PRACTICE REVIEW

Travel to work in Australian capital cities, 1976-2006: An analysis of census data

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Introduction

This review examines trends in work travel in Australian capital cities using the census data on the mode of travel for the journey to work over the last three decades. Journey to work is the major factor behind peak-hour traffic volumes, and the Australian census has incorporated a question about the mode of travel used for the journey to work since 1976.

The performances of the different modes of travel in Australia’s seven major cities (the State capitals plus Canberra) are compared, in order to assess the effectiveness of the transport policies employed over this period.

The data comes from seven censuses, the most recent being 2006, for which the journey-to-work figures were released in late October 2007. The methodology used to compile the data, along with detailed tables, can be found in the full report (Mees, Sorupia & Stone, 2007).

Overall findings: huge growth in car travel

In all Australian cities, there has been a dramatic growth in the number of cars driven to work. The rapid growth in car driving has two causes. There has been an overall increase in the size of the workforce, and this has been accompanied by a shift away from more environmentally friendly modes, namely car-pooling (car passengers), public transport and walking.

In Sydney, Melbourne, Adelaide and Hobart, the shift away from environmentally friendly modes has contributed more to the increase in car numbers than has growth in the workforce.

Around 53% of the increase in traffic in Sydney between 1976 and 2006 came from mode shift; only 47% came from growth in the workforce. The number of car drivers in Melbourne increased by 66.4%, between 1976 and 2006, but only 43% of this increase was due to growth in the workforce (Figure 1). The other 57% was the result of a shift away from environmentally friendly modes. In Adelaide, 63% of the growth in car numbers since 1976 was due to mode shift. In Hobart, comparisons with 1976 are complicated because the Tasman Bridge was closed after the 1975 shipping accident, leading to abnormally high use of ferries. But, even taking 1981 as the starting point, the majority of the growth in car use to 2006 was due to mode shift.

In Brisbane and Perth, rapid growth in the workforce contributed more to the increase in car numbers than did mode shift, but even in these cities mode shift was an important factor. Canberra is the only city in which mode shift was not a major factor, but this is because the share of travel by car drivers was already very high in 1976.
There has, however, been a small improvement in mode share in most Australian cities in the last 5 to 10 years. In Melbourne, Brisbane, Perth and Hobart, the ‘car driver’ share peaked in 1996, and has declined modestly since then (Figure 2). In Canberra and Adelaide, 2006 car driver numbers were lower than those of 2001. These changes are the result of modest increases in the mode shares for public transport and walking. Sydney is the only city in which public transport’s share of travel declined and car driving rose between 2001 and 2006. Even so, Sydney still had the highest rate of public transport use and the lowest rate of car driving in 2006.

**Figure 1.** Numbers of cars on the road for work trips
The decline in car-pooling

The recent modest improvements in mode share for public transport and walking have not been matched in car-pooling. The ‘car passenger’ share has fallen continuously in every city since 1976 (Figure 3), the only exception being very small rises in Perth and Hobart between 2001 and 2006. As a result, the average occupancy of cars for work trips, which was already low in 1976, has declined still further. In Melbourne, for example, the average car transported 1.21 workers in 1976, but only 1.08 in 2006.

These trends are mirrored overseas. The main problem seems to be that car-pooling is an extremely inflexible transport mode. As two US transport researchers said more than 30 years ago: ‘For practical purposes, car-pooling is a (public transport) system with one round trip a day’ (Schaeffer & Sclar, 1975, p. 107).
Public transport: good and bad news

The overall pattern since 1976 has been for a large decline in public transport’s share of travel (Figure 4), but this decline has not been universal or uniform. All cities except Sydney have seen modest improvements in public transport mode share in the last 5 or 10 years, although this has not been enough to make up for the declines in earlier decades.

The main reasons for this recent improvement in performance are increased employment in the Central Business Districts of Australian cities (CBDs are the destinations with the highest public transport mode shares), and modest improvements – in Perth, major improvements – in public transport services by most State and Territory governments, following service cuts in the 1990s.

For train travel, in Sydney, Brisbane and Melbourne, the decline in rail travel is much less marked than is the case for other public transport modes. In Perth, the share of work trips made by train has doubled with the expansion of the system. By contrast, in all cities, the share of work trips made by bus was much lower in 2006 than 1976.
Figure 4. Mode share for public transport (all types)
Walking: moderate gains

Walking is the healthiest mode of transport and the best for the environment. It is also the cheapest to accommodate. Despite its lack of attention from policy-makers, walking is a modest success story. Walking to work is growing in all cities (Figure 7). Its share of travel to work is now higher than it was in 1981 in Sydney, Canberra and Hobart. Again, Melbourne has recorded the largest proportional decline over the three decades.

Walking is more important than cycling in all cities, with the ratio of walking to cycling ranging from seven to one in Sydney and Hobart, to two to one in Canberra, Perth and Adelaide.

Given that walking receives little positive encouragement from policy-makers, we believe that the most important explanation is increased inner-city living, along with rising CBD employment, leading to substantial rises in walking trips in city centres. Given this positive demographic influence, the scope for policy change to build on the increases in walking should be considerable.
**Cycling: a reality check**

For many transport planners, ‘sustainable transport’ means cycling, and this bias is reflected in the media. It is noteworthy that *The Age, The Sydney Morning Herald* and *The Australian* all led their coverage of the release of the 2006 census journey-to-work figures in October 2007 with the story that cycling had increased.

Unfortunately, cycling is currently of negligible importance as a travel mode for the journey to work in all cities, accounting for around one per cent of trips everywhere except Canberra (where it is 2.5%). Although rates are increasing (Figure 8), they are doing so from a very small base, with the result that the increases have made no appreciable difference to overall travel patterns. For example, the number of cyclists in Brisbane increased by 17% between 2001 and 2006, but the actual increase in numbers was only 1,163 – compared with an increase of 20,723 for public transport and 7,905 for walking. Equally importantly, there is no evidence from the census results that increases in cycling come at the expense of car driving. Rather, they seem to be mainly at the expense of walking and public transport.

**Behind the data in each city**

*Melbourne: the worst-performing city*
When the different cities are compared over the three decades, Melbourne stands out as the worst performer, with the largest increase in car driving, and the largest declines in car-pooling, public transport and walking. There are now more cars on the road transporting people to work in Melbourne than in Sydney, despite the latter’s much larger workforce. Melbourne now has the lowest rate of car-pooling of all seven cities, the lowest rate of usage of public transport modes other than heavy rail, and the third-highest rate of car driving (after Adelaide and Perth). Owing to lower rates of car-pooling and walking, the share of workers who drive is higher in Melbourne even than in Canberra and Hobart!

There are three main reasons for this poor performance. Melbourne built more lane-kilometres of urban freeway and tollway since 1976 than any other Australian city. It built no significant extensions to its suburban heavy rail system over this period. And, historically its public transport management has worked against coordinated operations of the different modes, a situation exacerbated by the 1999 train and tram privatisations.

The current Victorian government proposes no effective change to its broad policies, and so a continuing decline in Melbourne’s performance relative to other Australian capitals is likely.

Part of the reason for some recent positive reporting of Melbourne (for example, IPART, 2007, p. 4 and Appendix D) is the turnaround since 2001 in public transport’s share of work travel, particularly on the rail system. But, this improvement represents a rise in public transport’s mode share of 0.8%, less than was achieved in the same period in Brisbane, Adelaide, Perth and even Canberra. The absolute number of people taking the train to work in Melbourne in 2006 was only 9% higher than in 1976, and subsidies to Melbourne’s public transport operators have doubled in real terms since the 1999 privatisation (Kain, 2007, p. 91). In Sydney, despite the recent patronage decline, the 2006 figure was 21% higher than the 1976 figure. In Brisbane, the equivalent increase was 58%. In Perth, the number of rail commuters in 2006 was four times the 1976 total.

Another reason for Melbourne’s popularity is the fact that the city has retained its trams. While we are strong supporters of Melbourne’s tram system, the journey to work data does not support the contention that trams are a ‘magic bullet’ for public transport problems. The mode share for Melbourne’s trams has declined by more than half over the last three decades, coming in behind buses in most other cities. The performance of Melbourne’s buses has been even worse than its trams.

**Sydney: still the most sustainable, but with serious problems**

Sydney wins the prize as the ‘least unsustainable’ city in 2006, with the lowest share for travel to work by car drivers (63.4%), the highest mode share for public transport (21.2%) and the equal-second-highest share for walking (4.9%). However, Sydney’s comparably strong performance is a legacy of the transport policies of past decades, particularly the strong pro-rail stance of the Wran government in the late 1970s and early 1980s. Line extensions and modernisation works stemmed the decline in rail patronage and even lifted its mode share.

The last two decades have seen deterioration in rail services and a large program of motorway building. The improvements in mode share ceased, and substantial declines were only prevented by the city’s historical strengths of an extensive rail system, high
population densities and relatively high employment in suburban centres with rail access.

Progress in Sydney is now being hampered by two main problems.

The first problem in Sydney is the continued emphasis on motorway construction, which provides incentives for more passengers to abandon rail. The preference for motorways is driven partly by despair at the prospects for improving public transport, and by the biased nature of Federal transport funding.

The second problem is an entrenched culture of poor public transport management.

Rail managers have been able to deflect most attempts to improve efficiency, claiming that their system is supposedly so ‘special’ that it cannot learn from successful operations in Europe.

Public transport management in Sydney continues to take a fragmented and narrow approach to service planning, and the processes of regulation are labyrinthine. Four decades ago, the authors of the Sydney Region Outline Plan lamented that “there is virtually no bus-rail co-ordination” (State Planning Authority of NSW, 1968, p. 43). Unfortunately, little has changed. While some work is being done to reorganise rail operations, this is directed predominantly towards engineering projects rather than the ‘software’ of network design and timetabling. It is happening in isolation from bus and ferry operations which continue to operate as if the rail system, rather than the car, was the main competitor. The mooted privatisation of ferry services is unlikely to improve matters.

One clear illustration of this problem is the fact that Sydney is now the only Australian capital city without a multi-modal ticketing system.

Brisbane: mixed performance

Brisbane now has the second-lowest share of workers travelling as car drivers. This is more a reflection of Melbourne’s rapid decline in performance than Brisbane’s inherent success. However, there have been improvements in mode share for public transport and walking in the last decade, and there are some signs of hope for continued positive trends.

Long-established management arrangements, under which buses were operated by the Brisbane City Council and private firms, while trains were the responsibility of Queensland Rail, have been an entrenched obstacle to public transport service improvements. In recent years, there have been changes to this structure, beginning in 2004 with the establishment of Translink, a coordinating body for public transport across South East Queensland. Translink’s first major achievement was the introduction in 2005 of a fully multi-modal ticketing system (without smart-cards, a message that appears not to have registered in Sydney), which led to an immediate and substantial jump in patronage across all public transport modes, and is a major factor behind the one per cent rise in mode share between 2001 and 2006.

The Queensland Premier announced on 9 October 2007 that a new regional public transport agency will be established for South East Queensland in 2008, incorporating
Translink’s responsibility for rail and bus services across greater Brisbane. The new agency has the potential to create integrated services to match the integrated fare system, provided it is established with a dynamic, European-style management and planning culture, rather than simply being ‘business as usual’ under a different title.

Transport investment decisions in South East Queensland have worked against the recent improvements in public transport mode share. Rail extensions and service enhancements have been placed on the ‘back-burner’ despite rapid growth in patronage. One reason is substantial investment in a series of busways, which largely parallel the existing rail system. A more serious concern is the still larger diversion of investment funds to an extensive program of motorways, tunnels and bridges, which will directly compete with the rail and busway systems for customers.

Adelaide: Australia’s most car-dominated capital city

Thirty years ago, the share of work trips made by car drivers in Adelaide was lower than in Canberra or Perth, (or in Hobart in 1981). Adelaide and Canberra were the only cities in which public transport’s mode share increased between 1976 and 1981 (making Adelaide’s mode share briefly higher than Brisbane’s). Adelaide saw a small increase in cycling over this period as well.

This situation was a result of the progressive transport policies of the Dunstan Government, which froze freeway construction, extended suburban rail services, nationalised private bus operations and integrated fares and timetables across the public transport system.

Unfortunately, over the last 25 years the Dunstan policies have been abandoned. Public transport services have been cut and large-scale road construction has resumed. Adelaide is now the only Australian capital with a suburban rail system that has not been electrified. As a result, car driving has increased faster than in any other city apart from Melbourne, and is now the highest in the nation.

There has been a slight rally in bus use since 1996 and rail use since 2001, but the total public transport share of travel to work is still only 9.9%. These improvements are the result of a modest program of public transport improvement, which has recently seen the Glenelg tram extended into the heart of the city. However, transport policy in Adelaide remains dominated by road construction, with public transport and walking very much an afterthought.

Comparisons between Adelaide and Perth are instructive. Three decades ago, Perth was the most car-dominated capital apart from Canberra. With a smaller rail system than Adelaide, a lower population density and less integration of urban development with public transport, Perth could have been expected to fall further behind Adelaide. While Perth remains a car-dominated city, it is now less so than Adelaide, and on current indications the difference in performance is expected to widen.

Perth: a surprising, if modest, turnaround

The revitalisation of Perth’s public transport system began with the 1983 reopening of the Fremantle line, which had been closed four years earlier. It continued with the 1987 decision to electrify the three suburban rail lines, and accelerated with the construction
of the new northern suburbs railway, which opened with a supporting feeder bus network in 1993. The process of rail expansion is still in progress with the imminent opening of the 72 km Mandurah line.

Organisational structures for public transport were reformed as part of this expansion program, with a strong focus on integration of rail and bus services, and on a ‘seamless’ experience for passengers. When the private sector became involved in bus operations in the 1990s, this followed the sub-contracting model, with TransPerth retaining control over branding, timetables and network planning. Service integration has been retained, with Perth presenting a stark contrast to the lack of multi-modal planning in Melbourne and Sydney. The result has been a steady improvement in public transport use from a low base with real expectations of continued future growth.

However, Perth remains a car-dominated city. Walking rates are the lowest in the country, although they have increased modestly since 1996. One reason for this is that substantial expansion of the major road system has taken place alongside expansion of rail, reducing the incentive for car drivers to shift to the new rail services. These road expansions have received generous Federal funding; by contrast, the expansion of the rail system has been paid for almost entirely from local sources.

Canberra: the car remains king

Canberra was planned for the convenience of car drivers, but its urban structure was also designed to permit a transition to public transport, should this become necessary. This was the reason for the adoption of the famous ‘Y-Plan’, which clusters major employment and retailing in town centres arranged in a linear pattern along the route of a possible inter-town public transport system. Unfortunately, the potential of this land-use arrangement has never been realised, because transport policies have remained car-dominated.

The Whitlam Government initiated a review of Canberra’s transport plans which led to an attempt to create a more balanced transport pattern. Commencing in the late 1970s, there was substantial upgrading of bus routes, service levels and vehicles. The existence of a single public bus operator made these changes easier to implement.

Some attention was also paid to bicycle paths, and Canberra is the only Australian capital where cycling to work is approaching significant levels. The results of the new transport policy can be seen in the improved public transport mode share between 1976 and 1991, and the rise in cycling. Despite a decline in car-pooling, the share of workers driving cars to work was slightly lower in 1991 than 1976, a result not seen in any other Australian capital.

Following ACT self-government, operating subsidies for bus services were reduced and services cut sharply, leading to a large decline in public transport mode share to an all-time low of 6.7% in 2001. A partial recovery in public transport has occurred in the last five years, and walking has increased, but the car remains king in Canberra. Transport policy remains dominated by road building, with public transport treated mainly as a social service. Significant improvements to bus service levels in November 2007 may herald a new approach, but even after the improvements, service levels remain lower than in previous decades, and worse than in other Australian capital cities.
**Hobart: time for some public transport**

Car travel in Hobart was suppressed in 1976 by the closure of the Tasman Bridge, but had more than recovered by 1981 and has continued to grow ever since. The city’s bus-based public transport has suffered since the 1990s from pressure to reduce costs, exacerbating the longstanding trend to declining mode share. Hobart does, however, have by far the highest mode share for walking to work of any Australian capital, with a jump from 6.0% in 1996 to 7.6% in 2006. This is partly a result of Hobart’s compact, walkable inner city, together with increased CBD employment and rising inner-city population levels.

While the high rate of inner-city walking is welcome, the suburbs of Hobart will not see a reduction in car usage until effective public transport is provided. Following Metro’s purchase of the privately owned Hobart Coaches, Hobart now has a single, public bus operator. This means that one ingredient is already in place. Significant change will not occur, however, until political decision-makers begin to treat public transport as a serious travel option, rather than a social service for people with no alternative.

**Policy implications**

The census findings point to the need for significant changes to urban transport policies at Federal and State levels. Current policies are creating rapid growth in car travel and greenhouse emissions.

Treating the symptoms of traffic problems by building more roads is an ineffective response. Melbourne has built more urban freeways and tollways than any other city, and the main effect has been to increase traffic levels by reducing the mode share of public transport, car-pooling and walking.

State governments need to shift their transport investment priorities away from this ineffective policy response, but the most urgent need for change is at the Federal level. The 2007 ALP National Platform (Australian Labor Party, 2007, pp. 96-8) recognises the need for a new approach to urban transport. This must be centred on a funding regime that supports the most effective solutions to urban transport problems. Investment needs to be redirected away from urban motorways towards more environmentally friendly modes, particularly public transport and walking. Within public transport, the most effective mode in reducing urban traffic levels is fast rail (heavy or light), although high-quality bus services are necessary as feeder and supplementary modes.

The other important mode of travel is walking, which requires little in the way of funding, but rather needs a reorientation of road space and road rules to give pedestrians priority over motor vehicles. There is good international evidence to suggest that walking and public transport complement one another, forming a ‘virtuous circle’.

Although it is important to provide safe and attractive facilities for cyclists as a road safety measure, the evidence shows that cycling currently plays a very limited role in reducing car use and so the emphasis of cycling policy needs to be re-thought.

Unfortunately, car-pooling is unlikely to make much of a contribution to reducing the demand for car travel in the foreseeable future.
Finally, transport governance and management remains a critical challenge for Australian cities. The recent announcement by the Queensland Premier of the establishment of a regional public transport agency to integrate trains, buses and ferries across South-East Queensland is welcome, but no equivalent bodies exist, or are even being discussed, in the nation’s two largest cities. Sydney’s public transport remains a labyrinth of single-mode fiefdoms and regulators, while Melbourne persists with a ‘partnership’ between government and large private operators with complex of regulations and contracts.

The success of multi-modal public transport planning in Perth provides local confirmation of European lessons about the need for regional transport agencies with dynamic, efficient, independent and accountable operating cultures (Nielsen & Lange, 2005, p. 60).

References


