The decline of bicycle commuting

by Alan Parker

THE 1996 Population Census released late in 1997 is the most comprehensive source of data on journeys to work and bicycle commuting trends in our cities. The Census is conducted every five years by the Australian Bureau of Statistics (ABS). Data for the last 20 years show a growth in the number of commuter cyclists from 56,000 in 1976 to 93,000 in 1986 and then a decline to 72,000 in 1996. Since 1976, State Governments have failed in managing demands for motor travel or limiting urban sprawl in ways that encourage walking, cycling and public transport. Even in those cities where bicycle friendly state governments have provided some bicycle facilities, the level of bicycle commuting is very low. The low growth in commuter cycling shown on charts 1, 2 and 3 indicates that the prospect for increasing bicycle commuting is very poor.

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The transport system is evolving in a way that is more polluting, uses more fuel, emits more greenhouse gases and is less ecologically sustainable. The Census data show that our cities have become places where we choose to use a car even for many short commuting trips that could easily be made on foot or on a bicycle. The car-dependent Australian lifestyle is a fundamentally unhealthy one and the way we are planning our land use and transport systems will guarantee that it becomes worse. The next Population Census in 2001 will probably reveal that Australians have become even more addicted to the use of labour saving and obesity inducing gadgetry such as motor cars.

The overall journey to work trends for Australia from five Censuses (left hand side graph on chart 1) clearly show the increasing dominance of car-dependence, especially for women, who now make up 42% of the work force. Reduced use of the more energy-efficient transport modes, excepting cycling (which is only marginally better than in 1976 and worse than in 1986), can also be seen from this graph.

Life in the fast lane

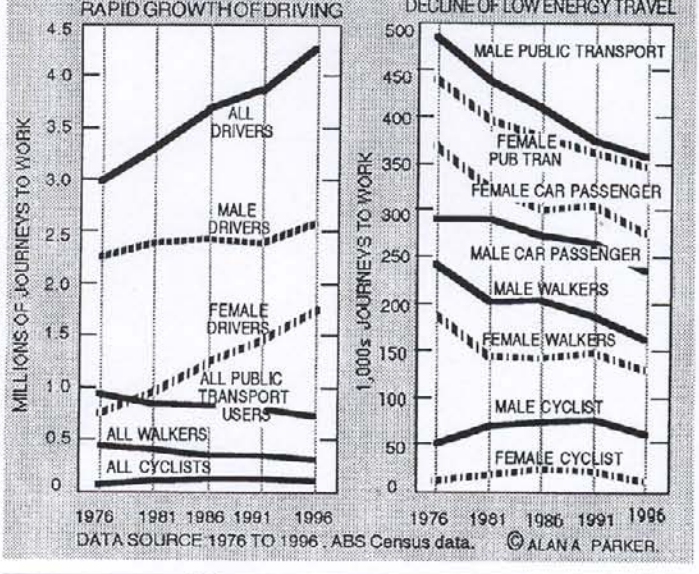
The average motorised journey to work takes a similar amount of time in all five surveys, but the increasing provision of freeways, expressways, clearways and express public transport services means that workers travel much further in the same time. As cities grow, journey distance increases. In 1996 journeys to work from home (or vice versa) accounted for only one eighth of all trips and one quarter of the distance travelled in our capital cities. However, these journeys concentrated in the rush hours are worrying indicators of peak hour loading, increased motorisation and urban congestion to come.

Since 1976 more and more workplaces were outside convenient walking distance (1 km) and convenient cycling distance (2 to 3 km). While many were still within easy cycling distance (3 to 5 km), increasing speed and volume of traffic made bicycle riding on main roads such that most men, and nearly all women, choose not to cycle. Public transport services did not go directly to people's destinations, or were so badly integrated with other services that multimodal journeys were very time consuming. People chose to drive instead. By the 1996 Census day, 4.3 million cars (average occupancy 1.12 persons), 51,000 motorcycles, 21,000 taxis and less than 10,000 buses took people to work, burning 3.5 billion litres of petrol, polluting the air and emitting carbon dioxide.

Between the 1976 and 1996 censuses, the population increased by 4.28 million, but people travelling to work on census day increased by only 1.05 million. This is due mostly to the growth in unemployment from 293,000 in 1976 to 803,000 in 1996, and also to part time employment, early retirements and more students. The problem of peak hour congestion is not primarily due to the concentration of human population growth in the capital cities, but to the increasing growth of the car population. Car numbers grew from 5.1 million in 1976 to 8.76 million in 1996, an increase of 3.66 million, over three times the increase in people journeying to work in this period. This growth of motorisation and decline of sustainable transport is similar in all capital cities.

The most significant changes since 1976 have been the large increase in driving to work, in particular the 995,000 female drivers (76%) out of a total increase of 1.3 million drivers, coupled with a decline by 218,000 in public transport use. Even the informal sharing of cars has declined, with the average number of passengers carried dropping from 1.21 in 1976 to 1.11 in 1996. This decline is unlikely to be arrrested, since there is no tax or other financial incentive to make better use of cars and most State governments have no effective demand management strategy that encourages car pooling or car sharing. This will happen even though the potential exists to shift around 7% of all "drive alone" commuter trips to multiple occupant trips.

1 AUSTRALIA: changes in the journey to work 1976 to 1996

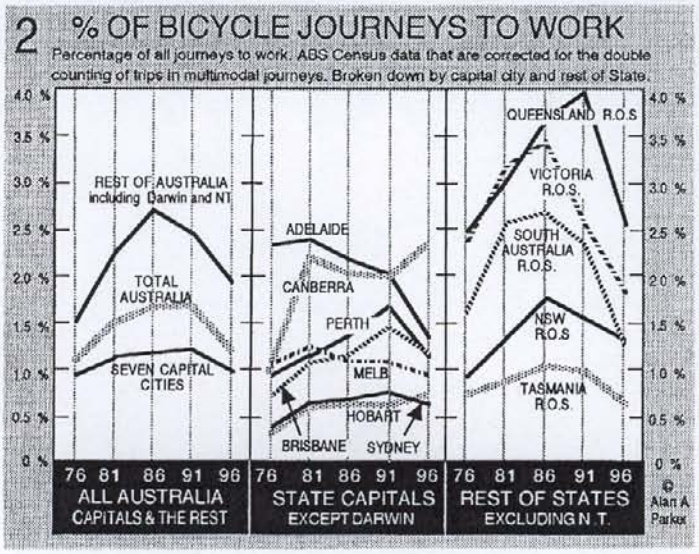


DATA SOURCE 1976 TO 1996 , ABS Census data. © ALAN A PARKER.

What the census measures

Census transport data only apply to the six million people who made a journey to work outside their homes on the day of the 1996 Census. Trips to school or to tertiary institutions by those not in the work force are excluded. Those who did not go to work, or worked at home, and a high proportion of those in the growing army of part time workers, are not counted in the travel to work figures on Census day. What is charted are "journeys to work" – not the larger number of constituent "trips" – due to the 4% average of multi-modal journeys to work in all five Censuses.

Walking trips and bicycle trips are not counted unless they are the sole means of travel to work which means that bike/rail trips are counted as single train journeys. Data collection methods changed between 1976 and 1996, increasing accuracy. As a result, a great deal of laborious number crunching was needed to ensure consistency between the first three surveys and the latest two surveys.



Some optimists have suggested that in future many people will use computers and work at home. However, the Census data show there is a slight decrease of those working at home: from 421,000 in 1976 to 414,000 in 1996. What has happened is that the small family businesses, such as corner shops where people lived on the premises, have been wiped out by large scale retailing and supermarket developments and replaced by a similar number of home-based businesses or telecommuters. Although the net loss of home based work is very small, telecommuting and the use of electronic tills and accounting in retailing, particularly in supermarkets, has destroyed so many jobs both directly and indirectly that it is more a means of job destruction than job creation.

Cycle commuting stagnant

Graph 3 shows that the 20-year increase in bicycle journeys to 72,000 in 1996 is much smaller when expressed as a percentage of all journeys to work. Expressing the volume of bicycle trips as a percentage of all trips to work on chart 2 is a better measure of change that takes into account the increase in population in the same period. Australia-wide there has been only a small increase of bicycle journeys from 1.11% of all journeys in 1976 to 1.63 % in 1986 and then down to only 1.19% in 1996; an increase of only 8%.

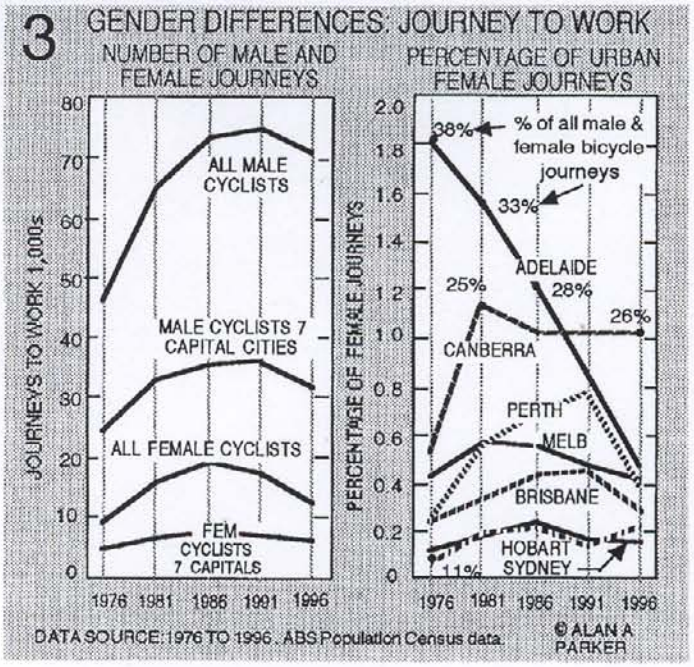
Unfortunately, the overall growth rates when broken down by "capital city" and "the rest of the state" show that bicycle journeys to work in capital cities only increased from 0.87% in 1976 to 0.89% in 1996; even if we add in the uncounted bike rail/trips it only goes up to 0.96%. Darwin is not included in the total for capital cities as it was not a capital in earlier censuses. Interestingly, 4% of journeys to work are by bicycle in Darwin, which is higher than in the other capital cities. It should come as no surprise that Canberra with its separate bikeway network has the highest growth in bicycle use of all the capital cities shown on graph 2. Brisbane is the next best performer, followed by Perth, but in Melbourne and Sydney bicycle commuting is in a rut. Adelaide is in decline mainly because of the large decline in female cycling which is referred to later.

In 1996 in some provincial cities the percentage of bicycle journeys was much higher. For instance, in Townsville it was 6.5% and in Rockhampton 6.1%. This explains why the results on graph 2 for the rest of the State (individually and collectively) are much higher than for the capital. However, the Rest of State percentages peaked in 1986 or 1991 and are well down in 1996; in South Australia they are below 1976 levels. The 2001 census will probably show very little change in the pattern that is emerging. As our cities grow and suburban sprawl increases, trip distances will also increase and bicycle commuting will stagnate.

Another deterrent to bicycle commuting is the lack of bicycle parking facilities. Between 1981 and 1996, new offices and other places of employment were built with car parking properly provided for, but with the need for bicycle parking generally ignored. Although Australian bicycle parking guidelines existed in 1985 they were not sold to private developers and builders. Virtually all government buildings failed to make provision for cyclists due to the abject failure of state bicycle committees to sell these guidelines. Meanwhile, in Japan and the Netherlands, bicycle parking is a mandatory requirement and secure bicycle parking is provided at every new workplace.

Women choose to drive

In 20 years 995,000 more women drove to work. More and more working women are claiming equal rights to men including the right to drive. There is no way they will use public transport or ride a bicycle or walk to work unless it suits their perception of what is safe, non-threatening and convenient. Chart 1 shows the growing female participation in the work force as the dominant element in the market for passenger transport.



If we are really serious about encouraging bicycle use, we need to know why 140 women drive to work for every one who cycles. We need to explain why women's level of workforce participation was not reflected in the proportion of men (1.71%) and women (0.48%) who cycled to work. Why is it that the gender ratio shown on chart 3 has not changed much in 20 years? Is the answer tied up with women's greater participation in the workforce and their new roles? Is it their perception of what is the safest, the least threatening, the most convenient or the least physically demanding bicycle route to work? Could it be that bicycle facilities are not user friendly enough for women cyclists? Is it the increasing lengths of journeys to work due to urban sprawl? Is it all of these things?

Chart 3 (left side graph) shows that there are nearly four male cyclists for every female cyclist, both in Australia generally and in the capital cities in 1996. Even so, between the capital cities the percentage of female journeys to work varies a great deal (right side graph). In 1976 for instance, 1.8% of all trips by women to work were by bicycle and 38% of all commuter cyclists were female. In Hobart only 0.22% of all trips by women were made by bicycle. Obviously the hilly Hobart suburbs were a great disincentive to women cycling and very few would want to work up a sweat on the way to work; this helps explain why only 11% of all bicycle commuters were women.

Another physical constraint in Hobart, Sydney and the hilly sections of other cities is the lack of safe and convenient back routes since main roads mostly run along the ridges; alternative routes, if there are any, tend to be very hilly indeed. However, that is only a partial explanation and certainly does not explain the large percentage reduction of female bicycle commuting in Adelaide from 1976 to 1996. Here, urban sprawl has been a big factor in the decline. The Adelaide of 1976 was a lot less spread out and mostly very flat. Compare that to the situation in 1996 where new housing has spread east up into the "Lofties" and north and south along fast roads forming an 80 km low density urban strip along the coast. Urban sprawl is a big factor in the flat western suburbs of Sydney and Melbourne and in new areas of Brisbane and Perth.

Strange as it may seem to our transport planners, women's perceptions of personal security in general and traffic safety in particular are different to those of men. These perceptions have been reinforcing the trend towards increasing motorisation of our society over the last 20 years. If we want a hypothetical example of how to change perceptions that condition women's transport use, consider what would happen if you put a group of Australian women on bikes in Groningen or some other Dutch city. My and my wife's experience of the Netherlands is that negative perceptions of cycling as a means of transport rapidly change into positive perceptions. To put it bluntly, if we want to encourage cycling we must make our public transport system and our urban environment more user-friendly and provide higher quality bicycle facilities that women will choose to use.

Meanwhile, in well managed overseas transport systems, a much larger proportion of women use buses, trams, trains and bicycles or walk to work. In Japan around one million women regularly park their bicycles at railway stations knowing that they will not be stolen or vandalised. Although women in the Netherlands also have high participation rates in the work force and high levels of car ownership, just as many women choose to cycle to work as men because Dutch "bikeway networks" provide safe and continuous bicycle routes to where they want to go. Their view is that there should be two bike routes to every destination and one of them must be socially secure. By that they mean one route must be well lit and designed in such a way that it is perceived as being safe, particularly by female cyclists or the elderly.

Obesity and the decline of walking to work

There is not such a large difference between male and female walking trips to work in 1996 as there is with cycling trips. However, there is a large decline in both male and female walking trips as is shown by graph 4. The large decline in walking since 1976, either directly to work or as a means of accessing public transport, indicates a lowering of the levels of informal exercise, during a period when the proportion of sedentary workers in the labour force has greatly increased.

The physical exercise that was once part of everyday life, such as physical work in the factory or on the farm or walking or cycling to get around, had health benefits that the medical and health professions have ignored until very recently. The National Nutrition Survey also conducted by the ABS in 1997 showed that the number of overweight Australians had increased dramatically in the last ten years; in 1996 63% of men and 48% of women were overweight and 18% were obese. The problems of overweight people (who will die prematurely) are largely a function of the overuse of motor cars and the growing addiction to consumer goods generally which inhibits exercise during both work and play. A lifestyle that involves more walking and cycling as a part of every day activity is a natural and sensible way for people to control weight.

The results of the 1996 Census are bad enough. The results of the 2001 Census are going to be very embarrassing, proving to the world the Australian government has not met, and will never meet its Kyoto commitment on carbon dioxide emissions, partly thanks to a huge increase of around 35% from the transport sector.

The proportion of women who use public transport or ride a bicycle out of necessity is declining. Public transport operators must make their services more user-friendly. The bicycle planning fraternity should ask itself why in 1996 1.7 million women drove to work but only 12,000 women cycled to work. We need to explain why women made up 42% of the workforce on Census day but the numbers of men (1.71%) and women (0.48%) who cycled to work do not reflect this. Why is there a gender ratio of over 3 to 1? These are important questions since, in the Netherlands which has excellent bicycle facilities, a similar proportion of men and women ride bicycles to work. We need to know if male sexist transport planning over the last 30 years is the main cause of the gender difference.

Government needs to take into account the external costs of the automanic lifestyle and the fact that, in the overall consideration of the external costs of new roads and urban subdivisions, there is no external cost attributed to the poor health created by mass door-to-door car travel. The health effects of air pollution and high noise levels are now being accounted for; why not the health costs of induced physical immobility? These are far in excess of the sum needed to encourage walking, cycling and public transport use.

Unpalatable though it may be to many, what is needed is Japanese style demand management measures to control the use and parking of cars, plus competent long-term strategic planning.

There is a strong case for increasing public transport funding by $200 million per year for the next five years (Lees, 1997) and bicycle infrastructure funding by $75 million per year. This could be funded by the Commonwealth reducing the concessional treatment of motor vehicles under the Fringe Benefits Tax or by State governments imposing a modest $1 per day environment levy on parking spaces in CBDs and at modal interchanges in district centres (Lees, 1997).

Reference

Lees, M. 1997. "Saving Face at Kyoto; Realistic and practical ways of meeting greenhouse gas reduction targets".