Measuring the Competitiveness of Australian Cities

This report is part of research building on the foundations of recent national urban policy initiatives. Reports such as “Our Cities, Our Future: A National Urban Policy for a Productive, Sustainable and Liveable Future”, and “State of Australian Cities” have inspired this research, which classifies the aspirations of Australia’s major cities into the three dimensions of productivity, sustainability and liveability. By showing the performance of Australia’s major cities in various aspects of these three dimensions, and the levels of influence these aspects have on urban competitiveness, this research can assist future decision-making and service provision by various levels of government.
The purpose of the project is to provide Australian urban leaders and citizens with evidence-based understanding of the competitive strengths and weaknesses of their cities. The project will provide recommendations on urban policy and governance towards enhanced competitiveness of Australian cities. The project aims to build an urban competitiveness index for the Australian major cities with a population of more than 100,000. In doing so, it measures the determinants of urban competitiveness for Australian cities within the three dimensions of productivity, sustainability, and liveability. The urban competitiveness index is a composite index based on the weighting on the cities’ progress in population, employment, and income.
Population growth is an indicator of a city’s competitiveness, as a fast-growing population in a city shows its capacity to attract people and business.

All 18 of Australia’s major cities experienced population growth between 2006 and 2011. Perth (14.1%) experienced the highest rate of growth, with its population rising from 1.5 million to 1.7 million people. Melbourne (13.9%) was a close second, followed by the four Queensland cities of Brisbane (13.6%), Cairns (13.5%), Toowoomba (13%) and Townsville (12.8%).

Launceston (3.5%) and Wollongong (4.7%) had the lowest rates of growth, and were the only two cities to grow by less than five per cent.

Melbourne had the largest numerical increase in population, with almost 0.5 million people moving to the city between 2006 and 2011. Sydney had the second largest numerical increase despite having the 11th fastest growth rate, due to its comparatively larger population in 2006. Launceston and Albury-Wodonga had the smallest numerical increases in population, with both up by less than 5,000 people.

DATA SOURCE: ABS 2011
Employment growth is another direct indicator of a city’s competitiveness. Growth in the number of people employed in a city shows its capacity to attract to create jobs and opportunities for both people and businesses.

All but one of Australia’s 18 major cities experienced employment growth between 2006 and 2011. Again Perth (16%) experienced the highest rate of growth, with an extra 102,131 new job opportunities created. Darwin (11.3%) was a distant second, followed by Brisbane (11%) and Canberra-Queanbeyan (10.7%).

Albury-Wodonga (-1.1%) was the only major city-region to experience a decline in job numbers, although Launceston (0.5%) and Gold Coast – Tweed Heads (1.8%) experienced only very slight employment growth.

Again Melbourne had the largest numerical increase in employment growth, creating 137,594 extra jobs between 2006 and 2011. Sydney (+100,175) was third behind Perth, despite again ranking 11th in its proportion of growth.
Growth in the proportion of people earning higher incomes gives an indication of a city’s progress in attracting globally mobile talent, workers in high-paying and high-level jobs, and in attracting high-value-added services. This is of increasing importance in a post-industrial economy, which has become increasingly reliant on white-collar service industries.

Canberra-Queanbeyan had the highest proportional growth in people earning a high income between 2006 and 2011. All of the 18 cities experienced growth over the 5 year period, with Launceston, the Sunshine Coast and Albury-Wodonga the only cites below 2% proportional high income bracket growth.

Sydney had the 4th highest proportional high income bracket growth between 2006 and 2011. However, the city is home to the most people working in this income bracket with 156,252 in 2006 and 257,596 in 2011. This growth of more than 101,000 workers with a high income, was the largest of any Australian city between 2006 and 2011.
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A limitation to the level of productivity a city can achieve is the participation of people in the labour force. A larger proportion of people in the labour force leads to a larger capacity for higher levels of productivity.

The labour force participation rate of the 18 Australian cities has been calculated in the figure to the right. Only Darwin (72%) and Canberra-Queanbeyan (71%) managed a participation rate above 70%. Queensland’s Sunshine Coast and Toowoomba had the lowest proportions of people participating in the work force. Participation rates were quite even between many of the major cities, with only a 9% gap between the Sunshine Coast and Darwin.
Higher education and the qualifications that stem from it play a fundamental role in driving Australia’s productivity. Workers with high levels of qualifications have been defined in this study as people who have an undergraduate university degree or above. These people can help maximise productivity in many ways, such as driving innovation and environmental sustainability, to increase Australia’s prominence in the Asian Century.

Canberra-Queanbeyan had the highest proportion of people with higher levels of qualifications - over 60% of its residents had either a Bachelor’s Degree, Graduate Diploma or Graduate Certificate, or a Postgraduate Degree. Sydney was a distant second - 12 percentage points behind Canberra-Queanbeyan - however Sydney had the highest number of people with higher levels of qualifications at 823,771. State and territory capital cities made up the top eight positions in this category.

Regional centres were at the lower end of the scale, particularly Albury-Wodonga, Cairns, and Launceston. The ten regional centres included in this study all had between 24% to 30% of their populations with a higher level of qualification.
Innovation and research are essential to the growth of productivity in Australia’s cities. New products, processes and organisational methods are the drivers of productivity. Innovation and research are particularly powered by people working in fields such as academia and scientific research. As such, the proportion of these workers across Australia’s major cities has been adopted as a measure of productivity.

Canberra-Queanbeyan has the highest share of people working in research and innovation related industries (7.6%). This was double the proportion of people working in research and innovation in the second-ranked city of Hobart (3.8%). The three lowest-ranked cities – Gold Coast Tweed Heads, Cairns, and the Sunshine Coast – were all in Queensland and had less than two per cent of their population working in research and innovation related fields.
Measuring the size of knowledge intensive industries within a given city is another way of capturing the level of innovation that drives productivity. Knowledge intensive industries include fields such as finance and insurance, legal and regulatory services, and other professional services. These industries are a major contributor to the Australian and global economy, as people in these industries have the ability to drive innovation and competition, and enhance local market depth.

Sydney comfortably had the highest proportion of knowledge intensive workers within its workforce. Twenty six per cent, or more than 400,000 people were employed in knowledge intensive industries across Sydney. Melbourne (20%) ranked second, ahead of the other six state and Territory capitals.

Regional centres had the lowest proportions of workers in knowledge intensive industries. The industrial cities of Geelong and Wollongong (both 9%) rated lowest.

**Data Source:** ABS 2011
The proportion of workers with high level occupations within a city is a further measure of potential productivity. People working in managerial or professional roles make important decisions on business strategy and productivity in the Australian economy. The location of workers in high level occupations also tend to reflect centres of command and control within a given region or country.

Canberra-Queanbeyan comfortably had the highest proportion of people with a higher level of occupation. Sixty per cent of the Canberra region’s workforce, or 96,937 of its workers, were in managerial or professional roles. The capital cities again made up the top eight rankings, with Sydney (2nd, 47%) and Melbourne (3rd, 41%) home to the highest numbers of people employed in higher level occupations. The Sunshine Coast (24%) had the lowest proportion of high level occupations in its workforce, followed by Gold Coast Tweed Heads and Wollongong (both 25%).
The internet is essential infrastructure for the Australian economy, with many Australian businesses and workers relying on reliable, high-speed broadband in order to do their jobs. As such, the quality and accessibility of internet services in our cities directly impacts on their ability to be productive. The standard of Information technology services in Australia’s major cities has been measured, through the proportion of dwellings with a broadband connection.

Canberra-Queanbeyan was the most advanced major Australian city for broadband internet access, reaching 69.7% of dwellings. It was closely followed by Brisbane (67.4%) and Sydney (66.4%). Results in this category were relatively even, with only a 15% gap between Canberra-Queanbeyan and the bottom-ranked Launceston (54.9%). Many of Queensland’s regional cities rated well in this category, particularly the Sunshine Coast (6th, 61.1%) and Townsville (7th, 60.7%).
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Understanding a city’s transport network is vital to determining its sustainability. A sound transport network can help support economic development and ecological conservation through the efficient movement of people and use of resources. It can also help reduce social tensions by reducing travel times and congestion, and encouraging safety and equitable access to public transit. Sustainable transport has been measured in this study through the percentage of people not using a private car to commute to work.

Sydney had the highest proportion of people using sustainable transport, with 36% of workers opting to use an alternative to the car. Brisbane (28.1%) and Melbourne (27.6%) had the next highest usage rates of sustainable transport methods. Regional cities contained the lowest proportions of sustainable transport use, particularly Albury-Wodonga (14.2%), Newcastle-Maitland (16%) and Toowoomba (17.8%).

Data Source: ABS 2011
The building of a higher-density city can help preserve valuable agricultural land and open space on a city’s urban fringe. Higher density also encourages greater use of public and active transport, and allows people to live closer to where they work. Darwin was found to be the most densely-populated of Australia’s 18 major cities, with an average density of 613 people per square kilometre. It was followed by Sydney (511 people per square kilometre) and Melbourne (446 people per square kilometre). The six cities with the lowest densities were located in Queensland and Tasmania, with Toowoomba (12 people per square kilometre) and Launceston (19 people per square kilometre) the least densely populated. Hobart (101 people per square kilometre) had the lowest density of the state and territory capitals, followed by Canberra-Queanbeyan (156 people per square kilometre).

DATA SOURCE: ABS 2011
Greenfield development is the construction of houses on land that has previously never been used. Greenfield development often aims to ease housing growth and affordability issues, and occurs mostly on a city’s urban fringe. This can cause environmental pressures on many fronts, as greenfield development on the urban fringe can take away valuable environmental or agricultural land, poses a significant challenge to the existing infrastructure of a city, and can lead to a longer commute time.

Queensland contained five of the six major Australian cities that experienced the highest growth in greenfield development between 2006 and 2011. Toowoomba (28%) experienced the largest growth, with Townsville (14.8%) a distant second. The lowest growth in greenfield development came from Gold Coast-Tweed Heads, of only 0.8%, followed by Wollongong (4.3%) and Newcastle-Maitland (4.5%).

**DATA SOURCE: ABS 2011**
Greenhouse pollution can be caused by a wide range of factors including transport, land clearing, and industrial and agricultural practices. Greenhouse pollution threatens the environment and biodiversity, and is a contributing factor to global warming.

Hobart and Launceston had notably lower amounts of greenhouse pollution than other major Australian cities. The two Tasmanian cities produced around 15 tonnes of greenhouse pollution per person per year. They were followed by a number of regional cities including Albury-Wodonga, the Sunshine Coast, and Wollongong. At the other end of the spectrum Townsville and Sydney produced the most greenhouse pollution, at around 24 tonnes per person per year.

**DATA SOURCE: AUSTRALIAN CONSERVATION FOUNDATION 2007**
Water it is a scarce resource in Australia, with most reserves designated to the production of food crops and pasture. Australia is particularly prone to droughts and water shortages, which means the consumption of water across Australia is a particularly poignant issue for sustainability.

Residents in Sydney use more water on average than any of Australia’s other major cities, at an average of 816,000L per person a year (including water used for food production). This puts Sydney’s water usage at almost 100,000 litres per person more than the average Australian (722,000L). Townsville and Canberra-Queanbeyan were the next highest per capita water consumers.

Albury-Wodonga was found to use the least amount of water per year, 630,000L per person. It was proceeded by Cairns, Toowoomba, the Sunshine Coast, and Hobart.
ECOLOGICAL FOOTPRINT

A city’s ecological footprint refers to the amount of land required to supply the resources demanded of a city and its residents. According to the Australian Conservation Foundation (2007), Australia had the fourth largest ecological footprint in the world at 6.4 hectares per person. As they contain most of Australia’s population, it is important for Australia’s major cities to lead the way on achieving a sustainable ecological footprint.

Hobart was found to have the smallest ecological footprint of Australia’s major cities, requiring only 5.6 hectares per person per year. It was followed by other regional cities including Launceston, Albury-Wodonga and Geelong. All of the eight major cities with ecological footprints less than the national average were regional centres.

Perth was found to have the largest ecological footprint, of 7.6 hectares per person per year. It was followed by Townsville, which was the only regional city to have one of the nine largest ecological footprints. Melbourne was the closest state capital to the national average, requiring 6.5 hectares per person per year.

DATA SOURCE: AUSTRALIAN CONSERVATION FOUNDATION 2007
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LIVEABILITY

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The cost of living has a heavy impact on the livability of a city. The high cost of basic necessities such as housing and food directly affect the day to day lives of people living in any given area. High costs for these necessities can have a negative bearing on society, often leading to further marginalisation of groups already disadvantaged or at risk of disadvantage.

High rental prices have been adopted as one of several proxies in this study to measure the cost of living of Australia’s 18 largest cities. The figure right) shows the proportion of private dwellings paying more than $374 per week in rent.

Launceston (3.3%) and Albury-Wodonga (4.4%) had the lowest proportion of dwellings paying more than $374 a week for rent. Hobart (5%6, 6.8%) had the lowest proportion of high rental prices of the eight capital cities.

Darwin (23.2%) had the highest proportion of dwellings paying greater than $374 per week for rent. It was followed by Gold Coast-Tweed Heads (19.8%) and Sydney (19.1%).

DATA SOURCE: ABS 2011
The cost of living across the 18 cities has also been measured by the proportion of occupied private dwellings paying mortgage greater than $2,999 per month. This level of payment has been classified as a higher amount of mortgage repayment.

Canberra-Queanbeyan outranked Sydney as the city with the largest proportion of dwellings paying greater than $2,999 per month. While the make up of the top ten cities between mortgage and rent remained mostly the same. As did the two cities with the lowest proportion of people paying high rent and high mortgage, with Albury-Wodonga second lowest (4%) and Launceston lowest (3%).

**DATA SOURCE: ABS 2011**
The amount of resources and opportunity available within a city have a strong bearing on its livability. High incomes (households earning more than $52,000 a year) have been adopted as one of several proxies in this study to measure the wealth and resources of people in each of Australia’s 18 largest cities.

Canberra-Queanbeyan could be considered the most financially resourceful city in Australia, with 47.5% of households earning more than $52,000 per year. It was followed by Darwin (39.2%), Sydney (34.5%) and Perth (33.6%). Townsville (28.9%) had the highest proportion of high household incomes among regional cities.

Launceston (18.8%) and the Sunshine Coast (18.9%) had the lowest proportions of households earning more than $52,000 per year. They were followed by Toowoomba, Geelong, and Albury-Wodonga.
The health of residents within Australia’s major cities has been measured in this study, by the proportion of residents under the age of 70 who have a long-term health condition or disability, and need assistance with core activities. The ability of residents to move around freely and be healthy is an important aspect of an area’s livability.

The proportions of people under the age of 70 with a long-term disability or health condition were quite low across all of Australia’s major cities. Darwin (1.74%) had the lowest incidence, followed by Perth (1.82%) and Canberra-Queanbeyan (1.9%). The highest proportions of people under the age of 70 with a long-term disability or health condition lived in Newcastle-Maitland (3.09%), Launceston (3.01%) and Hobart (2.94%).

DATA SOURCE: ABS 2011
Inclusion and acceptance of different cultures and people are hallmarks of a modern, livable city. One of the ways this has been measured in this study is by the number of different ethnic groups in each of Australia’s major cities.

The ranking of cities in this category was largely in line with the relative population of each city. Sydney was the most diverse city, with around 250 ethnic groups. It was followed by Melbourne (244) and Brisbane (236). Albury-Wodonga (102) was the least culturally diverse (although it also has the smallest population of Australia’s major cities), followed by Launceston (124) and Toowoomba (138).
Another important feature of social diversity is the ability of people from various ethnic backgrounds to verbally connect with each other. This has been measured by finding the proportion of people in Australia’s major cities that can speak English and another language well or very well. This not only captures the ability of foreign-born people to converse with the rest of society, it also captures the ability of Australian-born people to converse with other cultures and ethnic backgrounds.

The highest proportions of people with this bi-lingual ability came from Australia’s largest cities in Sydney (28.6%) and Melbourne (24.3%). Canberra-Queanbeyan (15.6%) was a distant third, and Wollongong (7th, 11.9%) the highest-ranking regional city. The Sunshine Coast (3.9%) had the least number of bi-lingual residents, closely followed by Launceston (4%), Toowoomba (4%), Newcastle-Maitland (4.5%), and Albury-Wodonga (4.5%).

DATA SOURCE: ABS 2011
Access to a quality education is vital in modern society, to attain a good job and standard of living. A lack of formal education can severely affect a person’s ability to contribute to society or personal betterment. This study looks the effectiveness of education in Australia’s major cities, through the proportion of residents over the age of 15 with no educational attainment. The proportions of residents without a formal education were quite low across all of Australia’s major cities. The Sunshine Coast (0.16%) was home to the lowest proportion of uneducated residents aged over 15, followed by two other Queensland cities in Gold Coast-Tweed Heads (0.24%) and Townsville (0.25%). Hobart (4th, 0.3%) was the best-performing capital city. Sydney (1.13%) and Melbourne (1.02%) had the highest proportions of people aged over 15 without an education, followed by Adelaide and Wollongong.

**DATA SOURCE: ABS 2011**
The feeling of safety and security is a considerable factor in the livability of a city. This study relies on crime rates per 100,000 people, to assess the relative safety of Australia’s major cities.

Adelaide was found to be Australia’s safest city, with 2,365 crimes per 100,000 people. It was followed by Launceston, Hobart and Darwin. The larger cities of Sydney and Melbourne ranked sixth and tenth respectively. The highest rates of crime were found in Cairns (15,531), Canberra-Queanbeyan (14,531) and Brisbane (13,205).
The culture of a city is a reflection of its liveability. Arts and culture play an important role in the attractiveness of a city. A strong culture in a city attracts people working in the arts and cultural professions. The culture and arts of the 18 cities has been measured through the proportion of people employed in arts and cultural industries.

Perth had the highest proportion of people employed in creative arts and cultural industries with over 4%. Whilst Sydney, Brisbane and Melbourne were within 1% of Perth.

The regional cities of Albury-Wodonga and Toowoomba had a smaller proportion of residents working in arts and cultural industries both around the 1.5% mark.
A strong sense of community is essential to the livability of a city. This can be built by people who assist not-for-profit organisations, who help with activities such as children’s sport, feeding the needy, and care for the aged and/or disabled. Canberra-Queanbeyan (16.8%) has the highest proportion of people volunteering for not-for-profit organisations. It was closely followed by Toowoomba (16.7%) and Albury-Wodonga (16.5%). Sydney (12.1%) had the lowest rates of volunteering, followed by Gold Coast-Tweed Heads (12.5%) and Perth (12.6%).

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