

Financing public transport: Case studies of international and Australian cities

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Abstract

While the Gold Coast has been successful in negotiating \$1 billion in joint funds to build its light rail system and to improve travel between its urban activity centres, the community of the Newcastle region is currently trying to prevent the closure of the existing rail service. The urban futures of these two major Australian cities could head in different directions because of their future transport framework in the city centres. One key explanation lies in their ability to source funding for improving the public transport systems.

This study examines options used for funding the public transport sector in medium-size cities in Canada, Germany and France, where governance and the level of economic development have some similarities to Australia. Comparisons are then made with the situation here – Newcastle (NSW) and the Gold Coast (QLD). By exploring the differences in funding sources and their intergovernmental funding arrangements, this paper concludes with options for enhancing the funding capability of the public transport sector in regional Australian cities which can be further explored or developed.

1. Introduction

When considering upgrading public transport services to enhance accessibility, energy efficiency, and social equality – as well as impacts on land value and urban structure – it is essential to understand cities' funding capability in the public transport sector. In fact, funding arrangements reflect the government's approach to planning and policy-making, and influence the quality of services provided. Hence, comparative case studies on funding the public transport sectors in different cities contribute to further identifying institutional solutions to advanced public transport outcomes.

This paper examines funding arrangements of the public transport sector in medium-size cities with populations between 300 thousand and 3 million in Canada, Germany and France, to compare with Australian cities such as Newcastle and the Gold Coast. By exploring the similarities and differences in funding mechanisms adopted within their public transport governance structure, this paper identifies possibilities for enhancing funding capability of the public transport sector in regional Australia.

Choosing case studies in Canada, Germany, France and Australia is because that the four countries share certain similarities in government type, per-capita income and levels of urbanisation. More importantly, Canada, Germany and France all have cities where effective approaches to public transport planning have been used and have achieved high quality of services and growth of public transport patronage over the last two decades (Buehler & Pucher 2011a; Mees & Dodson 2011; SEMALY & Faber Maunsell 2003; Stone 2011). For instance, per capita trips by public transport in Vancouver, Canada has increased by 64% between 1993 and 2011 (Metro Vancouver 2011). In Germany, public transport trips per capita increased by 22% from 1992 to 2007, and 18% of all trips were taken by public transport in Freiburg between 2003 and 2007 (Buehler & Pucher 2011a). In the case of France, 33 cities have built their light rail systems since 1985, of which 25 cities have small populations under 250,000 (2006 French Census).

In comparison, changes in Australian public transport sector are rather recent. The overall public transport market share (percentage of total passenger kilometres) in the metropolitan areas remained approximately 10% in the last 30 years, with an increase from 8.9% in 2005 to 10.5% in 2010 (Cosgrove 2011). Statistics also show that 75% of journey-to-work trips to the Sydney Central Business District (CBD) were undertaken using public transport in 2006 (Independent Public Inquiry & Long-Term Public Transport Plan for Sydney 2010, p. 141). Public transport service capacities have been filled during peak periods in some capital cities because of the long-term stagnation coupled with the most recent patronage growth.

In medium-size cities, change happens in the growing recognition of the light rail and the willingness of improving sustainable travel modes. The Gold Coast is currently investing in co-funded \$1 billion light rail services along the coastal corridor. Canberra has also decided to build its first light rail line to promote sustainable transport. Planning for the light rail in Newcastle and Hobart is under intense discussions on feasibility, financing and efficiency. Therefore, to adapt these recent changes, the Australian public transport sector will need additional investment particularly in sustaining patronage growth and promoting regional urban development.

To gauge the viability and sustainability of funding for public transport, a comparison is made between medium-size cities such as Vancouver, Freiburg, Montpellier, Newcastle and the Gold Coast. There are two reasons for focusing on medium-size cities rather than large/mega cities with populations over 3 million. First, funding public transport systems in medium-size cities is more challenging. This is because public transport is seen as a solution to urban congestion in large cities where it can obtain strong political support for funding more easily, whereas this may not be as compelling in smaller cities. Debates between upgrading roads and improving public transport still commonly exist among politicians in Australia.

Secondly, research on the public transport sector in medium-size cities can assist some major cities such as Newcastle to improve sustainable transport and the livability of the city. The state governments remotely manage most of the regional public transport systems in Australia. Because of governmental neglect and the dispersed power of local authorities, regional cities often struggle with having their public transport issues given priority in the federal and state level strategies to obtain funding. For cities such as Vancouver, Freiburg and Montpellier, local governments have strong decision-making roles in the public transport sector, and they have the ability to attract funds for their public transport systems that serve a relatively small population.

2. Variation in Funding Arrangement

By comparing cities' public transport funding sources, this section identifies the funding arrangements applied in Vancouver, Freiburg and Montpellier. Public transport funding sources can be distributed into three categories in terms of government subsidy, fare box revenue, and additional funding. This distribution covers all kinds of revenue sources and explains the challenges in funding public transport.

Public transport is not profitable due to large capital cost, continuous expenses, and the nature of public services (Bly 1987; Ubbels & Nijkamp 2002; Vuchic 2005). Government subsidies from various levels of government are required to fund capital and operating projects to fulfil environmental and social benefits. However, long-term deficit in the public transport sector would discourage further investment. Hence, in a viable funding system, while most of the capital funding comes from the government or tax payer, fare box revenue should cover a large portion of the operating expenses. In Germany, fare box revenue contributes to 77 % of operating expenses as a result of high public transport patronage and policies on cost efficiency (Buehler & Pucher 2011a, p. 128). In Australia, fare box revenue typically covers 25-30% of the operating expenses (Stanley & Barrett 2010, p. 24), which emphasises the funding challenge. Besides, if government funding for the public transport

sector comes from the same mix of tax revenue sources for other public sectors, public transport is more likely to fail the competition with other public services such as education and health. To fill in the financial gap and meet the growing demand for better quality public transport services, authorities have to seek additional funding where private investment and special taxes and charges play an important role. For various cities, the three categories of funds have different levels of application, which leads to variations in the funding capability of their public transport sectors.

2.1 Vancouver, Canada

In Canada, the provincial and municipal governments manage the public transport sector and receive federal assistance on capital investments. The provincial governments have the role of coordinating municipalities and deciding the format of the public transport authority. In the Province of British Columbia, the public transport sector is managed by two regional level authorities in terms of TransLink and the BC Transit. TransLink (formally the South Coast British Columbia Transportation Authority) oversees and operates both road and public transport systems in Greater Vancouver Regional District (Metro Vancouver). It is responsible for handling and generating its own funds.

Both of the federal and provincial governments have provided long-term dedicated funding to the public transport system in Metro Vancouver (TransLink 2012b, p. 36). The primary capital funding source is the Gas Tax Fund from the Government of Canada to promote environmentally sustainable infrastructure. In 2011, the Government arrange CAD\$245.1 million Gas Tax Fund to TransLink for investment in public transport services in order to reduce greenhouse gas emissions (TransLink 2012a, p. 76). Regarding operating funding, the Province of British Columbia (the BC Government) provides support to operate the Canada Line through a monthly payment, and it is approximately CAD\$19.3 million annually. It also provides constant funds for other public transport projects (capital and operating). The total amount of other-project funding was CAD\$22.3 million in 2011 (year ended on March 31, 2012) (BC Transportation Financing Authority 2012, p. 23). Federal and provincial funding for public transport in Vancouver is guided by national commitment to sustainability, and it is reliable and relatively predictable.

Besides government subsidies, three main sources of TransLink's operating revenue are – in order of importance – public transport services, fuel taxes and property taxes (TransLink 2012a). However, fuel tax revenue is dedicated to the Major Road Network and bicycle facilities, which means that only revenue from public transport services and property taxes are available for funding public transport. The service revenue includes fares and advertisement sold on the public transport system. In 2011, this revenue covered 42% of TransLink's operating expenses on the bus and rail systems (TransLink 2012a). Property tax is a key source of general revenue for TransLink, and it is collected by the municipalities. The legislation allows TransLink to raise the property tax rate by 3 per cent every year.

Overall, diverse funding sources fund the public transport sector in Vancouver, and user-paid fares and taxes cover the primary operating expenses. Nevertheless, TransLink recently faces funding challenges to deliver projects planned in the 2012 budget, which have led to measures to cut costs and increase efficiency while improving the region's transport experience (TransLink 2012b, p. 10).

2.2 Freiburg, Germany

Germany has a long history of promoting and supporting public transport at all levels of governments. In the 1970s, the federal government increased funding for public transport and raised taxes on fuel consumption and vehicle sales (Buehler & Pucher 2011b). Meanwhile, the state governments began to organise cities and districts to work together on integrating their public transport services, fares and timetables. Some states found regional authorities to finance public transport systems and to coordinate agencies and operators in

the region (ZRF 2011). The local governments implemented car restriction policies to promote car-free zones and traffic-calm neighbourhoods (Buehler & Pucher 2011b).

Financially, all three levels of government contribute to funding public transport to some extent (Buehler & Pucher 2011a). The federal government provides part of its gas tax revenue to the provinces for capital expenses of regional rail services. The provincial government assists operators to upgrade all modes of services into one integrated system. The local funding covers municipal owned utilities used during capital projects, as well as bicycle parking facilities at public transport stops.

In the Baden-Württemberg Province, Zweckverband Regio-Nahverkehr Freiburg (ZRF) is the regional public transport authority that coordinates agencies and operators in the City of Freiburg, the Breisgau-Black Forest County and the Emmendingen County. Based in Freiburg, ZRF is responsible for developing regional public transport policies and plans, as well as integrating and financing rail and bus services. It represents the interests of the province, operators and infrastructure companies (ZRF 2011).

ZRF's Financial Statement in 2010 shows the associated city and counties were the major funding contributors for both capital projects and operations. This is because the local governments collected and directly handled federal funding on regional railway services. The total capital revenue of ZRF in 2010 was €4.7 million while operating revenue was €10.4 million (ZRF 2011).

Notably, ZRF also receives provincial funding for covering the costs of coordinating regional services and the ticketing system. This funding began in 1984 before the establishment of the ZRF. When the Baden-Württemberg Province introduced a flat fare monthly ticket in Freiburg, it provided funding to guarantee the service provider (VAG) having minimum annual fare box revenue. The City of Freiburg then forced VAG to implement the flat fare ticket within the city (Buehler & Pucher 2011a).

Since then, the integrated ticketing system has enhanced financial sustainability of the public transport sector in Freiburg. The monthly and annual flat rate ticket is rather attractive, and 92% of public transport riders used this ticket in 2007. The overall fare box revenue covers 90% of VAG's operating expenses, leaving only 10% to be covered by government operating subsidies (Buehler & Pucher 2011a).

In brief, based on a highly integrated and established system, the public transport sector in Freiburg mostly relies on fare box revenues instead of government subsidies, and all three levels of governments are involved in promoting public transport. Under the federal policy on sustainability, the Provincial Government funds for integrating services and the ticketing system, meanwhile, the local governments handle the gas tax revenue and fund for capital projects' utility usage. The challenge here is the lack of commitment from any level government to fund the renovation of the rail system that was originally constructed about five decades ago (Buehler & Pucher 2012).

2.3 Montpellier, France

Public transport systems in France are managed by the "autorité organisatrice de transports" (AOT) which is the local level government representing a group of municipalities (communes). AOT is responsible for developing public transport plans, deciding on fare prices, and choosing tenders for different projects.

The payroll tax – Versement Transport (VT) is the primary funding source of public transport in France. It is collected directly by the AOT and paid by the companies located in the AOT authorised area. The entire revenue from VT is committed to investing in and operating public transport services. According to Hylén and Pharoah (2002, p. 65), 39% of the industry (capital and operating projects) was funded by VT, leaving 27% to the local governments, 23% to fare box revenue, and 4% to the national government.

A dedicated public transport authority like AOT provides institutional possibility for an integrated and coordinated sustainable transport system at the local level, and the revenue from VT guarantees the financial feasibility of the fast extension of the light rail system in France.

Besides, once a new project is settled, the national government pays 20% of the capital costs, and the local government pays for the municipality-owned utility used during the construction. Other utility usage is contracted to private businesses by the AOT (SEMALY & Faber Maunsell 2003, p. 11).

The Mayor also plays a significant role to provide political support and to ensure the implementation of projects. During the election campaign, if the mayor and his/her proposal on light rail projects are chosen by the voters, the mayor will tighten the project schedule to ensure his/her election promise delivered on time. Hence, the completion year of a light rail project is usually in the election year of the next mayor (SEMALY & Faber Maunsell 2003, p. 11).

For Montpellier, Transports de l'agglomération de Montpellier (TaM) is the AOT, and it is 55% owned by the communes, 20% owned by the operator Transdev, and 25% by banks and other institutions (Hylén & Pharoah 2002, p. 83). Because of its "mixed economy" operating model, the transparency of their financing details is very limited. However, it is clear that VT is the primary funding source for constructing and operating light rail in Montpellier.

3. Discussion

3.1 Comparison with the Australian Situation

The public transport sectors in Vancouver, Freiburg, and Montpellier have three common characteristics in their funding arrangements. First, all of the three cities receive dedicated capital funding from the national/federal governments, such as the gas tax revenue in Canada and Germany, and the 20% investment guarantee for new projects in France. Second, the local governments of the three cities are heavily involved in public transport funding through special taxes and subsidies, such as the property tax in Vancouver, the utility subsidy in Freiburg, and the payroll tax in Montpellier. Third, fare box revenue covers high percentage of operating costs in the three cities, because of sustainable transport policy at the national level, integrated services, and the attractive ticketing system.

In Australia, the public transport sector is managed and funded mostly by the state governments. There is no constitutional requirement for the Federal Government to fund either capital or operating projects. Also, local governments are not historically involved in public transport planning and financing except for the ones in Queensland.

In Gold Coast, the light rail project is funded by three levels of governments, and tendered to the private company GoldLinQ for construction and operation. Federal funding occupies 38% of the total investment of this project, and the Gold Coast City Council contributes to 13%. This is an innovative funding project in Australia involving all three levels of governments and with Public Private Partnership (PPP).

In Newcastle, the public transport sector was neglected for decades until some changes in mid-2013. Since the 1990s, there have been debates on closing the railway line in the Central Business District (CBD) for further development of the harbour-front. In 2012, the NSW Government announced its latest proposal on closing the railway line as part of the revitalisation of the city. However, there was no sign of improving the public transport system. Up till June 2013, the State budget decided to consider funding a light rail system by using the extra revenue from a 99-year lease on the Port of Newcastle. This action could change the public transport future in the city, but in terms of funding sustainability, the future still highly relies on the State Government and the power of politicians.

Compared to the international cities, Table 1 shows funding for public transport in Newcastle and the Gold Coast is sporadic and unsustainable. The funding sources are limited to government subsidies and the fare box revenue. There is no dedicated tax to support either capital or operating projects. The public transport sector has to compete with other public services for government funding. In addition, the Federal Government is not as committed as other countries in terms of reliable funding for capital costs and national policy on promoting public transport.

Table 1 Cities' public transport major funding sources

Cities	Vancouver	Freiburg	Montpellier	Newcastle	Gold Coast
Capital funding	Federal	Federal/Local	Payroll tax National	State	Federal/State/ Local
Operating funding	Fare box Property taxes	Fare box Local	Fare box Payroll tax	State Fare box	State Fare box
Special taxes	Gas tax Property taxes	Gas tax	Payroll tax	--	--

Note: Information obtained from authorities' official website in June, 2013

Table 2 shows that the public transport authorities in Newcastle and the Gold Coast have much larger jurisdictions than other cities. While other cities' public transport is managed at the regional or local level, it is the state government bodies that manage the public transport sector in Newcastle and the Gold Coast. This indicates the difficulties for regional cities to prioritise local issues and obtain funding from the State budget when the capital cities are in the centre of attention.

Table 2 Jurisdictions of the public transport authorities

Cities	Vancouver	Freiburg	Montpellier	Newcastle	Gold Coast
Authorities	TransLink	ZRF	TaM	TfNSW	TRANSLink
Level of governance	Regional transport	Regional public transport	Local public transport	State transport	State public transport
Jurisdictions	Metro Vancouver – 24 local units	One city and two counties	City of Montpellier	NSW – 152 local councils	QLD – 73 local councils
Area km²	2,820	2,211	57	801,315	1,700,000
Population	2,300,000	615,000	419,000	6,731,000	4,585,000
Fare box ownership	TransLink	Operators	TaM/operator	TfNSW	TRANSLink
Operators	Subsidiaries Private operators Contractors	Tenders	Long term contract with a dominating operator	Subsidiaries Private operators	Public/Private operators City councils

Note: Information obtained from authorities' official website in June, 2013

3.2 Regionality and transport integration

A regional level authority with its own budget is widely believed to be a successful model for public transport integration (WS Atkins Transport Planning 2001). A strong regional responsibility has a number of benefits including focusing funding on the transport system

across the region, implementing national policy in local areas, and integrating transport with land use planning.

However, not all the regional authority functions well in order to achieve transport integration. A study on Canadian transport sector (Hatzopoulou & Miller 2008) shows that the system of regionality in Metro Vancouver is rather unsatisfactory. One reason is the Provincial Government who controls most of the funding resources does not have a proactive approach to engage with the regional authority and the municipalities. Another reason is the regional authority has failed the challenge of coordinating the interests of 21 municipalities, the region and the province to establish a regional vision. Regarding the relationship between the transport authority and the municipalities, TransLink has impacts on municipalities' land use plans, but it is municipalities which make the decision. In spite of this, Metro Vancouver has created a positive relationship with the Federal Government since it started to fund public transport and city development in 1999.

In Germany, the same government departments plan land use and transport locally, provincially and nationally, and policy making process requires engagement of all level governments. The Federal Government takes the lead in policy-making for sustainable transport and smart growth urban development. The provincial and local governments cooperate in the planning process and implement the policies through local land use regulations. Based on the engaging relationship between levels of government, the regional transport system Verkehrsverbund successfully focuses on regional public transport network and the desirability of services. Besides, working with a few local governments instead of tens of individual municipalities is more feasible for coordinating services.

In France where public transport authority is at the local government level, strong political support and dedicating funding sources are the key to transport integration. However, the jurisdiction of TaM is a group of communes with reasonable population size and geographic area. Hence, regionality can be achieved in various scales. Strong political support at federal or provincial or local level is necessary to support regional transport integration.

4. Conclusion

This study is the beginning of the doctoral research on funding sustainability for medium-size cities. A comparative study on the variety of funding sources applied in a range of international cases illustrates different approaches to achieving viable and sustainable funding arrangements. This part of the research is the fundamental analysis of the feasibility of public transport governance and funding options for Australia. It contributes to the future of sustainable travel modes and gathering the political support needed.

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