds. Until recent decades, cars have been an appropriate and timely mode of transport for many in the city, increasing the prosperity of the city and allowing for previously unattainable levels of mobility. However, the increased urban population of these cities means that higher-capacity transport modes are now necessary.

## Population distribution within Australia's cities

As the **Population** chapter of this report showed, there has been a decline in many rural towns and a movement of population towards the coast. The distribution of population across Australia has also changed over time, driven by changes including technology and economic restructuring. These drivers have also had a profound impact on the distribution of population within Australia's cities, particularly its largest ones.

While the spatial distribution of population growth varies from city to city, in general there are 2 distinct trends occurring together across Australian cities: low density growth on the urban fringe and high density growth in and immediately around city centres. These 2 trends are shown in Maps 3.1 to 3.5, which show the historical change in population in ABS geographic classification Statistical Area 2 (SA2) in each of Australia's 5 largest capital cities between 1991 and 2011.



Map 3.1 Population compositional change, Sydney, 1991–2011

Source: SGS Economics & Planning.



Map 3.2 Population compositional change, Melbourne, 1991–2011

Source: SGS Economics & Planning.



Map 3.3 Population compositional change, Brisbane, 1991–2011

Source: SGS Economics & Planning.



Map 3.4 Population compositional change, Adelaide, 1991–2011

Source: SGS Economics & Planning.



Map 3.5 Population compositional change, Perth, 1991–2011

Source: SGS Economics & Planning.

Between 2012 and 2013, the 2 fastest-growing SA2-level inner city areas in Australia were both in inner Melbourne: the SA2 areas of Melbourne and Southbank added 5,400 and 2,100 additional people respectively over the year.

Other inner city areas to experience substantial growth included Perth City (1,700 additional people) and Waterloo– Beaconsfield in Sydney (1,100 additional people) (ABS 2013).

Melbourne was also home to the largest population growth in fringe suburbs over the period 2012–13, with the northern fringe suburb of South Morang adding 5,700 people. Strong fringe growth was also exhibited in Melbourne's Craigieburn–Mickleham and Point Cook SA2 areas, with each adding 3,200 people.

In Sydney, Parklea–Kellyville Ridge SA2 area in the north-west growth corridor grew by 3,400 people, while Baldivis on the southern outskirts of Perth and Ellenbrook, to the city's north-east, recorded growth of 3,200 and 2,500

people respectively. The outer suburban area of North Lakes–Mango Hill to Brisbane's north was one of the fastestgrowth areas in the state, adding over 1,900 people over the year (ABS 2013).

Regional cities also experienced significant growth, particularly in Queensland and Victoria. In Queensland, the Gold Coast and Sunshine Coast SA4 areas added 11,200 and 6,100 people respectively, while in Victoria, the Geelong SA4 area recorded growth of 4,800 people, (ABS 2013).

While traditional low density suburban-style growth is still occurring on the fringes of Australia's cities, there is a growing settlement pattern of high-density housing located in the inner city and along major transport corridors, particularly public transport routes.

Maps offering a magnified view and a variety of information overlays can be found on the Department of Infrastructure and Regional Development website under State of Australian Cities at http://www.infrastructure.gov. au/infrastructure/pab/.

Accompanying this growth pattern are changes in the density of development and the mix of housing types, both of which are reflective of changes in urban land values. In Australia's 2 largest cities of Sydney and Melbourne, residential property prices have shown a substantial and mostly sustained rise in value since the mid-1990s, except for a short plateau period around the time of the Global Financial Crisis (GFC). This is also the case in the inner, middle and outer regions of these 2 cities. However, the Progress in Australian Regions – Yearbook 2014 shows that in other capital cities the growth of residential property prices can be less evenly distributed.

For instance, while Brisbane residential property prices rose on average, prices in Logan and Ipswich fell. Other cities also differed from the nationwide trend of increasing residential property prices, with the average residential property price in the Gold Coast – Tweed Heads, Sunshine Coast and Townsville falling in the period 2009 to 2013 (DIRD 2014).



Figure 3.3a Australian city groupings house prices (nominal prices), 1992–2014

Source: Derived from ABS Data by RP Data Pty Ltd, 2014.

Figure 3.3b shows that non capital major cities initially show a similar tracking to other cities as a narrow price band up until 2000-01, then followed by a wide range of price trajectories. Overall prices have not recovered strongly following the Global Financial Crisis for some of these cities.



Figure 3.3b Australian non capital major cities house prices (nominal prices), 1992–2014

Source: Derived from ABS Data by RP Data Pty Ltd, 2014.

However, while house prices have increased substantially on average, increases are not uniform across cities.

Large price premiums are increasingly being paid for homes that are within close proximity to the CBDs of Australia's cities.

Analysis undertaken on behalf of the Valuer-General of Victoria illustrates that, at least in the case of Melbourne, the price premium being paid for proximity to the central city has in fact recommenced its earlier rapid rise in the few years since 2009–10 (Figure 3.4).





The **Economy** chapter of this report will explore one of the factors driving the price premiums associated with proximity to the CBD, the changing economic structure of Australia's cities in recent decades. The prevalence of higher-paying jobs in the CBD drives up prices for houses with good access to these economic opportunities.

In terms of the built form of cities, this price premium is having ramifications for the type of urban development that is occurring. Marked increases in density are occurring where price premiums are highest. This price premium is also facilitating substantial changes in the type of dwellings that are being provided.

# Jobs and housing

Australia's cities are now increasingly characterised by the significant spatial divide between areas of highly productive jobs and the areas of population based services, reflected through the price premiums associated with houses that have better access to the city centre.





Source: Hulse et al. 2010.

While there is evidence that Australia's major cities are increasing in density because of the construction of higherdensity apartment developments in inner city locations, there remains strong growth in the detached housing market in urban fringe locations. However, urban fringe areas are becoming more distant from many of the established employment, education and health opportunities.

There are concerns held by researchers, state governments and local councils that while land release on the urban fringe may have once been a valid strategy for boosting the supply of affordable housing, this approach may be increasingly problematic.

Recent research undertaken by the Australian Housing and Urban Research Institute (AHURI) concluded for those cities under study, Sydney, Brisbane and Melbourne, that clusters of social disadvantage were increasingly being pushed further towards city peripheries over the period 2001–11. The report notes that the outward movement of social disadvantage is being driven by housing affordability factors and it poses new challenges, because these areas are already poorly resourced in terms of accessible jobs, transport, facilities and services (Hulse et al 2014).

The concentration of high land values in the inner city parallels the concentration of high wage employment in the CBD and central city, as previously discussed. Employment is further explored in the **Economy** chapter.

However, Figure 3.5 shows the way in which, in Melbourne, inner urban regions and municipalities such as the Boorondara, inner, northern and eastern statistical districts and the inner Melbourne and Moreland statistical districts are pulling away from price growth rates of the middle and outer ring regions. The differences mean residents of outer urban regions are likely to be increasingly constrained in their ability to move to inner regions.



Figure 3.5 Divergence in house price growth across Melbourne (nominal prices), 1992–2014

Source: Derived from ABS Data by RP Data Pty Ltd, 2014.

#### Australia's changing housing stock

Accompanying the change in urban densities in Australia's largest cities is the increase in the number of semidetached and apartment dwellings being constructed.

The number of detached houses has declined as a proportion of all dwellings, while the number of medium- and higher-density dwellings has increased. In the past this shift was relatively small; however, recent building activity data indicates a notable change in the balance (SGS Economics & Planning 2013b). This is variously attributed to capital city strategic plans that emphasise infill housing; rising transport congestion; and the improved relative attractiveness of smaller, more expensive dwellings in high-amenity and jobs-rich locations (SGS Economics & Planning 2013b).

As shown in Figures 3.6 and 3.7 for Sydney and Melbourne – Melbourne in particular – detached housing makes up the majority of all housing types. However, in the period 2001 to 2011, this dominance started to decline.

In Sydney, semi-detached and apartment dwellings make up 56 per cent of all new dwellings built over the last decade, whereas they made up only 35 per cent of Sydney's total housing stock at the start of the decade, in 2001.

Similarly, in Melbourne, semi-detached and apartment dwellings made up 41 per cent of all new dwellings constructed between 2001 and 2011 as shown for Figure 3.7. In 2001 higher density-housing made up only 24 per cent of the housing stock of the city and in 2011 it accounted for 29 per cent.

The result of these housing development trends is that apartments and semi-detached houses are becoming increasingly common in Australia's 2 biggest cities. However, with over a century of housing development mainly focused on the construction of detached housing, changing the share of housing types across the whole city will take decades.



Figure 3.6 Proportions of dwelling stock and net change by type, Sydney, 2001–2011

While the proportion of apartments and semi-detached houses is increasing as a share of total dwellings, these developments differ substantially from detached dwellings in terms of the number of bedrooms. Of all flats, units and apartments across Australia, the vast majority (82 per cent) have 1 or 2 bedrooms. Conversely, of all detached houses across Australia, 89 per cent have 3 or 4 bedrooms (SGS Economics & Planning 2013b).



Figure 3.7 Proportions of dwelling stock and net change by type, Melbourne, 2001–2011

Source: ABS Census data adapted by SGS Economics & Planning 2013b.

Source: ABS Census data adapted by SGS Economics & Planning 2013b.

Of the detached houses being built, the proportion of large houses with 4 or more bedrooms is increasing as a share of total detached housing. The proportion of houses of this size has increased from 32 per cent of all detached housing in 2001 to 39 per cent in 2011 (SGS Economics & Planning 2013b). As the National Housing Supply Council (2013) notes, growth in the number of larger homes may reflect changes in the purchase price of land, with high land prices in and around capital cities impacting on who can afford to build and the nature of the dwellings they demand.

Despite the historical approach to development, in certain locations, notably those close to the city centre and major transport routes, the mix of housing stock and the density of suburbs is in many cases changing rapidly. Maps 3.7 and 3.8 illustrate spatially these changes in housing stock across Sydney and Melbourne. They show a clear pattern of detached housing construction in outer growth corridors and significant apartment development in the inner city, as well as along transport corridors.





Source: ABS Census data adapted by SGS Economics & Planning 2013b.



Map 3.8 Distribution of dwelling net change, Melbourne, 2001–2011

Source: ABS Census data adapted by SGS Economics & Planning 2013b.

# Changing densities within Australia's cities

Because a significant number of apartments are being constructed near city centres, Australia's largest cities have become more population dense in recent times, although they can be seen as sprawling when compared with more compact 'high rise' cities like New York or Hong Kong.

Figure 3.8 illustrates the changing population-weighted density of Australian cities. It shows a noticeable increase in densities across Australia's 6 largest cities, initially from the mid-1990s but escalating in the early 2000s (Loader 2013a). Population-weighted density is calculated by taking a weighted average of the density of all parcels of land that make up a city, with each parcel weighted by its population. This measurement technique lessens the impact

of large, low-density land parcels, such as industrial areas and public open space, on measurements of density and therefore it better reflects the density of the urban areas within which people actually live and interact.



Figure 3.8 Changing population-weighted density of Australian cities, 1991–2012

Source: Loader 2013a.

The rise in density of Australian cities can be attributed to increased infill development (as per the above-mentioned increase in apartments and semi-detached dwellings) in established suburbs as well as shrinking lot sizes for detached dwelling developments on the urban fringe (Loader 2013a).

As Figure 3.9 illustrates, density is highly correlated with distance from the CBD, particularly in Australia's largest cities.



Figure 3.9 Population-weighted density by distance to CBD

Figure 3.9 also illustrates that while population density in each Australian capital is highest in the CBD, with the exception of Sydney and to a lesser extent Melbourne, density drops off considerably to more traditional suburban densities within 5 to 10 kilometres of the CBD. Sydney exhibits a notably different density pattern:

not only is the city considerably denser in total, but density declines with distance from the CBD in a much more gradual fashion, with several peaks reflecting consolidated multi-nodal centres.

Sydney's more multi-nodal nature is evident in Figure 3.10, which illustrates the number of dwellings located in each of Sydney's defined centres (excluding the CBD), their distance from the CBD, and their change in dwellings over the period 1996–2011. The clear downward sloping left-right trend confirms that there is a relationship between proximity to the CBD and the number of dwellings in each centre (SGS Economics and Planning Pty Ltd 2013a).



Figure 3.10 Change in number of dwellings in centres, Sydney, 1996–2011

Source: ABS Census data adapted by SGS Economics & Planning 2013b. Note: Definitions of 'centres' in figure are defined in the metropolitan strategy plan for Sydney.

The centres in Melbourne follow a similar development trend to their counterparts in Sydney, with centres closer to the CBD both housing the highest number of dwellings and growing significantly over the last 15 years.

As shown in the **Infrastructure and Transport** chapter of this report, ports and airports are a significant driver of economic growth in cities in their role as gateways for trade and travellers. In considering population densities in major cities, the conflicts associated with increased densities around airports and ports must be recognised.

For instance, the suburbs of Wynnum and Wynnum West (near the Port of Brisbane) saw an increase in population of over 100 per cent in the decade 2001 to 2011. Similarly, the suburbs adjacent

to the Port of Botany in Sydney also saw an increase in population of over 100 per cent in the same period (State of Australian Cities interactive maps – see http://www.infrastructure.gov.au/infrastructure/pab/).

This population growth in adjacent suburbs has significant impacts on both the people in those areas and the utility of the ports, with wide-reaching implications for transport, congestion and freight movements.

### Conclusion

The historical preference for settlement in urban areas in Australia has made a significant impact on the form and structure of the settlement patterns and transport systems of our cities. Building on that history of urbanisation, in general there are currently 2 predominant locations for population growth occurring across Australian cities: extensive low-density growth on the urban fringe and significant growth in high-density city centres. This has led to large price premiums being paid for homes that are within close proximity to the economic activity in the CBDs of Australia's cities, and concentrations of social disadvantage being pushed further towards city peripheries. It is problematic for both Australian cities and most parts of regional Australia, to access transport and jobs as there are areas across Australia that are generally underserviced by transport services (Infrastructure Australia 2015).

Housing density will continue to trend upwards as the value of land close to the inner city parallels the concentration of high-wage employment in the CBD and central city. However, there are clear social and economic challenges in outlying areas that are not as well-resourced in terms of accessible jobs, transport, facilities and services. Opportunities inherent in proximity to city centres are increasingly likely to be out of reach for people on the outer fringes of cities.

As the **Economy** chapter of this report will explore, this outward movement of disadvantage and population is occurring concurrently with an inward concentration of higher-order jobs, placing many residents far from the opportunities of the inner city and adding considerable pressure to the increasingly strained transport network.

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