

## **Public Transport: Competitive or Planned ?**

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**Abstract:**

Travel patterns in urban areas are characterised by diversity: origins and destinations are dispersed and travel occurs throughout the day. Traditional forms of public transport, oriented to peak-period, central city commuters, have had difficulty coping with this diversity. The currently popular response to this problem in Australia is based on the 'economic rationalist' remedy of competition. But other cities have responded with the opposite policies, planning and coordination of services. The two approaches are contrasted through a comparison of public transport policy in Melbourne, where public transport patronage has declined at world-beating rates in the last four decades, and the Municipality of Metropolitan Toronto, which has been much more successful. The main reason for the contrasting patronage performances is found to lie in the different policies pursued in the two cities. These differences date from decisions taken in both cities in response to crises in public transport policy following the first world war and again in the 1950s.

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## Introduction: the dispersed city

Mass ownership of automobiles has seen a dramatic decline in the share of travel carried out by public transport in most developed cities. Many observers argue that this decline cannot be reversed, or even halted. This paper evaluates two possible responses to the dilemma, the currently popular remedy of “free enterprise public transport”, and the less-travelled road of comprehensive, integrated planning.

An interesting convergence of post-modernist, feminist and technology-based thinking agrees that people’s travel is becoming more diverse and flexible, both in space and time. A new image of increasingly complex cross-city trips made throughout the day in low density suburbs contrasts with the traditional ‘tidal flows’ of commuters to and from central business districts. Some argue that public transport simply cannot compete with the go-anywhere, anytime convenience of the car in such an environment. At the 1995 “Women on the Move” conference, Margo Huxley argued: “it is because of the messiness and indeterminacy of mobility that the car is rightly the most useful and popular form of transport...” (Huxley, 1995). Huxley’s view is shared by Brotchie et al (1995), who write not from a feminist perspective, but from an analysis of technological trends and data on work patterns.

Transport planners of the 1970s sought ways to make public transport flexible and demand-responsive like the car. The two most popular suggestions were ‘personal rapid transit’, a Disneyland-style technology much discussed but never implemented, and ‘dial-a-bus’, the subject of numerous, mainly unsuccessful, trials (Pushkarev and Zupan, 1977, pp. 70, 133-7).

## Creative chaos or planned network?

In the 1980s, transport planners began to converge around a new solution. Transport planners looked to the chaotic urban public transport found in developing countries. Cities such as Bangkok support a diverse array of public transport offerings, from overcrowded conventional buses offering cheap fares, to ‘jitneys’ charging higher fares for superior service, to taxis. Here, it seemed, was the flexibility, innovation and specialisation for which planners had been searching. Many commentators have argued that a similarly rich array of public transport offerings could be provided in developed cities: remove or reduce regulation, and innovation, particularly in the form of demand-responsive services, minibuses and other ‘intermediate’ modes between buses and taxis, will flourish. Roth and Wynne (1982) propose that US cities adopt “free enterprise urban transportation”, citing examples from cities such as Calcutta, Manila and Cairo.

The ‘Bangkok’ model for urban public transport did not develop in isolation. In Australia, as in other English-speaking countries, public discourse has been dominated since the 1980s by what Australians call ‘economic rationalism’, and North Americans ‘public choice theory’. Self (1993) describes the policy consequences of these doctrines as “slimming the state” - reducing government expenditure and privatising government agencies - and “treasures to refashion the operations of government along market lines”

(p. 61), such as subdivision into smaller units that can compete against one another. Deregulation of public transport fits neatly into the public choice prescription.

The principal advocate of public choice doctrines in Australia is the Industry Commission (IC), which completed a report on urban transport in 1994. The IC argues that existing public transport is centrally planned and therefore inflexible, is over-regulated and incurs large deficits. Competition, even more so than privatisation, is "the most effective way of securing the lowest possible operating costs and the service improvements that people value most." (IC, 1994, pp. 9-10) The IC's views are shared by many Australian transport commentators. Hughes (1992) proposes "a market alternative" to Canberra's public bus network, while Sorensen (1991) prescribes a large dose of competition for Sydney's private bus sector. Ogden (1995) advocates 'suburban' public transport for Melbourne in which competition produces

a wide range of services, each oriented to a market niche. In addition to the fixed route, heavy bus operation focussed on railway stations, we would expect to see smaller buses operating as 'jitneys'...; 'dial a ride' services...; demand responsive services...; shared taxi operations of many forms (especially at night). And no doubt many more. (p. 8)

These views are reflected in Victoria's 1996 "Transporting Melbourne" strategy, which proposes splitting trams, trains and buses into "totally separate organisations" (DOI, 1996, p. 83), and changing the multi-modal fare system to place "a greater emphasis on single-mode tickets issued by individual operators" (p. 84).

The conditions under which deregulated public transport apparently thrives in cities like Bangkok are, of course, virtually the opposite of those found in the suburbs of Australian cities. Incomes and car ownership are low and population densities high, creating concentrated, high-volume flows of passengers rather than dispersed, low-density travel patterns. Low wage levels permit the use of labour-intensive vehicles like jitneys. Is the apparent flexibility of Bangkok public transport simply a result of these factors, coupled with poor quality conventional bus service?

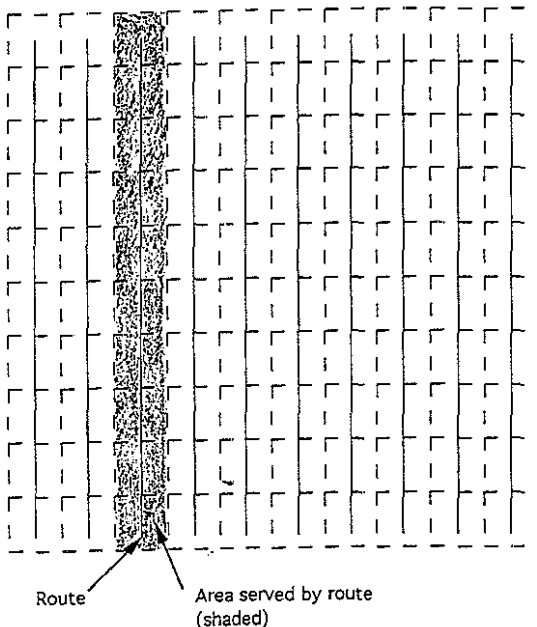
To date, there have been no examples of the Bangkok model succeeding in the first world. Major US airlines operate in an environment of dispersed demand, but rely on 'hubbing' to reduce operating costs by achieving economic densities of patronage. American Greyhound employed a similar strategy to survive an environment of low-density, multi-directional demand (Berechman, 1993). The Paris metro is a successful urban illustration of the network approach, although it operates in a high-density environment. Passengers trade off the inconvenience of transfers and some indirect journeys, against a high level of service (frequency, hours of operation). The result is a 'go anywhere, anytime' service that for most trips matches the convenience of the car.

The network issue is rarely canvassed in the urban transport planning literature. Most analyses of the effectiveness of strategies to increase patronage of public transport rely instead on demand elasticities, estimates of the percentage change in the number of trips that occurs in response to a change in fares, service levels, etc. Most studies have

found the elasticity of demand with respect to service to be much less than one, meaning that a 1% increase in service will increase patronage by much less than 1%. This in turn means that service increases are unlikely to generate sufficient revenue to cover their costs. Service increases also reduce occupancies, eroding public transport's environmental edge over the car. The result is a kind of law of diminishing returns. An interesting exception which does take network issues into account, and which I have adapted here, appeared recently in a most unlikely source, the Environmental Effects Statement for Melbourne's City Link project (Vicroads, 1994, pp. 22-3).

Imagine a hypothetical city called 'Squaresville', comprised of 100 blocks, as in figure 1. Squaresville has a rectangular pattern of streets, which bisect the blocks and provide routes suitable for public transport services at convenient intervals (say 800 metres). Assume that travel patterns are entirely dispersed, with each block generating 99 external trips, one to each of the other blocks, a total of 9900 trips. Consider a single public transport route offering a high level of service along a North-South corridor to a once-dominant central business district. The route runs through the middle of the 10 blocks that make up the corridor, and serves passengers with trip origins in the corridor, since passengers are prepared to walk half a block to a stop. This corridor generates a total of 990 trips, but the public transport route is only capable of serving the 90 of these trips which have origins and destinations along its route. If there are ten such routes, one along each North-South corridor, as in Figure 1, public transport can serve a total of 900 trips, less than 10% of journeys in Squaresville. Assume that, at present, public transport attracts one-third of the journeys it can theoretically serve. This gives 300 trips, and a modal share across the whole city of 3%.

Figure 1: 'Squaresville' (with 10 public transport routes)



What would be the effect of doubling service levels in Squaresville? A traditional transport model, based on elasticities of demand, would suggest that a 100% increase in service may produce a 50% increase in demand, boosting daily trips to 450 and modal share to 4.5%. Doubling service will almost certainly increase costs by more than 50%, so cost-recovery will fall. But what if the increase in service is used to add ten East-West public transport routes, creating a grid network of 20 routes? The number of trips served directly doubles to 1800, since there are twice as many routes, but if passengers are willing to transfer between routes, as on the Paris metro, then all 9900 trips can be made by public transport, 1800 directly and 8100 by transferring. This is an increase of 1000%. Even if the modal share for journeys involving a transfer is only half that for direct journeys, this would still produce a dramatic increase in patronage, to 1950 trips (a third of 1800 plus a sixth of 8100), giving an “elasticity” of 5.3! Increased revenue should more than offset the costs of the increased service, vehicle occupancies would rise and modal share across Squaresville would increase from 3% to 20%.

This model illustrates the argument that comprehensive planning which knits individual routes into an economical regional network may be able to overcome the law of diminishing returns that is frequently assumed to rule out substantial upgrades of public transport. Rather than attempt to second-guess people’s travel needs with a plethora of routes, the public transport operator makes it possible for passengers to guide themselves to diverse destinations, just as motorists navigate the road system. Interestingly, the more dispersed travel demands are the stronger the network effect. In a hypothetical city where all journeys are made to a single point, there is no benefit at all. This suggests that public transport in dispersed metropolitan areas may be a natural monopoly, in contrast with the more common view that public transport is only a natural monopoly in dense, centralised inner cities, if at all (Berechman, 1993, p. 308), or on individual routes or small service areas (DOI, 1996, p. 83).

The principal prerequisite of the network effect is that passengers be willing to transfer between services. Mainstream transport research suggests that they will not, but in the most successful public transport systems, passengers transfer frequently. This is due to a series of conditions not usually associated with unplanned, free-market systems: convenient physical facilities at interchange points, a fare system in which transfers are free and a timetable that encourages transfers. The best type of timetable is one offering high frequency services on all corridors, as Hussler (1994) notes in an analysis of the City of Zurich’s very successful public transport network:

The network of trams and buses work on a four to eight minutes frequency during the day... It is important that the frequency of services remains under ten minutes. If it is over ten minutes, changing from one line to another is not attractive. With a ten minutes frequency you have a network effect....

The relative merits of competition and planning for urban public transport are often simply asserted. An excellent test is the track record of the different policies. The best known case study is provided by the deregulation of bus services in British cities outside London. This measure was introduced by the Thatcher government in 1985, but

the incoming Blair administration has announced its pending abolition, for reasons summarised by the Royal Commission on Environmental Pollution (RCEP, 1994):

fares increased sharply, many services were reduced, networks were restructured and became less stable. The general impression was of declining services. The immediate sharp drop in patronage is not therefore surprising. There was also a deterioration in the extent of bus-rail integration ... (p. 219)

Another speaker at the same forum series where Ogden unveiled his proposal for free enterprise public transport in Melbourne described a different model of public transport:

In Toronto, Canada, there is an excellent example of a public transport system which appears, to the passenger at least, to effortlessly integrate train, tram/light rail and bus. Although, in principle, this would not seem to be an unreasonable objective, in practice, it is an achievement which has, to date, escaped most other cities who seek it. (Dixon, 1995, p 143).

Toronto's success in providing public transport is frequently noted. Public transport has retained a healthy share of the travel market, in contrast with the decline seen elsewhere. Canadian urbanists have debated the reasons for this superior performance. Frisken (1991) argues that Toronto's superior performance relative to US cities can be in part related to its strong metropolitan government, and offers "an empirical dissent from the public choice paradigm". Doucet (1977) regards the public takeover of the transit system in 1921 as vital, and Frisken (1984) describes the record of the Toronto Transportation Commission from 1921 to 1953 as "a triumph for public ownership". Davis (1978) counters that public takeovers at similar times in US cities (e.g. Detroit in 1922) did not save public transport, because of significant differences, including race problems and higher car ownership in the US cities.

Regardless of whether Davis is correct about US cities, it remains striking that Toronto has been so much more successful than Melbourne, given the similarities in the character, form and history of the two cities. These include comparable populations (3.1 million and 3.8 million for the respective census areas in 1991), the British colonial legacy, lower car ownership than the USA, the absence of American-style race problems, and the persistence of trams. Both cities have grid arterial road networks, like Squaresville, and low population densities compared with European cities.

Other Australian commentators (e.g. Kenworthy, 1991) have attributed the difference to land-use planning in Toronto, particularly the integration of high-density housing with rapid transit stations. In earlier work, I concluded that population density has declined, and employment dispersed, more rapidly in Toronto than in Melbourne since the Second World War, and that the share of the population living within walking distance of rapid transit stations is actually greater in Melbourne (Mees, 1994; see Mees, 1997 for more detailed calculations). At the 1994 ATRF, Moriarty and I argued that Toronto's superior performance is primarily due to the way public transport has been operated and in particular to the type of policies Dixon describes in the above extract (Moriarty and Mees, 1994). My argument here (and in more detail in Mees, 1996) is

that the adoption of these policies relates to matters at the heart of the planning-competition debate, namely that Toronto's public transport - or more precisely, its successful element - has been regionally planned by a single public authority since 1921, while Melbourne's has featured extensive competition for over a century and, in the private bus sector, a textbook example of the public choice model.

### **Melbourne: where have all the jitneys gone?**

The reforms proposed for public transport by the Industry Commission and Ogden are actually a reversion to the traditional Melbourne model of separate, competing rail, tram and bus services, some publicly owned, some private. The 'suburban' (as opposed to 'country') rail network was opened in the 1850s by the Melbourne and Hobson's Bay Railway Company, but in 1878 the financially troubled network was acquired by the Victorian Railways, a statutory corporation which greatly expanded the system in the 1880s (Davison, 1978). A cable tram network was opened from 1886 to 1891 by a private operator, with electrified lines added by municipalities and other private operators, and the whole system taken over in 1919 by another statutory corporation, the Melbourne & Metropolitan Tramways Board. Each public transport undertaking had its own routes, timetables and fare system, with little coordination and fierce competition. Davison (1978) records:

By 1890 few cities of Melbourne's size boasted a system as advanced, extensive or convenient. In fact, it is arguable that the system was becoming dangerously overgrown. Its two main operators were falling into the misbegotten strategy of attempting to annex each other's natural catchments and, by the turn of the century, railways and tramways intersected at no less than eighteen points. This of course was not necessarily unhealthy - they might possibly have interlocked to offer mutual support - but in practice they seem to have constructed their routes so as to suck rather than feed each other's services. (p. 170)

The 19th century pattern was repeated following the Great War, when both the suburban rail network and the tram system were converted to electric operation. The MMTB used the replacement of cable trams with electric services as an opportunity to extend the tram system, making further inroads into the viability of the rail system. Observers noted in 1953 that inner suburban rail patronage had declined by 26.5% since 1938, despite static population and low car ownership. The reason was "not competition from private cars, but from trams." (MMBW, 1953, p.192)

To the competing tram and rail systems was added the private bus industry, which can hardly be described as a system at all. Buses operated according to a classic free enterprise model, replete with jitneys. In the years following the Great War, returned servicemen who had learned driving and mechanical skills in the army set up bus businesses. Some joined forces to form companies: these generally operated fleets of full-size buses. Others operated as individuals, driving cars modified to operate as 'cabs' (jitneys). In contrast with most developed cities, including Toronto, which regulated jitneys out of existence, Melbourne had little public regulation, and none for

buses with eight seats or less. As a result, operators “began running where they thought there’d be patronage, regardless of whether it was already being served by other operators or by the growing tramway system” (Maddock, 1992, p. 9).

Melbourne offered an excellent opportunity for the service innovations envisaged by public choice theorists. The rail system and most tram lines formed a radial pattern focussed on the central business district, so a natural niche for innovative bus operators would have been to provide cross-suburban links to fill the gaps left by the radial network, and ‘feeder’ services to new housing estates growing up beyond tram stops and railway stations. But the initial thrust of bus operators was to suck, rather than feed. The major routes focussed on the already well-served central business district and paralleled train and tram lines, with most main routes running along Swanston Street, the principal cable tram route. This was partly a response to a ‘niche’ opened up by the mess of tram lines inherited by the Tramways Board, which required most Swanston Street passengers to change from an electric to a cable tram en route. But when the Board began to electrify and integrate its network in the 1920s, and bus operators (with more than 8 seats) were required, like the Tramways Board, to contribute to the Metropolitan Roads Fund, the larger firms closed their operations. Suburban services remained in the hands of an army of returned servicemen driving ‘cabs’:

In those times practically every street that ran across a suburb to the Sydney Road tram route running north and south had either a cab service or a bus service on it... The cab owners operated a sort of timetable agreed among themselves. It was something of a catch-as-you-can business: although they worked to what were roughly fixed routes, they really had no schedules. They would move off as soon as they had five people aboard. They plied for hire as long as there was some sort of demand. If there wasn’t, they’d simply disappear... (Maddock, 1992, p. 28)

But what looks like flexibility from the perspective of the operator may mean unreliability for passengers. One of the industry’s pioneers conceded to Maddock that the jitney system “was pretty rough and ready, to say the least, and the system was somewhat unreliable as far as the paying public was concerned.” (p. 29) Despite their favoured regulatory status, cabs or jitneys had largely disappeared by the end of the 1930s, although a few lasted until as late as 1954. Regulation did not kill the jitney in Melbourne, the market did: operators simply switched to more efficient, larger vehicles.

An illustration of this ‘free market’ system in action is provided by route 10, one of the original services dating back to the early 1920s, and the last route to retain cabs (Maddock, 1992, p.31) The route commenced as a multiple-operator service provided by more than a dozen drivers, each of whom owned one cab. The initial route was a classic predatory service, running from suburban Box Hill railway station to the city rail terminus at Spencer Street Station (Maddock, p. 42). In 1925, the route was cut back to terminate in the inner eastern suburb of Abbotsford; in 1933, the remaining route was split in two to suit one operator, who had acquired a bus fleet. The ‘rump’ route was operated by owner-drivers, who gradually replaced their cabs with second-hand buses,



but whose numbers dwindled over the years. The final years of the route were described in the Bus and Coach Society's newsletter:

One of the operators withdrew his Bedford quite early in the piece, and the other four continued to provide the service until well into the '60s, when the Ford, older than the rest was withdrawn. The remaining three continued until about a year ago when Mr. P.G. McCallum withdrew because he found it increasingly difficult to make a living out of the route. The service was then provided by two Chevs until Mr. A.H. Cotton's 'did' a gearbox early in November and was withdrawn. Phil Venier continued operation for another five or six weeks to see out the school year. (Maddock, 1992, p. 33)

So competition in Melbourne produced not innovation, but decline. The city's unplanned public transport survived the depression and war years, in which first the high cost of cars, then economic hardship, and then petrol rationing ensured a large supply of 'captive' patrons, not unlike the situation in Bangkok today. But could this continue in an era of rising incomes, expectations and car ownership? For some Melburnians, public transport did offer a convenient service. High numbers of captive patrons ensured frequent service on most train and tram services, which followed radial routes terminating in the central business district. A resident living within walking distance of a stop or station and wishing to travel to the CBD or a point along the route received a high level of service. Anyone living beyond walking distance of trams or trains, however, or travelling across the suburbs, or needing to transfer between modes to complete a journey, received an extremely poor service, and usually paid two fares for the privilege.

The quality of the least-regulated mode, private buses, was inferior to that of the publicly operated modes, with lower frequencies and more restricted hours of operation even on services in comparable corridors. Only 16% of public transport journeys in 1950 were made on private buses, compared with 35% on the railways and 49% using the Tramways Board's services (MIC, 1969, Vol 1, p. 49). The problems of the bus industry were generally acknowledged to be a result of the deregulated environment inherited from previous decades (Maddock, 1992, pp. 32-3). The MMBW noted:

there are about 100 routes operated by privately owned buses..... in most cases they act as feeders to rail and tram services..... On account of infrequent service and poor co-ordination. there are relatively few who can save much time by using these services. (MMBW, 1953, p. 184)

As Melbourne grew in the 1950s, 1960s and 1970s, more and more residents came to live beyond the reaches of the train and tram networks, and increasing numbers of journeys were made to locations other than the central business district. Car ownership was also rising rapidly. Patronage on rail and tram routes began to fall as some passengers began using cars; unless new patrons could be found to replace those leaving, a vicious cycle of patronage and service decline would be established. The need for a co-ordinated response was identified by the MMBW:

it is apparent that, if the public transport system is to play its proper part in the essential movement of people and goods, there will have to be effective co-ordination of... trains, trams and buses. Only in this way will the public be given the best possible service at the lowest cost. (MMBW, 1953: 192)

Although regulation of private buses was strengthened by the Transport Regulation Board Act 1955, there was no planning. The TRB encouraged individual operators to combine into quasi-monopolies to avoid bankruptcy, a process which took until the late 1960s to complete. But public transport remained uncoordinated and 'market driven', as public and private operators responded to falling patronage by increasing fares, reducing services and poaching one another's remaining patrons. The lack of overall planning that saw patronage declines in established areas also ensured that little was done to provide services to newly-developed areas. The small private operators lacked the financial and organisational capacity for a planned expansion, and the multitude of firms and short 'one-man' routes inherited from the jitney era were a brake on the development of cross-suburban linkages. Springvale Road, Melbourne's busiest non-radial road, was provided with a bus service only in 1981, following government-supervised negotiations among three separate operators who had previously run four short routes along sections of the road. This was more than two decades after the major period of suburban development in the area.

### **Toronto: comprehensive planning**

If Melbourne public transport exemplifies 'public choice' in action, Toronto is a paradigm of planning. The establishment of the Toronto Transportation Commission in 1921 paralleled the formation of the MMTB in 1919, but with one principal difference. The Commission was given responsibility for all public transport within City of Toronto boundaries: private operators were excluded. As Frisken notes, this arrangement ensured that a full public transport service was provided to all residential areas of the City, since requests for new service had to be assessed "in terms of the level of service already available to the residents of other areas" (Frisken, 1984, p. 266). As in Melbourne, the tramway system was rehabilitated rapidly, but in contrast with Melbourne, the system was multi-modal from the start. Before the end of 1921, the TTC began using buses as feeders to the tram system (TTC, 1971) and to test demand prior to the extension of tram services (Davis, 1978).

The TTC did not serve areas beyond the municipal boundary: these were covered by four private firms supplemented by separate municipal offerings. Dissatisfaction with suburban public transport was a major reason behind the establishment of the Municipality of Metropolitan Toronto in 1953. The TTC became an agency of Metro, with a monopoly over public transport, and suburban bus operations were integrated into its system. When urban rail appeared in 1954, the integration theme was continued. High on the list of 'primary design objectives' for the new subway system was: "It would be built to facilitate the fast and convenient interchange of passengers between the subway and the connecting surface transit routes" (TTC, 1971, p. 25). Frisken

(1990) draws a direct connection between the organisational structure of Toronto public transport and post-War service integration and expansion:

Because the TTC had a monopoly on transit service within Metro, it was able to link suburban bus routes to subway lines, just as the city agency had used buses to feed streetcar lines... The practice remains a cornerstone of the TTC's servicing policy. The extension of subway lines into the suburbs has meant the addition of many suburban bus routes primarily for the purpose of generating subway ridership. This has undoubtedly meant that some suburban districts have received bus service earlier than they would have... Between 1955 and 1963 the TTC doubled its annual mileage of suburban bus operation (pp. 22-3)

The TTC was initially reluctant to provide suburban areas with an equivalent level of service to that provided in the City of Toronto, arguing (in a manner that should be familiar to Australians) that densities were too low. But a change in the composition of the TTC's managing Board in the early 1960s granted increased influence to suburban interests, and the suburban system was upgraded to 'urban' service levels (Colton, 1980, pp. 167-8). The suburban expansion of the early 1960s was carried out on a grid pattern, taking advantage of the configuration of the arterial road network. This grid of bus routes was designed "to meet the transportation needs of the increasing number of riders who travel locally within their own suburban districts" (TTC, 1971, p. 12), while also providing direct access to the radial subway network.

### **Three crises**

Toronto's decision to opt for planned public transport in 1921 has had far-reaching consequences that may not have been appreciated at the time. Both Melbourne and Toronto faced a public transport 'crisis' following the First World War. In each city, the 30-year franchise of a private tram operator was due to expire; in 1916 in Melbourne, in 1921 in Toronto. In both cases, dissatisfaction with the private operator led to a public takeover of the system, followed by a programme of tram reconstruction and extension. In Toronto, the solution of a municipal body probably seemed logical, given that the City covered most of the urban area. In Melbourne, the small size of municipalities seemed to dictate a State government solution, and the existence of the Victorian Railways (and possibly a failure to foresee the rise of the bus) may have discouraged a multi-modal authority. These divergent paths led to significant consequences: an integrated system in Toronto; a non-system in Melbourne. Both the MMTB and the TTC appear to have been well-managed organisations, and Melbourne's lower car ownership provided the more favourable operating environment. The Tramways Board was crippled, however, by competition from the railways and bus operators, and prevented by its single-mode charter from taking advantage of the network effect.

This divergence in turn led to quite different responses to the second public transport crisis, the explosion of car ownership in the 1950s and 60s. The massive service expansion in the suburbs of Metro Toronto took place at a time when service levels in Melbourne were in rapid decline. Toronto met the crisis of increasing automobile

ownership with a planned counterattack; Melbourne succumbed to a vicious cycle of decline. The performances of the two cities reversed, Melbourne beginning with the higher patronage, but ending with the lower (see Mees, 1994 for figures). This, it should be noted, was during a period when Toronto's population density was declining much more rapidly than Melbourne's. A similar picture can be found with government subsidies for public transport. Toronto introduced subsidies as deliberate policy initiatives to keep fares down; in Melbourne deficits simply appeared as patronage declined and the traditional responses of fare rises and service reductions failed. The outcome by the late 1980s was that Toronto's planned subsidy was relatively lower, at 32% of operating costs, than Melbourne's unplanned deficit, 57% of operating costs.

Public transport in both cities faced a third crisis in the early 1970s, when unpopular freeways were cancelled by 'reforming' Premiers anxious to rehabilitate the image of traditionally conservative parties. Both Bill Davis in Toronto and Dick Hamer in Melbourne promised a greater emphasis on public transport. In Toronto, this took the form of a redoubling of the already-successful model of comprehensive service provision, coupled with the abolition of a two-zone fare system which charged higher fares to suburban travellers. This marked a continuation of the trend, established by the bus expansion of the early 1960s, away from the TTC's cautious operating policy which had enabled it to weather the Depression. It had been intended to confine the rail system to the densely-populated inner city, but the 1970s saw extensions pushed deeper into Metro's suburbs than originally planned. Significantly, it is in these 'middle suburbs' where Toronto outperforms Melbourne by the greatest margin (Mees, 1994).

In Melbourne, little change followed Premier Hamer's announcement, as there was no model of successful public transport to apply. Within a few years spiralling deficits led to the 'Lonie inquiry', which proposed radical service reductions, floated the prospect of eliminating trams, and revived of many of the freeways cancelled in the 1970s. Melbourne's one concession to planning was the multi-modal 'travelcard' system inaugurated in 1981, ironically a recommendation of the Lonie report. In 1983, the Victorian Railways was amalgamated with the MMTB to form a Metropolitan Transit Authority (later Public Transport Corporation), to which the languishing private bus operators were made contractors at their own request (Maddock, 1992, p. 57). The 'travelcard' produced an immediate increase in patronage (trips as well as boardings) on all three modes of public transport, the first such increase since the Second World War, and probably saved the bus operators from extinction (Maddock, p. 24). The TTC's fare system has been multi-modal since 1923.

The success of Melbourne's single fare system was not followed up with the obvious next step, the integration of services into a comprehensive, multi-modal network. The dramatic improvement in suburban bus services that this would have required was ruled out by the Ministry of Transport in a 1982 study for the incoming government. This gave a "broad brush analysis" of a grid-network of frequent bus services with extended hours of operation. The concept evaluated was essentially the 'Squaresville' model discussed above, and actually operated in Toronto, but the study used a demand elasticity of 0.5 and ignored the network effect, concluding that a 200% increase in bus-km would produce only a 100% increase in passengers, and therefore a 350% increase

in subsidy (Ministry of Transport, 1982, pp 32-35). Even inexpensive measures, such as co-ordinating rail and bus timetables, were generally ignored. For example, Monash University, with 25,000 staff and students, is two kilometres from the nearest rail station, Huntingdale. The principal bus service to the University, 'good' by Melbourne standards, used to run half-hourly throughout the evening, as did the train service through Huntingdale. Each bus passed by the station, missing the train by two minutes (ensuring a wait of 28 minutes for the next train), all evening, for more than a decade until in 1990 the bus company removed late evening services due to 'lack of demand'.

### **Public transport in the two cities today**

Public transport in Melbourne remains a series of unconnected routes and modes, rather than a network. The Public Transport Corporation's 1997 Melbourne 'Travel Guide' contains separate maps of the rail and tram systems, no information about connection points and no bus map. Information about buses is confined to the following: "Operating hours vary for local bus services run by private companies. Contact the Met information centre for further details."

Public transport in Melbourne is 'flexible', but in a different sense to that predicted by public choice theory. Service quality varies wildly across the city, and patronage varies along with it. Variations are not based on population density or any rational criterion, but on mode and historical accident (areas with trams receive much higher service levels than similar areas served by buses). Bus services in particular are of extremely low quality, with a confusing and inefficient route structure, outdated and inappropriate vehicles and poor frequencies and hours of operation. The majority of Melburnians have no access to public transport after about 7 pm or on weekends, and those served by public transport have a limited choice of destinations. Intermodal integration is, except for fares, virtually non-existent. Facilities for passengers changing modes are poor, with patrons frequently having to cross busy roads to reach bus stops from railway stations. Timetables are generally uncoordinated, even though most bus routes terminate in shopping centres which, for historical reasons, are near railway stations.

By contrast, public transport in Metro Toronto today is 'inflexible', as public choice theorists might have predicted. A uniformly high level of service is provided throughout the urban area by an easily understood grid network of buses and trams, which feed the rapid transit system, as well as serving local and cross-suburban travel needs. Changing between bus and rail is very convenient owing to a unique feature of the Toronto system: at most stations buses and trams take passengers inside the 'fare-paid' area, eliminating the need for transferring passengers to show tickets. What surprised me on a 1994 visit was the extent, and convenience, of bus-to-bus transfers, which are facilitated by frequent services, a simple network structure and the placement of bus stops at street intersections so as to facilitate transferring. Frequent services operate on most rail, tram and bus routes day and night, 7 days a week, providing passengers with the real flexibility that comes with freedom from juggling timetables. The cost of providing such high service levels is considerably reduced by the simplified route structure and intermodal coordination. The predictability, efficiency and

integration provided by centralised planning permit a 'seamless' service that serves spatially and temporally diverse travel needs. This system is flexible from the perspective that really counts, namely the passenger's

The proposition that integrated, regional planning and service quality are the keys could be tested if there were areas in Toronto where public transport was provided on a comparable basis to Melbourne. Such areas do exist, in the outer suburbs beyond the boundary of Metro Toronto. Like the areas beyond the City of Toronto prior to 1954, these suburbs are not served by the TTC, but by a dozen separate municipal bus systems, supplemented by provincially-provided commuter rail. Comparing one such municipality, Mississauga, with Etobicoke, the neighbouring area of Metro Toronto, we find similar gross residential densities (29 and 33 persons per hectare respectively) But Mississauga's public transport is similar to Melbourne's: typical bus routes run half-hourly with little evening and no Sunday service, and fares are high for most travellers, who must pay an additional fare to transfer to the TTC subway system. Public transport in Mississauga accounted for 8% of travel in 1986, similar to the share in Melbourne, while the figure in Etobicoke was 19.5%.

In the last few years, public transport patronage in Metro Toronto has declined steeply, while remaining much higher than Melbourne's, as the budget-cutting policies of a neo-conservative Provincial government take effect. This, I would argue, also provides evidence that planning and service quality are the key to Toronto's success, since these factors changed appreciably over the period of decline, whereas urban form did not. The recent trend reversal also illustrates, as does Melbourne's recent return to the failed policy of competition, the inability of public-choice influenced governments to learn from even their own city's history.

## **Conclusion**

Tony Sorensen finds it "difficult to see how any combination of bureaucrats, politicians, bus operators and community interest groups could arrive at a solution to the [public transport] problem through mutual negotiations." (Sorensen, 1991, p. 21) But the comparative experience of Melbourne and Toronto suggests that just this approach has produced the better outcome.

Melbourne's unco-ordinated market-driven public transport systems have collectively proven less able to respond to the changing travel needs of a low density city than Metro Toronto's single, regionally planned system. In low-density environments with high car ownership, public transport appears to be a natural monopoly, because patronage is too sparse to permit the kind of wasteful competition produced by the market. The more effective approach is to knit individual routes and modes together into a network. By taking advantage of this 'network effect', Metro Toronto's public transport has outperformed Melbourne's on almost every conceivable criterion, with lower fares, higher cost-recovery, high occupancies and a service that addresses the needs of the whole population, not just city commuters. The problem in Melbourne has not been too much planning, as the Industry Commission suggests, but too little. Public

transport operators in Melbourne have competed with one another; Metro Toronto's single operator has competed with the car.

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