



Reforming Public
Transport Planning
and Delivery

Reforming Public Transport Planning and Delivery

The International Transport Forum

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Executive summary

What we did

This report examines the different in which public transport planning is undertaken and services are delivered. The report focuses primarily on urban public transport markets, with some consideration given to intercity markets. Case studies and examples address bus, tram, metro and urban or regional rail. It discusses how well different models of transport organisation deliver value for money, encourage and harness innovation, and help systems prepare for the challenges and opportunities on the horizon. Recommendations highlight the main factors for successful reform of public transport systems.

What we found

Governments exercise planning functions in relation to public transport regardless of whether service delivery is carried out by private or public sector bodies. Planning powers have tended to move from national to regional and local government levels over time, following a wider trend of devolution observable in ITF countries.

The rationale for decentralisation lies in the desire to better understand and address local needs and preferences, improve value for money and increase transparency. However, transport patterns do not necessarily reflect local government boundaries. Hence, co-ordination mechanisms have had to be developed that cover the entire functional transport area of the city. This involves the establishment of metropolitan transport authorities and the pooling of funding and regulatory authorities, as well as the negotiation of agreements between local and regional governments.

Service delivery can be undertaken via a range of models, from publicly operated monopolies to fully liberalised markets with open entry. However, there has been a clear trend away from public monopoly provision. Today, hybrid models of regulated competition are found in the vast majority of ITF countries. Again, this reflects broader trends in the provision of public services.

Even where public provision remains, corporatisation of the delivery body has generally been adopted, with the objective of improving efficiency and providing greater autonomy and accountability. Service providers are usually selected via a competitive process, but the vast majority of public transport operations receive some form of government subsidy.

The need to control escalating subsidy costs has been a major driver of reform in many countries. Nonetheless, subsidies for public transport are widely supported for at least three reasons: Firstly, as a second best means of addressing the negative externalities of private vehicle travel; secondly, because the generation of increased ridership enables higher service frequency, improving quality for all (the Mohring effect); and, thirdly, as a means of ensuring connectivity for those who cannot afford private vehicles.

The new digital platforms offering shared transport services in metropolitan areas are likely to have significant implications for the future organisation and delivery of public transport. The development of the “Mobility as a Service” concept, involving offering a bundle of public transport and on-demand services covering various modes via a single platform, will widen mobility choices for users and bring both challenges and opportunities for public transport.

What we recommend

Let government plan transport services, but at a decentralised level

Governments must take responsibility for service planning regardless of whether public transport service delivery is undertaken publicly or privately. Decentralised planning helps ensure public transport services respond to local needs. Loss of co-ordination between complementary transport services must be avoided, however. Inter-governmental planning bodies may be needed so that planning spans functional transport areas.

Consider corporatising publicly operated transport services

Corporatisation can be an effective means of achieving cost savings and service quality improvements. It has often constituted the initial stage of reform, but sometimes also constitutes the core of the reform strategy.

Pay close attention to system design where competition in public transport provision is introduced

Opening a public monopoly to competition can significantly reduce costs. The means of privatisation largely determines the size of savings, however. Competitive tendering usually yields better outcomes than direct negotiations and award of contracts. Tendering processes should ensure a competitive market exists and is sustained. Concessions should not be too large or long. Also, system operation should be separated from the ownership of the main assets. Important variables such as ridership, revenue and the condition of the main assets should be fully transparent. Service requirements should be specified in ways that ensure that contract prices reflect long-term costs.

Pay attention to service quality as well as costs to achieve a sustainable public transport system

Competition generally reduces costs, yet the impacts on ridership and service quality vary. If cost reduction drives the process and service standards are neglected, patronage declines and finances deteriorate. Performance standards and incentives should thus be set out in tender documents. They should address all quality indicators identified by the planning authority. Performance incentives should be aligned with the standards and be large enough to be effective.

Take the broader urban context into account in designing and adopting public transport reforms

Urban policy and the livability of cities are increasingly supplanting cost control as the drivers of reform. To achieve modal shift, authorities must focus on service quality, including the integration of the public transport offer. Improved service quality - notably reliability, regularity and frequency - makes public transport more attractive and can reduce subsidy levels by increasing the number of users. App-based shared mobility services have significant implications for this agenda. They present both opportunities and threats to traditional public transport. Governments should engage with providers of shared-mobility services, including of micromobility operators such as dockless bikeshare and electric push scooters, to ensure maximum complementarity - particularly as Mobility as a Service offers develop and provide a broad range of alternatives to the private car in support of sustainable urban transport policy goals.

CHAPTER 1

Introduction and research framework

Finding the best trade-off between the cost and quality of public transport services is a universal challenge faced by government and local authorities. However, approaches to planning, funding and operating these services vary widely, from fully state-owned, planned and operated systems to models where private operators are free to enter the market, subject only to basic regulatory requirements based on safety standards. These different models have emerged due to the different cultural, economic and political contexts evident in each situation.

A number of long-term societal changes have created pressure for reform in the organisation of public transport planning and service delivery. In urban areas especially, the viability of public transport provider systems has been challenged by increasing rates of private vehicle ownership and the expanding low-density settlement patterns that, at least in part, resulted from this. New challenges are also emerging, such as the recent spread of innovative transport technologies and new business models. Analysis of reform initiatives taken since the early 1990s shows some important convergent trends, though starting points for reform differ widely across countries. As such insights from recent experiences in operating and reforming different public transport industry structures are likely to be of interest in a broad range of countries despite differing contexts in ITF member countries.

Research scope and method

This report sets out the major findings of a Working Group facilitated by the International Transport Forum (ITF), comprising members from ten ITF member countries. The Group examined the different ways that public transport industries are regulated and how services are delivered. The key questions considered were how well different models of transport organisation deliver value for money, encourage and harness innovation, and help systems prepare for the challenges and opportunities on the horizon.

This report focuses primarily on urban public transport markets, with some consideration given to intercity markets. Case studies and examples address bus, tram, metro and urban or regional rail. The aim of this research report is to address the following research questions:

- What kind of framework best describes the range of industry structures in urban and intercity public transport?
- Can a common set of motivations for improving or changing industry structures be identified?
- What reform options have been pursued in the past?
- How have reforms and different models performed?
- Are there common lessons to be learnt from past reforms and from alternative models?
- What kinds of models will be most useful in tackling future challenges and opportunities?

A significant research literature exists on public transport industry structures and private sector involvement. The 'Thredbo' conference series is one example.¹ The strength of the Working Group is that it brought together policy makers and researchers with a diversity of experience, to share little-known reform experiences with a broader audience.

The Working Group developed a series of case studies which document some key examples of recent reforms, assess outcomes and highlight lessons learned (Annex A). Where references to case studies are made in this report, they refer to the contents of Annex A, unless otherwise stated. These case studies are combined with a broader review of the academic literature to identify common patterns in motivations for reform and examine the performance of alternative industry structures in different contexts. This report should therefore be regarded as an overview of recent experience rather than a comprehensive academic study.

Describing public transport industry structures

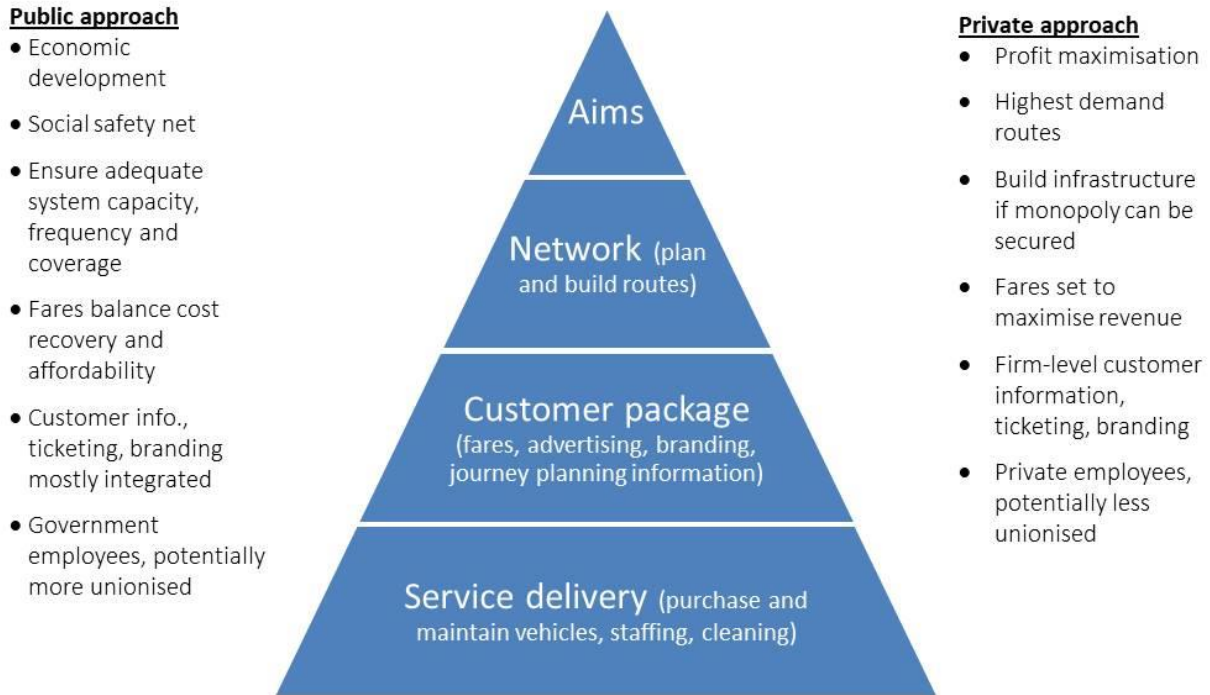
A common framework and terminology is needed to contextualise and compare the diverse organisation of public transport markets. The framework developed in this chapter aims to be consistent with existing literature on public transport market organisation and the practical evidence on how industries are structured from the case studies.

Private and public functions

The extent and type of private sector participation is the fundamental distinction for public transport industry structure. The spectrum of possible structures extends from government monopoly to a completely open market. Between these two extremes lie hybrid models where the private and public sector work together in the provision of services under controlled competition. The first challenge in developing a framework of industry structures is to identify the different functions that can be allocated to the public and private sectors.

The public transport industry can be considered as a simplified set of functions that the public and private sector would approach differently (Figure 1). First, the overall purpose of the system is determined by strategic aims or objectives. A purely private system would be driven by maximising profits, whereas a public system would adopt a broader social welfare maximisation perspective. This would potentially include broader economic effects and the achievement of equity benefits, such as the accessibility of the system to disadvantaged groups. Adoption of these different perspectives will typically yield different outcomes in relation to key variables such as which areas and connections to service, which transport modes should be used, what service frequencies should be provided and what prices should be charged.

Figure 1. Indicative approaches to public transport industry functions by public and private participants

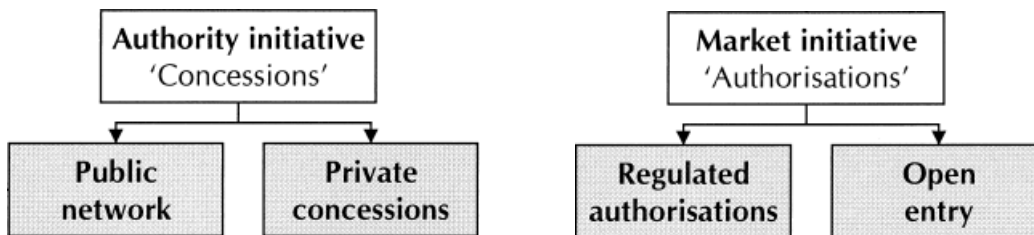


Source: adapted from van de Velde (1999, Figure 1, p. 148)

Planning: who takes the initiative?

Van de Velde (1999) proposes a schematic to distinguish between the different ways networks, routes and services are planned (Figure 2). In an open entry system, a private provider can take the initiative to begin running, for example, a new bus service if it is thought profitable (denoted as market initiative with open entry).² This approach would be expected to deliver efficient outcomes in instances where there are no market failures (for example, where air quality and congestion are not important considerations). However, a privately-planned system is unlikely to provide a socially acceptable level of mobility to people in more remote areas, those with mobility impairments or those on low incomes. For this and other reasons subsidies may be appropriate to support public transport use (Box 1).

Figure 2. Public transport network planning and initiatives



Source: adapted from van de Velde (1999: 149).

Box 1. Public transport subsidies

Public transport subsidies can take the form of infrastructure provision (roads, bus stops or railways) or the funding of part of the operating costs. Such subsidies remain controversial, despite having been adopted over many decades. Many rationales for public transport subsidies have been advanced. Basso and Silva (2014) cite three core rationales for subsidies: first, the Mohring effect suggests that increasing ridership through subsidised fares leads to higher service frequencies, which diminish waiting times of all users and make public transport options more attractive. Second the negative externalities that car travel generates (e.g. congestion, pollution, noise and space consumption) are significant and, as they are generally not charged to car drivers for political reasons, the second-best policy is to reduce the price of public transport. Thirdly, there are equity considerations: public transport is disproportionately used by poorer people without access to a car, subsidising its provision is a means to achieve positive income redistribution and ensure a minimum level of mobility. This, in turn, facilitates access to job opportunities and essential services. That said, in some countries, target groups like elderly people, low income groups or people with mobility impairments are not intensive users of public transport, even in the presence of subsidies. In such circumstances, subsidies may have limited effectiveness as a way to promote mobility for at least some of these groups.

Source: Basso and Silva (2014)

At the other extreme of the planning spectrum, the government plans and controls the services that operate in its jurisdiction – including the network assets (denoted in Figure 2 as authority initiative with a public network). Between these extremes, are regulated authorisations where the government sets some conditions on market entry (e.g. often conferring temporary monopoly rights subject to minimum service standard requirements). In such cases, the public sector typically (though not always) takes the initiative to create services, but selects a private party to carry out that task, including control of vehicles and other assets (van de Velde, 1999).

Van de Velde (1999) identified a hierarchy of planning tasks, from strategic questions such as setting objectives for access, mode share and cost recovery through to tactical questions of network and timetable design and operation matters, such as workforce management and maintenance. Some empirical work suggests that strategic and tactical planning must be undertaken publicly and democratically if efficiency and effectiveness are to be achieved in a complex transport system (Mees, 2010). Other researchers argue for greater private involvement in planning through franchise models predicated on the development of trust relationships between private operators and public regulators (Stanley, Betts and Lucas, 2006). However, Stone et al. (2015) note that, in practice, there has been little movement of planning powers from the public to the private sectors: while some tactical powers have been privatised as part of reforms in the United Kingdom and New Zealand, the recent trend in Chinese cities is in the opposite direction.

The fundamental difference between regulated authorisations and private concessions is the role played by private entrepreneurship. It is present at the core of the regime in regulated authorisations: the entrepreneur sees a gap in the market and decides to enter, but the authority regulates the details. In private concessions, it is the authority that is the entrepreneur: the authority identifies parts of the market that are currently served at levels below community expectations and decides to ask and select a third party to carry it out while transferring some risks to that party.

Service delivery: who runs the services?

Public sector organisations dominated operational services in many ITF member countries (e.g. United Kingdom, Australia and France) during the second half of the 20th century. In others, the private sector has historically run services (e.g. Japan and Korea). More recently, many member countries that previously provided publically-run services have outsourced these to private providers, pursuant to contracts with the public authority which include the provision of subsidies (see Chapters 2 and 3). A central interest for this report is the governance of the relationship between the public authority and the private operator in these hybrid systems and the allocation of specific functions.

In the case of an open entry regime, private operating companies generally decide on all aspects of public transport service delivery. The public role played by authorities is likely to be limited to public safety aspects. However, in models with public initiative but private service delivery, a process is required to select the private operator who will deliver services under some kind of contract. Two processes are possible: either directly awarding (e.g. to an incumbent operator) or a competitive process (tendering). The direct award of a service delivery contract involves a process of negotiation between government and the service provider, intended to ensure that service objectives are met and that value for money is achieved. In some cases, such negotiations may be undertaken with more than one potential provider. This variant can be seen as tending toward the competitive tendering model, however, it is likely that negotiations with a second party will follow those with the first party and be a result of government questioning the likelihood that it will achieve an adequate agreement that meets its objectives with its first interlocutor. In addition, unlike a competitive tender process, the basis for the negotiations will not necessarily be standardised between the parties. The contracts themselves can take one of two main forms, summarised in Box 2.

Box 2. Contract forms and risk allocation

A key distinction in the public transport context is between gross-cost and net-cost contracting.

Under gross-cost contracting, the operator has no service design freedom, as the authority fully specifies the service to be provided (although the operator could subsequently suggest service improvements). The operator does not carry any revenue risk, as they are remunerated on the basis of the full expected cost of service provision, with the public authority retaining all fare-box revenue. However, the contract may include financial incentives related to service quality criteria (e.g. customer satisfaction).

Net-cost contracting involves the operator retaining the fare-box revenue and receiving a subsidy payment from the public authority that is based on the expected difference between the cost of service provision and the fare box revenue. A corollary of this design is that the operator is granted some service design freedom, typically both during the awarding procedure and during the life of the contract. However, minimum service requirements are specified by the authority in a functional way. Stronger incentives may be provided by giving the operator a greater degree of service design freedom and greater incentive to grow ridership, via a variable subsidy that is related to revenue. In this case, the arrangement is sometimes referred to as a franchise.

Source: Inno-V et al (2008) and Bakker and van de Velde (2009).

Regulatory powers in a given geographical area are often divided between different levels of government, while the distribution of regulatory powers between levels of government can change from time to time. In the transport context, planning powers are often devolved to regional or local levels in pursuit of better responsiveness to local demands or preferences. However, where planning powers are

distributed among different levels of government, co-ordination is needed to ensure well-integrated services are delivered to customers. This co-ordination is made more difficult where expanding urban areas mean that travel patterns no longer closely mirror the boundaries of government administrative responsibility. In such circumstances, it may be desirable to establish purpose-specific transport planning bodies with representation from different government agencies. The question of which level(s) of government are responsible for public transport planning is therefore an important issue, along with the questions of the extent of the private and public sector roles in planning and service provision.

A simple framework for the governance of public transport

Figure 3 below represents a framework that has been developed for this study. It incorporates the factors discussed above and facilitates description of the diverse set of industry structures observed in the case studies, as well as the changes made. It incorporates the following dimensions:

- Planning: who is responsible for determining overall strategic aims and designing key elements of the system to ensure they are achieved (e.g. route design, timetabling, fares and pricing)? This is the fundamental distinction between public authority initiative and market initiative.
- Service delivery: who undertakes operational functions (operating vehicles, staffing, vehicle maintenance, and so on). If private operators are involved in service delivery, how does government determine which operators are involved and on what terms (competitive tendering, direct award of contracts, open entry)?
- Levels of government: which levels of government (national, regional, local) are engaged in the planning function, to what extent and what powers do they operate? If more than one level of government is engaged, how are they coordinated?

Figure 3. Framework for public transport industry structures

	Public			Private		
Planning (initiative)	National	State/Region / City	Local			
Service delivery				Direct award	Tendering	Open entry

Hybrid public-private systems tend to be common, with some services operated (and even planned) by private operators, while others are publicly operated (for example, in Barcelona). To account for this diversity, our analytical framework is sufficiently flexible to reflect these hybrid systems.

Application of the framework

This framework is used in the following chapters and provides the standard definitions and vocabulary for the report. The framework can be used in three ways:

- As a static snapshot of the current or past industry structure in a jurisdiction (a mark placed in each row).

- To highlight the hybrid nature of some industry structures (more than one mark identified in each row).
- To demonstrate a major reform to an industry structure (placing a second mark in one or both of the rows, with an arrow, to demonstrate before and after situations (X is the initial situation and Y is the new situation)). Figure 4 provides a snapshot of rail and bus service provision in South East Queensland, Australia. Here rail services are provided by a dedicated statutory authority and bus services are provided through negotiated contracts (directly awarded).

Figure 4. Example of industry structure in South East Queensland, Australia

	Public			Private		
Planning (initiative)	National	Region/City X	Local			
Service delivery	X			Direct award X	Tendering	Open entry

An example of how organisational models can shift over time is the case of London in the 1980s. Prior to reform, strategic planning, tactical planning and service delivery were all carried out by the city-level government. This model was then converted to one where service delivery is realised through a tendering process (Figure 5).

Figure 5. Example of reform to industry structure in London, United Kingdom in 1980s

	Public			Private		
Planning (initiative)	National	Region/ City X	Local			
Service delivery	X			Direct award	Tendering → Y	Open entry

Nuance within the framework

The strength of the above framework is its simplicity: in principle, every regulatory regime can fit into it. It also allows for showing and describing the three major types of reforms of industry structure:

- more private involvement in the public transport industry
- a larger role for governments in the public transport industry
- transfer of powers between different levels of government

One limitation of the framework is that it may not always provide enough detail to distinguish all relevant aspects of a reform process. For example, in the case of more private involvement in the public transport industry structure, many different types of private delivery may occur with alternative procurement approaches. Currie (2016) describes such changes in detail from the starting point of a fully public model (public initiative and public service delivery). The general framework developed for this study allows all major kinds of reforms to be depicted but, as several of the case studies show, additional detail is necessary to account for all relevant aspects.

CHAPTER 2

Motivations for public transport reform

In the early 20th century, most public transport worldwide was planned and provided privately. However, during and after the Second World War, governments in many developed countries nationalised public transport systems, creating vertically integrated public monopolies in order to better drive and co-ordinate substantial programs of system expansion and development. These public monopolies began to be opened to regulated private competition from the 1980s onward, as governments sought to control rapidly rising deficits, which were largely the result of rising rates of private vehicle ownership and associated urban sprawl and reduced density. The motivations for reform have since broadened. In particular, governments have sought to increase the use of public transport in order to address congestion and pollution and increase the “liveability” of cities. Better co-ordination and innovation in service planning and delivery have been seen as key means of pursuing these objectives.

The focus of this chapter is to examine the longer-run evolution of public transport markets and industry structures and the motivations behind historical and more recent changes. While the case studies prepared for this report relate to changes made in the past twenty or so years, economic and transport trends prior to the 1980s have affected public transport viability and hence form part of the backdrop for many of these more recent reforms. Two particular themes emerge from this review of reform motivations: challenges to public transport’s financial viability; and legislative changes requiring the establishment of competitive markets. This latter factor has been significant particularly in Europe. Evidence on the outcomes of these changes are developed in chapters 3 and 4.

The historical context for public transport reform

Before the 1980s

At the beginning of the 20th century most services worldwide were private operations (e.g. US railroads, Korean buses, French trains, UK trains/buses/omnibuses, Australian railroads). In some cases, these private operations included property development (e.g. London Underground and Japanese railroads). In Japan, urban/suburban passenger rail services had been developed mainly by private companies, whereas a national rail company provided mainly inter-urban rail services in the early 20th century. Each private company operated its own infrastructure, effectively comprising a large number of regional quasi-monopolies. This remains the case: 20 different rail companies operated in Tokyo alone as of 2015 (Kato, 2016). Similarly, in France before 1937, several private rail companies existed (such as the Compagnie du Nord, Compagnie Paris-Lyon-Méditerranée, compagnie du Midi, or compagnie de l’Est). At that time, there was no statutory power to force private companies to cooperate, and services and lines were all determined by private actors.

In many developed countries, several capital-intensive industries, including transport services and infrastructure, were nationalised during and after the world wars. Nationalisation was considered essential for driving and coordinating investment, both for the war effort and in the reconstruction phase (Chabanas and Vergeau, 1996).

Hitherto privately operated coaches and buses in the United Kingdom began to be regulated under the Road Traffic Act of 1930. The Act also allowed local authorities to operate bus services. In the decades that followed, local bus service provision came to be dominated by publicly-owned companies and restrictions on entry for private operators were an essential regulating mechanism. In a few decades, this regulatory framework led to the nationalisation or municipalisation of almost all of the public transport sector (Darbéra, 2004). Planning and operations were undertaken by national or municipal governments from 1940 until 1980 for interurban coaches, and until 1985 for urban buses. Some urban public transport assets were owned by municipal governments. There was a substantial level of public subsidy.

A 1937 convention created the SNCF in France as a limited company 51% owned by the state for a period of 45 years. In 1938 there was a transfer to SNCF of railway lines that had previously been privately owned and operated. The role of French regional governments was generally limited to a financial contribution to SNCF in return for some local tariff concessions to residents, such as discounts for commuters and students.

Elsewhere in Europe there were similar situations, for example:

In Germany, railways were initially developed via a mix of private and state-led investment, but at unification in 1871 there was a push towards consolidation and nationalisation of assets and services. Between the Second World War and its 1990 re-unification, Germany had two separate state-owned railway companies, Deutsche Bundesbahn (DB) in the West and Deutsche Reichsbahn (DR) in the East.

Before the 1960s, public transport was privately operated for profit in the Netherlands. However with the rise of car ownership in the late 1960s, the national government began to pay subsidies to private operators (van de Velde and Savelberg, 2016).

The 1980s and beyond

Japan and Korea's urban public transport systems were always privately owned, as noted above. However, the Japanese government-owned inter-urban and long-distance rail operator (the Japan National Railway) was privatised into JR groups in 1987. In the following years numerous countries privatised their public transport in order to reduce public subsidies and enhance ridership. In the European Union (EU), much of this movement took place in response to EU legislative requirements, the objective of which was to "end the 'fortresses' of the national railways and open the transport market to competition, both in and eventually for provision of rail services (IBRD, 2001)".

The same expanding private sector role in railway services is observed in the Americas in the 1990s, particularly for freight, with the changes occurring "sometimes by privatization (Canadian National) but more commonly by concession (Argentina, Chile, Brazil, Mexico, Peru, Bolivia, Guatemala)." (IBRD, 2001).

In the United Kingdom, the 1980 and 1985 Transport Acts deregulated the coach and bus markets. In 1996, the privatisation of the British overground railways became the first example of the privatisation of national assets and services in Western Europe. It was the end of the public monopoly of British Rail and about 25 regional lines were tendered to 10 different private companies.

In 1983, France arguably moved in the opposite direction, with the 1937 agreement expiring and SNCF becoming fully state owned. However, SNCF became a corporatised public entity (Établissement Public à caractère Industriel et Commercial) (SNCF, 2013). Moreover, the French decentralisation laws of 1982 and 1983 gave local governments greater authority to plan and deliver their urban public transport via the creation of urban transport authorities.

In Germany, following the 1990 reunification the two state owned railway companies (Deutsche Bundesbahn for the West and Deutsche Reichsbahn for the East) were merged (on 1 January 1994) and reorganised as a shareholder company, DB AG, which was 100 % owned by the federal state. A partial separation of the operating activities (passenger and freight) and infrastructure management (network, stations and traction power) was introduced within a common holding company. However, no substantial structural change has subsequently occurred.

In recent years, the European Union's regulations and associated recommendations have effectively required member countries to reform rail public transport operations. European Commission Directive 91/440 of 1991 had the objectives of creating railways independent of the State and managed on commercial lines and beginning the integration of the market for rail transport services. Key obligations on Member governments under the Directive were to grant railways independence from the State (including management independence), to implement (at a minimum) accounting separation between the transport and infrastructure functions, to reduce the debts of railway organisations to a level that does not impede sound financial management and to establish access to railway infrastructure on fair terms for all EC-established rail operators (EC, 1998). A subsequent white paper entitled "A strategy for revitalising the Community's railways" recommended that the railway companies yield a profit and that they should not receive state subsidies. The EC advocated that better account be taken of user requirements and that the separation of infrastructure ownership from the ownership of rolling stock would result in improved performance and lower operating costs. Competition from different companies was expected to result in gains for users. The EU changes have also had a broader influence, as noted by IBRD:

"During implementation of the change, the 10 former CEE railways have joined the EU and have been subjected to the Directive's requirements: in addition, a number of railways adjacent to the EU (e.g., Russia) or influenced by EU policies (e.g., Chile) have implemented or considered their own forms of vertical separation." (IBRD, 2001)

Economic context for public transport reform

Strong economic growth

Before the 1960s, many urban public transport and rail operators had sufficient ridership to be profitable and most had, at the least, revenues sufficient to cover operating costs. In the following decades, rising incomes and the increasing adoption of car-centred policies and lifestyles led to a dramatic deterioration in the competitiveness and financial performance of public transport, particularly in developed economies.

Strong economic growth raised household incomes, leading to rapidly increasing rates of car ownership (Ortuzar and Willumsen, 2001). From 1960 to 2006 there were major increases in real income and car ownership in all developed countries. For example, in this period real GDP increased by around 68% in Great Britain whilst the number of cars per household increased from 0.76 to 1.11 (Bonsall, 2000). Over the same period bus use (measured both in trips and kilometres per person) fell substantially (UK Government, National Travel Survey, 2006; White, 2008).

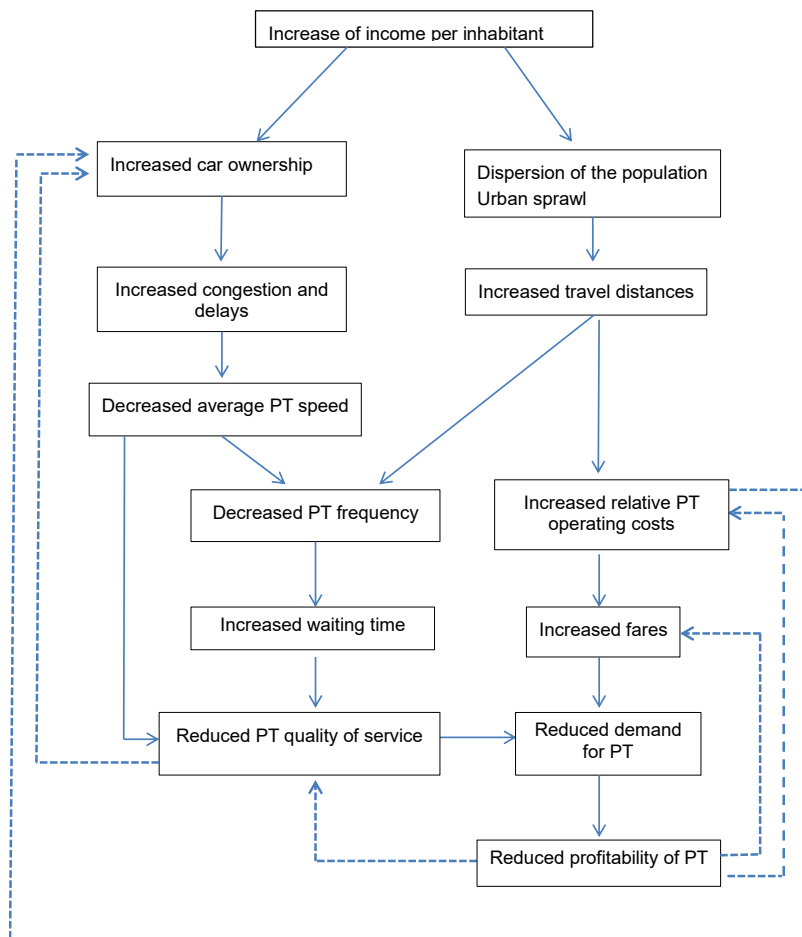
Governments dramatically improved the quantity and quality of road infrastructure, including the widespread provision of motorways and parking. The new mobility opportunities offered by car ownership and the associated infrastructure encouraged low-density settlement patterns, in part due to lower land prices at urban peripheries, resulting in the development of urban sprawl around large cities.

The vicious circle of public transport

Urban sprawl lengthened trip distances beyond the existing rail and tram networks, making public transport less and less attractive to commuters. Sprawl also increased the difficulties faced by public authorities seeking to make public transport networks more comprehensive and cost effective. Banister (2011) identifies long-term trends toward increasing commuter trip durations in urban and metropolitan areas. Increased car ownership and use has also led to congestion and a consequent deterioration in bus and streetcar speeds, thereby increasing waiting times and the duration of trips. The decline of public transport service quality further encouraged car-ownership.

These trends resulted in large falls in public transport ridership, which diminished the financial sustainability of public transport. If government or private operators reacted to worsening financial performance by increasing fares, greater patronage decreases tended to result, further reducing viability (Paulley et al., 2006). As a consequence, these developments undermined the profitability of private operators, and meant that governments in most cases had to either begin subsidising public transport or to increase the levels of existing subsidies. This dynamic is illustrated in Figure 6.

Figure 6. The vicious circle of public road transport



Source: Heddebaut, (1985: 38); Lee et al. (2006).

As a result of the vicious circle of public road transport, it became more difficult to achieve an acceptable trade-off between public transport quality and its overall cost.

This difficult environment has led governments to make changes to both the planning and operation of urban transport services. Some changes have been large, fundamentally realigning the roles of government and the private sectors; while some have been more gradual, such as redefining how roles are undertaken or how performance is measured. The reform choices made and the underlying motives have varied from jurisdiction to jurisdiction. In some cases, governments have sought more private involvement, others have introduced more government involvement, and in yet other cases, different levels of government have been given new responsibilities for public transport. Table 1 provides a snapshot of this diversity of experience by categorising the different case studies set out in Annex A according to the broad direction of recent reform and the stated motivations for pursuing this reform.

Table 1. Motivations for reform of public transport

Case	Motivations									
	Increase use of Public Transport	Reduce public subsidies	Align with general liberalisation agenda	Improve co-ordination	Environment and safety	Specific demands, needs	Innovation	Political imperative/ ideology	Increase reliability	Flexibility to address different geographic needs
More private involvement										
UK buses outside London		✓					✓	✓		
UK buses in London	✓	✓					✓	✓		
Denmark regional rail	✓	✓	✓							
Netherlands urban PT	✓	✓								
Italy high-speed rail	✓		✓				✓			
Barcelona Aerobus						✓				
Barcelona Touristic bus						✓				
Melbourne PT tram and metro	✓	✓	✓					✓	✓	
German long distance trains	✓	✓								
More government involvement										
Tokyo commuter rail				✓		✓ ¹				
Seoul buses	✓			✓	✓				✓	
Barcelona public transport				✓ ²			✓		✓	✓
Switzerland	✓		✓						✓	
SE Queensland	✓			✓		✓ ³	✓			
Different level of government										
SE Queensland				✓						
France regional rail	✓						✓		✓	✓
France urban PT	✓			✓	✓		✓		✓	
Switzerland	✓			✓	✓					
UK buses outside London		✓					✓			
Germany regional passenger rail	✓	✓								
Denmark regional and local PT	✓			✓						

Notes: 1 = ageing population, 2 = with other public services, 3 = OPT Opportunities for Personalised Transport (OPT).

Why seek more private involvement in public transport?

Increasing the use of public transport

One of the forces favouring private involvement in public transport is the desire to increase the use of public transport. Introducing market disciplines has often been seen as a means of spurring a greater focus on providing attractive service offers and, by improving incentives for efficient operation, making services more price-competitive. The desire to increase public transport use has been significant in Denmark (Øresund link), Italy (high-speed trains), the Netherlands (rail services) and London (urban public transport).

In the Netherlands, a key driver of reform was the need to improve the efficiency of public transport systems. As with most countries, the market share of public transport had decreased significantly since the 1950s and car congestion represented a growing national policy problem. A government-appointed committee saw strong government support for public transport operators as a contributor to poor customer service and hence declining competitiveness against car travel. The committee reasoned that ceding greater responsibilities to private operators would improve the competitiveness of public transport (van de Velde and Savelberg, 2016).

Importantly, the context for reform has changed significantly in many countries in more recent years. Many of the reforms documented in this report were undertaken in a context in which public transport's modal share had been declining consistently over a long period. More recently, declines in ridership have been arrested in many or most major cities. Nonetheless, increasing the modal share of public transport remains a key policy objective, as concerns over congestion, pollution and the need to decarbonise transport to counter climate change become more urgent.

Reducing the amount of public subsidies

In the United Kingdom, the level of subsidies was high when the public authorities owned and operated transport services directly. The government believed that the private sector would be more cost efficient in providing bus services than public operation at the municipal level and passed the 1980 Coach and 1985 Bus Transport Acts to introduce and promote market competition. In 1985, the national coach company National Express was privatised and competition on route choice and fares was enabled. In 1984, the public company London Transport was privatised and regulated by a new body, London Regional Transport (now Transport for London). Before its dismantling in 1984, the average subsidy for London Transport was 47% of revenues. By 1996, there was no subsidy (Darbéra, 2004).

The Netherlands also saw increasing the role of the private sector in public transport as a means of reducing high levels of subsidy. Subsidy levels had been growing since the 1980s without improvements in public transport performance or growth in ridership. The cost recovery ratio in regional public transport fell from 90% to 40% between 1970 and 1995, with revenue from urban services also covering less than 40% of operating costs in that period (van de Velde and Savelberg, 2016).

Adhering to a broader liberalisation agenda

Reforms in Europe that increased the private sector's role in public transport were part of a broader liberalisation agenda which also embraced sectors including air travel, telecommunications, postal services and the gas market. A similar observation can be made in relation to some of the reform case studies documenting experience in non-EU countries. For example, the reforms to the rail and tram

sectors in Melbourne, Australia, constituted part of a much wider liberalisation agenda pursued throughout the 1980s and 1990s.

The EU has taken the view that private involvement in public transport service provision improves service outcomes, cost efficiency and market connectedness. Accordingly, it has adopted a number of directives relating to both inter-city rail and urban public transport which require member countries to implement reforms in these areas. The EU has progressively created the conditions to achieve the separation of infrastructure ownership and maintenance from the rolling stock and operating companies in most European countries. The opening of rail freight services to competition was achieved via EU Regulation 913/2010, which took effect in November 2010, while the adoption of the EU's fourth railway package in 2016 means that all passenger train traffic is expected to be tendered by 2030.

These directives, regulations and associated recommendations have given rise to significant reform in member countries. However, while the EU legislation formally requires substantial market opening initiatives to be undertaken, the pace and extent of reform implementation has, in practice, varied widely among member countries, with very limited change occurring to date in some cases. For example, in 1998, in line with the EU Directive and recommendations, the Danish government passed legislation allowing it to seek tenders from private companies for the supply of rail passenger services. However, in the ensuing 20 years, only three contracts (including one contract renewal) have been agreed.

Italian high-speed rail and Swedish trains have also been tendered to private companies in order meet the EU requirements established in EC Directive 91/440 (Desmaris, 2016). The 1988 Swedish reforms sought to make the railways more competitive and thereby contribute to the achievement of environmental and energy efficiency objectives. The reform encompassed two major measures; separation between management of services and infrastructure and decentralisation of responsibility for regional rail. The state railway organisation was split into a government-owned company (SJ) responsible for the operation of rail transport and a government authority (Banverket) responsible for rail infrastructure. Responsibility for regional rail transport was devolved to the County Public Transport Authorities (CPTAs). The CPTAs used competitive tendering processes to allocate rail, as well as bus, contracts. In 1990 the company BK Tåg was the first private company to enter the market on the regional level. Regulatory changes adopted in 1992 also made it possible to use competitive tendering for inter-regional lines (Alexandersson and Hultén, 2008).

The revision of the federal law on railways in Switzerland in 1996 and the two Swiss rail reforms in 1999 and 2000 were undertaken to transpose the principles of Directive 91/440/EEC into Swiss law. The SBB (Schweizerische Bundesbahnen) monopoly on regional and national long-distance rail passenger services was removed. The reform has proceeded in several phases, being adopted first on regulation, safety and contractual procedures in 2010. However, the reforms have proceeded by adopting a model of governance requiring co-operation between the parties (transport operator, transport authorities and travellers), rather than by subjecting the sector to market competition per se (Desmaris, 2014).

In the urban mobility domain, even though the EU has no direct powers, the Directive encourages the expansion of public transport to reduce the market share of private vehicles and their consequences in terms of congestion and pollution (including GHG emissions and broader air-quality) (Heddebaut, 2009).

Why do governments take a larger role in public transport?

Increasing co-ordination between transport modes and services

Governments have a fundamental interest to ensure adequate co-ordination of public transport services provided by different entities. This co-ordination is essential to maximise the efficiency, and hence the attractiveness, of the services provided from the consumer perspective. That is, the private profit-maximising perspectives of individual operators do not usually provide sufficient incentives to ensure the level of co-ordination that consumers as a group prefer.

Maximising efficiency and attractiveness reduces the cost of subsidies paid by government and helps meet modal-shift objectives that form part of increasingly prominent urban policies. Where public transport services have traditionally been provided privately, the need for co-ordination is apparent, and inevitably increases with the size and complexity of the network. Conversely, in countries that have introduced competition into models previously characterised by government monopoly provision, the need for more effective co-ordination has often been recognised only after the initial implementation of the reforms and has constituted a second stage of reform, refining and further developing the new model.

In Japan, the government has recently taken on a larger role in public transport supply primarily in order to address the inadequate levels of service co-ordination that have resulted from the fierce competition between private railway operators in Tokyo. This lack of co-ordination means that passengers may have to make as many as four transfers to complete a given journey within the Tokyo Metropolitan Area. The Government's increased role also aims to address objectives in relation to mobility and accessibility. For example, it has created incentives, through the Barrier Free Act (2000-2011), for enhancements to the convenience and accessibility of rail interchanges, particularly for elderly and other mobility-restricted passengers. This has promoted the creation of fully step-free accessible stations (Kato, 2016).

The Korean government has also increased its role in public transport in order to address similar problems. In Seoul, the operation of public transport was historically undertaken entirely by private companies, with limited cooperation, resulting in poor connections between the different lines and problems with safety. The government reformed the bus fare system to support bus-bus and bus-metro transfers. To achieve this goal, it moved from a system in which private operators had concessions for individual bus lines to one in which operators and local government co-operated to determine route changes which had the overall objective of redesigning the network as a hub and spoke system. It supported this with a reformed fare system to make metro-bus connectivity more seamless and the construction of public transport interchanges. This process was undertaken via a semi-open tender system (Lee; 2013, 2016).

Urban sprawl has led the state of Mexico to extend bus lines in Mexico City. But there is a discrepancy between customers' needs and the public transport offered due to the lack of a metropolitan area transport authority able to plan transport needs in a holistic manner that is cognisant of wider urban policies and development. Moreover there is no complementarity between different transport projects developed by different levels of government - such as the two Bus Rapid Transit (BRT) systems, Metrobus, led by the federal district, and Mexibus, owned by the state of Mexico.

While the United Kingdom has reduced government involvement in much of the public transport system, as discussed above, the need to ensure adequate co-ordination at a conurbation level, within the context of substantial privatisation, has led to significant new government initiatives. The London Regional Act of 1984 led to the creation of Transport for London (TfL), a public entity, as a vehicle to achieve this

objective. TfL undertakes co-ordinated planning for the whole of London and has achieved a high level of service integration, including inter-modal integration. It has also focused on improving contracting arrangements and incentives, in order to increase public transport use and thus reduce congestion. Support for the latter objective extends beyond public transport to include congestion charging and parking reforms.

Environmental concerns

Environmental concerns have become increasingly prominent in government policy in recent decades. Greater use of public transport is now seen as a key means of pursuing improved performance in relation to the key environmental objectives of improving urban air quality and reducing greenhouse gas (GHG) emissions and congestion. Improving the degree of co-ordination of the public transport system, particularly across modes, is a key means of increasing its attractiveness and, hence, its patronage levels. This is seen in Switzerland, for example, which has one of the highest levels of ridership on urban public transport in Europe and which has a fully integrated system across all transport modes (trains, urban buses, trams and metro), including an integrated ticketing system.

Pursuit of other environmentally-focused initiatives also requires increased government involvement in the system, even in largely privatised or corporatised systems. In particular, the scope and complexity of the tender development and contract management functions must expand significantly if additional initiatives are adopted in pursuit of environmental goals. In Barcelona, efforts have been made to increase patronage by opening metro services on Saturday and Sunday nights and bank holidays. The government has also encouraged the bus operator to replace its bus fleet with gas or electric buses.

The Seoul Metropolitan Government has introduced innovative public transport policies in order to replace private car use and relieve traffic congestion. The integration of different public transport modes, notably the subway and bus systems, is a priority in this regard (Lee et al., 2006).

Other areas of increased government involvement in pursuit of environmental goals include the development of sustainable urban mobility plans which take into account the need to promote the use of public transport including through encouraging complementary “active modes” of transport, such as biking and walking. In many cities governments subsidise the provision of self-service bikes and seek to include these in the offering of a coherent public transport offer by the urban transport authorities (Bérout, 2007). New challenges in this context include the development of appropriate policy responses to new shared mobility service offers, such as dockless bikeshare and e-scooters.

Improving service quality, inclusiveness and favouring innovations in transport supply

Governments have often undertaken new interventions in the public transport system to respond to newly emergent problems, or address new policy priorities that private providers are considered unlikely to address effectively. An example, is the Japanese government’s interventions to ensure the construction of new interchanges to facilitate journeys that span two or more of the competing private networks in the Tokyo metropolitan area and to improve the accessibility of railway infrastructure for people with mobility difficulties. In Japan, the Barrier-Free Act was implemented in 2000 and revised in 2011. Barrier-free means a removal of barriers or obstacles for those who have mobility impairments that can hamper their participation in society. Barriers include not only physical obstacles but also social, institutional, and psychological ones. The Act requires the installation of facilities that enable smooth mobility in public transport for people with mobility or other disabilities in all new railway stations and those where a large-scale improvement is undertaken, while it also requires railway station operators to

make efforts to satisfy the technical standard at existing rail stations. The government has introduced subsidy schemes to support the completion of the required works. Under the post-2011 legislation, national and local governments are each required to provide subsidies to rail companies of up to one-third of the total cost. This scheme covers rail stations with daily passenger volumes of 3 000 or more. To be eligible for funds, the scheme requires the relevant local government to set up a council of local stakeholders which gathers opinions from the public to inform the investment plan (Kato, 2016).

Similar changes have occurred in Europe. The Treaty of Nice was adopted in 2000, incorporating the European Charter of Fundamental Rights. Subsequent legislation in EU member countries to implement these obligations in domestic legislation included France's Law on equal rights and opportunities, participation and citizenship of disabled persons³ (Loi, 2005: 102), which requires the needs of persons with disabilities to be taken into account in urban planning decisions. According to the recommendations of the Expert Group of the European Platform on Sustainable Urban Mobility Plans, actions in favour of mobility should take into account the needs of all citizens, in particular those of people with reduced mobility or other disabilities, low income, the unemployed, the elderly, ethnic groups, children, women, etc. (Wefering et al., 2014; Arsenio, Martens and Di Ciommo, 2016). Achieving improved accessibility is increasingly a priority internationally and generally requires some form of government intervention, whether via adding new service obligations to concession agreements, providing subsidies or directly funding works. The expansion (or maintenance) of unprofitable services is another area in which government intervention is crucial.

Why transfer powers between different levels of government?

The case studies reveal numerous instances in which public transport planning powers have been reallocated among different levels of government. In general, there appears to be a trend toward the allocation of these powers to regional levels of government. In some cases, this has meant decentralising powers previously held by national governments, while in other cases powers previously held by local governments have been aggregated, either by reallocating them to an existing regional government or by the creation of new co-ordination bodies. The underlying objective appears to be balancing the need to make planning more responsive to the needs of a particular transport market by bringing it closer to the point of service delivery and the need to ensure adequate co-ordination between elements of the system, so that integrated planning occurs across the relevant market. However, the priorities for change to achieve this balance differ depending on the starting point.

Decentralisation from national to regional governments and planning authorities

Both Great Britain and France have decentralised transport planning from national to regional level government and have defined, the role of each level of government levels within the transport domain in legislation. In the case of the French regional train supply, the regions desired to better adapt service offers to local needs, improve value for money and increase tariff and price transparency, seen from a regional perspective (Heddebaut et al., 2003; Burlando and Guihéry, 2004; Desmaris, 2004).

In Germany, the 1996 regionalisation law assigned the Bundesländer (i.e. State governments) as Public Transport Authorities (PTAs) and provided dedicated transport funding from the Federal government. The goal of this change was to create a more efficient railway system. From the transport planning perspective, this was to be achieved primarily by making the Länder accountable for key aspects of service provision and performance: They are required to plan and finance the service offer, decide on tariffs and conclude public service contracts with the railway companies. The changes included

authorisation for Länder to tender service provision contracts, with a subsequent, 2011 reform formally requiring tendering to be undertaken, (though this latter step has yet to be fully implemented). A key supporting change was the reorganisation of the railways, in particular refinancing it by transferring historical debts and pension liabilities to the State.

Sweden's experience also demonstrates the dynamic of the adoption of reforms decentralising responsibilities for public transport planning, giving rise to the need for further reform, after deficiencies in co-ordination were identified in the initial, post-reform period. According to Alexandersson and Hulten (2008): "After the decentralisation of responsibility for regional public transport, the mandators at the county level were, however, not allowed to operate across county borders. In 2004 and in 2006, the different mandators (at the CPTAs) along the West coast line (WCL, between Malmö and Gothenburg), applied for permission to run traffic cross regional borders. During a trial period 2009-2012 the government allowed for a joint traffic permission across county borders along the WCL. The reform came into place with the new Act that reorganised public transport and the new regional public transport authorities (RPTA) was created. The new RPTAs are responsible for the regional public transport supply programme, deciding on public service obligations when it comes to transport, conducting competitive tendering of transport and accounting for cost and efficiency in the public transport sector.

Consolidation from many local government to a metropolitan or regional authority / planning

The European Commission has supported the adoption of locally-based planning and promoted integrated planning via urban mobility plans (EC, 2007) as a strategy to address congestion in particular. However, a clear trend within Europe and beyond, is that of moving these local planning responsibilities to existing or new regional bodies, in order to achieve better co-ordination of service provision across transport markets that cross municipal or metropolitan boundaries. Examples include the Tokyo region, Danish buses and Northern Powerhouse in the United Kingdom. In France this has happened through the creation of transport authorities at the conurbation level, for instance the Lille urban community (created in 1968), which combines the transport responsibilities of different levels of governments. In France the urban transport perimeter (PTU) is the administrative unit that receives the "versement transport" a specific tax created in 1971 to finance public transport enhancements. The adoption of this transport tax has been a factor driving the consolidation of transport planning powers into larger, regional bodies *Autorité Organisatrice de Transport Urbain* (AOTU) and the tax has sometimes constituted the main revenue source for them. A 2014 law further enlarged the scale of the planning bodies, transforming the AOTU into organising authorities of mobility (AOM) (Heddebaut, 2017).

In Barcelona, the consolidation of public transport planning powers was achieved via Law 31/2010 of the Catalan Parliament, which created the Barcelona Metropolitan Area (AMB). The AMB has integrated bus and metro transport planning in the city of Barcelona and 36 surrounding municipalities. The Transport Department of the AMB is in charge of planning and choosing operators for bus and metro transport.

Sweden moved in 2012 to create new Regional Public Transport Authorities, who are empowered to let tenders for publicly-subsidised services to operate traffic across county borders. Competition exists between regional PTA tendered services and commercial operators. As a result of this, there have been increases in both competition and supply of services in long distance railway links, although subsidised traffic seems to have increased its market share vis-à-vis purely commercial (i.e. unsubsidised) services (Nilsson, 2015).

CHAPTER 3

Major reforms to public transport planning and service delivery

The latter 20th century saw many governments in developed countries seek to introduce private sector involvement in the provision of public transport services, adopting a range of competitive processes. Three broad types of reform within this context are service privatisation and tendering, service privatisation and franchising and deregulation. In all three cases, the government decides to allow private operators to run services previously operated by public bodies. The difference between the reform types lies in the degree and type of regulation and planning powers retained by the government. For rail markets, this discussion presupposes that network investment and maintenance functions have been institutionally separated from service delivery.

Privatisation has usually been successful in reducing the costs of service provision, although reform design and sequencing have significant bearing on outcomes. Conversely, these reforms have a more mixed record in delivering improved service quality and customer focus. An important outcome determinant is governments' ability and willingness to specify clear standards and objectives, build well-designed performance incentives into contracts and make adequate funds available to support performance improvements. Attempts to address these needs have often seen devolution of planning responsibilities from national to regional and local levels of government. In a parallel trend, governments in countries with historically largely privately operated systems have tended to take an increasingly active role in service planning and co-ordination in pursuit of similar objectives of improved service quality and customer focus.

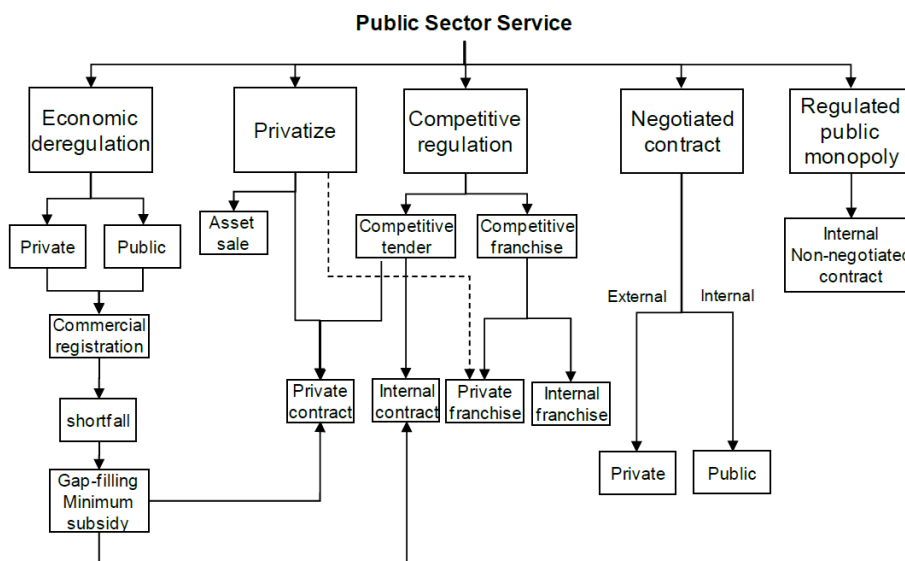
This chapter assesses whether the major reforms pursued in several of the Working Group's case studies (see Annex) were successful, both in terms of the stated rationales of the responsible governments and on broader measures. It also highlights some of the contextual factors that help to explain the observed outcomes. The discussion of the reforms is organised in terms of the changes made to the allocations of responsibilities between the public and private sectors.

Moving from the public model to more private involvement

In the mid-20th century many jurisdictions, particularly in the developed world, had public transport systems that were dominated by the public sector, both in terms of planning and operations. Towards the end of the 20th century, many of these jurisdictions sought to introduce private sector involvement in public transport operations. They have generally retained responsibility for planning decisions within government, but have often changed the locus of responsibility, at least in part, between local, regional or national governments. This section looks at the various forms this increased private involvement has taken and how well the reforms have performed.

Currie (2016) sets out a detailed typology of reform options for jurisdictions that start from a position of public sector planning and service delivery (Figure 7). The difference between the reform types lies in the degree and type of regulation and planning powers retained by the government. For rail markets, this discussion presupposes that network investment and maintenance functions have been institutionally separated from service delivery (see chapter 4 on corporatisation and vertical separation).

Figure 7. Typology of reforms starting from a public model



Source: Currie (2016).

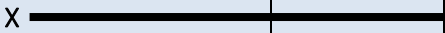
Service privatisation and tendering

Under service privatisation and tendering the government decides to eliminate, or significantly reduce its role in the provision of public transport services. Instead, it calls for offers from private operators to run specified services. The outcome of this tendering process is that a contract is signed between the government and the private operator selected as the preferred bidder. The contract sets out the services to be delivered and the prices the government will pay for them. The form of the contract can vary, but bonus and penalty payments are usually included as service quality incentives (see Box 2 above). Core quality dimensions are punctuality and reliability, though other factors including patronage growth and customer satisfaction may also be assessed.

The transition between public service delivery and tendering is described in Figure 8. Planning responsibility may lie at national, regional or local level. Service delivery moves from the public to the private sector, via a tender process. In practice the transition is more complicated than devising a service plan and putting a contract to tender, particularly in the case of railways. As a legacy of having run services, governments will own physical assets (such as buses, rail depots, offices, etc.) and will have contracts with staff (such as drivers and ticket sellers). Such resources need to be re-deployed efficiently and with minimum disruption. This is typically achieved by either including the sale or leasing of assets (and the transfer of operating staff) as part of the terms of the tendered contract or selling the assets as a separate transaction. In either case, the tendering process requires that public assets and service delivery responsibilities are transferred temporarily or permanently to a private entity. In relation to staffing, the basic issue is that of addressing the legacy issues involved: private operators expect to achieve significant cost savings by employing staff on private sector terms, while also seeking to maintain continuity of service and access to the experience and expertise of current, public-sector employed staff. Governments have generally taken responsibility for the additional costs of either maintaining the public sector employment conditions of legacy staff (e.g. through Germany's BEV), or through mechanisms to compensate such staff for the loss of these on-going benefits.

In some cases, staff redundancies will also be a core issue and will also be a matter that governments need to address to ensure the success of the tendering process. However, the involvement of the private sector has often occurred following an extended period of less far-reaching reform via the corporatisation of the public sector public transport entities. In such cases, major staffing reductions have usually already occurred, suggesting that tendering to private operators is likely to have a more limited effect on staffing numbers.

Figure 8. Moving from public model to tendered service delivery

	Public			Private		
Planning (initiative)	National	Region / City	Local			
Service delivery	X 			Direct award	Tendering	Open entry

An example of this process is the privatisation of London's public bus operating companies, which began in 1989, with all companies being sold to the private sector by 1994. The approach to tendering involved the implementation of a mixture of gross and net cost contracts, administered first by the national government body London Regional Transport (LRT) and, after 2000, by LRT's successor body, Transport for London (TfL), which then became responsible to regional government entities. Bus ridership doubled and service effectiveness increased during and after the tendering process. Bus passenger journeys grew by 24% in London between 1985 and 1997/98, whereas passenger journeys decreased by 38% across all English Metropolitan Areas (Matthews, Bristow and Nash, 2001). Moreover, the patronage increase occurred despite a 29% fare increase over the period.

The combination of increased patronage, cost reductions and fare increases enabled the government subsidy, which was equal to 47% of the London bus revenues in 1984, to be eliminated completely by the end of 1996 (Darbéra, 2004). Net public expenditure fell by 81% (White (2000), cited in Currie (2016)). Operating costs per bus-kilometre in London fell from GBP 2.62 per bus-kilometre in 1986 to a minimum in 1995-96 of GBP 1.49, a year after privatisation of London Buses Ltd (Matthews, Bristow and Nash, 2001).

Public expenditure has again grown substantially since 2000. This is largely because TfL invested in growing the network and reforming ticketing by adopting the Oyster integrated smart card. This, together with population increases and congestion charging on inner London roads have contributed to further patronage increases. Public transport demand is growing much faster than population growth, implying a shift in modal share towards public transport. (TfL 2017). While population grew by 21.4% between 2000 and 2016, public transport demand grew by 64.1%. More recently, however, ridership has begun to fall, with the London Assembly identifying a link between falling ridership and congestion-related increases in average journey time as a key cause (London Assembly, 2017).

Barcelona has operated a mixed system of publicly run and privately tendered bus services for a number of decades. The tendering process is a competitive one, without pre-selection or negotiation. The resulting contracts transfer part of the cost and revenue risks to the operators and include other quality incentives. There are eleven tendered contracts, with durations of approximately eight years: nine contracts for regular daily services, and two for regular night services. The vehicles are provided by the Transport Authority but fixed infrastructure (depots, offices, etc.) is provided by the operators. The Barcelona Metropolitan Area (AMB) decides upon service supply and network development, and allows

service modifications. In the tender process, the operator proposes a yearly operational cost and a goal of passenger volume. The yearly operational cost is largely constant throughout the contract, but is varied slightly via a formula based on changes in fuel costs and drivers' local wages agreements.

If the annual number of passengers is below the operator's estimate, it bears the loss of revenue. If the number of yearly passengers is above the operator's estimate, it receives 25% to 50% of the extra revenues. However, the passenger target is updated yearly so that a loss of passengers in one year does not affect future revenues. Finally, quality incentives have been adopted, based on punctuality, bus quality, bus-stop quality, dynamic information quality, and subjective measures of perceived quality and passengers' satisfaction. These incentives or penalties can represent up to 5.5% of the operational costs.

The mixed nature of service provision in Barcelona enables various performance comparisons to be made. Albalade, Bel and Calzada (2010) report that, in 2006, the average cost per vehicle-kilometre of publicly provided services was EUR 4.90, or around 50% more than the average cost of privately provided services (EUR 3.30).

Data for 2017 show that the private bus services awarded via competitive tenders carried 81 million passengers, compared with 197 million passengers carried by public providers. User satisfaction scores for private services averaged 7.9 (daytime) and 7.6 (night-time) on a 10 point scale in 2015, slightly above the 7.5 average score for the publicly provided services. Costs per bus-kilometre varied from EUR 3.50 – EUR 5.50 for the private services, significantly less than the overall average of EUR 6.70 for publicly provided services. Subsidies to private operators totalled EUR 100 million, compared with EUR 360 million in subsidies to Transports Metropolitans de Barcelona (TMB). Thus, the average subsidy per passenger was EUR 1.35, around one-third lower than the average subsidy of EUR 1.98 per passenger for TMB (Bigas, 2016). Between 2004 and 2017, the number of vehicle-kilometres supplied under contracts with private operators grew 48%, from 18.1 million to 26.8 million vehicle-kilometres, while the number of vehicle-kilometres covered by public sector services fell slightly, from 39.7 million to 39.0 million vehicle-kilometres. Thus, there has been a significant shift toward private sector provision over the period (AMB, 2018).

Sweden was the first European country to tender its railway services, commencing in 1990. Significant reductions in subsidies were achieved as a result. According to Alexandersson and Hultén, 2005)

“the first tender of the regional services in the counties of Jönköping and Halland reduced the transport authorities’ costs by 21%. The result of the tender of the West Coast Line may imply SJ’s annual losses of 30 million SEK ‘disappear’, since the winning consortium does not ask for subsidies, claiming that ticket revenues will cover the costs”.

New infrastructure construction may also be tendered in future.

However, despite Sweden’s long history in tendering services, with a separation of track owner and railway service operators, concerns persist regarding the need for better co-ordination. For example, Sørensen and Longwa (2011) say that “the challenge is to obtain cost effectiveness and at the same time attain a coherent and well-coordinated public transport service”. Moreover, there has been limited success in increasing rail’s modal share. High levels of car use mean that only 8% of journeys were undertaken by train in Sweden in 2012, although this represents an increase of approximately one-third, from 6% over the previous ten years (Alexandersson and Rigas, 2013).

In Denmark, passenger rail reform dates from 1998 yet only three tenders have been let: Central and Western Jutland (2003-10), Central and Western Jutland (2010-20), and the ‘Coast Line’ in Eastern Zealand and across Øresund into Sweden (200915). Overall, this tendering experience has had mixed results. Denmark’s Central and Western Jutland intercity rail line was tendered on a ‘net’ basis (with the

operator given considerable freedom to set timetables) and included incentives to grow patronage and improve performance through a bonus/penalty system. The new arrangement initially reduced subsidies, although the reduction of 16.5% achieved fell short of an expected reduction of 22.6% (Sørensen, 2016). The private company Arriva Denmark increased ridership, the number of train service-kilometres and the satisfaction of passengers.

The tendering was not without problems, however. For example the state-owned DSB submitted a very low bid, which was ultimately not selected as assessors deemed that it was likely to run at a loss that would be cross-subsidised through its other operations. Further, the winning bidder (Arriva) initially set its service plans in a way that meant that peak hour service frequency declined. This reflected deficiencies in the service specifications for the tender, which did not adequately specify the number of services to be provided at different times of the day. The result of this (following negative passenger response) was that the government had to intervene to commission more peak services at additional cost (Rigsrevisionen, 2005; Trafikstyrelsen, 2004).

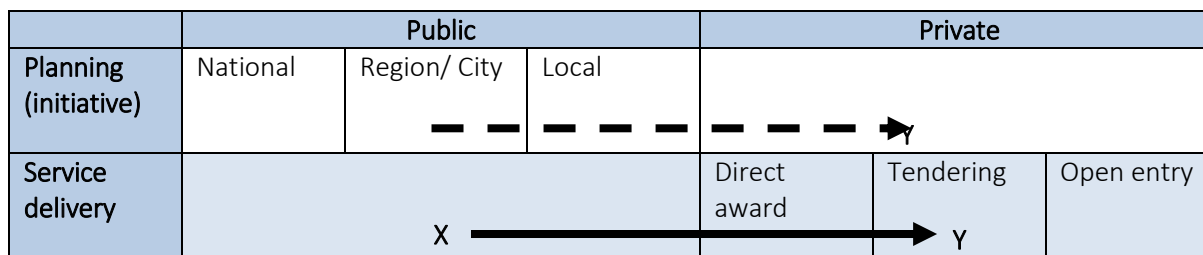
Denmark and Sweden jointly tendered for services on the cross-border ‘Coast Line’ and attracted five bidders. A joint venture between DSB and a British transport firm First Group (DSBFirst) was selected as the preferred bidder. Once operations began, it was clear that there were substantial problems. As a result of overly ambitious service timetables prepared by the authorities, punctuality decreased by 6.6%, ridership fell 1% and passenger satisfaction decreased slightly, from 6.61 to 6.51 out of 10, between 2009 and 2010 (Sørensen, 2016). Financially there were also problems. DSBFirst operated at a large deficit in 2010 and further deficits were expected in the future, leading DSB to provide financial aid to its subsidiary, in spite of state subsidies not being allowed under EU regulations. First Group withdrew from its minority stake in DSB First (Denmark) by exercising a “put option”, leaving DSB to re-brand its now wholly-owned subsidiary as DSB Oresund and complete the seven-year contract in this form. In 2011 DSBFirst withdrew from its Swedish operations, and Veolia took over. At the end of the contract period the Danish operations were re-integrated into DSB proper, which was given a new ten-year contract via direct negotiation, without a further tender process being attempted. Thus, no new tender process is expected to occur until 2024. This tender operation was characterised by Sorensen (2016) as a ‘fiasco’.

Service privatisation and concessioning/franchising: competition for the market

A second variant of the privatisation approach to public transport is to offer monopoly concessions or franchises to private operators. This differs from the tendering process described above in that it involves the government outsourcing some elements of the planning function to the private operator, in addition to the responsibility for service provision. The extent to which planning responsibilities are outsourced can vary widely (although minimum service standards are generally specified), as can the basis for co-ordinating between the private operator and the public authority on planning matters.

The transition between public service delivery and tendered concessions is described in Figure 9. As with the tendered service model, the transition to tendered concessions is complicated by choices about how to undertake the initial privatisation and how to separate network assets from service delivery, particularly for railways.

Figure 9. Moving from public model to concessioned service delivery



In the Netherlands, the shift towards greater private involvement through the introduction of concessioning coincided with the shift of planning powers from the national to regional level of government. With the enactment of the Passenger Transport Act in 2000 (Wet Personvervoer, 2000) 14 regional transport authorities were given the power to tender public transport service provision to private operators. A competitive tender process is undertaken for the allocation of a temporary monopoly right, usually of eight-ten years' duration for bus services (originally six years), and fifteen years duration for rail concessions. This was introduced gradually after 2001 and ultimately applied to all public transport services outside national rail and the main cities.

Customer satisfaction improved in all regions in the post-reform period, but was higher where tendered concessions were used and highest where there had been more than one round of tendering (van de Velde and Savelberg, 2016). Real fare increases of 16% were adopted following the tendering process, leading to revenue increases, while unit costs decreased up to 20%, with greater reductions in tendered concessions. (van de Velde and Savelberg, 2016). Conversely, while the overall position in relation to subsidies is not entirely clear, total transfers to regional authorities for transport purposes rose strongly over the period, suggesting that subsidies are unlikely to have declined. Moreover, the reform objective of improved modal share for public transport was not met: modest increases in service offer (a 13% increase in vehicle-kilometres in the decade to 2010) combined with static ridership, implying a reduction in vehicle occupancy rates. Analysis showed that the negative impact of real fare increases offset increases in ridership due to population and employment growth and the adoption of new student concession arrangements.

In Barcelona, the transport authority AMB has two services that are operated under concessions: Aerobús which connects the city of Barcelona and the Barcelona-El Prat Airport; and the Barcelona City Tour bus which complements the Bus Turístic lines operated by the government-owned TMB. In these cases, the service is defined and the fare is established by AMB. Quality control is also exercised by AMB, while revenue risk is assigned to the operator. The operator is the owner of fleet vehicles and maintenance facilities. Because the services are considered profitable, the tendering process involves potential operators bidding on the amount they are prepared to pay for the exclusive right to operate the service. User satisfaction ratings are high for both of these services: 8.2 for Aerobús and 8.5 for City Tour. Between 2005 and 2017, the number of trips taken on the Aérobus has increased by 207%, from 1.83 million to 5.60 million (AMB, 2018).

In Melbourne (Chapter 3 and Currie, 2016), the state government had introduced franchising for rail and tram transport, beginning in 1999. This was before the current regime of negotiated performance-based contracts was implemented in 2004. The franchise model involved a tendering process for the transfer of both network assets and services (retaining vertical integration) from public to private operation over a contract period of ten-fifteen years. The network across the city was divided into two separate franchise zones, with the intention of providing a basis for benchmark competition.⁴ At the time contracts were signed, it was expected that government subsidies would be eliminated by 2010 (Stone et al., 2015).

Initially, extremely impressive cost savings of AUD 1.8 billion were delivered. The franchisees also improved rail punctuality and reliability by an average of 35%, service levels increased by about 10%, and previously high levels of industrial disruption were almost completely eliminated. Patronage grew at 3% p.a. and customer satisfaction increased.

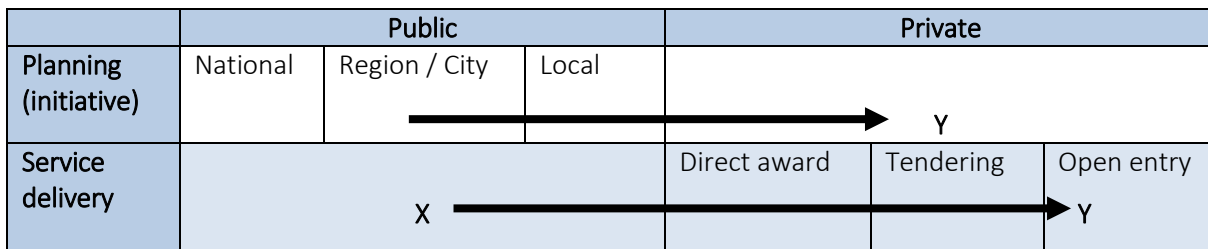
Despite this impressive result, patronage growth fell short of the very optimistic expectations built into the successful tenders (40%–84% over ten-fifteen years) and by 2002 the operators faced a financial crisis. The government made an AUD 110 million injection to keep the system going, but one operator (National Express) nevertheless exited the market with large losses and the government determined that a new model was needed (Currie, 2016). The response of the Melbourne tendering authorities to apparently unrealistic expectations regarding patronage growth contained within a tender can be contrasted with that of the Danish authorities, cited above. The fact that the tenderer in the Melbourne case was a private entity, where in the Danish case it was a public entity, implies that the implications of failing to meet these highly optimistic forecasts were necessarily different in key respects and may have had a bearing on these different responses. The potential for significant disruption to the system as a result of the withdrawal of an operator during a contract became real in the Melbourne case, whereas the fact that the “Coast Line” operators in Denmark were predominantly owned by the incumbent government-owned rail operator meant that this was never a significant risk.

Deregulation: opening access to competition in the market

Under deregulation, the government withdraws completely from service planning functions, leaving private operators free to enter, with full control over the planning and supply of services. This implies that a private operator can commence a new service whenever and wherever it believes a profit can be made and that private services can compete with other private services and public services, where these exist.⁵ In developed economies the dominance of car travel means that this approach is rarely adopted, as so few routes are profitable without a government subsidy (Chapter 2).

The transition between public service delivery and deregulated open access is described in Figure 10. Deregulation can be accompanied by the privatisation of public service delivery assets, or it can simply open access to markets to allow private entrants to compete with public operators. This approach (theoretically) avoids the creation of local monopolies and competition (and the threat of competition) and should provide cost and quality incentives for operators.

Figure 10. Moving from public model to deregulated open access



In Santiago (Chile), the bus industry was fully deregulated in 1979. The total number of buses and taxi-buses more than doubled following deregulation, from 4 760 in 1977 to 10 542 in 1989. The route network became denser and average waiting times fell. However, ridership increased more slowly, leading to low average bus occupancy rates, higher fares and poor bus quality and maintenance standards. Linkage between driver pay and passenger numbers gave rise to aggressive competition for passengers on major roads, leading to major safety concerns, as well as issues of congestion and

pollution. As a result of these experiences, the system was re-regulated in 1990, with a system of open, competitive tendering for bus routes being adopted (Hurtubia and Leonhardt, 2019).

In Great Britain, outside London, deregulation was introduced to local bus markets with the Transport Act (1985). Under the Act, price and quantity controls were removed and on-route competition permitted, in contrast to London (described above) where government retained service planning powers, enabling TfL to act strategically to ensure that service provision responds to urban and population growth.

Most of the previously public operations were split up and sold, with any remaining operations retained by local governments required to be conducted by arm's length, corporatised entities. Market entry is free, except for the need to meet safety standards in order to obtain an operator's licence (Matthews, Bristow and Nash, 2001) and fares, schedules and routes are decided by the private operators without any contract between these companies and the public transport authorities. Where governments wish to subsidise socially necessary but unprofitable services (i.e. "gap-filling"), these must be competitively tendered.

In the initial post-deregulation period (1985 to 2000), bus mileage increased by about 25%-30%, but ridership dropped by 29%, implying a very large reduction in load factors (or "service effectiveness"). While cost savings of around 40% per bus-kilometre were achieved, the load factor reduction almost completely offset the effect of this on profitability. Fares rose rapidly in real terms, contributing to the reduced ridership (rising car ownership was also a likely factor (White, 2000) and negatively affecting low income groups. Public subsidies, which had formerly supported lower fares and higher service levels across the system, were now restricted to gap-filling and fell by 69% in metropolitan areas.

The rapid changes in service offerings undertaken by operators in attempts to improve financial performance proved difficult for passengers to follow, while a lack of information co-ordination was also a major flaw of the deregulation model. There were some initial examples of on-route competition but smaller operators were quickly 'swamped' by the bigger players and a market initially characterised by a large number of small bus companies quickly came to be dominated by a relatively small number of large players (the five largest operators hold 83% of the metropolitan markets).

Since 2004-05, bus mileage has been relatively stable overall, but has varied substantially across the country. The share of passengers holding concession cards has increased with the introduction of free off-peak trips for the elderly and the disabled. Operating costs have increased by 20% overall since 2004-05 with a strong increase in fares in metropolitan areas (+27%) and smaller increase in others (+7%) over the same period. Fare revenues for operators have been broadly stable, but fares have continued to rise in real terms (+15% since 2005), while paying customer patronage has decreased over the period. Subsidy levels have increased again, albeit due at least in part to the expansion by government of fare concession programmes and other passenger-friendly" initiatives including smart ticketing and audio visual location. Subsidies now account for 40% of industry revenue. There is little integration of fares and information.

Operators have introduced new technologies for buses, while it is also possible for bus operators to enter into voluntary statutory partnerships with local authorities to agree on certain vehicle standards or service levels in exchange for concessions such as dedicated bus lanes. (Currie, 2016).

Currie (2016) describes other problems that emerged from the deregulated bus model beyond direct ridership outcomes. Information co-ordination was a major flaw of the model. Individual operators often advertise their fares and timetables on their websites or at bus stops, but passengers do not have access to a single source of information for fares and services. Moreover, rapid changes in services have proven

difficult for passengers to follow. Multi-operator tickets, where available, tend to be priced at a high premium to single-operator tickets. Indeed the extent to which the public transport network could be run as an integrated whole was a major concern. There was also a trend towards increases in off-peak (interpeak and weekend) service levels but no equivalent rise at peak times, since the latter implied high costs and low returns, largely due to the need to invest in additional vehicles that would have low utilisation rates. Government authorities in metropolitan areas have also found they are restricted in providing large scale bus improvements because of laws forbidding government competition with private commercial (or profitable) services.

Problems with the deregulated market were widely recognised by the late 1990s, leading to a form of reregulation being adopted in 2000. This allowed for bus franchises to be let in the form of a Quality Contract Scheme (QCS). However, concerns about the complexity of the process and a lack of protection from legal challenge from incumbent private bus operators meant that no local authority sought to adopt a QCS over the ensuing 15 years. This abortive attempt at re-regulation was finally supplanted by the Bus Services Act 2017, which allows local authorities that have a combined authority with an elected Mayor to either introduce franchising or establish a new partnership arrangement called an Enhanced Partnership. The Act also seeks to facilitate integrated ticketing and improved accessibility and information. The Government has also published new regulations and guidance in relation to the Act (UK Parliament, 2018). The Bus Services Act 2017 also responds to service quality issues experienced during deregulation by making provision for Advanced Quality Partnership Schemes (AQPS) to be entered into between a bus operator and a local authority, under which:

“The authority commits to take steps to support local bus services and in exchange the bus operators are required to meet specific local standards - such as those outlined in the table above. These standards usually apply to a specific route or corridor, but it is possible for an AQPS to cover a wide geographical area, such as an entire local authority or city region. Any operator who does not meet the required standards is unable to use infrastructure provided by the local authority and specified in the scheme”. (DfT, 2017: 8)

According to the Department of Transport, “the new franchising provisions will provide Mayors of combined authorities with equivalent powers to those available in London” (DfT, 2018).

Instances of genuinely open access and competition in rail markets are even rarer than in bus markets. Two notable examples are in Italy (where the entry of NTV into the high-speed segment is described in the Annex) and Switzerland. In the Italian case, the incumbent state-owned operator Nuovo Trasporto Viaggiatori (NTV) has continued to run regional services and a high proportion of high-speed services, with competition only on the most high demand routes (Desmaris, 2016). In the case of Switzerland, the initial corporatisation in the late 1990s technically removed the state-owned operator SBB’s monopoly over operating regional and national long distance rail passenger services (Desmaris, 2014), but subsequent efforts to implement “on the market” liberalisation to introduce competition between operators have not been able to pass legislative hurdles (Desmaris, 2014).

Findings

Increasing the role of the private sector in service provision

Governments’ need to control rapidly increasing subsidy costs has been a key rationale for seeking to engage the private sector in service delivery, in relation to all modes. For urban public transport operations, evidence from the UK, Melbourne and the Netherlands indicates that operating costs can be

significantly reduced by transferring service delivery to private operators. Conversely, the discussion of corporatisation in the next chapter shows there is evidence that many of the cost-reduction benefits of privatisation can be attained through this, more modest reform which does not carry the same risks in relation to service co-ordination. These co-ordination risks, as well as problems arising from loss of government ability to control service quality, are particularly acute where privatisation takes the form of the establishment of an open-access market, as the above discussion of the United Kingdom experience of reforming the provision of bus services outside London suggests.

Friebel et al. (2004) analyse the efficiency impact of railway reforms by comparing eleven EU countries: Austria, Belgium, Denmark, Finland, France, Germany, Italy, the Netherlands, Portugal, Spain and Sweden. They find that reforms have increased efficiency in some, but not all cases. The efficiency impact of reforms appears to depend on how they are packaged: When a number of reforms were introduced at the same time, efficiency did not increase. Sequential reforms, however, did improve efficiency. Alexandersson and Rigas (2013) argue that, for the railway sector, “reforms such as the introduction of competitive tendering have typically led to a decreased need for subsidies in contracted services”. In the cases considered here, this argument appears to hold – in both Denmark and Sweden, intercity rail operating costs fell after the introduction of private service delivery through tendering.

A further goal of moving toward a private sector delivery model is to improve customer focus, innovation and ridership. Here the picture is more complicated than in the case of cost reduction. In most cases, there is limited evidence that improved ridership outcomes were specifically attributable to reforms. In Melbourne, London and Dutch urban areas public transport ridership did increase significantly, but much of this could arguably be explained by increasing urbanisation and emerging congestion issues (Matthews, Bristow and Nash, 2001). Conversely, in markets for less urbanised areas – intercity rail in Denmark and Sweden, and buses outside major urban areas in the United Kingdom or the Netherlands – ridership performance was less positive, and in some cases strongly negative. One possible exception to this picture is the Italian high-speed rail (HSR) services which seemed to expand the overall demand for HSR, though to an extent this growth has been at the expense of conventional regional rail demand.

The governments’ lack of experience in developing and implementing the detailed contractual arrangements needed to manage relationships with private service providers has contributed to the often equivocal outcomes of early reforms. Experience suggests that, for jurisdictions with long contracting/franchising experience, contract management experience and expertise have developed over time, enabling effective service standard indicators to be adopted and refined progressively and appropriate performance standards to be set and enforced, including through bonus and penalty provisions. For example, Currie and Fournier (forthcoming) note that, in both the London bus network and Melbourne’s train and tram network – two of the longest-established contract/franchise systems – there have been major changes to the regulatory systems since the initial adoption of private provision. While ideological factors explain some of the changes made, “...it’s clear in all cases that a good regulatory system requires evolution, a degree of experimentation and the development of experience through some degree of trial and error.” It is essential to maintain a corps of skilled and competent regulatory managers to ensure the continued success of a contracting model. Importantly, Currie and Fournier (forthcoming) posit that regulatory reform is a continuous process, as further change remains likely, even in these well-developed and long-standing systems of private contracting/franchising.

Preston (2018) highlights the fact that this development of contract management and regulatory expertise can be a long-term process, arguing that in the United Kingdom, despite five phases of rail franchising over a twenty-year period “...there have been a series of policy tweaks, which do not yet seem to have aligned incentives with policy goals”. This suggests the importance of careful performance

monitoring, learning from the experiences of other tendered/franchised networks and of ensuring clear linkages between explicitly identified policy objectives and the incentives and performance measures applied to private operators.

Expanding government’s role

Increased public sector involvement in transport planning and service delivery in countries with public transport sectors previously dominated by private operators became a contemporaneous trend in the latter half of the 20th century. The reform motivations of these countries were, hence different. While additional private involvement was sought largely as a means of cost control (and, in some respects, of increasing customer orientation), additional public sector involvement was seen as a means of improving service co-ordination and achieving a more inclusive transport system. Figure 11 demonstrates this change. It shows that planning responsibility moves from the private sector to the public sector. While regional or city-level governments most commonly take on this function, it is also possible for it to be undertaken at local or national level. In relation to service delivery, open entry may be replaced by the letting concessions via either tendering or direct award.

Figure 11. Expanding the government’s planning role in a privately operated system

	Public			Private		
Planning (initiative)	National	Region / City	Local			
		Y ←		X		
Service delivery				Direct Award	Tendering	Open entry
				Y ←		X
					Y ←	X

Increase co-ordination between transport modes and services

A key driver of increased government involvement in urban transport systems characterised by private provision is the need to ensure adequate co-ordination between providers in order to achieve an integrated service that is responsive to passenger needs. The importance of this co-ordination function tends to increase as city size increases and the number of operators, in many cases, increases with it.

Seoul - Korea

In Seoul, before 2000, the bus system was entirely privately run by private operators that decided on their own service frequencies. Moreover, while they had concessions for individual bus lines and received substantial operating subsidies, routes could vary substantially. Passengers had to pay several times to use different bus routes, as there was no integration of the system. In the pre-reform period, declining bus/public transport mode shares (beginning in the early 1990s) meant that bus-company deficits were increasing despite increases in the already large subsidies received from the Seoul city government.

In July 2004, the government introduced bus reforms that were intended to reintroduce planning at governmental level and achieve greater integration between modes by creating hubs and spokes

facilitating passenger transfers. This was expected to both improve service levels and, by increasing ridership, reduce the level of subsidies required by the system.

An integrated fare system that allowed for free transfer was adopted and a semi-public bus system was implemented in which planning decisions were jointly made by operators and the government agency. Exclusive bus lanes and right-of-way arrangements were created on the roads to enhance bus punctuality. The Korean government provided substantial financial support as part of the reform implementation process. The Seoul government introduced a smart card (T-Money) and a bus management system through the use of IT technology and construction of public transport centres (Audouin, Razaghi and Fingers, 2015).

Following reform implementation, bus ridership in Seoul grew by over 14% in one year (2004-05), compared with a 7% decline over the previous five years. However, ridership then remained static over the next five years. Customer satisfaction scores also increased, rising by 16% from 4.85 to 5.61 between 2004 and 2005 and by a further 10% over the next five years, to reach 6.16 in 2010 (Lee, 2016). New infrastructure investments for buses, including right of ways for BRT and express bus systems, reduced bus journey times (Lee, 2013) and the user satisfaction rate post-reform was found to be around 70% throughout the country and around 90% in some districts. The bus sector registered an increase in revenue of over 10%, despite the adoption of costless transfers. The number of people incorporating transfers into their trips increased strongly after the reform. The increase in bus ridership achieved was largely attributable to this growth in the number of transfers, rather than a modal shift from personal vehicles to bus. However, Kim and Kim (2012) argue:

“...the implementation of the integrated distance-based fare system led to a change in the relationship between bus and subway from substitution to supplemental relations, thereby making it possible to secure an integrated public transport service system. In any case, the increase in the number of transfers indicates improved utility related to the use of public transport. Also noteworthy is the probable occurrence of a demand shift effect on the corridors where median bus lanes are installed. These positive developments raise expectations that expansion in the median bus lane system will lead to a genuine increase in bus ridership.”

Lee (2013) also notes that the adoption of a policy of increasing parking prices (monthly fees) where investments to reduce travel time in public transport had been undertaken (such as new infrastructure for buses like right of ways for BRTs, and express subway transport systems) has also apparently contributed to the observed increase in the use of public transportation.

Subsidies for bus operation increased sharply after reform implementation, largely due to increases in personnel and fuel expenses predominantly related to the increases in bus-kilometre travelled. On a pure cost per service-kilometre basis, performance appears to have deteriorated. However, service reliability and quality were improved, while passenger complaints were reduced significantly.

The effective implementation of the reform relied on the existence of a strong Seoul Metropolitan Government with a long-term vision for public transport. There was also citizen empowerment with the creation of the Bus Reform Citizen Committee (BRCC). Opinions differ as to how successful the reform was on balance. On the one hand, modest increases in ridership and revenue were achieved, despite fare increases and short-term disruptions due to wholesale changes to routes, fares and payments. Service integration was improved, potentially constituting a major contributor to improved user satisfaction. However, cost per service-kilometre also rose. Overall, the impact of the reform seems to have been that there has been a move toward a higher-cost/higher quality service offer. (See Annex A). In the longer term, the creation of a Metropolitan Authority for Transport in 2019, that now plans transport

development at an integrated level, may prove an important mechanism by which further improvements are attained.

Santiago - Chile

Increased co-ordination between modes was also a key reform driver in Santiago de Chile. An initial reform, adopted in 1990, attempted to replace an open-entry bus industry with a system of competitively tendered concessions. The goal was to address major negative outcomes of the then aggressive on-street competition. These included congestion and pollution, plus poor safety performance, as buses competed intensely for passengers. However, the fact that the bus companies awarded concessions were in practice owner co-operatives that adopted cartel behaviour, co-ordinating member bids (Muñoz et al., 2009), and each bus owner managed their own revenues independently meant that on-street competition continued, as did the associated problems of uncertainty in travel and waiting times and long, inefficient and overlapping routes, with high operating costs.

The Transantiago reform, implemented from 2007, sought to both address the collusion and on-street competition issues through an improved re-tendering process in the bus industry and – more ambitiously – sought to achieve a co-ordinated public transport system across the whole city. This involved re-designing the bus network on the basis of trunk and feeder routes and, in the process, integrating it with the then under-utilised, publicly operated metro system, both in operational terms and by introducing a single ticketing system. The integration of bus and metro systems was immediately successful in increasing capacity utilisation in the metro system: Journey numbers increased from 331 million to 601 million in a single year, although the service reliability problems associated with the implementation of the bus reforms were partly responsible for this outcome, since the metro was seen as a substantially more reliable service at this time.

Muñoz, Batarce and Hidalgo (2014) highlight several other achievements of the reform: formalisation of the bus sector, reduction in negative externalities (safety, pollution, congestion), improved access for people with disabilities, integrated fares and addressing social conflicts onboard buses (notably driver assaults being substantially reduced due to cashless operation).

However, despite these positive impacts, Transantiago, which has been described “as one of the most ambitious and expensive transport reforms ever undertaken in a developing country” (Global Mass Transit Report, 2017), has been widely regarded as having failed to achieve its core objectives. Hurtubia and Leonhardt (2019) argues that “although the system was in general well conceptualised, it suffered from several design, implementation and operational issues that have gradually fixed, despite the fact that its main objective, that of improving the service quality, is still a long way off”.

Service quality issues have been fundamental to the problems encountered. Muñoz et al. (2014) noted that there was little initial focus on this factor, relative to the – essentially unrealistic – financial objective of having a self-financing system. A modelling exercise concluded that bidding for concessions should be based on provision of 6 697 buses yet the process was ultimately based on the provision of only 4 532 buses (Hurtubia and Leonhardt, 2019). Failure to provide an extensive network of dedicated bus lanes, as originally envisaged, also contributed substantially to service delivery problems (Hurtubia and Leonhardt, 2019). Service standards in the early days of Transantiago’s implementation fell below those previous experienced, an outcome that was also partly a product of the failures encountered in designing the trunk and feeder route model. The new route maps lengthened journey times for many passengers, partly as a result of a much higher proportion needing to make one or more transfers to complete their journey. This outcome was, in large part, a consequence of the provision of an inadequate number of buses: the 4 532 initially provided compared with a pre-reform fleet of almost 8 000 buses.

The ongoing problems in addressing key service quality issues have been reflected in essentially static ridership. Total trip numbers in 2018 were 1.10 billion, which was less than 1% higher than the total for 2009, the first year for which data are available for the system (DPTM 2018; 2009) – well below the 7% population growth in Santiago over the period and indicative of continuing decline in public transit’s modal share. Muñoz, Batarce and Hidalgo (2014) argue that the initial objective of operating the system without subsidies was never realistic, given the significantly higher cost of a formal (vs. informal) system and the commitment to keep fares at levels near those previously prevailing.⁶ More than a decade after the system’s implementation, subsidies to Transantiago have continued to grow, increasing by 69.6% in the six years to 2018. However, much of this recent increase in subsidy has financed system expansion, with Metro Line 6 being opened in 2018. While subsidies have risen strongly, the proportion of system costs being met by subsidies has remained broadly unchanged: subsidies covered 46.9% of system costs in 2018, compared with 50.3% in 2009. While there was some apparent progress early in the current decade, with the subsidy rate declining to 35.6% in 2012, this was largely the result of a 47.5% increase in fares over the period and subsidy rates have subsequently reversed to levels similar to those seen in the early days of the system. The combination of rising fares and rising subsidies reflects strongly increasing unit costs: Total costs per bus-kilometre travelled have increased from USD1.07 in 2009 to USD1.76 in 2018, a rise of 64.5% in nine years, while bus fares increased by 70% over the same period (DPTM, various years).

Consistent with Muñoz et al.’s (2014) view of Transantiago as being conceptually well-designed but poorly executed, the basic system design was retained over more than a decade since its introduction, despite the significant problems experienced. Attempts to improve performance instead focused on the design, implementation and operational problems identified over time. For example, a new contracting process carried out in 2012 led to a number of routes being combined, in turn reducing the average number of transfers per passenger journey from around 1.65 to 1.5 (DPTM, 2018).

Arguably the most significant changes to the system are those announced by the new government and expected to be adopted in late 2019. These respond to the recommendations of an external review, which identified competition issues as a significant area of concern. A key aspect of this competition concern related to operator size. With two operators each having more than 1 000 buses in the system, and the larger having an overall market share of around 20%, the ability of authorities to exercise control over operators is diminished by concern that operators are “too big to fail”. Similarly, the size of the concessions tendered, plus the need for operators to own the bus fleet and bus depots implies a need for strong capital backing and has meant that the number of potential bidders for concessions has been limited.

To address these issues, the review identified an ‘optimum’ concession size as being around 450 buses to be adopted as the basis for a re-tendering process. The re-tendering process implemented in 2019 addressed this recommendation by reducing the size of the concessions and limiting to two the number of concessions that can be awarded to any operator. It also seeks to lower entry barriers by separating the ownership of depots and fleets from bus operations: related companies are not permitted to both own buses or depots and hold a concession as an operator.

This change is intended to both increase competition in the tendering process and (in the case of the bus ownership provisions) help to ensure system resilience in the event of the exit of an operator (Hurtubia and Leonhardt, 2019). Other changes include the adoption of higher standards for buses, including enhanced maintenance requirements, the adoption of new minimum standards in other service areas such as passenger information and a greater use of quality indicators to drive enhanced service reliability

performance. However, at the time of writing, the new system design was yet to be finalised and the bidding process had yet to be launched (Hurtubia and Leonhardt, 2019).

Review of the changes made since the initial adoption of Transantiago suggests a number of lessons for authorities charged with adopting a model of government planning with private provision. Muñoz, Batarce and Hidalgo (2014) concluded that

“Authors evaluating the system and providing recommendations for other systems tend to agree on four elements as critical causes of the initial operational problems in Santiago: the large scale reorganization (“big-bang”) was too difficult to manage, there was undersupply of services and lack of control in the initial operations, and there was a focus on cost reductions and environmental impacts, but not on service quality”

The authors argue that a preferable alternative to the big-bang approach to reorganisation is a staged approach in which fare integration is adopted first, with the resulting demand impacts able to be analysed before determining what changes to resource allocation and routing are required. The third stage would be the implementation of key infrastructure upgrades (facilitating BRT) on selected, high-demand routes. This staged approach is seen as posing substantially lesser risks of major service disruption during reform implementation. It also potentially avoids the political pressure that led to the launch of Transantiago in a context in which key system elements, such as the integrated ticketing system, were not ready.

As noted above, the weakening of competitive pressure over time was identified in the 2018 review as a key problem. The development and maintenance of workable competition for the market is fundamental to a successful system of private provision. Mechanisms such as the separation of ownership and operation and limits on the number of concessions awarded to individual operators represent effective means of ensuring that adequate competition exists – and continues to exist – in the market, while also helping to assure system resilience in the event of the exit of an operator (Hurtubia and Leonhardt, 2019).

Transantiago’s experience also points to the importance of developing and implementing a range of performance indicators that are closely linked to underlying system objectives (see case study in Annex A). Indicators were not adopted until after the passage of legislation authorising the provision of subsidies, in 2009. The subsequent experience shows that the effective implementation of many of these indicators is crucially dependent on having the necessary technical arrangements in place (e.g. GPS systems to enable bus localisation). However, the utility of indicators is also ultimately dependent on their linkage to effective financial incentives for operators to make improvements to those performance parameters that are within their control.

The third Transantiago experience highlights the benefits of government planning in terms of the development of cross-modal co-ordination, which can be fundamental to ensuring overall system efficiency and maximising accessibility experience. The substantial under-utilisation of the existing Metro system was rapidly eliminated as a result of the reforms – indeed, the problems encountered in reorganising the bus system quickly led to over-crowding of the Metro. Importantly, the fact that the Metro was now integrated with other public transport modes and had high utilisation rates underpinned the case for a significant expansion in the network. Between 2007 and 2018, the Metro system expanded total network length by more than 40%, from 84 km in 2007 to 119 km in 2018 and the number of stations rose more than 50%, from 78 to 118. However, as Muñoz et al (2014) note, the potential gains from system integration, which has rarely been achieved in a developing country context, were substantially reduced by the adoption of a too-rigid approach to the design of the trunk and feeder route model, something that was in turn enabled by the lack of customer service focus.

Tokyo - Japan

The Tokyo metropolitan area has a population of 32 million inhabitants and Tokyo City counts 9.1 million inhabitants. Tokyo has a long history of private public transport operation. Kato (2016) notes that:

“One of the unique characteristics of Tokyo’s urban rail market is that many rail services are provided by private rail companies. More than 20 private rail operators provided rail services in the Tokyo Metropolitan Area as of 2015, and most owned and operated their rail infrastructure. As is the case elsewhere in Japan, rail operators in Tokyo have unique use of rail infrastructure for their operations (although rail operations could be separate from rail infrastructure ownership, e.g. with one company providing rail services using rail infrastructure owned by another organisation). This means that urban rail operations in Tokyo are regionally monopolistic.”

In terms of modal split, 25.5% of the population of Tokyo Metropolis used the train as their primary means of transportation in 1998 (Calimete, 2012). Between 1998 and 2008, the modal share of rail increased from 25% to 32% and the car share decreased from 33% to 29% with a slight increase in the bus share, from 2% to 3%.

One of the main issues for Tokyo’s rail system has been to increase connectivity between the different railway companies. The first moves to address this co-ordination issue date from 1956, when the Council for Urban Transport proposed the “direct-through rail operations between suburban rail and metros”. This initiative focused on linking the suburban rail and metro systems, so that passengers could take a single journey, using both sets of infrastructure, without changing trains. The implementation of this approach has involved substantial capital expenditures, including on tunnelling and major signal upgrades, which has meant that implementation has occurred at a gradual pace. As of 2010, the total length of rail network under direct-through operations reached about 880 km, or more than 35% of the total urban rail network in the Tokyo Metropolitan Area (Kato, 2016).

A second key reform for improved co-ordination across competing private systems was adopted in 2005. This was the passage of the Act to “Enhance the Convenience of Urban Railways”. This legislation aims to improve the quality of urban rail services in metropolitan areas by constructing new rail links connecting existing rail lines and enhancing mobility in rail stations, with both initiatives aimed at reducing transfer times. There has been limited progress in improving connectivity via this Act, despite the fact that it makes substantial subsidies available to operators. Operators remain concerned both that they may be unable to recover the cost of the required private investments and that they may, by improving connectivity, experience a loss of customer traffic.

Incentive mechanisms for private participation may be one of the keys to improving inter-railway connectivity. Kato (2016) states:

“subsidies to private companies can provide companies with incentives to support the government’s policy goals but their effectiveness depends on project design. This is because the private companies are so sensitive to uncertainties that they may hesitate to participate in projects when they consider that they include significant risks for their business. Careful design of the subsidy scheme is therefore required for public–private partnerships.” (Kato, 2016).

Additionally the institutional design of the decision-making process is critical to ensuring broader objectives can be met. For instance, the Act to Enhance the Convenience of Urban Railways and the Barrier-Free Act (see below) require local governments to establish councils at which multiple stakeholders should join the discussions. This enables private companies to negotiate with other stakeholders. The rapid ageing of the Japanese population is likely to continue to affect public transport market design, including government subsidy schemes and regulations. The shrinking market makes

private companies conservative in their business style while social needs for improving the service may increase. Governments should play a role in promoting better service from private companies since the companies themselves will not have sufficiently strong motivation to act alone.

Tokyo's urban passenger rail reforms could be enhanced by the development of a new ICT system to collect fares from connections, as this could help to overcome the reluctance of private companies to invest in connecting their railway infrastructures, by lowering the costs of measuring user movements between different operators' systems and provide an effective means of fare allocation among operators in respect of journeys spanning two or more operators' systems (Kato, 2016).

Ensure a minimum social safety net for mobility

The need to improve access to the public transport system in order to meet public policy objectives relating to inclusion and connectivity is a second objective underpinning many reforms that have increased government involvement in privately operated public transport systems. This can involve both initiatives aimed at improving the affordability of the system and those focused on making it more physically accessible to people with disabilities.

The Seoul bus reform was partly motivated by a desire to improve accessibility in the financial sense. It included the introduction of a smart card system that has made it possible to implement various discount programmes for different target groups. Offering benefits such as reduced fares and transfer discounts, these programs in turn have helped promote public transport use by these target groups, while also yielding efficiency gains by increasing the use of cards as a means of paying fares. The card system is particularly effective in preventing revenue leaks.

In Japan, the government introduced the Barrier-Free Act in 2000 to enhance the ability of people with mobility impairments to use the system by adapting stations to incorporate lifts, escalators and devices to assist people with visual impairments. Recognition of the importance of this issue reflects the rapidly ageing population (over 25% of the population in the Tokyo Metropolitan Area will be 65 years or older by 2020). The government target was that all rail stations whose daily passenger numbers exceeded 5 000 would satisfy the technical standard by 2010. In the event, only 78% of these stations had met the standard by March 2018, some eight years after the target date. However, the government extended the policy to stations with more than 3 000 daily passengers and, by March 2015, 97% of these stations were equipped in Tokyo. Effectively, in smaller stations, necessary investments to ensure accessibility are smaller than in very big stations that necessitate more lifts and escalators. This has, apparently, led to a higher rate of adoption of the requirements in smaller stations. Legislative intervention was clearly necessary in order to achieve these outcomes, as competing private operators would otherwise have little incentive to undertake the necessary works to improve accessibility.

Assessment

Attempts by governments to play a larger planning and co-ordination role in the context of privately-provided public transport services seem to have met with relatively modest success in most cases. This could suggest that competing providers have recognised the need to adopt a degree of co-ordination between their services in order to jointly maximise profits, reducing the scope for further positive interventions. Alternatively, it may reflect the difficulties faced by governments that have had little historical involvement in these activities in designing and implementing effective interventions. Significant challenges arise in designing and implementing concession systems that provide appropriate incentives for the provision of high quality services at efficient prices, as well as maintaining an adequate

level of competition over time. The experiences of reform in the London bus market and in Santiago de Chile suggest that the inclusion of some key elements in system design strongly favours this outcome. Maintaining strong competitive pressure in the market place over time is a key consideration. System design elements that can contribute to this outcome include the separation of bus and depot ownership and operation to minimise entry barriers and ensuring that the size of individual concessions is limited, so that “too big to fail” operators cannot impose hold-up costs on the public authority. It also includes a rolling renewal schedule for concessions, which allows adjustments to the service offer to be made over time in response to changes in geographic and other demand characteristics.

Success will depend on governments committing adequate resources to the process and ensuring appropriate expertise is available. It is also likely that the achievement of the underlying reform objectives will require sustained effort over a relatively long period, with system elements being revised and redesigned in response to the context-specific lessons learned through implementation.

Government interventions have often occurred in contexts of relatively low levels of customer satisfaction with existing services. In these circumstances, successful reform is likely to depend on meeting customer desires for service improvement in a range of areas, rather than simply in terms of improved co-ordination. Identifying and addressing key customer service objectives should therefore be a key element of a reform programme. At the same time, this implies the need for a realistic view of the level of financial support required.

Finally, initiatives focussing on improving access for people with disabilities, such as the Barrier Free Act in Japan, appear to constitute relatively successful interventions in this area, perhaps reflecting the limited likelihood that such actions will be taken as a result of private incentives and the consequent benefits of government action to address market failures and equity issues.

Shifting powers between different levels of government

A third type of major reform is where public sector roles are transferred between different levels of government. See Chapter 2 for various motivations for these upward or downward shifts.

Decentralisation of planning from national to regional government

An example of decentralisation of planning responsibility comes from France. The French government adopted a trial programme of changing the locus of regional railway planning and decision making from national to regional level between 1997 and 2002. Seven regions volunteered to participate in the trial in relation to express regional passenger trains (TER). New legislation adopted in 2002 generalised this arrangement, making all 20 regions Organising Authorities of Transport (AOT) for the TER (regional rail system). The AOTs have, at least in theory, the right to define and finance the railway offer, including the determination of the required quality of the service (Desmaris, 2004; Heddebaut, 2007). According to Burlando and Guihéry (2004):

“The Regions will sign specific contracts with SNCF in order to control the efficiency of its services. For the first time they assign the SNCF to a “bonus/malus” system dedicated to performances criteria such as the regularity⁷ of the trains, the quality of service”

Today, the regions sign these special conventions agreements with SNCF Mobilités, currently the only service supplier for the transport organising authority.

Figure 12 describes the decentralisation of planning responsibility. It shows that responsibility can be moved from national to regional level, or from regional to local level. Service delivery may be undertaken by the public sector, or may be allocated via concessions to private companies using either competitive tendering or direct award.

Figure 12. Decentralisation of planning functions within government

	Public			Private		
Planning (initiative)	National	Region / City	Local			
	X	→ Y				
		X	→ Y			
Service delivery				Direct Award	Tendering	Open entry

Heddebaut (2007) compares the results of the twenty two French metropolitan regions that have become transport authorities for passenger regional trains (TER) to the seven regions that took on this role voluntarily between 1997 and 2002. She shows that these latter seven regions have experienced greater increases in ridership and train supply than the other fifteen regions. Heddebaut (2017) presents a detailed comparison of the results achieved via adoption of the reforms in two specific regions; the Nord-Pas-de-Calais, which was one of the original seven trial regions, and the Île-de-France, which was under direct State control until 2004. These are summarised below.

Nord-Pas-de-Calais

The pre-reform offer of 9.6 million train-kilometres (1996) grew to 10.3 million train-kilometres in 2002 and to 12.2 million train-kilometres in 2005 according to Heddebaut (2017). This represented an increase of 27% in train supply over nine years. Before the reform, the Nord-Pas-de-Calais TER traffic was 827 000 passenger-kilometre (1996). After the reform, it was 851 000 passenger-kilometres in 2002; 943 000 passenger-kilometres in 2005 and 1.185 million passenger-kilometre in 2015. Thus, while ridership increased only 3% over the first six years of the reform, after 19 years it had increased by a total of 39%. In terms of daily passenger trips, traffic grew 20% in eight years, from 100 000 in 2006 to 120 000 in 2014. Between 2002 and 2013, there was an increase of 38% in regional railway trips. One objective of the 2013 Regional Scheme for Transport and Mobility (SRTM) (Région Nord-Pas-de-Calais, 2013) is to reach 200 000 trips per day on the TER network by 2020 (a 50% increase on 2006).

The strategic transport priorities of the Nord-Pas-de-Calais are set out in the Regional Scheme for Transport and Mobility (SRTM) of October 2013. It is not a programming document but reflects a strategic vision towards 2030. It aims to build and sustain an efficient regional transport system that answers the needs of people and regional actors (especially businesses). The primary objective for the region set out in the SRMT is "to optimise networks and existing equipment and to promote complementarity between the transport modes and cooperation between operators by providing, when necessary, the creation of new infrastructure" (Region Nord-Pas-de-Calais 2013: 15). The regional rail aspect of the SRTM is then implemented in the 2015-24 contract agreement between the Nord-Pas-de-Calais Regional council and SNCF Mobilités. The contract states that "SNCF Mobilités should operate interregional, trans-border, TER trains including TER-GV" (high-speed regional trains running on the high-speed tracks) and the railway stations and stopping points.

The move of transport planning authority to the regional level has coincided with the adoption of a number of service innovations. The major one is the new concept of high-speed regional trains, which

are TGV trains running on the high-speed tracks and arriving in the centres of regional cities. The end of the trips is made on normal tracks and the region has paid where necessary to electrify these tracks, as this is a condition for operating high-speed trains. A number of innovative fare types have also been created. Since 2012, real-time information is provided to customers within the 164 regional railway stations with Navi'TER. The system relays information on train schedules, itineraries, explanations of delays and train changes and is available through the Internet. Wi-Fi is provided on an unlimited free of charge basis within the main railway stations.

The decentralisation of state powers was extended via the Grenelle law of 2009, which authorised further consolidation of powers at the regional level. The powers of different transport authorities are now able to be brought into a single regional authority, allowing the co-ordination of all the public transport in the region. In December 2009, the Region Nord-Pas de Calais created (and chairs) the SMIRT committee (Syndicat Mixte Intermodal Régional des Transports) that coordinates 14 transport organising authorities (AOT) (eleven urban transport authorities, two departments, and the region) to achieve more seamless public transport within the region. The NOTRe law⁸ of July 2015 further decentralises political power in a range of areas, including transport. It renamed the AOT Mobility Organising Authorities (AOM), reduced the number of regions from twenty two to thirteen and created the role of “head of the mobility for the whole regional territory” for these bigger regions.

Île-de-France

Reforms since 2000 have helped to clarify the relationship between the AOM (STIF) and national transport operators. This relationship had previously been marked by ambiguity regarding the role of national government. The AOM was previously directed by the national government, which was at the same time the shareholder of public companies that deliver most services. This earlier situation created conflicts of interest resulting in procedures that did not ensure consistency of the choices made and delivered poor cost control (Cour des Comptes, 2009). The STIF, now called “Île de France Mobilités” and the Île-de-France region now control the service level and the quality of service with new arm’s-length contracts for RATP and SNCF and OPTILE fixing bonuses and penalties based on the level of service quality provided. Heddebaut (2017) summarises the changes as follows:

“From 2000, control of public transport in Île de France progressively shifted from the State to the region. Before 2001 passenger transport was under the jurisdiction of the Parisian Transport Syndicate (STP) chaired by the préfet (the State’s highest representative in the region). Since December 2000 (law SRU), the STP was replaced as AOM by the Île de France Transport Syndicat (STIF) and the Regional council entered into its Administration council. The 2004 decentralisation law obliged the State to leave the administration council of the STIF. Since the 8th December 2009 Grenelle law on organisation and regulation of rail transport, the STIF organises, coordinates and funds public passenger transport. In future years, the STIF has proposed that it will gradually open its public transport markets to new competitors; bus services in 2024, tramway services in 2029 and RER and metro in 2039. Currently transport services are operated by direct award to government bodies such as RATP, SNCF and the OPTILE group that contains also private operators.”

Taking a long-term perspective, the post-reform period has seen modest increases in supply and ridership. Between 2000 and 2014 total annual trip numbers rose from 3.37 billion to 4.31 billion, a 21% increase. This compares with a 9% increase in population over the period. Trip numbers increased across all modes except buses over the period: from 936 million to 1.21 billion for RER and commuter trains (+29.3%), from 1.25 billion to 1.53 billion on metro (+22.4%) and from 36 million to 223 million for trams (+519% - due to major network expansion). Bus trips within Paris fell by 7.5%, from 358 million to 331

million. Passenger-kilometres travelled on the network increased more strongly than trip numbers, with a 32% increase (from 23.4 billion to 30.8 billion) over the period. (OMNIL, 2015). The increase in passenger-kilometres travelled has been maintained in the most recent period, so that between 2000 and 2017, passenger-kilometres travelled across all public transport modes increased by 43% (OMNIL, 2018).

The introduction of a new ticketing system for the Navigo card in September 2015 has also increased the number of passengers in remote areas served by bus and trains by offering a new fare called “forfait toutes zones” (FTZ), covering all six zones for the same price previously charged for journeys within the two central zones. .

These improvements in service and patronage have coincided with significant cost increases: In 2015 the operations budget of public transport in Île-de-France region was EUR 9.4 billion, representing a 74% nominal increase (or a 37.6% real increase) on the 2000 budget of EUR 5.4 billion. This is substantially attributable to the fact that new metro and tramway lines have been constructed during the period, significantly increasing the extent of the network. There has been an increase in the cost per trip over the period, but it has been much more modest, the rise from EUR 1.60 to EUR 1.72 in real (inflation adjusted) terms representing a 7.5% increase. Moreover, longer average trip lengths account for some of this increase, with costs per passenger-kilometre increasing by only 4.2% over the period. The reform is generally considered to be a success, given the improvements in service quality and the consequent increases in patronage. Moreover, regions have the capacity to decide service levels they want, which enables the design of better adapted and more comprehensive services for users. However, the reforms have not achieved cost reductions.

Sweden

Sweden has also decentralised public transport planning, with a new Public Transport Act creating a system of 21 Regional Public Transport Authorities (PTAs) from 2012. The PTAs are empowered to establish transport routes across county borders via competitive tendering of concessions. Competition exists between regional PTA tendered traffic and commercial operators operating unsubsidised routes. That is, the Public Transport Act does not allow PTA’s to confer exclusive rights. This means in principle that all contracted services can be subject to competition from one or more commercial operators. Each regional authority is required to determine what should be part of a public service obligation, and thus included in a service contract following a competitive tendering procedure, and what types of service are to be purely commercial. Competition between commercial services and competitively tendered concessions is expected to benefit the passengers by creating new and more attractive public transport services and greater freedom of choice.

The new market arrangements are seen as contributing significantly to the achievement of the Swedish government’s goal of doubling the already substantial modal share of public transport, of 24% in 2010⁹, by 2020. Since the adoption of the new Act, there has been increase in both competition and supply in long-distance railway services. However, the subsidised traffic seems to have increased its share (Nilsson, 2015). By 2013, the 21 PTAs had concluded 280 public bus contracts. The public sector remains firmly in control, making decisions about key variables including fares and service levels. However, around 99% of services are delivered via competitively tendered contracts, with limited service provision by public entities. The average subsidy rate is around 50%. Notably, only a small number of operators compete for the competitively tendered contracts (Rye and Wrestrand, 2014).

Box 3. Changing the locus of planning responsibility for a major new Public Transport project

The cases discussed above relate to the operation of existing public transport systems. Copenhagen however provides an example of the adoption of an innovative allocation of powers between different levels of government, and across a changing range of governments, in the context of the development of a major new public transport project.

In Copenhagen, legislation passed by the national parliament authorising the construction of a metro system provided for the planning and development of the system to be the responsibility of the Ørestad Development Corporation, a joint venture between the Copenhagen municipal government and the national Ministry of Finance. The authorising legislation stated that the financing of the project would be derived from the development and sale of government-owned land near the city centre (and the Development Corporation was made responsible for both the development and sale of the land and all major decisions regarding the project, including the choice of mode (i.e. metro vs. tram vs. light rail).

Given the significant local government involvement in the planning and management of the project, the development of the second and third stages of the project required the establishment of new management bodies. The Frederiksbergbaneselskabet I/S, established in 1995, was owned 70% by the Ørestad Development Corporation and 30% by Frederiksberg Municipality and was responsible for the second stage of the project. The third stage would be built by Østamagerbaneselskabet I/S, established in September 1995 and owned 55% by the Ørestad Development Corporation and 45% by Copenhagen County. Østamagerbaneselskabet was, in turn, replaced in 2007 by Metroselskabet, which is owned jointly by the City of Copenhagen (50 %), the Danish Government (41.7 %) and the City of Frederiksberg (8.3 %). Metroselskabet has managed the metro subsequently and developed further stages of the project, including lines M3 and M4. In addition, at the time the first stage of the metro project commenced service, the land development company was separated from the metro company. The operation of the metro was also sub-contracted to a private entity.

The adoption of a joint national/municipal government project management structure facilitated the development of an innovative financing model for the project. It combined urban development and a transport infrastructure plan and the leveraging of land development profits to mobilise funding for the transport project. This “value capture” model contained both direct and indirect elements. That is, capital financing for the metro was obtained both from the sale of public land that had increased substantially in value due to the provision of public transport services and from the levying of a tax on surrounding privately-owned land to capture a proportion of the increase in value it experienced. It is estimated that, from the inauguration of the first metro line in 2002 to the expected opening of the fourth line in 2023 only 5% of the anticipated total expenditure of EUR 8 billion will have been derived from direct government financial support (Hasselgreen and Lundgren, 2014).

The model also involved additional administrative complexity. It was necessary to establish new management organisations in order to retain the character of the model in the context of an expanded system. That is, expanding the metro into additional municipalities required the creation of new management bodies in order to retain the characteristic of local government involvement in the ownership and management of the project. In addition, the fact that a single entity was responsible for two quite distinct tasks – i.e. urban development and transport infrastructure development – necessarily created additional risks and complexities. The project can clearly be assessed as a success overall. The innovative financing model minimised the initial capital funding requirement of central government and the operating surplus of the metro was able to contribute to the repayment of the borrowing that underwrote these capital costs. Moreover, there was an effective local government voice in fundamental

decisions regarding the shape of the project, such as the choice of mode. Indeed, consideration has been given to further extending the metro system, including via a cross-border metro line under the waters of Øresund and into Sweden, in the city of Malmö (Hasselgreen and Lundgren, 2014).

Germany

In Germany too there has been a transfer of decision-making responsibility from the national to the regional level. Regional passenger transport is considered as a public service which needs public funding. In 1996 the regionalisation law assigned the Bundesländer (State or regional governments) as Public Transport Authorities (PTAs) which received dedicated funding for this purpose from the State. The PTAs are responsible for ensuring a “sufficient” transport offer in their territory. They plan and finance the offer, decide on tariffs and conclude public service contracts with the railway companies.

The reform included providing the länder with the option to tender regional rail services, while tendering became obligatory in 2011. As of 2015, 60% of regional services have been tendered at least once. Most of the 40% of services that are still directly awarded are dense urban networks (S-Bahn). The market share of the new entrants is 29.3% in terms of train-km and 18.1% in terms of passenger-km. Ridership increased from 464 km to 642 km per capita (+38%) between 1994 to 2015 (see German case study in Annex A). The transition to the new system has, however, been slow: while initially expected to be completed within ten years, it will actually be thirty years from the beginning of the reform before all regional rail services are tendered.

The Netherlands

In the Netherlands, the Passenger Public Transport Act 2000 moved the basis of provision of public transport from one of monopoly public supply to one of compulsory use of competitively tendered concessions. This is managed by regional authorities, except for the national rail system and three major cities. Thus, there was simultaneously a decentralisation of government planning powers and the introduction of competition. However, funding continued to be provided to the regional authorities by the central government. The two main goals of the reform were to encourage modal shift away from private cars and toward public transport, by making the latter more attractive, and to increase the extent to which fare revenue defrayed the cost of service provision, from 35% in 2000 to a target figure of 50%. Providing the tender-winning operator with a significant degree of freedom in relation to service design was seen as a key means of working toward these goals (Van de Velde and Savelberg, 2016).

The freedom given to the regional authorities to manage the process (and to winning bidders in relation to service design) has seen a wide range of contractual arrangements developed since the reform was adopted. Key dimensions of variation include the level of service design freedom provided, the type and extent of incentives included, the size, length and scope of concessions awarded and the tendering and award process.

The number of service-kilometres increased by 13% in the decade after reform implementation, while surveyed customer satisfaction was found to be higher for tendered services and, in particular, higher for services that had been tendered more than once. Conversely, there was some reduction in ticketing integration and additional interchange requirements where journeys spanned concession boundaries. Moreover, the reforms did not lead to increased ridership. The combination of an increase in service-kilometres and static ridership meant that load factors (passenger-kilometre per service-kilometre) declined from 13.3 in 2000 to 11.8 in 2009. Public transport’s modal share remained static, at around 12% (9% for train and 3% for bus) measured in passenger-km terms. Thus, one of the key objectives of reform was not met. Clear data concerning the other key objective of reform are unavailable, both because central government subsidies to regional transport authorities are used for

purposes other than subsidising public transport (they can be used for “transport-related purposes”) and because the regional authorities also deploy other sources of funding. However, the total national budget allocation to regional transport authorities increased by 26% in real terms between 2005 and 2012, while unit costs (per vehicle-kilometre) appear to have fallen only modestly: for metro unit costs fell 1% between 2005 and 2009, while for rural buses a more substantial – but still relatively modest – 21% fall was recorded over the same period. (Van de Velde and Savelberg, 2016). Given this and the reduction in load factors, there is no a priori reason to believe that any increase in the proportion of total costs funded by fare box revenue was achieved.

Thus, the reform must be judged a failure in terms of the key objectives identified, although some specific benefits were attained, as set out above and it is plausible that the overall result is positive in benefit/cost terms.

Consolidation from local government to a metropolitan or regional transport planning authority

Consolidation of planning at the regional level has typically been pursued to enable the more effective integration of transport functions across functional areas. Benefits are expected to be derived in terms of improved customer service and in terms of efficiency gains due to more effective planning and scale economies. Figure 13, below, describes this shift in the locus of planning powers. It highlights the fact that the shift in planning powers has no necessary implications for service delivery, with allocation of concessions via competitive tendering and direct award of contracts being feasible in both cases.

Figure 13. Consolidation of planning functions from local to regional level

	Public			Private		
Planning (initiative)	National	Region/City	Local			
		Y ← X				
Service delivery				Direct Award	Tendering	Open entry
				XY	XY	

Barcelona constitutes a relatively early example of this movement, with the geographical extent of the consolidation of planning powers having been progressively expanded over more than 30 years since the reform was first adopted. The Entitat Metropolitana de Transport (EMT) was established in 1986 to regulate the provision of bus transportation across Barcelona’s metropolitan area, an urban continuum which then covered 331.5 square kilometres. with a population of 2.8 million people and spanned 18 separate municipalities. EMT’s governing body was formed by representatives of each municipality (appointed by the municipal council). Larger municipalities (>100 000 population) appointed three representatives and smaller municipalities one. In addition, the City of Barcelona appointed eleven representatives (Albalade, Bel and Calzada,2010).

EMT was responsible for planning, co-ordinating and managing surface public transport, as well as regulating the metro network, operated by the public Ferrocarril Metropolità de Barcelona SA (Barcelona Metropolitan Railways). The area covered by the EMT, and its successor the Barcelona Metropolitan Area (AMB), has expanded progressively in line with the Barcelona metropolitan area. As of 2018 it covered 36 municipal areas. The AMB was established by Law 31/2010 and issued its first Metropolitan Action Plan,

covering the period 2011-15. The AMB has similar planning, co-ordination and management functions to its predecessor body. (Loveras Minguell, 2018).

The AMB manages the provision of public transport services through a mix of public and private sector provision. Services within the metropolitan core of Barcelona are provided by a public provider (TMB) under direct-award contracts for the provision of the bus and metro services. A large number of smaller private operators operating under administrative concessions, typically with eight-ten-year duration, also provide bus services, largely connecting the suburban areas with the city centre and providing night services. A single bus concession frequently covers two or more municipalities (Loveras Minguell, 2018).

The adoption of a regional planning model has facilitated the introduction of integrated ticketing arrangements, as well as a consistent approach to the provision of public transport subsidies. It has also allowed for a coherent approach to the planning and implementation of expansions and improvements to the public transport offer as the functional (municipal) area has continued to grow.

The most recent Transports Metropolitans de Barcelona (TMB) data for the system show a combination of increasing service offers and reducing unit costs. For example, between 2014 and 2017, the total number of bus service hours on the network increased from 3.70 million to 3.86 million, while the number of passengers carried increased from 184.3 million to 202.0 million. In the same period, the cost per passenger fell from EUR 1.608 to EUR 1.478, or 9.5%. Similarly, in the metro network, the number of passengers carried increased from 375.7 million to 390.4 million. The average cost per passenger increasing slightly from EUR 0.834 to EUR 0.857, although the average operating cost per hour fell marginally, from EUR 3.641 to EUR 3.634 (AMB, 2015, 2018).

The AMB itself is a member of a larger, voluntary consortium, the Autoritat del Transport Metropolità (Metropolitan Transport Authority, or ATM). This was established in 1997 and co-ordinates the planning and financing of the transport system across a larger area. The ATM comprises the Catalunya regional government, which has a 51% stake, and local governments (with 49%), comprising the Barcelona City Council, the AMB and Associació de municipis per la Mobilitat i el Transport (AMTU). Also notable is the presence of representatives from the state central government on ATM's governing bodies, but only as observers. While the AMB concentrates on managing public transport strictly within the metropolitan area, the ATM has a broader geographical scope. Its main aim is to facilitate co-operation between public bodies owning public transport services and infrastructure, or which have financial responsibilities in respect of public transport (such as the state government) (Lloveras Minguell, 2018).

Conclusions

This chapter documents changes in the locus of public transport decision-making in both a centralising (i.e. from local to regional) and decentralising (from national to regional) direction. Examples of planning responsibility moving from regional to local level are provided. These movements reflect government attempts to balance several key dynamics that determine the overall effectiveness of public transport planning. On one hand, more localised decision-making helps to ensure that transport services respond to the needs and preferences of particular communities, thus favouring service quality and user satisfaction. Conversely, undertaking planning at more aggregated levels can yield important scale economies, while also improving resource availability and allocation. Disaggregated decision-making also increases the challenges involved in co-ordinating transport provision at regional levels and across jurisdictional boundaries. These tensions have increasingly been addressed by adopting multi-layered approaches to decision-making, such as the supplementation of the AMB and its equivalent bodies by the regional-level ATM in Barcelona, discussed above.

The locus of planning functions also reflects broader decision-making trends. Countries have differing histories and philosophies in relation to the governance of government functions generally and decisions in relation to transport planning are necessarily strongly influenced by these. This may mean that changes in planning functions are not made despite relatively strong arguments in favour. There is, at present, no clear evidence that locating transport planning functions at one particular level of government (or geographical aggregation) necessarily yields superior outcomes. Rather, governments should seek to understand and take account of the trade-offs highlighted above – i.e. between the need for responsiveness to local preferences, the benefits of co-ordination and scale economies and the need to ensure adequate resources are available – when making institutional choices.

CHAPTER 4

Reform within existing market structures

Public transport reform has not in all cases meant changing the balance of responsibilities between public and private sectors. Significant changes have also been made, and important benefits obtained, within the context of existing service planning and delivery models. . This chapter discusses three key reforms of this type, each of which is relevant to different industry structures.

First, where public transport services are provided by a public sector body, governments may seek to improve accountability and performance through its corporatisation. Here, a public organisation is transformed from being a part (or department) of the government to being an arm's length publicly-owned body that is given clear objectives similar to the commercial goals of a fully private operator and resources (Currie, 2016).

Second, under public provision, the public-transport agency may wish to better define (or re-specify) the services delivered. When there is organisational separation between service planning and service delivery, these changes require some form of negotiation. Negotiations can take place within either a contractual context or within a partnership arrangement.

Third, where public-transport services are determined by private initiative (and delivered privately), the quality and cost outcomes are dependent on choices taken by private actors. Through time, market dynamics influence the choice of operating regions, routes, service levels and even the total number of operators in any given geographical area.

Corporatisation of public sector transport service providers

Between the 1940s and 1980s, it was common in developed countries for public transport services to be planned and delivered by the public sector. In this environment, the planners, drivers, maintenance workers and customer services staff within the public transport sector are all direct employees of the government. This model came increasingly to be questioned, from the early 1980s. A key critique (Giannopoulos, 1989) argues that in this institutional arrangement, operators are subject to political interventions that diminish their incentives and ability to deliver efficient services.

A number of alternatives to public provision have been advanced since that time. Currie (2016) identifies a wide range of options to improve performance incentives for a public transport system with a public-sector industry structure. Many of these options involve major structural change, such as the sale of assets (privatisation), competitive tendering of service provision to private providers or opening the industry to private initiative (deregulation). Corporatisation of public sector transport service provision can be seen as an intermediate approach whereby functions and assets remain within the public sector, but the relevant organisations are transformed into business units or state-owned enterprises operating at arm's length from government (Sørensen and Longva, 2011).

Corporatisation of public sector service providers, involving clarifying core functions and responsibilities and making identifiable, separate entities responsible for their delivery, has been widespread. This change generally involves the vertical separation of functions, with arm's length relationships being

established between the various entities in the service delivery chain. This implies a need for negotiation between entities which, in turn, gives rise to a need for clearer specification the outcomes to be achieved and responsibility for achieving them. Conversely, where public services are designed and delivered privately market dynamics influence the choice of operating regions, routes, service levels and even the total number of operators in any given geographic area. Substantial changes have been visible over time in the outcomes of these forces.

Corporatisation is consistent with the general movement in ITF member country governments towards greater managerial autonomy for service delivery; the so-called New Public Management model (Hood, 1995). In the transport sector, this pattern is evident in the rail sector and urban PT, where transport planning and service delivery organisations have been moved out of the direct control of ministries and ministers in many countries.

Corporatisation and vertical separation in European rail markets

Improving the transport sector's coherence, efficiency and competitiveness (91/440/EEC) has been a central goal of the European Union's rail reform process for over 25 years. The reform aimed to reduce the ballooning public subsidies needed to offset rapidly growing operating deficits. It also sought to level the playing field between member countries with a view to eventually enabling market entry and competition in national markets (Casullo, 2016). That is, effective competition would only be possible if state-owned transport units acted as independent commercial operators, and any remaining public subsidies were administered in a non-distorting manner.

To create corporatised operating entities, bundled functions need to be separated and clarified. In the rail sector service providers and infrastructure owners must be vertically separated. Expensive sunk assets (rail network) make this particularly challenging. This implies establishing arm's length relationships including track access arrangements and charges. On the operations side, contracts should clearly set out the agreed performance standards for public passenger transport services delivered by rail and by road and make public service obligations and the associated subsidy payments explicit (2012/34/EU).

To corporatise the heavily indebted and structurally loss-making European railway operators their accumulated debts were recognised and transferred to national government balance sheets, in effect recapitalising these entities. In addition, operators were sometimes able to offload to central government the incremental costs of the more generous public sector remuneration arrangements accorded to their employees. For example, in the case of Germany a public structure (Bundeseisenbahnvermögen, BEV) was created to support the legacies of the former railway organisation. BEV formally became the employer of all railway employees and hired staff to Deutsche Bahn (DB) at market conditions. BEV also took charge of pension liabilities in respect of the former railway employees.

In Sweden, the corporatisation process began with vertical separation, which was implemented prior to the EU Directive. In 1988 the state railway agency in Sweden, was split into a separate agency responsible for the operation of rail transport (SJ) and an agency responsible for rail infrastructure (Banverket). This reform also included a decentralisation of responsibility for regional rail transport to County Public Transport Authorities (CPTAs). In 2001 SJ was fully corporatised and divided into six different companies, which at that time were all state owned.

German railways were reorganised in 1994 as a single state-owned private company DB AG. Following reunification there were initially two state-owned companies from East and West Germany. At the same

time partial vertical separation was introduced: the operating activities (passenger and freight) and infrastructure management (network, stations and traction power) were split into separate units of the same holding company, DB. The infrastructure division of DB bears the costs of operating and maintaining rail infrastructure, and is also in charge of stations, sale of tickets, passenger attention, etc. It is also responsible for setting charges for the use of the track, which are supposed to cover all infrastructure costs, including investment. These charges are based levied on a per train-km basis and differentiated across line sectors.

In France, the railway reform of 1997 (Law 97-135) separated rail operations, which are undertaken by the state-owned SNCF, from network operations, which were allocated in part to a new organisation, Réseau Ferré de France (RFF). However, by 2014, the RFF had accumulated unsustainable debt and was re-integrated into SNCF as an operating unit (SNCF Réseau) alongside the service provider (SNCF Mobilités). This reversal was proposed on the understanding that separate arm's length contracts would be concluded between the service provider, the state and the network operator. Three performance contracts were signed in April 2017 between the State and the railways groups, SNCF Mobilité and SNCF Réseau. However, the rail regulator The Autorité de Régulation des Activités Ferroviaires (ARAFER) at the outset argued that the lack of credible commitments by the contracting parties, deprives the railway sector of a vital long-term vision and real financial sustainability.

A new law adopted on June 27, 2018 makes further structural changes to the French railway system. It will transform the legal status of the French National Railways Company (SNCF), currently a public industrial and commercial establishment (EPIC), into a public limited company (SA), which would remain public but face stronger constraints on indebtedness. It also effectively changes the employment status of railway workers, with respect to salaries, conditions and other benefits such as free train tickets and a lower retirement age.

In Italy, the structural transformation of the heavily subsidised Ferrovie dello Stato began in 1985 and finished in 1992, at which time the organisation was formally corporatised as a fully state-owned joint stock company. Infrastructure and service provision were separated in 1998 and assigned to Rete Ferroviaria Italiana (RFI) and Trenitalia respectively. Both organisations were owned by FS Holding. FS was then restructured to achieve financial sustainability, with key steps being to work to increase labour productivity and revenues and to optimise the use of assets in order to increase traffic. FS holdings managed to reduce staff numbers from 100 000 in 2003 to 73 000 a decade later.

The Swiss Federal Railways (SBB) were corporatised in the second half of the 1990s as part of a broader reform package that was directed at transposing the first EU railway directive into Swiss law (91/440/EEC). Prior to this, the State directly employed railway staff, planned services and covered unplanned deficits. After corporatisation public authorities plan services, but only pay the state-owned enterprise SBB the prices agreed in advance in the multi-year service contract. In addition, the cantonal authorities gained the right to select providers of regional transport services, although their decision-making was overseen by the Federal Office of Transport (FOT). SBB's monopoly on regional and national long distance railway passenger services was also removed, although the cantonal authorities did not undertake procurement and no foreign supplier entered the market.

Assessment

Assessing the corporatisation of passenger rail operators as a stand-alone reform is difficult, since it is usually undertaken as part of a package of reforms, including the introduction of vertical separation of service delivery and network management. However, the gradual introduction of changes to

organisations and competition arrangements over a period of years and the differing rates of progress across the European case studies allows some conclusions to be drawn.

The performance of the French railways relative to their western European peers during the period of corporatisation is indicative. While in 1990 the SNCF had a level of apparent productivity of labour equivalent to most other major European railways, this is no longer the case (Table 2). By 2005, the French railway system had made only modest productivity gains, whereas other systems had made more substantial improvements, suggesting the limited success in implementing corporatisation was holding back efficiency. Table 2 shows that the number of train-kilometres per employee rose by 36% in France between 1990 and 2012, compared with increases of 90% in Switzerland, 97% in Sweden, 130% in Germany and 172% in Italy.

This poorer productivity performance is linked to high railway production costs. A French report completed in 2009 found that, in the case of regional transport (TER), production costs were on average 30% higher than those observed in Germany (Cour des Comptes, 2009). The SNCF is heavily dependent on public subsidies for conventional rail services (TER, intercity trains and the Paris suburban network) which totalled more than EUR 5 billion, compared to commercial traffic revenues of EUR 8 billion in 2015. In 2012, the average public contribution per employee was about EUR 36 000, an increase of almost 80% since 2000 (Table 3), while the subsidy per tonne kilometre of freight carried was EUR 11 878, more than 75% higher than in 2000.

Table 2. Apparent labour productivity - Thousands of train-kilometre per rail employee

		1990	2000	2005	2010	2012	Index (change 1990-2012)
France	SNCF-RFF	2.39	3.01	2.98	3.24	3.24	135.6
Germany	DB	2.66	4.91	6.33	7.01	6.13	230.5
Italy	Trenitalia	1.52	2.71	3.39	3.66	4.14	272.4
Switzerland	SBB	3.28	4.57	6.47	6.34	6.25	190.5
Sweden	SJ - Green cargo	4.68	9.55	5.99	3.73	9.23	197.2

Note: Data covers both freight and passenger rail. Labour estimates based on employees working in railway activities, rather than total employees.

Source: Desmaris, 2004. Calculations based on UIC database <https://uic.org/support-activities/statistics/>

Table 3. Government subsidies to French railways

	2000	2004	2008	2012	Index (change 2000-2012)
Grants / Tkm (EUR)	6 754	8 667	10 692	11 878	175.8
Grants / Employee (EUR)	20 341	26 290	32 468	36 058	177.3

Note: This data excludes pension costs and compensation for the special status of railway employees

Source: calculations based on Transportation Accounts of the Nation and UIC database.

The German experience of reform provides a contrast with that of France. Häfner (1996: 30) assessed the outcomes of unification, corporatisation and vertical separation in German railways after only two years, but found

“a considerable increase in productivity by cuts in personnel expenses, accompanied by extensive investments, and increase in turnover... full use of negotiation margins is now possible in the field of purchasing and the entry into strategic alliances with private partners and their capital participation, as well as aggressive marketing of train paths for third-party users are outstanding examples of business development”.

As a state-owned company DB AG can operate much more independently from short term political (and union) influence. Management structures have been successfully modernised and are now comparable to other service companies. By adopting new technologies and new working methods, the overall productivity of DB increased rapidly in the first five years after corporatisation, from 2 910 train-km produced per employee in 1995 to 4 910 train-km in 2000 (+69%). Significant additional gains followed, albeit at a slower rate, with train-km per employee reaching 6 130 in 2012 (+130%).

Moreover, the service offer has grown significantly (+37% in train-kilometres between 1993 and 2015), as has the volume of traffic (+44% passenger-kilometres). Ridership (i.e. passenger journeys) and average occupancy level per train have also risen (+38% and +16% respectively). The quality of rolling stock has increased for all tendered services. The overall cost of the PTAs has slightly decreased (-4.5%), while costs per passenger-kilometre fell by 31% and cost per train-kilometre fell 20% between 1998 and 2015. There is however an imbalance in terms of profitability between different operators, as DB kept the most profitable directly awarded contracts, but this is subject to change once the current contracts end and are tendered.¹⁰

The German reforms are generally considered to have been successful, but they remain incomplete. The planned separation between operational and infrastructure services has been shelved and weaknesses in regulatory oversight have enabled financial transfers within DB between the monopolistic sector (infrastructure) and the competitive sector. It is now expected to take much longer than originally intended (i.e. thirty years, rather than the originally estimated ten) to subject all services to tender.

The Swiss rail system has also substantially improved its labour productivity and overall cost effectiveness since corporatisation. For example, the trend of steadily increasing public contributions for regional traffic was reversed (Desmaris, 2014). SBB have managed, with a constant volume of public funding, to regularly increase both its freight offer (measured in train-kilometres) and its passenger traffic. Overall SBB passenger service supply increased by 58.5% between 1995 and 2015, measured in train-kilometres. This increase, which is the biggest increase in Europe, has been achieved with a declining number of staff (Table 4).

Corporatisation is likely to have also contributed to the significant improvement in the quality of Swiss passenger rail services in the past two decades. While Switzerland has long been known for the excellence of its railways, service frequency increases have seen it surpass Japan to be the best-served country in the world. The bulk of speed improvements took place between 1994 and 2005, following implementation of the broad investment and modernisation program called Rail 2000. Rail 2000 significantly increased train frequency (basically every 30 minutes and 15 minutes on the busiest routes, during peak hours) as well as improving linkages between rail and other modes of transport.

Table 4. Changes in Swiss rail traffic, staffing and labour productivity

	1980	1995	2015	1980-1995 (% change)	1995-2015 (% change)
Passenger-kilometres (millions) (1)	9 167	11 712	18 560	+27.8	+58.5
Tonne-kilometres (millions) (2)	7 220	8 156	15 065	+13.0	+84.7
Staff in full-time equivalents, except subsidiaries (3)	38 367	33 529	27 574	-12.6	-17.8
Labour productivity - million traffic units (4)	0.43	0.59	1.21	+38.7	+105.8

Note: (4) = [(1) + (2)] / (3). Based on the assumption that a passenger-kilometre is comparable to a tonne-kilometre.

Source: Desmaris (2014) and UIC database.

The divergence in the speed and extent of corporatisation among European countries reflects different underlying conditions, in terms of national political and market contexts. The German and Swiss case studies (Annex A) seem to have more effectively confronted the political risks associated with labour than did France. In Germany, the legacy of public sector employment conditions was effectively neutralised for the corporatised operator via the combination of a transfer of these liabilities to the specifically constituted BEV and the move to undertake post-corporatisation hiring and staff management on market terms. German rail trade unions supported the corporatisation reforms following the conclusion of a formal agreement that required more versatility from the railway staff in exchange for continued employment. By contrast, no equivalent transfer of legacy costs to the broader public sector occurred in France. French labour unions have impeded any reform which would undermine the advantageous employment conditions of state railway employees. This has meant that SNCF has been unable to operate on commercial terms, since its cost base is inflated by historical labour arrangements. The promulgation of a new railway law in France on 27 June 2018 is expected to change the situation, however. It incorporates a timetable for opening competition in both the regional passenger traffic and long distance traffic sectors, ends the special status of railway staff and transforms the SNCF into a public limited liability company.

Corporatisation in urban public transport

Melbourne's metropolitan railway and tram services were corporatised during the 1990s, under new management within the newly amalgamated public operator for buses, trains and trams (the Public Transport Corporation). Staff levels were halved through a combination of threats to labour (a stated preparedness on the part of government to close the system for months if strike action occurred) and promises of redundancy payouts. At the same time, reliability and punctuality improved, in part due to targeted infrastructure improvements (Williams et al., 2005).

Assessment

The case studies (Annex A) appear to support Nobel laureate Joseph Stiglitz's (2000) argument that many of the gains from privatisation are reaped during the initial corporatisation step and derive from the

creation of effective incentives, rather than privatisation per se. That said, Stiglitz notes the importance of the expectation of subsequent privatisation in creating the incentives which drive these efficiency gains:

“...often the managers of government enterprises do well after privatization - becoming highly paid executives in the new private company and/or receiving hefty shares or options in the newly privatized company – and it is these economic returns which drive them to improve efficiency during the corporation stage”

In relation to vertical separation, Friebe et al. (2004) found no significant differences in efficiency between fully integrated companies and organisationally separated firms. Full institutional separation also had a positive effect on efficiency when the United Kingdom was excluded from the dataset. The results also indicated that, in general, smaller railway firms (firm size being measured in terms of network length) improved efficiency more than larger firms did. They conclude that “If the railroad sector seems to be quite sensitive to changes in the regulatory framework, building reform of the railroad industry on a one-size-fits-all model of separation of infrastructure from operations may not be a fruitful way to enhance efficiency” (Friebe et al., 2004).

Negotiation of service delivery contracts

The public transport agency planning services will, from time to time, need to change services delivered as demand or other circumstances change. In a purely public operation with no organisational separation between service planning and service delivery, re-deployment of physical and human resources to provide new services or amend existing ones can be achieved relatively quickly.

Where there is separation between service planning and service delivery – with either a functionally separate public operator, or with a private operator – these changes may require a new contract or some form of re-negotiation of existing agreements. Negotiations can take place within a contract or within a partnership arrangement. Alternatively, original contracts may incorporate some flexibility to adopt changes within the contractual framework.

An example of where the public sector’s ability to implement service changes has been constrained by contractual arrangements is provided by the Danish government’s first tender of regional train services in Jutland in 2005. The original contract gave the operator (Arriva) considerable freedom to set timetables. It used this freedom to minimise the number of trains required to be in operation to meet its train-kilometre based service standard. This resulted in an equal distribution of services across the day, with fewer peak hour services than previously provided. Since the planning flexibility in the contract was all on the operator’s side, the government needed to agree a supplementary contract with Arriva to expand services during peak hours (Rigsrevisionen, 2005; Trafikstyrelsen, 2014).

A partnership arrangement is a compromise between the two alternatives of public provision and private provision via arm’s length tenders. It allows for both private service delivery and flexibility.. The Negotiated Performance Based Contract (NPBC) is a contract between a commercial private operator and a public transport authority that offers some on-going planning flexibility to the government, but fully specifies key components such as unit costs. NPBCs are based on trusting relationships where both parties aim to achieve a good balance of output quality, flexibility and cost performance (Currie, 2016). This allows orderly re-negotiations with existing operators.

For example, the private operators who deliver suburban bus services in the Barcelona metropolitan area under contracts with TMB must respond to requests for minor changes to service delivery from the

TMB under existing contracts. Requests to vary bus service-kilometres and hours of operations by up to 10% are accommodated under the base contract, whereas a more costly contract renegotiation (or even a new contract) is likely to be required to implement larger changes.

The Negotiated Performance Based Contract in Melbourne’s tram and rail network

Melbourne has operated two separate NPBCs since 2004, following the financial failure of privatised concession contracts in 2002 (Chapter 3 and Currie, 2016). These cover both services and infrastructure. There is one contract for tram services and one for commuter rail services. Under the arrangement, revenue is shared between the two service providers (i.e. one per mode) in fixed proportions to ensure revenue stability. A single agency, Public Transport Victoria (previously Metlink), coordinates the functions of revenue collection and apportionment, ticketing and marketing for the operators and the government. Maintenance contracts and investment in new infrastructure are based on a collaborative approach: under the first contract plans and costs were initially agreed with the government, but a subsequent contract transferred full responsibility back to the private operator. The NPBC contract penalises bad performance and rewards good performance. The incentives initially addressed only punctuality and reliability, but were expanded to cover additional performance dimensions in the second contract period (Currie, 2016). These included a range of passenger experience measures covering information provision, cleaning standards (including graffiti removal) and station skipping/short running. However, the potential size of the incentive and penalty payments was also substantially reduced at the time of the most recent renegotiation (see case study Annex A).

The independent Victorian Auditor-General undertook a review of the processes used to establish the NPBC contracts (Auditor General Victoria, 2005) and found that it represented “reasonable value for money”. Others suggest a “break even” outcome (Allsop, 2007) or “modest” cost reductions from the approach (Williams et al., 2005), though the latter found that, relative to the stricter concession arrangements, the NPBC was associated with an increase in rail service cancellations and a decline in punctuality. Under the NPBC, the system experienced continued patronage growth and overcrowding, minimal industrial disputes, and the delivery of several infrastructure projects on time and to budget (Williams et al., 2005).

In the second NPBC tender, both incumbent operators, Connex (Veolia – rail) and TransDev (tram) lost to new bidders. For rail, Metro Trains Melbourne (MTM, a consortium of Hong Kong’s MTR Corporation and Australia’s John Holland Group and UGL Rail, a division of United Group Limited) won the third franchise and for tram, Keolis Downer EDI (KDR) Victoria (a partnership of the international operator Keolis and Australia’s Downer EDI Rail). A major factor in the rail result was the perceived poor performance of Connex in managing rail reliability. Interestingly, cost savings were not cited as a feature of the new arrangements at the time of the third refranchising announcement, with the emphasis instead being placed on improved performance (Currie, 2016).

In the four years after MTM took over the rail network, on-time performance (arriving within five minutes of schedule) increased from 86.5% (2009) to 92.8% (2013), while train cancellation performance was largely unchanged. The overall customer satisfaction rating of train services was also largely unchanged. Ridership growth continued, but at rates considerably below the very high rates experienced prior to the new contract commencing (3% net increase between 2009/10 and 2012/13) and slightly below population growth. Between 2009/10 and 2013/14 rail kilometres operated increased by 16%, largely driven by government investment in new trains to increase peak capacity. Given on-going overloading problems and the problems of fitting new trains into an already congested and ageing rail network, the MTM performance data represent quite a positive outcome (Currie, 2016).

In May 2014, MTM and partners presented an ‘unsolicited’ proposal to introduce higher capacity trains including advanced (in-cab) signalling and a series of rail crossing grade separations to the Dandenong and Pakenham lines as a commercially-based package to further increase rail capacity. This package was accepted by government and is thought to be valued at around AUD 2.0-2.5 billion. The unsolicited proposals policy of the Victorian government applies to all infrastructure sectors. However, in its application to public transport, it can arguably be seen as representing a step toward private planning (in addition to service delivery).

Assessment

The continuous involvement of all parties to solve challenges in day-to-day operations in a changing and unpredictable environment is appealing as it can be more flexible than the management of relationships in a strict contracting environment. Currie (2016) argues that, in practice, it is hard to achieve effective outcomes for all parties because of the frequent conflict between the profit maximisation objective of operators and the cost minimisation objective of transport planners. The success of NPBCs depends mainly of the capacity of the public transport authority to make a trusting partnership work. Actual competition and the threat of competition – such as through cost benchmarking against peer systems and periodic re-tendering – can be effective in ensuring the relationship is not too comfortable for the private parties.

Stanley and Longva (2010) propose “the 5C’s” to support contract clarity (before signing the contract), and clarity of obligations once the contract is signed as a means of providing good outcomes in an NPBC arrangement:

- personal *common* core objectives tied to public policy purposes
- *consistency* of behaviour and direction
- *confidence* in a partner’s capacity to deliver
- respect for each other’s *competencies*
- demonstrate *commitment* to good faith in making and keeping arrangements and in principled behaviour.

Attention to these factors is likely to reduce what might be considered to be an inherently larger risk of failure associated with NPBCs due to the potentially greater negative impacts of regulatory capture of the public transport authority that the more flexible contract structure implies. Private contractors are often very experienced at contracting and in dealing with government bodies whereas the latter are commonly relatively new to contracting and generally have little experience in dealing with the private sector. Governments engaged in outsourcing should be careful to attract, train and retain suitably experienced staff. Provisions to guard against regulatory capture are critical in a NPBC process. Hensher and Stanley (2010) recommend the following to achieve transparency and accountability in NPBC arrangements:

- independently verified performance benchmarking
- open book approaches to contractor costs and accounts
- use of probity auditors
- public disclosure of contract arrangements and performance outcomes.

Market dynamics within private industry structures

This section discusses how private actors respond to incentives in terms of route choices and competition in the market (i.e. overall entry to, and exit from, the market) under this industry structure. Within the jurisdictions covered by the case studies there are some periods where public transport planning and service delivery has been undertaken mostly privately.

Under private planning and open entry, the public transport route network, service frequencies, vehicle type, service quality, traveller information and branding are all determined by the private sector. Government involvement in the sector may be limited to requiring driver and vehicle licensing and, in some cases, imposing some form of price regulation. Examples of this fully-private market structure are somewhat rare in developed countries due to the low profitability of public transport services in the context of high levels of private car ownership and recognition that sufficient scale and a degree of service co-ordination are required to deliver quality public transport services (Chapter 2).

Companies may find that individual routes or whole geographical markets do not offer sufficiently high commercial returns to commence (or continue) operating there. The presence or absence of competitors on a route or in an area will clearly influence these profitability projections, so there is a risk of strategic behaviour that could limit the gains from competition. One example of strategic behaviour is for bus companies to (implicitly) avoid competing in one-another's established markets. A second example is where private companies who are sole operators in a region or on a route may understate their financial performance and request subsidies from government to avoid a market exit and the associated discontinuity of services.

Dynamics in private urban bus markets

In Seoul, buses were completely privately planned and operated until the 1990s (unlike the subway and commuter train networks, which were managed by the public sector). In this period, the role of government was limited to licensing bus companies to operate in the market, leaving these companies free to choose routes and schedules as well as the vehicles used in service delivery. Until the mid-1980s, bus usage grew rapidly and services were profitable, attracting new entrants. Routes were designed to maximise the number of passengers that could be served and there was intense competition for high-density routes, creating very high frequency services (Allen, 2013). Operators were less interested in lower-demand routes or in servicing mobility-impaired users.

In the 1990s, as the challenges of rising car ownership and the introduction of a subway system increased in intensity, the government began to subsidise the bus system. Despite this, many private operators went bankrupt in this period and services began being reduced. Between 1995 and 2002, the number of bus companies fell by more than one-third, from 89 to 58; while the daily average number of passengers per bus fell by more than half, from 1 093 to 494, between 1989 and 2002 (Allen, 2013). These dynamics ultimately led to the government taking on a significant planning role in respect of the industry, determining route changes jointly with operators and developing a hub and spoke system, as well as adopting various supporting policies such as the introduction of dedicated bus lanes (Annex A).

Outside London in the United Kingdom, local bus services have remained primarily privately planned and operated since deregulation in 1985, with private companies free to enter and exit any geographic area or route. Government involvement was initially limited to supporting important non-profitable services which 'gap filled' the network where required. Pickup et al. (1991) identified some of the key market dynamics of the early years of open-entry private operation:

- There were some initial examples of on-route competition but smaller operators avoided this.
- Small bus companies were eventually consolidated into a small number of larger players.
- There was a trend towards increases in off-peak (interpeak and weekend) service levels but not at peak times, since the latter had high costs and offered low returns due to the required expansion in fleet numbers.

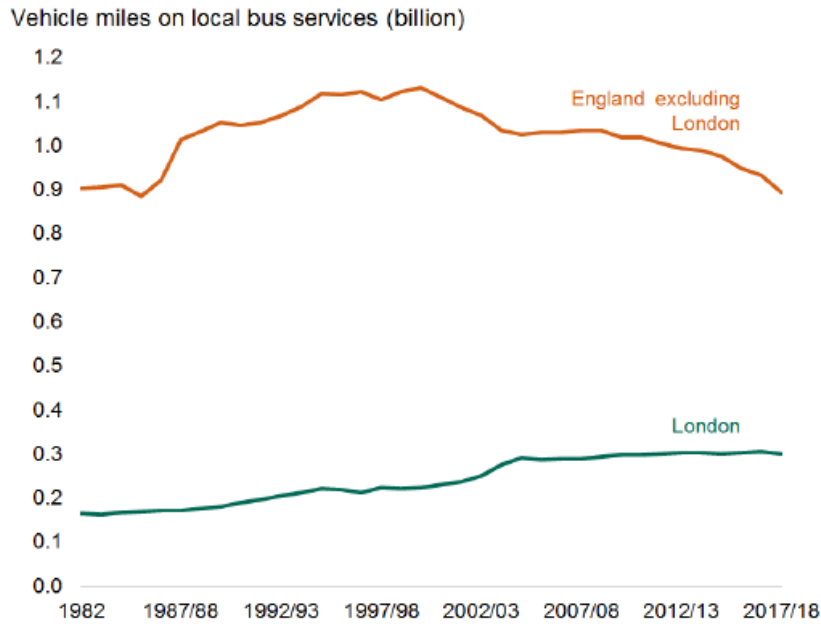
The evidence on privately operated bus-kilometres supports these early observations. In an environment of declining bus patronage, there was a steady increase in bus service-kilometres until 2000 (Figure 14). Thereafter privately operated bus-kilometres dropped significantly, from over 1.5 billion to around 1.3 billion in just five years. Mileage has continued to decline gradually, falling to 1.2 billion in 2017-18. As Figure 14 shows, the decline has occurred entirely outside London, with total bus mileage being broadly stable within London. A major driver of the reduction in vehicle miles has been a 49% reduction, since 2004-05 in the mileage covered by routes subsidised by local authorities (Department for Transport, 2019).

Data on passenger journeys show that total numbers rose in the early part of the last decade, but have declined substantially since 2008-09. The 2017-18 total of 2.13 billion journeys is 11.6% below the 2008-09 peak figure of 2.41 billion journeys. The decline was significantly greater in metropolitan vs. non-metropolitan areas (-15.5% vs. -8.3%). Of note is that passenger journey numbers continued to rise in London until 2013-14, whereas they had begun to fall five years earlier outside London. (Department for Transport, 2019). However, the longer-term picture is one of steady decline in the number of passenger-kilometres travelled by bus since at least the early 1950s. Passenger-kilometres travelled are estimated to have fallen by 51% in metropolitan areas (ex-London) since deregulation, and by 18% in non-metropolitan areas. (Ganeshan, 2016). Figure 15 shows changes in passenger journey numbers in London and in England (ex-London) since 2005-06.

Fare revenue from commercial passengers for bus operators in the United Kingdom have stayed roughly constant in real terms since 2004/5. However, this reflects a combination of declining patronage and rising real fares: bus fares in England (ex-London) rose in real terms by 36.8% in metropolitan areas and 19.2% in non-metropolitan areas between 2005 and 2018. Government subsidies were broadly constant over the period in Metropolitan areas and increased in non-metropolitan areas over the period. (Ganeshan, 2016; DfT, 2018). Thus, total revenues have risen over the period, while both vehicle and passenger miles have declined.

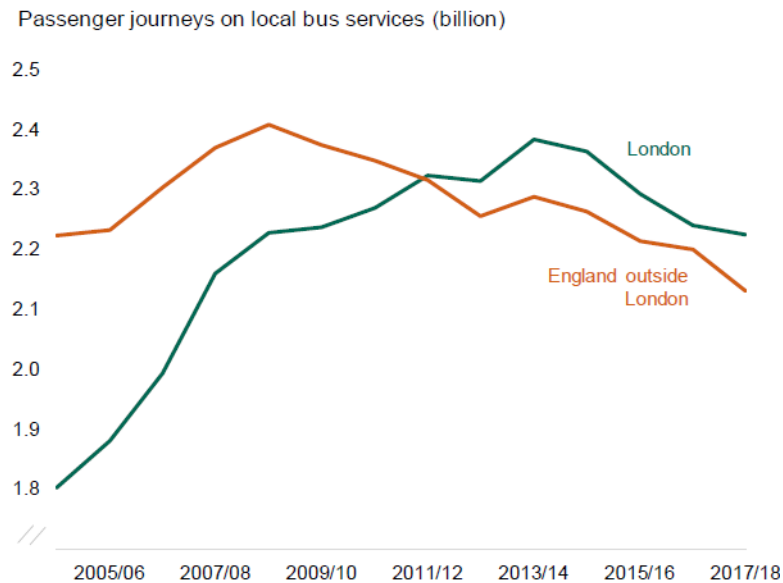
In its investigation of the bus industry the UK Competition Commission (2011) found that head-to-head competition was uncommon in the local bus market in England outside London. It found only 3% of urban areas and one in ten bus services had competition in the market. A major reason for this lack of competition was high barriers to entry, since in the short term operators compete for customers by offering high service frequencies, which is loss-making given the relatively weak demand response from travellers. Generally only one operator survives this short-term competition, and the threat of loss-making deters new entries.

Figure 14. Local bus mileage in England (billions per annum)



Source: UK Department for Transport, 2019, "Bus Statistics," table BUS0205b

Figure 15. Bus passenger journeys in England (billions per annum)



Source: Department for Transport (2019)

The lack of competition observed in UK bus markets outside London is also partly due to a high concentration of private operators. Many of the more than 70 businesses operating in the mid-1980s were bought by the big five operators (Arriva, Stagecoach, First, National Express and Go Ahead), who held 83% of the market in the metropolitan districts by the beginning of the current decade¹¹ and remained at 80% in 2018 (Go-Ahead Group, 2018). The UK Competition Commission (2011) found

evidence that in some regions of England there was geographic market segregation, whereby operators avoided running competing services in each other's "core territories", thus increasing joint profits. The Commission found significant evidence that this approach had been successful, in that the big five made returns on investment in the bus market that were consistently above returns in similar industries. In sum, the results of deregulation in the ex-London bus industry have been declining service levels, increasing real prices and increased operator profits.

Dynamics in private intercity rail markets

Examples of rail networks where on-track competition between operators has developed are also rare. New entrants have been deterred by the inherent advantages of the largest operator, traditionally the state-owned incumbent. This has limited open access operations to selected niche markets (Nash, 2008; Preston, 2012). The only example of on-track competition considered by the Working Group was the case of Italy's high-speed rail network (Desmaris and Croccolo, 2018). Italy is among the few European countries to have opened its high-speed railway (HSR) network to competition. There Nuovo Trasporto Viaggiatori (NTV) has been taking on the state-owned incumbent, Trenitalia, since spring 2012.

After infrastructure and services were organisationally separated in 1998, it has been technically possible for newcomers to enter the Italian passenger rail market. This is because spare capacity has existed since the development of the first lines on the HSR network beginning in the 1970s¹². NTV now provides HSR services under the brand name Italo, inspired by the "low cost" airline model (minimised fixed costs, digital distribution, outsourcing, staff incentives for productivity). Italo runs HSR services on the main HSR trunk network between Naples and Bologna, with branches to Venice and Turin.

The entry of NTV led to a 45% increase in HSR supply in Italy in the first year, without generating a reduction in HSR supply by Trenitalia. HSR passenger numbers grew by 44% between 2008 and 2013 despite the effects of the economic crisis. However, total rail traffic has not increased with passenger-kilometres remaining under the peaks experienced before the crisis (48.7 million in 2013 vs. 50.2 in 2006), suggesting that the increase in HSR passenger-kilometres came at the expense of regular-speed regional trains. NTV's entry contributed to an initial decrease in HSR prices within a few months of competition beginning. There was an average reduction of 30% per passenger between 2011 and 2012. The quality and variety of services have improved: including the introduction of free wifi, on-board entertainment and working environments. New rolling stock has been introduced by Trenitalia to offer faster services (up to 360 km/h) and attempt to gain a competitive advantage.

In Italy it appears that competition lifted service levels on the whole HSR system. Trenitalia remains the largest operator and has improved its services while growing its revenues. The infrastructure manager has increased the utilisation of its network – though with lower access charges now in place (as proposed by the regulator) it now has lower access revenues overall, necessitating the government (hence taxpayers) paying subsidies in compensation. Thus, the price reductions identified above appear to have been, at least in part, a product of the under-pricing of infrastructure access. This under-pricing may, therefore, also be a major part of the explanation for the shift in demand from standard rail to HSR (Desmaris and Croccolo, 2018).

Questions remain about the financial sustainability of the new entrant. However, the case provides some evidence that the on-track competition that is proposed as part of the European liberalisation railway policy (recently approved Fourth Rail Package) is feasible and capable of delivering efficiency improvements in the presence of certain market conditions such as spare capacity, an incumbent operator with sub-optimal efficiency and service delivery (Casullo, 2016) and, in particular, favourable toll levels (Desmaris and Croccolo, 2018).

Assessment

Genuinely open competition in the market or on the road is not common in urban bus markets or in intercity rail. This reflects the economies of scale (network effect) in providing such services, since passengers prefer more frequent services provided by a single operator to different operators providing competing services with lesser overall frequency. It also likely reflects the relatively low profitability of these markets when competing against alternative modes (particularly private cars and air and buses in intercity markets). Where open competition has occurred in recent decades (e.g. selected bus routes outside London and some European rail markets) the actual levels of competition seem to be very location-specific and unstable across time.

The performance of the privately-planned bus system in the United Kingdom (ex-London) has increasingly been seen as inferior to the publicly planned system operated in London. The failure of the Quality Contract Scheme provisions legislated in 2000 to provide a workable means of addressing the identified problems has ultimately led to the adoption of the Bus Services Act which will give transport authorities outside London the same rights as Transport for London to plan services, define the supply level and quality of service (schedules, tariffs, reliability, regularity) they want and contract with private operators, albeit, as noted above, these powers are available only to combined authorities with elected mayors. The adoption of the Act therefore appears to represent a repudiation of the open-access model in the United Kingdom context.

Assessment of reforms within specific market structures

The examples presented in this chapter highlight the extent to which the performance of public transport services is determined by factors other than the key market organisation variables that form the core of this report's analysis and the potential significance of smaller-scale reforms within the context of a given market organisation. A theme which is common to both the discussion of market organisation and the reforms discussed in this chapter is that of the need to understand the incentives that drive market participants and design initiatives in a way that is consistent with this understanding.

CHAPTER 5

Conclusions and recommendations

The environment within which public transport operates has evolved rapidly in recent decades and continues to change. The design of public transport planning and delivery systems must take adequate account of these environmental changes including being cognisant, as far as possible, of emerging issues such as the development of the Mobility as a Service (MaaS) concept.

Decentralisation of planning can help to deliver public transport that is well-tailored to local needs and preferences; however, it is important to ensure adequate co-ordination across transport corridors, which do not necessarily coincide with administrative boundaries. New, cross-governmental bodies may need to be established to facilitate this.

Corporatisation of service delivery bodies typically delivers important efficiency benefits. Privatisation can yield additional efficiency gains, but results appear dependent on the means employed: competitive tendering typically yields more favourable results than direct awards of contracts based on negotiations, but outcomes also depend on ensuring that objectives and service standards are clearly specified and adequate and appropriate performance incentives are included in contracts.

Other key factors include the existence of an adequately competitive market for private service provision and well-considered franchise length. Achieving positive modal shift and improved service quality is also dependent on government both identifying these in concrete terms as performance objectives and ensuring adequate funding and broader policy support. Governments should also seek to maximize the complementarity between public transport and newly emerging app-based mobility options, ensuring that these contribute as far as possible to the expansion of the public network, rather than draining demand from it and risking its continued viability. This is likely to involve direct engagement with relevant service providers to explore mutually beneficial initiatives.

The context for recent reforms

The 20th century was the century of the car, particularly in developed economies. As incomes rose, the speed, convenience and flexibility offered by the private car came within reach of an increasing proportion of households. This brought more spacious, lower-priced accommodation on the urban fringes within reach of an acceptable commuting range, thus providing a strong impetus to urban sprawl (Coutard et al., 2002). Over the second half of the 20th century, as large majorities of households came to own private cars, public transport became less attractive to travellers, patronage levels fell and maintaining public transport became more and more costly to governments. As a result, many systems were starved of investment and service levels spiralled downwards (chapter 2).

The reforms to public transport systems described in Chapters 3 and 4 were, in most cases, undertaken to respond to this challenging operating environment. The specific reforms adopted vary widely, reflecting the fact that the organisation of public transport services in the pre-reform period differed greatly between countries and even modes, from fully competitive private provision, with little government intervention, to vertically integrated government monopoly provision. However, comparison of the reforms indicates a clear tendency toward convergence on models that broadly

combine a strong, but decentralised planning role for government with high levels of private service provision, organised through some form of competitive process.

Importantly, the broader operating context for urban public transport has continued to evolve rapidly. The direction of change has more recently run counter to the longer-term trend described above. That is, greater appreciation of the negative externalities associated with widespread private vehicle use in urban contexts has seen government policy increasingly encouraging modal shifts away from this option. While new urban mobility options are developing rapidly, increasing public transport patronage is central to achieving modal shift. This requires increased supply of public transport services that are adapted to people's needs and meet their quality of service expectations. Some of the more recent reforms discussed in this report have been undertaken in response to these dynamics.

Changes in the operating environment have given rise to a significant shift in the underlying objectives of public transport reform. Focus has shifted from the financial sustainability of transport to a need to increase the attractiveness of the service offer as a key tool in achieving the objective of substantial modal shift. The rise of shared mobility options constitutes another important shift in the environment in which public transport operates and is one that offers both opportunities and challenges. The introduction of autonomous vehicles is widely predicted to lead to another step change in the importance of shared mobility. The International Public Transport Union's (UITP) 2017 December position paper considers the opportunities for autonomous vehicle deployment to enhance public transport in peri-urban, remote or rural areas, address first/last mile issues and enlarge the area effectively served by public transport systems. Ride-sourcing services and dockless bikeshare schemes may also have significant potential in these respects. (ITF, 2019)

The emerging context for public transport policy

The lessons from the reforms discussed in this paper must be understood and applied in the context of the current and emerging operating environment, rather than that in which they were initially adopted. Therefore, the following discusses current and emerging trends shaping transport demand and technological and commercial changes affecting the supply of transport options. The likely relevance of these factors for future public transport planning and management is assessed.

The past decade has seen the emergence of an increasingly broad range of mobility service offers enabled by app-based, GPS-enabled technology (Wiegmans et al., 2003; Heddebaut and Fuzier, 2019). In particular, sharing platforms and on-demand services offer access to mobility and other services that is not based on personal ownership of the underlying asset. These platforms cover a wide range of mobility options. Self-driving car-based models could include flexible, short-term rentals that are either consumer-to-consumer (C2C) based (Car Next Door, Drivy, Mooval) or business-to-consumer (B2C) based (Zipcar, WhizzGo, AutoLib). The taxi industry has been radically disrupted by ride-hailing models (Uber, Lyft, DiDi Cuxing) that offer higher levels of service and, in some circumstances, important safety gains at lower cost (ITF, 2019), while shared variants have also emerged (UberPool, LyftLine). Further along this continuum, Demand Responsive Transit (DRT) is providing an intermediate step between ride-sharing and public transport, with consumers having the ability to pre-book and pay for reserved seats and producers able to analyse demand data to make rapid changes to route and service offerings. Bike-sharing has added to urban mobility options and appears to be rapidly evolving from publicly-subsidised, docked models to more flexible, privately funded dockless models. Rapid innovation is also occurring through the introduction of e-bike and e-scooter options. Common elements are that these services enable people to quickly and easily book and use a vehicle that is adapted to their specific needs and that

the shared-use model yields major efficiency gains by avoiding the systematic under-utilisation of most kinds of privately owned vehicles (ITF, 2015b).

Automation is expected to have a major impact on mobility in the medium term. Automated rail services and light metro such as VAL (Automated light vehicles) are already relatively common (e.g. airport shuttles, some metro lines or networks, as in Lille, Toulouse and Rennes in France, Turin in Italy, Taipei etc.). Indeed, the International Association of Public Transport (UITP) reports that there are now 1 000 km of automated metro systems in operation, with 63 lines operating in 42 cities in 19 countries (UITP, 2018). Testing of self-driving cars and shuttle-bus services is also well advanced, with these technologies being perhaps only a decade or two away from widespread deployment (ITF, 2015b). Self-driving vehicles are widely expected to have major benefits in terms of convenience and safety, compared with current, human-operated models. Conversely, their impacts on congestion may be less positive, in part because of the varying cost impacts they are expected to have across modes. For example, Johnston and Walker (2016) estimate that, once the technology is mature, driverless taxi-like services could be provided at a cost that is less than half of that of a conventional taxi and very similar to the cost of a privately owned car. By contrast, the cost impact of removing the need for a driver from transit services using larger vehicles will be proportionately much less, as the driver represents a much smaller proportion of the total cost base. This, potentially substantial, change in the relative costs (hence prices) of different transport modes will necessarily change the relative attractiveness of different transport options, both public and private.

The broader policy environment for public transport is one in which planning laws and policies are increasingly favouring more sustainable and compact development over urban expansion. (Thomas et al., 2015; The Nielsen Company, 2014). Cities are increasingly implementing policies to improve liveability, many of which discourage the use of private cars (e.g. congestion charging, increasing parking charges, road and parking space removal and low emission zones (LEZ) in France, Brussels, Spain and the Nordic countries) or encouraging alternative transport modes (bike-share programmes, improving public transport, car free days). Increasing environmental consciousness is reinforcing these trends. For example, climate change is seen as the top global threat by the world's population and 42% of North Americans and Europeans report being very concerned about climate change (Pew Research Center, 2015).

The development of urban environments that are configured in a less car-friendly manner will necessarily give rise to increasing demand for public transport. This will improve its underlying economic base and create a need to improve and expand services. However, the same environmental factors also tend to increase the attractiveness of shared mobility options and alternative travel modes. This being so, there is a clear overlap between the market for public transport and the market for these innovative transport offerings. For public transport planners this implies opportunities and threats. It therefore also implies the need for planners to understand this emerging marketplace and respond to it strategically. New options have to be imagined to develop equity for city amenities access and necessitate the implementation of sustainable urban mobility plans (SUMP) (Heddebaut, Arsenio and Coehlo, 2017).

Effective use is made of the data generated via smart ticketing systems and other key sources to underpin better transport planning, particularly in facilitating the design and delivery of integrated transport systems that are highly responsive to people's preferences. For example, Transport for London collects Oyster card activity data, anonymises it and uses it to produce maps showing when and where different people are travelling, to get a detailed picture of the trips being made in the city (Marr, 2015). This kind of data analysis can be harnessed to plan better targeted transport services. It will also enable

improvements in contract design and performance monitoring through the specification of more sophisticated performance measures.

Shared mobility options potentially threaten the economics of public transport, to the extent that they draw users away from public transport options. Given the recent development of these models, research on this question is limited and inconclusive, but some large effects have been identified. For example, in relation ride-hailing, Schaller (2018) finds that 15%-30% of ride-hailing users in US cities would have used public transport if a ride-hailing service was unavailable. Schaller also identifies significant potential for ride-hailing to operate as a complement to public transit by providing a feeder service. In contrast to Schaller's conclusions, Clewlow and Mishra (2017) found that, while the question of whether ride-hailing competes with or substitutes for public transport depends on the circumstances, the overall effects are small. Nair et al. (2013) and Fishman (2015) suggest that a significant proportion of demand for bike-share is diverted from public transport.

Shared mobility options, including ride-hailing, bike- and scooter-sharing, can complement public transport by effectively extending network reach, providing practical first mile/last mile options to complement public transport journeys. A key challenge for public transport planners is to ensure that this potential complementarity is maximised. This could potentially involve different levels of co-operation with shared mobility providers. At a basic level, it could imply initiatives like ensuring convenient parking for dockless shared bikes at train/tram/metro stations. However, more formal co-operation may have greater potential benefits, as recent trials suggest. For example, Kansas City Area Transportation has partnered with Bridj and Ford to deliver a pilot shared mobility project in neighbourhoods of Kansas City that are currently not well served by conventional public transport (Marshall, 2016). The Dallas Area Rapid Transit (DART) engaged Uber to undertake last mile connections for rail travellers via the agency's mobile ticketing app (Jaffe, 2015).

Developing Mobility as a Service (MaaS) models also provide a vehicle for this integration of transport modes. MaaS is based on the provision of mobility as a service, typically on a subscription basis, rather than something based on the ownership of vehicles. It proposes the provision of mobility services through a combination of public, private and shared transport modes, with access via a single platform, which acts as a journey planner. These services can help to demonstrate to consumers the potential complementarity of public transport and other mobility options. An example is highlighting the potential to use new mobility options to complete journeys that include areas that have limited public transport coverage. Thus, public transport officials have clear incentives to engage with this model. This should include developing explicit policies to guide their engagement with MaaS platforms which reflect broader government policies on urban design and mobility.

Recommendations for public transport reform

The reform experiences documented in this report demonstrate significant country to country variation, reflecting different starting points, as well as different economic, social and institutional contexts. Nevertheless, there is a sufficient degree of commonality in terms of reform strategies and outcomes to enable some clear lessons to be drawn and recommendations for future reformers identified. These are set out below, firstly in relation to the planning of transport services and, secondly, in relation to service delivery.

Planning transport services

The need to improve the co-ordination of service provision has been an important driver of increased government involvement in planning functions in systems characterised by fully-private service provision. This includes ensuring adequate inter-connections between competing service offers. Government involvement in planning functions is also needed to ensure that wider social goals, such as the inclusiveness of public transport, are adequately met. The increasing pursuit of wider goals in transport policy, including decarbonisation, addressing congestion and pollution and ensuring accessibility for people with disabilities, implies that the government planning function will need to expand and become more sophisticated.

Conversely, within systems characterised by a high level of public planning and provision, there has been a consistent and widespread trend toward devolving planning powers to regional and local levels of government. This is particularly evident in the European Union, in line with EU-wide reform efforts, particularly with directives and incentives to develop sustainable urban mobility plans (SUMP) (Heddebaut, Arsenio and Coehlo, 2017), but can also be seen in North America. Decentralised transport planning provides opportunities to ensure services are tailored to local needs and preferences and also potentially improves accountability for the delivery of public transport services.

Decentralised planning should be clearly distinguished from deregulated, or open-access markets. This approach can be characterised as one in which government withdraws from the exercise of a planning role, or chooses not to exercise such a role. The experience documented in several case studies suggests that competition under such conditions (competition for the market) is generally not successful in generating positive outcomes in terms of service quality, ridership and price. Examples include those of Santiago (Chile), Seoul (Korea) and the United Kingdom (outside London). In the latter case, reforms which created an open-entry market are in the process of being reversed, following the passage of the Bus Services Act 2017. In several cases in which open-entry systems have historically been in place, governments are moving to adopt a planning role in order to improve co-ordination and enable wider policies to be pursued (e.g. Tokyo, Seoul, Santiago).

While the available evidence suggests that decentralising planning responsibilities can bring important benefits, risks also arise. Administrative boundaries are often not well-aligned with the boundaries of transport markets. This means that decentralisation of planning powers gives rise to risks of inadequate co-ordination of service provision, with the gains from more responsive planning being offset by efficiency costs due to lack of integration and strategic focus. It can also lead to failures of public transport planning to take account of broader government policy objectives, particularly at the national level. A further risk is that broader government policy objectives that are relevant to transport may not be adequately incorporated into planning, since many of the wider policy objectives affecting transport policy are national in nature and scope.

This implies that responsibility should not become too localised. Ensuring that local, regional and national priorities and perspectives are all included in transport planning favours the creation of purpose-specific transport entities that can include representatives from all levels. A number of the more complete reforms in this area have incorporated this element, with a dedicated public authority in charge of planning and implementing minimum service quality and safety standards across a transport corridor (e.g. the Copenhagen Metro). Creation of such bodies has provided valuable benchmarking information (as in Melbourne) (ITF, 2017).

An effective model is also likely to require strong oversight by a public authority and consultation with users to ensure optimal service objectives and their delivery by operators (Yerpes and Guilbot, 2004). In

European countries sustainable urban mobility plans are often legally required to be submitted to public enquiries (e.g. France), before being finalised and adopted.

Recommendations for planning of transport services

1. Governments must take responsibility for planning the provision of public transport service regardless of whether service delivery is undertaken by public or private providers. That is, governments seeking to create more competitive public transport markets should generally seek to create competition for the market, rather than competition in the market.
2. Transport planning mechanisms should be structured in such a way as to ensure that national, regional and local government policies and priorities in relation to public transport are all able to be integrated systematically into the planning and decision-making process.
3. Governments must avoid the risk of a loss of co-ordination between complementary transport services which can arise as a result of decentralizing of planning functions. They should therefore ensure that decentralised planning responsibilities are aligned with functional transport corridors or catchment areas and continue to consider local needs and preferences.
4. The creation of purpose-specific, inter-governmental planning bodies should be considered as a preferred means of addressing these needs. Such bodies should have clear mandates and accountabilities, including a requirement to engage with stakeholders on key service planning issues.

Delivery of public transport services

Corporatisation of the public sector provider has often constituted an initial stage of reform and is typically part of a broader trend toward giving greater independence and accountability to public sector service providers. Corporatisation appears, of itself, to be an effective means of achieving cost savings and service quality improvements (Currie, 2016) and has sometimes constituted the core reform strategy (e.g. Switzerland). However, in most it has been an initial step toward privatisation. Where privatisation is contemplated from the outset, corporatisation can be seen as a means of preparing an incumbent to compete in the market, or as preparing it for sale.

Privatisation has been the single most important strategy used to reform the provision of public transport services, because it can enable the development of competitive pressures and incentives in the market. The substantial reform experience accumulated to date shows that ensuring the development of adequate competition in the market, and its maintenance over time, are fundamental to improving outcomes, whether measured in terms of service quality or cost reductions. Achieving workable competition requires attention to both the tendering and contracting elements of the process. Lessons and recommendations in relation to these functions are set out below.

Competitive tendering

Substantial evidence indicates that introducing competition in a market previously supplied by a public sector monopoly can significantly reduce service costs (Wallis and Hensher, 2007). The extent of these reductions is likely to be much smaller if corporatisation has already been undertaken. The case studies reviewed bear out these conclusions, with several (e.g. Australia, Denmark, the Netherlands) showing that a significant outcome of the first round of concessions was a reduction in subsidies received by

operators compared to both the subsidies received by previous incumbents and to regions where no competitive tendering was introduced (e.g. Île-de-France and Seoul).

The means of privatisation is a key determinant of the size of benefits obtained. Experience suggests that competitive tendering usually provides more favourable outcomes than direct negotiations and award of contracts (Wallis et al., 2010). However, political incentives often favour the direct award of contracts via a negotiated process. An additional factor is that competitive tendering will not necessarily yield positive outcomes unless there are sufficient qualified bidders. Ensuring that adequate competitive pressure exists in the marketplace is therefore a key requirement where privatisation of service delivery is contemplated. This has implications for the timing of the tendering processes, the scope of the contracts to be awarded and their terms. Moreover, as Iossa and Waterson (2019) point out, specific challenges arise in maintaining competitive pressure over time as contracts or franchises are renewed. Learning effects, sunk cost asymmetries and activism effects in these contexts are likely to provide advantages to incumbents which could significantly lessen competitive disciplines and may form part of the explanation for the partial reversal of initial cost savings identified above in a number of markets when second or third-round contracts/franchises are awarded. Addressing these concerns requires attention to key elements of the tendering process including contract size, tendering frequency and transparency as to key cost drivers.

Competitive tendering has also been found to have wider benefits. Currie and Fournier (forthcoming) argue that the long-term experience of Melbourne's train and tram system and London's bus network shows that tendering requires governments to develop an asset management plan to underpin the process. This imposes a degree of rigour which may be lacking in other cities where public transport has not been a priority. In addition, it is arguable that franchising has delivered a degree of stability in service management, shielding it from the effects of potentially frequent changes in political priorities.

Recommendations for tendering for the provision of public transport services

5. Where governments seek to introduce or expand private service provision, competitive tendering of concessions, service devolution (as in France) or franchises should be preferred.
6. The tendering process should be designed and implemented to ensure that a workably competitive market exists and is sustained and developed over time. Ensuring concessions are not unduly large and that system operation is separated from the ownership of key assets, such as vehicles and depots, are key system design features in this regard.
7. The length of franchises should be set with a view to maintaining competitive pressure on operators, whilst enabling investment expenditures to be amortised and specific expertise in serving the relevant market developed. It also implies the need for transparency in relation to key variables such as ridership, revenue and the condition and maintenance history of key assets.
8. Careful consideration should be given to any proposal to introduce open entry to public transport markets, as competition in the market often proves inconsistent with the efficient provision of high-quality services. Detailed analysis is needed to establish that the market conditions exist for the achievement of positive service quality and efficiency outcomes under this model.

Contracting considerations – controlling costs

The introduction of private service provision has yielded significant initial cost reductions, at least when the process has been well-managed. However, subsidy levels have often rebounded during subsequent

retendering of concessions or franchises. For example, in Melbourne, Australia, subsidies to rail and light rail operators more than doubled, to AUD 1.3 billion, between 2007 and 2013, although the total mass transit task increased by only about 50% over the same period, and fares recovered only around 30% of costs at the end of this period (BITRE 2014; Carey, 2013). This partial reversal of initial cost savings at the time that second-round contracts are signed appears to be a systematic element of the reform dynamic, attributable to one or more of the three dynamics of a) more informed bidding on the part of tenderers, b) reduced competitive pressure due to a declining number of bidders, and c) increased pressure to reflect long-term costs (i.e. incorporate major capital investments) in the bid price in second tenders (Wallis and Hensher, 2007). These dynamics point to informational problems for bidders at the time of initial tendering, while incentive problems associated with the bidding process may also be a factor – i.e., introducing optimism bias in bids may be seen to increase the likelihood of a concession being awarded, with an expectation on the part of the bidder of being able to renegotiate the contract during its life due to their ability to impose hold-up costs. An open and clear contracting system, including communication of pricing information during bids can help to counter this potential for gaming the contracting process (Currie and Fournier, 2019).

These findings indicate that the cost savings achieved in initial tendering rounds may not be sustainable and suggest the need for a realistic approach to the likely gains from introducing competition and private sector involvement. They also suggest the importance of a strong focus on providing clarity and detail regarding both system needs and properties and the services required when developing requests for tender documents and assessing bids during initial privatisation processes. This will, inter alia, reduce uncertainty and help to maintain adequate competitive pressure in the bidding environment. It will also help avoid potential business failures, due to unsustainable contracts being adopted.

Much evidence shows that larger numbers of bidders are associated with lower bid prices (Hensher and Stanley, 2010). The number of bidders is necessarily affected by the size of the barriers to entry to the market, particularly the need to own major capital assets including rolling stock and depots. This implies that governments should seek actively to reduce barrier size by continuing to own key assets and leasing them to contractors, subject to contractual provisions regarding their maintenance to agreed standards (Currie and Fournier, 2019). This approach has been adopted in the London and Singapore bus markets and is currently being implemented in Santiago de Chile.

Recommendations for contracting provisions to control costs

9. Governments should ensure that detailed information on system assets and performance is made available to potential tenderers as part of bidding process. This should include data on patronage and revenues, as well as the condition and maintenance history of transferred assets.
10. Service delivery requirements should, as far as possible, be specified in ways that ensure that contract prices are reflective of long-term cost functions.

Contracting considerations – ensuring service quality

The introduction of competition has had varied impacts on ridership and service quality. This variation seems to reflect the motives of individual governments for adopting reforms, to a large degree. The strong focus on addressing rapidly rising subsidy demands evident in older case studies in particular appears to have meant that limited attention has been paid to service quality in many cases, with ridership falling as a result. Significant fare increases have, in many cases, reinforced this dynamic.

More recent studies suggest that, while cost control remains a key issue, encouraging an increase in public transport's modal share, in order to address wider policy concerns, is increasingly a central issue. This may imply an acceptance of continued high levels of subsidy, particularly where policies that would

directly address the negative externalities of competing road transport (e.g. congestion charging) are considered politically infeasible. That is, avoiding moves toward increasing farebox revenue by raising real fare levels will help to ensure avoid the price-based substitution away from public transport that has, in a number of the case studies in this report, partly or wholly offset ridership gains due to improved service quality.

To achieve modal shift, transport authorities must focus clearly on service quality, including the integration of the various elements of the public transport system. Improved service quality (including reliability, regularity and frequency) increases the attractiveness of public transport and tends to reduce subsidy levels by increasing ridership.

The result is very much dependent on the willingness and ability of public authorities to design contracts that include incentives for better service. Where such incentives are provided, the competitive dynamic is likely to lead to a stronger response than would exist in the context of government provision. However, the design of the incentive might be considered the primary factor in this dynamic.

The process of setting performance standards has the additional benefit of requiring planners to identify clearly their key objectives in this area. That is, the process of designing incentives requires the identification of performance measures that authorities wish to improve. Performance standards should cover the full range of objectives sought. For example, Japan's Barrier-Free Act (last modified in 2011) establishes minimum access requirements for people with limited mobility, with investment in these improvements by operators being subsidised and prioritised based on local stakeholder council deliberations. This demonstrates that competitive markets are not inconsistent with the pursuit of wider social objectives.

Effective performance standards must include criteria that are measurable and linked to both inputs (e.g. quality of information provision, regular maintenance and fleet renewal) and outputs (e.g. punctuality, passenger satisfaction), as is the case in Barcelona, London, and in France with the establishment of bonus/malus arrangements linked to key performance indicators in the contracts.

At the same time, trust, transparency and accountability are essential to a successful privately operated, publicly regulated system. A trusting relationship makes contract negotiation (and re-negotiation to address changes in the environment smoother and less costly. However, transparency and accountability are important corollaries, helping to ensure that regulatory capture is avoided (Currie and Fournier, forthcoming).

Recommendations for contracting provisions to ensure service quality

11. Performance standards and incentives should be identified in tender documents and should cover the full range of service quality requirements identified by the planning authority. They should also be made publicly available, as a means of enhancing accountability.
12. Incentives should be aligned with all key performance standards and should be of a sufficient magnitude to provide adequate motivation for the achievement of the identified standards.

Responding to the emerging mobility landscape

The core driving forces behind reforms of public transport have evolved over time, with the initial focus on addressing threats to financial sustainability being largely supplanted by concerns relating to urban policy and the liveability of cities. The rise of app-based shared mobility services in the current decade has significant implications for this agenda, presenting both opportunities and threats to traditional public transport provision (Mulley and Nelson, 2009). Governments have, to date, engaged to only a

limited degree with the implications for public transport, and urban policy more generally, of this rapidly evolving industry. However, this is a key future priority for public transport reformers.

Recommendations for responding to the emerging mobility landscape

13. Governments should seek to engage positively with shared-mobility service providers, particularly in the context of the development of Mobility as a Service, to ensure that potential complementarities with public transport are maximised, in support of transport and urban policy goals.
14. Governments should also seek to engage positively with micro-mobility service providers, including dockless bike share, electric bikes and electric push scooters to ensure that potential complementarities with public transport are maximised, to provide a broad range of alternatives to the private car in support of sustainable urban transport policy goals.

Notes

- 1 The biennial 'International Conference of Competition and Ownership in Land Passenger Transport', held first in Thredbo, Australia in 1989 and most recently in Singapore in 2019 tackles these and related issues.
- 2 Even in this case, it is likely that the government will still retain some minimum safety standards through licensing arrangements, so entry is not strictly 'open' to all.
- 3 Loi pour l'égalité des droits et des chances, la participation et la citoyenneté des personnes handicapées
- 4 i.e. the performance of each operator would effectively be "benchmarked" against that of the other operator on a continuing basis, thus providing an element of competitive discipline.
- 5 The logic of the deregulated approach suggests that governments adopting it are unlikely to supply public services themselves, although some legacy services may remain, as discussed below.
- 6 The adoption of integrated fares, enabling passengers to use connecting services while paying only a single fare, has also had the effect of reducing total revenue.
- 7 Regularity refers to the schedule being met (i.e. services are not cancelled), while punctuality refers to services running at the scheduled time. The term reliability is sometimes used as a synonym for regularity. See Veiseth and Bititci (2006).
- 8 (Act on the new territorial organisation of the French Republic).
- 9 The total market share held by public transport in 2011 was 24 %, although the regional differences were considerable. The largest market share is that attributable to the metropolitan areas, with an average of 34 %. For the remaining parts of the counties, the average is 12 %. (Svensk Kollektivtrafik, 2011). The goal of doubling modal share was adopted in the context of the UITP's "global challenge" of doubling public transport's modal share by 2025.
- 10 See Swiss case study, Annex A for data sources.
- 11 <https://www.stagecoach.com/about/our-companies/market-share.aspx>
- 12 The network's capacity was also significantly expanded in the 2000s.

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Annex A. Case studies

Australia (Melbourne)

Modes: Suburban passenger rail and trams

Location: Melbourne (Australia)

Timeframe: 1999 - present

Motivations for reform (franchising):

- Reduce public subsidies
- Increase service reliability (reduce role of organised labour)
- Increase the use of public transport

Motivations for reform (negotiated contracts)

- System rescue
- Improve co-ordination between providers

Industry structure

Figure 16. Reform of Melbourne passenger rail and trams

	Public			Private		
Planning (initiative)	National	Region / city X(Y)	Local	Y		
Service delivery	X			Direct award	Tendering Y	Open entry

Notes: X = before reform; Y = after reform; multiple Xs or Ys on a given line suggests a hybrid model

Reforms adopted – Franchising, negotiated contracts

In 1999 the State Government of Victoria changed the operation of its metropolitan railway and tram services from a vertically integrated public monopoly model to a private franchise. This followed the corporatisation of the monopoly public provider earlier in the decade, which had resulted in considerable efficiency improvements, including a halving of staff levels and reliability and punctuality gains. The context was one in which the government was involved in a long period of consolidation of public finances following a financial crisis. Hence, key objectives were to reduce the budgetary cost of public transport provision and associated risks. It was expected that public subsidies would be reduced to zero over ten years. The new franchising model included the following elements:

- Vertical integration – with track maintenance and operations within the same company in order to better manage high frequency operations
- Yardstick competition –the metropolitan railway and the tramway were each divided into two parts in order to enable “benchmark competition” and revenue-sharing agreements were established.
- A 15-year franchise period to account for the substantial rolling stock investment required (as rolling stock was purchased by the operators) with a condition index developed to measure the quality of infrastructure.
- An operational performance regime was instigated covering punctuality and reliability; all risks were assigned to the operator other than sovereign (policy) risks and latent defects in infrastructure.

Cost savings of AUD 1.8 billion were expected and, in the early years of the franchises, average costs were 24% lower than under public sector operation. Operating subsidies were expected to be reduced to almost zero by the end of the franchise period. However, in practice, the system collapsed within less than five years, with one operator abandoning their franchise due to a financial crisis and all being under financial stress. The main reasons were:

- overly optimistic expectations of patronage/revenue growth and cost reduction being built into the franchise bids (particularly in light of the significant cost reductions that had already been achieved during the corporatisation process).
- contractual flaws which meant that new measures introduced were difficult to implement in practice (e.g. the infrastructure maintenance regime).
- the revenue sharing formula splitting fare box revenue among operators was too complex and led to financial disputes, amplified by delays in the introduction of a planned magnetic swipe-card ticketing system.

Major changes were made in 2004, with a single contract being let to operate each of the tram and train systems and the state reacquiring responsibility for some system risks. This included regaining responsibility for rolling stock, which was leased to operators, and reducing operators’ revenue risks via a model which included a fixed revenue distribution formula, to aid revenue stability, and partially compensated operators for lost revenue arising from patronage falling below the levels estimated in their contract bids. Maintenance contracts and investment in new infrastructure were based on a collaborative approach where plans and costs were agreed with the government. Other elements from the previous model were maintained, including vertical integration and the fixed, variable and performance incentive/penalty form of the contract payments.

Where the initial franchisees found the expectations of rapid patronage growth incorporated in their planning were not realised in practice, the new operators faced the opposite problem of rapid but unanticipated patronage growth during the franchise period. This, plus significant operational reliability problems, led to substantial over-crowding and intense media and public scrutiny. Dissatisfaction with performance levels was widespread by the end of the franchise period.

Retendering of the franchises occurred in 2009, at which time the widespread public dissatisfaction with the state of the system led the government to award the contracts to new operators. The new franchise model proposed contract periods of eight years (with a seven year extension possible if performance reached set standards), maintenance responsibilities were brought back to the operator but the

partnership model continued. Both previous operators lost to new bidders. From 2009, the model was better characterised as a franchise, or negotiated partnership, model, rather than a concession model. As part of this, the range of performance measures was extended. A new government body (Public Transport Victoria) was established to plan and co-ordinate the system across the State.

Assessment:

The reforms have failed to achieve the initially-stated objective of substantially reducing public subsidies. While large initial gains were made, these did not prove sustainable and Stone et al. (2015) note that almost 20% of the franchise payments made in 2004 were to “secure the franchisees’ operation” – i.e. ensure their economic viability. Currie (2016) notes that a review of the second franchising model undertaken by the Victorian Auditor-General in 2005 concluded that it provided “reasonable value for money”, while other authors suggested a “break-even outcome” or “modest” cost reductions. By 2009, the Minister stated, in the context of retendering the contracts, that private service provision had not delivered cost savings (Stone et al., 2015). The real value of government payments to operators continued to rise in the following years, increasing by a total of 64% from 2004-05 to 2012-13 (Stone et al., 2015). While services were expanded, the 64% increase in public payments to the rail operator over the period substantially exceeded the 30% increase in train-kilometres run and implies an increase in cost per train-kilometre of around 26% over eight years.

Stone et al. (2015) argue that this reflects a key element of the franchise model, which is that it essentially guarantees the profitability of the operator. According to Hale (2013: p12 – cited in Stone (2015)) “Government simply guarantees their organisational operating margin via an effective subsidy whereby the cost of running trains over and above ticket sales is covered”. A substantial reduction in the economic importance of performance bonuses and penalties, achieved by capping the maximum amounts at much lower levels, has formed part of this change in approach.

However, while no durable reductions in unit costs have been achieved, there has been a significant increase in utilisation, which has substantially outpaced population growth, beginning in around 2005. The increase in train-kilometres was largely a result of increased service frequency, as there have been only minor changes to the network. These frequency gains have in part been reflective of the adoption of an objective of moving to a “timetable free” model¹, which has been substantially achieved. Patronage grew much faster than services, with a 40% increase in train trips per capita (albeit a much smaller increase in tram trips) and consequent increases in efficiency (i.e. trips per vehicle-kilometre). These gains were probably assisted by increasing road congestion and policies adopted by the Melbourne City Council to encourage modal shift away from private vehicles (e.g. reduced on-street parking, higher parking fees, free inner-city tram travel). However, these positive trends have halted in recent years, with the 6.2% rail patronage growth over the five years to 2017 (Public Transport Victoria, 2018) being slightly below population increases of around 10%. Punctuality and reliability have been broadly stable overall, with small improvements in rail and declines in tram. Customer satisfaction scores have shown small improvements over the past five years.

Significant elements of the planning role were initially transferred to the private operators, but some were reallocated to the public sector following negative outcomes (e.g. maintenance decisions on rolling-stock effectively preventing certain trains being operated on the second operator’s network).

¹ i.e. by achieving minimum 10 minute frequencies during large parts of the day and evening, implying that passengers do not need to consult timetables but can, rather, “turn up and go”.

Stone et al. (2015) argues that current franchise arrangements continue to blur the boundary between strategic and tactical planning decisions and responsibilities, with negative consequences for outcomes.

Further reading

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Chile (Santiago)

Mode: Metro, urban bus and suburban rail.

Location: Santiago de la Chile

Timeframe: 1990, 2002 -07, 2012 - present

Motivations for reform:

First phase (1990)

- Improve service quality and reliability
- Increase efficiency
- Address congestion and pollution concerns

Second phase (2002-07)

- System integration
- Minimise on-street competition and associated negative consequences
- Reduce operating costs through greater efficiency
- Maintain a self-funded system

Third phase (2012 – present)

- Address continuing service quality issues
- Better align operator incentives and system objectives
- Improve government's ability to exercise regulatory control over operators

Background

Following the complete liberalisation of the Santiago bus system in 1979, bus services were entirely privately provided, with very limited government intervention in planning. Operators were free to define routes and frequencies and to set fares. The government expected that the private incentives facing operators would lead to both adequate service quality being provided and competitive fares being charged. The process was described as constituting a shift of focus from level of service to market variables (Darbéra, 1993). Liberalisation significantly increased supply, reducing waiting times and yielding a denser network. However, occupancy rates were low, bus quality (including maintenance) was poor and competition for the market was seen to yield significant problems, including high levels of congestion and pollution and poor behaviour as drivers competed for passengers. Linkage of driver remuneration with passenger numbers, together with low driver pay, intensified these problems.

Industry structure

Figure 17. Reform of the Santiago public transport system

	Public			Private		
Planning (initiative)	National	Region / city Y	Local	X		
Service delivery				Direct award	Tendering Y	Open entry X

Notes: X = before reform; Y = after reform; multiple Xs or Ys on a given line suggests a hybrid model. Diagram refers to first stage reforms (1990). Subsequent reforms have not changed the basic structure.

Nature of reform

The 1990 reform involved a substantial increase in the role of government in service planning. It was based on the principle of open and competitive tendering, which was used as the mechanism for allocating fixed term concessions with a maximum fleet size (the government paid USD 14 million to remove 2 000 buses from service (Fernández, 1994; Wityk, Dourthé and Malbrán, 1998). The concession contracts fixed minimum service frequency, maximum vehicle age and minimum capacity. A formula enabling fares to be adjusted in response to changes in the cost of major inputs was also developed (Velasco, Gómez-Lobo and Díaz, 2004).

The initial outcomes of the reform were improved bus quality, slight fare reductions and reduced bus numbers. Both service quality and economic efficiency (i.e. cost per passenger-kilometre) were judged to have improved (Fernández, 1994). However, on-street competition remained, even between buses on the same line. This reflected the fact that the bus companies awarded concessions were, in practice, owner co-operatives. This adopted cartel behaviours and co-ordinated member bids (Muñoz et al., 2009). Each bus owner managed their own revenues independently. Continued on-street competition yielded uncertainty in waiting and travel times, undignified treatment of passengers and a high accident rate.² Moreover, despite some efficiency improvements, operating costs remained high due to long and inefficient routes, with several overlapping in the main avenues of the city, generating significant congestion. According to Malbrán (2001), 80% of bus routes passed through one of the city's six central axes. Congestion impacts were significant. Supply failed to match demand effectively, with excess daytime frequencies outside peak hours and limited night services (Velasco, Gómez-Lobo and Díaz, 2004; Gschwender, 2005).

A second reform process was designed from 2002 and implemented from 2007 in response to widespread recognition of these problems. The Transantiago system was based on a single urban transport plan which sought to integrate the metro and private bus networks via a structure of trunk and feeder services, adopting an integrated fare system for the first time, thus facilitating inter-modal transfers (Muñoz and Gschwender, 2008). The design was intended to finally replace competition in the market with competition for the market. It also encouraged the consolidation of the bus industry, by requiring bidders for concessions to be registered corporations. The reformed system was expected to be self-financing, in common with the pre-existing system.

² On average, one person died every three days in accidents involving public transport buses (Velasco, Gómez-Lobo and Díaz, 2004).

The service structure, fleet and frequencies were determined through the use of the DIRTP software developed by the Secretariat for Transport Planning of the Ministry of Transport.³ This combined heuristics-based methodologies for route design, deterministic traffic assignment and strategic demand models (Malbrán et al., 2004). The new system was to be fully operational from day one, with modern, articulated buses being controlled via GPS systems replacing the former yellow buses, most of which were retired. The size of contracts was effectively limited by a constraint enabling each bidder to win a maximum of two trunk routes.

Transantiago was widely seen as a major failure. Service levels following its launch fell well below those previously offered and modal shift away from bus transport occurred as a result. Key features of the implementation process led to this result. In particular, while the DIRTP software called for the bidding process to be conducted on the basis of the provision of 6 697 buses, the process was ultimately based on the provision of only 4 532 buses, apparently in an effort to meet the objective of having a self-financed system (Quijada et al., 2007). The problems of lack of bus availability were also exacerbated by the slow and partial realisation of plans for a network of dedicated bus lanes and associated infrastructure. In addition, the initial contracts contained few penalties for non-compliance with agreed operational standards and there were inadequate incentives for operators to comply with the objectives of the reform.

Congestion of passengers at stops and long waiting times encountered as the system launched led the government to respond with a very rapid increase in bus supply: while 4 489 buses drove 371.1 million km on 223 routes in 2007, by the following year this had increased to 6 399 buses driving 481.4 million km on 322 routes – a level which remains close to the current supply position (in 2018, 6 756 buses ran on 380 routes, driving 449 million kilometres) (DPTM, 2018: 100). The capacity of the system as a whole has also continued to increase significantly with the continued development of the metro system.

The bid price was heavily constrained, with a minimum bid set to ensure the seriousness of the bidder and a maximum set to control the potential cost of the system (bids for passenger fares had also to be submitted). In practice, there was little space between these minima and maxima and almost all routes were awarded at the minimum bid price. This occurred despite there being strong interest in the bid process, with twenty five companies (seven foreign) submitting a total of fifty-five bids for the five trunk and ten feeder routes available. The strong competition reflected a major focus by system designers on ensuring that bidding would be attractive to private firms, to ensure adequate competition. Analysis suggests that the main goal underpinning the design was to provide security to investors, but that this was done while neglecting aspects of the level of service (De Gregorio et al., 2017).

The system was prematurely launched before the new fare payment and fleet management system were available. This led to an initial period in which zero fares were charged, something which was seen to increase subsequent rates of fare evasion. System design issues related to modal integration meant that many journeys could only be completed via transfers en route, a factor which proved unpopular with users. The inadequate bus supply led to congestion at bus stops and increased waiting and journey times.

Positive aspects of the reforms included the elimination of on-road competition for customers that had resulted in aggressive and dangerous driving and the adoption of an integrated fare system and a significant increase in Metro patronage. Patronage almost doubled, from 331 million to 601 million trips

³ <http://www.sectra.gob.cl/metodologias/dirtp.htm>

in the year Transantiago was launched, albeit that this increase was partly driven by substitution away from the bus system, which was experiencing substantial performance problems (DPTM, 2017: 47).

Financial shortfalls soon exceeded USD 25 million per month and the accumulated deficit had reached USD 1 billion by early 2009, becoming a crucial issue for the system despite the initial intent that the system be self-financing (Hurtubia and Leonhardt, 2019).

While Muñoz, Batarce and Hidalgo (2014) argue that the initial objective of operating the system without subsidies was never realistic, given the significantly higher cost of a formal (vs. informal) system and the commitment to keep fares at levels near those previously prevailing level, subsidies to Transantiago have continued to grow rapidly. Total subsidies increased by 69.6% in the six years to 2018. While subsidies have risen strongly, the proportion of system costs being met by subsidies has remained broadly unchanged: subsidies represented 46.9% of system costs in 2018, compared with 50.3% in 2009. While there was some apparent progress early in the current decade, with the subsidy rate declining to 35.6% in 2012, this was largely the result of a 47.5% increase in fares over the period and it has subsequently reversed to levels similar to those seen in the early days of the system. Total costs per bus-kilometre travelled have increased strongly, from CLP 1.07 in 2009 to CLP 1.76 in 2018 – an increase of 64.5% (DPTM), at least partly as a consequence of the strong emphasis on increasing service quality over this period.

The government authority responded to the quality of service problems by modifying the service contracts in order to provide incentives that were better aligned with key system goals. This included addressing the lack of buses by including an index which linked contract payments to the number of buses in operation and, eventually, the number of bus-kilometres travelled. A second index sought to provide incentives to ensure that the agreed service frequencies would be met, while a third sought to influence the amount of headway between buses. While these indexes were judged to have had some impact on operator performance, their effectiveness was constrained by the absence of fleet management tools. The result was a continuing mismatch between the incentives faced by operators and the objectives of the authority. This discrepancy became evident in mid-2011, with a clear insensitivity from operators to fare evasion and a pattern of skipping stops in order to meet punctuality performance indicators (Muñoz, Batarce and Hidalgo, 2014).

A third round of reforms was adopted from early 2012. First, the formula determining payments to operators was substantially altered. Previously, only around 20%–30% of revenue was linked to passenger journeys, with the remainder being determined by bus-kilometres travelled and fleet availability. From 2012, this ratio was essentially inverted, with the number of passenger journeys now determining 70% of the revenue outcome. The price per passenger transported (PPT) varies across concessions, while the price per kilometre travelled (PK) is determined via a standard formula across the system. The PK seeks to cover marginal cost and maintain the incentive to provide service even on low-demand routes.

Second, a number of performance indexes were introduced to better align operator incentives with the full range of system objectives. These were the Attention Quality Index (ICA), the Vehicle Quality Index (ICV) the Operational Fleet Indicator (IFO) and the Analysis of Effective Transport Availability Index (ADET). These indexes were subsequently further refined in order to address shortcomings and perverse incentives identified following their initial adoption. The frequency and reliability indices were also reformulated.

Third, the trunk and feeder structure was modified, with an emphasis on creating longer routes and thereby minimising the number of transfers needed to complete trips on routes with the highest

demand. Some progress was made over time in creating dedicated bus lanes, although these fell short of the initial plans from 2007.

The 2012 reforms sought to improve the incentive structure and provide the government with more tools to address service quality concerns within the context of the operational contracts. They also envisaged a progressive reduction in operating deficits, to enable a similar progressive reduction in government subsidies to the system (De Gregorio et al., 2017). Thus, the objectives of this round of reform embraced both improved service and efficiency gains/cost reductions.

In practice, deficits continued to increase, while passenger trip numbers stagnated. Between 2012 and 2018 the annual deficit rose progressively from USD 401.0 million to USD 579.1 million, equal to 48% of total system cost (DPTM, 2018: 87), while passenger trip numbers rose slightly over the same period, from 1.088 billion to 1.100 billion (DPTM, 2018: 106). A number of the service quality monitoring tools were never implemented in practice, essentially due to lack of technological capacity within government and limited progress was made (de Gregorio et al., 2017).

The government hence decided to take the opportunity provided by the expiry of several operator contracts in 2016 and 2018 to develop a new and redesigned tender process. The decision to re-tender was finally taken in September 2016, when some contracts had already expired and were operating on a limited term rollover basis and others were due to expire within two years. The limited time available led to a decision to re-tender only the four concessions where contracts had expired or would imminently expire, which accounted for about 50% of the system. Moreover, only limited route re-structuring was undertaken, despite the combination of consumer dissatisfaction and the opening of two new Metro lines (3 and 6), suggesting the need for more substantial change.

A review of critical system issues was undertaken, to guide the design of new system parameters as part of the re-tendering process. Key issues were:

Excess concentration: the large size of some operators (more than 1 000 buses, or up to 20% of the system) was seen as making them too big to fail and thus limiting the ability of government to exercise control over them, with negative efficiency implications.

Service quality: customer expectations regarding service frequency and regularity remain unmet, at least for some operators. Therefore, bus numbers will not be reduced, despite the increase in system capacity derived from the opening of Metro Lines 3 and 6. This will allow redeployment of services to achieve service quality gains.

Barriers to entry: the need to own bus terminals creates a barrier to the entry of new operators. Reform to separate terminal ownership and operations is needed to address this.

Resource limitations: service delivery improvements will need to be achieved via efficiency gains, as government has determined subsidy levels will not increase.

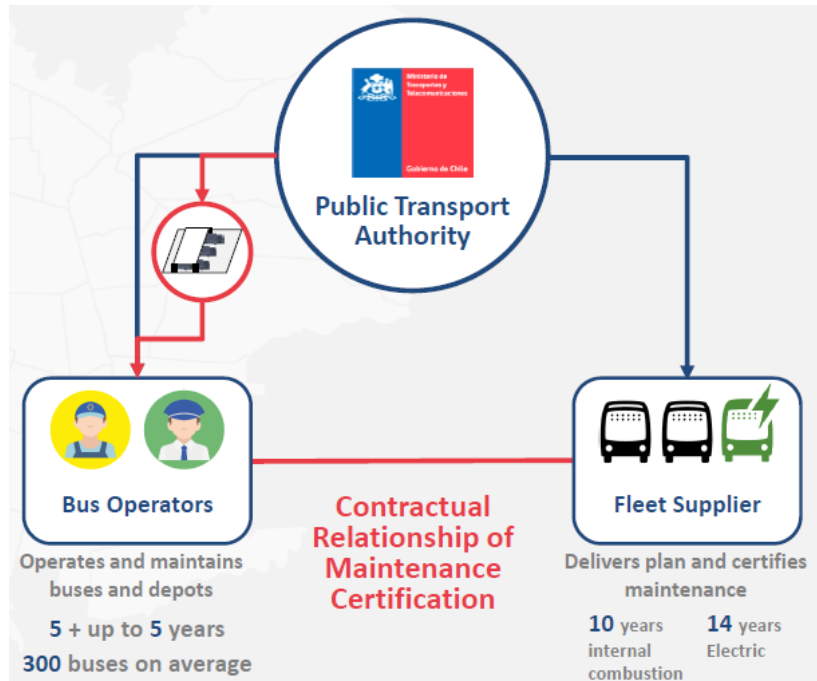
Study of the concentration issue led to the re-specification of the concessions to be tendered, consistent with an identified ideal operator size of around 450 buses. Terminals are to be owned or leased by the State, initially being acquired from operators on a long-term lease basis. Bus ownership was also separated from operations, by requiring operators to use a provision contract – i.e. lease buses from an independent provider. This was intended to ensure continuity in bus provision in circumstances where an operator exits the system. New service quality requirements included EUR 6 emissions compliance for all buses and limitations on the roads on which articulated buses can be used, to address negative externalities. In addition, the revenue formula was returned to one in which bus-kilometres

predominated over passenger-kilometres, as had previously been the case. This change was seen as providing better incentives, given that appropriate monitoring technology existed by this stage.

The tender process was declared void following a legal challenge to aspects of the tender process in 2018. While most of the grounds of legal challenge were dismissed, one was upheld – affecting two of the six business units – with the result that all of the concessions could not be tendered together. Because the tender documents indicated that all concessions would be tendered together, this led the entire process to be declared void. A newly elected government is preparing a new tender process, although at the time of writing (September 2019), the pre-existing operators continued in place⁴, while some extra buses have been added to the system.

The new tender process will adopt the pro-competitive recommendations of the 2018 review, including separating system operation from the ownership of key assets (i.e. buses and depots) and limiting both the size of concessions and the number that can be held by an individual operator. There will also be an enhanced focus on improving service quality across a range of dimensions, notably including bus quality and system reliability (MTT, 2018).

Figure 18. Key features of the new concessions to be issued for transit services in Santiago



Source: MTT (2018).

Assessment

Transantiago represented an ambitious attempt to redesign the public transport system of a major city, with its key features being a move from decentralised planning to regulated, competitively tendered concessions, combined with improved modal integration. While sound in concept, it suffered numerous

⁴ With the exception of Alsacia, which did not have its contract extended following its end-2018 expiry due to failure to meet key performance standards.

problems in terms of design and implementation, as well as substantial operational and financial issues. These meant that some key reform outcomes, measured in terms of both service quality and financial performance, have been strongly negative, despite some significant gains, particularly in terms of modal integration, accessibility of subway services and reductions in road safety concerns in the bus context.

Almost three decades have elapsed since the initial reform, during which governments have elected to retain the basic model, while seeking to address specific design shortcomings and operational problems. This process has seen the development of three, distinct sets of substantial reforms. However, while several key deficiencies with the system have been identified, it is not clear that the changes to system design and implementation adopted to date have been effective in addressing them. The longer-term decline in public transit modal share experienced in Santiago may have been slowed, but has not been arrested by the adoption of Transantiago: after falling from 47% to 31% between 1991 and 2001, it fell more gradually, from 31% to 26% between 2002 and 2012 (Global Mass Transit Report, 2017). As noted above, passenger trip numbers were approximately static between 2012 and 2018, while there was a 7.5% increase in bus capacity over the same period, accompanied by 4.3% decline in bus-kilometres travelled. This indicates increased system capacity but declining capacity utilisation: the average distance travelled per bus declined 10.8% from 2012 to 2018 (and by 15.2% from their peak level in 2011) (DPTM, 2018: 100).

DPTM (2018) also reports that the downward trend in trip numbers observed since 2010 appears to have been reversed in 2017 and 2018, with the 1.100 billion trips recorded in 2018 representing a 6.1% increase on the 1.037 billion trips recorded in 2016 and the highest number of trips recorded since 2010.⁵ Moreover, the 4.6% increase in trip numbers between 2017 and 2018 represents the highest annual increase recorded since the beginning of the system. Fare evasion levels have also fallen significantly in recent times, although they remain high: having peaked at 34.6% in late 2016, the evasion rate had fallen to 27.1% by December 2018. However, a longer-term perspective shows that the 12-month moving average for December 2018, or 26.7%, remains significantly above the equivalent figure for December 2012, which was 22.4%.

There may be some early indications of success in turning around the fortunes of the Transantiago system, while the retendering process which will be undertaken in the near future provides an opportunity to make further progress, particularly given the preparatory work undertaken.

A key lesson from the Transantiago experience is that reforms driven by a strong focus on minimising costs that do not also adequately address concerns with service quality are unlikely to enjoy high levels of success. A second is that achieving high levels of efficiency in an environment of regulated competition requires both a well-developed set of performance indicators that are closely aligned with system objectives and adequate monitoring and measurement mechanisms to enable performance to be measured reliably. Third, ensuring that adequate competitive pressure exists, and can be maintained over time is a key pre-requisite for good performance and must be addressed via careful design of several system elements, including concession size and length, ownership of key assets (e.g. buses, depots) and the design and implementation of tendering arrangements.

Finally, medium to long-term objectives and priorities must be clear and maintained consistently over time. Hurtubia notes that the primacy of frequency and travel time among concerns voiced by customers argues for a focus on developing well-controlled bus lanes and corridors, but that the prospects of major

⁵ Total trip number data is only available from 2009.

progress in this area are diminished by a shift in focus toward substantially increasing Metro's modal share in the medium term. Source: Adapted from Hurtubia and Leonhardt (2019).

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Denmark

Mode: Regional passenger rail

Location: Denmark (including one cross-border tendering process with Sweden)

Timeframe: 1998 - 2015

Motivations for reform:

- increase efficiency in rail passenger transport
- raise the modal share of public transport versus other transport modes
- align with future EU requirements

Nature of reform

The state-owned company Danish State Railways (DSB) traditionally operated all regional and long distance trains in Denmark under a negotiated contract. In 1998 the government introduced legislation that allows passenger rail transport to be competitively tendered. However, only three tenders have been carried out in the ensuing 20 years, accounting for 15% of the extra-urban rail network. The great majority of the network is thus still operated by the DSB under five-year contracts with the Ministry of Transport.

The first and second tenders covered a combined area in central and Western Jutland. Arriva Denmark won two consecutive tenders, covering the periods 2003-10 and 2010-20. Contracts were established on a 'net' basis, with the operator given some freedom to set timetables and included incentives to attract more passengers, to improve frequency, reliability and customer satisfaction through a bonus/penalty system. Bid evaluation was based on three criteria: price (state subsidy), service quality and certainty of delivery.

The third tender covered Zealand and across the Øresund strait and was operated under inter-linked contracts between the operators and the Danish and Swedish public transport authorities. It was operated between 2009 to 2011 by DSB. First (a joint venture between DSB and First Group (UK), which was majority owned by DSB) on a gross cost contract initially of seven-years duration). The contract included incentives in relation to frequency and passenger satisfaction, and a penalty for cancelled services.

Industry structure

Figure 19. Regional passenger rail reform in Denmark

	Public			Private		
Planning (initiative)	National XY	Region/city	Local			
Service delivery	XY			Direct award	Tendering Y	Open entry

Notes: X = before reform; Y = after reform; multiple Xs or Ys on a given line suggests a hybrid model.

Outcomes

Jutland, first contract: State subsidies were reduced but not by as much as expected. A reduction of 16.5% was achieved, compared with the 22.6% reduction sought. There was a 15% increase in passenger-kilometres, while strong reliability and regularity performance have meant that the operator received bonus payments every year. The average passenger satisfaction score has increased from 3.6 to 4.02 (out of five) during the life of the contract.

Jutland, second contract: According to the Danish Transport Agency only a small reduction in state subsidies was achieved, compared with the previous contracting phase. Arriva has received bonuses every year both for increased passenger satisfaction and regularity. It has however had a small penalty over four years for cancelled trains and the train-kilometre performance has not been in accordance with the contract for all the years of the contract. While there were five bidders in the first tendering process, this was reduced to three in the second process, a factor which may have been relevant to the fact that only limited further reductions in subsidies were achieved.

Zeland Øresund: The First Group withdrew from its minority stake in DSB First by exercising a put option only three years into the seven year contract, due to the accumulation of large operating losses. DSB First was then rebranded DSB Oresund and was a wholly-owned subsidiary of DSB. This body carried out the Danish contractual obligations during the remainder of the seven-year period, after which the service reverted to DSB. First Group similarly withdrew from DSB First Sweden, which held the Swedish contract for the Øresund services, to be replaced by Veolia from late 2011.

Performance standards showed modest declines during the period of DSB First's operation of the service: Between 2009 and 2010, punctuality decreased by -6.6%, passenger numbers fell by 1% and passenger satisfaction scores fell from 6.61 to 6.51 out of 10.

The financial problems of DSB First gave rise to moves by DSB to cross-subsidise the operations of the joint venture, contrary to European prohibitions on state subsidies.

At the end of the initial seven-year contract, the Danish Øresund services were contracted to DSB for a ten-year period (2015 – 2024) via direct negotiation (i.e. with no attempt at re-tendering). No further attempt at competitive tendering is expected to occur until the end of this current contract.

Assessment

In central and Western Jutland, the reform is considered a success due to the achievement of cost reductions together increased ridership and improved passenger satisfaction. However, the Zeland Øresund outsourcing failed. While the declines in performance standards noted above were modest, the bids underpinning the relevant contracts were based on optimistic ridership forecasts by the tenderer, which were not achieved. The required service timetable was also arguably too ambitious, contributing to the service-provider's difficulties.

The problems encountered arguably reflect the fact that both contracting parties were relatively inexperienced in the commercial contracting of railway services. While First Group was an experienced UK operator, it held only a minority stake in the joint venture.

The failure of the competitive tender process has meant that no further attempt at competitive tendering will occur until almost two decades after the initial attempt. The need to comply with European legislation appears to have been a key driver of the move to implement competitive tendering in the first instance, while it appears that European regulation (the fourth railway reform package) remains the key driver of these expected future competitive tendering initiatives.

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France (outside Île-de-France)

Mode: Regional passenger rail

Location: France, with focus on Nord-Pas-de-Calais region

Timeframe: 1995 – 2015

Motivations for reform:

- increase ridership on regional passenger trains
- increase regional authorities' role in passenger rail services provision and control
- increase service quality and coverage

Nature of reform

In 1995 a new national planning and territorial development authorised the transfer of powers in respect of regional passenger transport policy to the regional level on a voluntary basis. Before this time, the role of regional governments was limited to the provision of a financial contribution to the national rail operator (SNCF). This financed offers of special journeys and tariffs to the inhabitants of the Region. Between 1997 and 2002, seven regions volunteered to test the decentralisation of the Express Regional Transport rail services (TER). These regions had to draft their own Regional Transport Scheme (SRT) as a basis to negotiate projects and funding for transport infrastructure (all modes). Volunteer regions had to bear the risks related to the new services they wanted to offer but were not allowed to control the extent of infrastructure provided nor the level of service (frequency, schedule, capacity, etc.).

The situation changed in January 2002 when, pursuant to the Solidarity and Urban Regeneration Law (SRU) of 13th December 2000, the 20 French metropolitan regions became transport organising authorities; *Autorité Organisatrice de Transports (AOT)* renamed *Autorité Organisatrice de la Mobilité (AOM)* for the TER. AOMs, which already had responsibility for inter-urban road services, took over responsibility for planning regional passenger railway services in December 2000. They plan services carried on the national network except those of national interest. Regions sign their own specific contracts with SNCF Mobilités (the SNCF service supplier for AOMs) which specify service standards and impose a bonus/penalty system on the company based on identified performance criteria (reliability, service quality, etc.) (Burlando and Guihéry, 2004).

The AOM can be a municipality but more often it represents a conurbation of several municipalities. As of January 2011, there were 296 AOMs and transport networks in France (Allain, 2012). AOMs are free to choose their service delivery model: either directly operating services themselves (*La régie*) or by delegation to a third party (Public Service Delegation). Regardless of how services are delivered, the AOMs have a defined range of responsibilities and funding options.

In accordance with the LAURE law (1996), AOMs covering more than 100 000 inhabitants must develop an urban mobility plan, conduct a survey of trips and provide multimodal information to travellers. AOMs develop a pricing policy that allows access to public transport for economically disadvantaged people and a policy to enable access to transport for people with reduced mobility. The law of February 11, 2005 law⁶ requires AOM to develop accessibility plans that sets out an approach to providing universal access

⁶ ACT No. 2005-102 of 11 February 2005 for equal rights and opportunities, participation and citizenship of people with disabilities

to public establishments. The solidarity and urban renewal law (SRU) in December 2000 requires that AOMs take into account car mobility to facilitate modal integration within the transport network (e.g. consider car parking and urban freight delivery needs).

AOMs can also decide how they fund transport services. A key option is that of levying a dedicated transport tax (versement transport, VT). The VT is imposed on all employers of more than eleven employees in the urban transport perimeter and its rate is capped by law (Allain, 2012). As of 2010, the VT represented the largest single source of AOM funding. For AOM excluding the region Île-de-France, the average contributions to total AOM funding (including both operating and capital expenditures) from the main funding sources were as follows:

- employers, through the VT (44%)
- local communities, through taxes (28%) and loans (8%)
- travellers, through fare revenues (16%)
- State (1%) and other (3%) (Allain, 2012).

Operation of public transport services: Public Service Delegation versus Direct Provision

A large majority of public transport services in France are delivered via third parties through Public Service Delegations (PSDs). In 2010, PSDs represented 91% of the urban public transport contracts for delivering services. Only 9% of services are provided by parties chosen through an open market bidding process, with the other 82% being let pursuant to a selective tendering process (GART, 2011). The Sapin Act (1993) aims to prevent corruption and improve transparency in public procedures and applies to all PSDs. This requires that:

- Investment and operating costs of the delegated service are fully transferred.
- The management environment provides greater efficiency incentive than in the public sphere.
- There is the possibility of having a global offer where design, construction and operation are integrated and optimised in order to reduce transaction costs for the public authority.
- Contracts are suitably advertised, and that the duration of agreements is limited (tacit renewal is not authorised).
- Regular competition occurs between operators on the award of exclusive operation and temporary limited service rights.
- External controls and penalties are in place.
- Public information is provided.

The PSD market is relatively stable. According to GART (2015), of the 267 calls for tender launched by the AOMs in 2013 over the period 2005-13, only 25% have not renewed the PSD of the incumbent delegate. In 2013 this rate is 10%. Four AOMs have signed contracts with a new operator. Two companies operate most of the urban public transport PSDs in the regions: Keolis, a subsidiary of SNCF, operates 28.5% of the 304 AOMs networks, accounting for 48.8% of trips, while Transdev operates 36.6% of the networks, accounting for 27.5% of passenger trips.

Operation of public transport services: Self operation (La régie)

The AOMs have the right to operate public transport services themselves, provided they have financial autonomy. This kind of operation is called la régie. In this case transport authority operates the services with its own staff and rolling stock. Revenues and expenses are part of the AOM's budget. The régie can also take the shape of a local public company (société publique locale, SPL). Provision for SPL was created by the law of 28th May 2010.

Some transport authorities have decided to bring some services back in-house that were previously contracted to private operators. Outside the Île-de-France, the share of self-operation (rather than PSD) has increased from 9% in 2010 to 13% in 2013 (GART, 2011, 2013).

Marseilles, Belfort, the Eastern Pyrénées Department the Tarn Departement and Nice, Côte d'Azur all moved away from the PSD model and toward self-operation during this period.

Industry structure

Figure 20. Regional passenger rail reform in France

	Public			Private		
Planning (initiative)	National X	Region / city Y	Local			
Service delivery	XY			Direct award	Tendering	Open entry

Notes: X = before reform; Y = after reform; multiple Xs or Ys on a given line suggests a hybrid model

Outcomes

According to Haenel, performance improvements gathered pace following the general adoption of the AOM model in 2002:

“The regions have really made the most of this new ability as a tool of local governance. Traffic growth started as early as 1997-1998, but it intensified for the first time in 2002 with the effects of the first experiments of regionalisation and then more markedly since 2004. Over the period 2002-2007, TER traffic increased by 27% and revenues by 38%. These good results are the result of major investments, notably in rolling stock, attractive pricing and expanded services adapted to customers' travel needs” (Haenel, 2008: 91).

Taking a long-term perspective, the post-reform period has seen modest increases in supply and ridership. Between 2000 and 2014 total annual trip numbers rose from 3.37 billion to 4.31 billion, a 21% increase. This compares with a 9% increase in population over the period. Trip numbers increased across all modes except buses over the period: from 936 million to 1.21 billion for RER and commuter trains (+29.3%), from 1.25 billion to 1.53 billion on metro (+22.4%) and from 36 million to 223 million for trams (+519% - due to major network expansion). Bus trips within Paris fell by 7.5%, from 358 million to 331 million. Passenger-kilometres travelled on the network increased more strongly than trip numbers, with a 32% increase (from 23.4 billion to 30.8 billion) over the period. (OMNIL, 2015). The increase in passenger-kilometres travelled has been maintained in the most recent period, so that between 2000

and 2017, passenger-kilometres travelled across all public transport modes increased by 43% (OMNIL, 2018).

The introduction of a new ticketing system for the Navigo card in September 2015 has also increased the number of passengers in remote areas served by bus and trains by offering a new fare called *forfait toutes zones* (FTZ), covering all six zones for the same price previously charged for journeys within the two central zones.

These improvements in service and patronage have coincided with significant cost increases. In 2015 the operations budget of public transport in Île-de-France region was EUR 9.4 billion, representing a 74% nominal increase (or a 37.6% real increase) on the 2000 budget of EUR 5.4 billion. This is substantially attributable to the fact that new metro and tramway lines have been constructed during the period, significantly increasing the extent of the network. There has been an increase in the cost per trip over the period, but it has been much more modest, the rise from EUR 1.60 to EUR 1.72 in real (inflation adjusted) terms representing a 7.5% increase. Moreover, longer average trip lengths account for some of this increase, with costs per passenger-kilometre increasing by only 4.2% over the period. The reform is generally considered to be a success, given the improvements in service quality and the consequent increases in patronage. Moreover, regions have the capacity to decide service levels they want, which enables the design of better adapted and more comprehensive services for users.

However, as noted, the reforms have not achieved cost reductions. Moreover, the apparently strong move away from the PSD model and toward re-establishing direct service provision by AOMs in the current decade is notable. While this has begun from a low base (i.e. only 9% of services directly provided in 2010), this proportion of direct service provision grew by nearly 50% over a three-year period. (from 9% to 13%). The PSD remains the main type of contract in France at 87%.

Assessment

The reform is considered to be a success since service has been enhanced for users, with better tariff structures and improved service quality, leading to a significant increase in passenger traffic. Regions have the capacity to decide the service levels they want, which enables the design of better adapted and more comprehensive services for users.

The issue remaining is that the national government continues to accord subsidies to regional governments on the basis of the SNCF's 1997 system, whereas the regions have significantly increased the supply of services since that time and invested substantially in the modernisation of rolling stock and, in some cases, railway stations and tracks (Desmaris, 2011). This has necessarily created significant financing stresses and remains a significant issue for the dynamic development of the system. It is also one which the adoption of competition will do little to address.

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France (Paris region, Île-de-France)

Modes: Regional passenger rail, bus, tram, bike-share

Location: Île-de-France (France)

Timeframe: 2000, 2004, 2009 onwards

Motivations for reform:

- Increase the use of public transport
- Improve co-ordination
- Decentralise planning powers

Industry structure

Figure 21. Reform of regional rail, bus, tram and bike-share in Île-de-France

	Public			Private		
Planning (initiative)	National X	Region / city Y	Local			
Service delivery	XY			Direct award Y	Tendering	Open entry

Notes: X = before reform; Y = after reform; multiple Xs or Ys on a given line suggests a hybrid model

Nature of reform

Several steps were taken to decentralise public transport services from the national to the regional level as well as to enhance the efficiency of transport services. From 2000 to 2009, planning and funding powers have been progressively shifted from a nationally led body to the Île-de-France Transport Syndicate (STIF), which is led by regional representatives. The STIF signed multi-year contracts with both SNCF (the national rail operator) and RATP (the Paris regional public transport operator), which set out pre-defined service plans, with quality targets and associated bonuses and penalties. Before this, there was little incentive for the operators to enhance service quality. The STIF was given responsibility to organise, coordinate, and fund public passenger transport in the region. The STIF became Île-de-France Mobilités in 2017. Services are operated by three major operators (RATP for metro, tram and bus in the city of Paris and middle suburban ring, SNCF for RER trains, and the OPTILE company regrouping other operators mainly buses); the exception is the Vélib bike-share system, which until January 2018 was operated by private advertising firm JCDecaux and subsequently concessioned to Smovengo.

Outcomes

Between 2000 and 2014, there was a significant increase in both the number of trips made (+21%) by public transport in the Île-de-France region and the number of passenger-kilometres covered (+32%). The number of passenger-kilometres appears to have increased rapidly in the most recent period, as

2018 data show that, from 2000 to 2017 for all public transport modes there was a 43% increase in the number of passengers kilometres travelled (OMNIL, 2018).

New supply was introduced in the form of the creation of two new tramway lines and the extension of metro line 14.

A new fare system has been introduced, with a rechargeable smartcard (Navigo) that integrates all modes in the region and offers unlimited de-zoned access to the network (since 2016) of services covered by the STIF. Real time information is provided through a new app.

Overall, the cost of the Paris region public transport network has increased by 70% in nominal terms (from EUR 5.4 billion in 2000 to EUR 9.2 billion in 2014). This is equal to a real increase of around 35% (Given a CPI increase of 26% over the period). The STIF's budget is essentially funded by a hypothecated tax on employers (versement transport) and fare revenue, with the share of the national government contribution having decreased from around one-third to just 1%.

Assessment

The reforms can be assessed as moderately successful. Sustained increases in ridership have been achieved, although the 21% increase in passenger journeys from 2000 to 2014 is relatively modest when considered in relation to an approximately 10% increase in population over the period. However, the latest passenger-kilometre data suggests stronger performance in the most recent period. Conversely, the average real cost per passenger-kilometre appears to have risen slightly (i.e. 35% real cost increase vs 31% increase in passenger-kilometres between 2000 and 2014). Moreover, the new, integrated smart ticketing system has only been partially adopted, and applies only to annual and monthly travel cards, rather than to all fares, as in many comparable jurisdictions. In mid-2019, a trial of a smartcard payment system for individual (i.e. non-periodic) fares was adopted, with both pre-paid and monthly ex-post automated billing options. Thus, innovation also appears to be modest.

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Germany

Modes: Regional passenger rail

Location: Germany

Timeframe: 1994-1996, onwards

Motivations for reform:

- Increase the use of public transport
- Reduce public subsidies and costs (especially those of labour)

Nature of reform

The German railways were reorganised in 1994 following the reunification of East and West Germany. The two state operators were brought together and re-established as a state-owned private company DG AB. The federal state took over the historical costs of the two former organisations, by assuming both their accumulated debts and responsibility for the incremental salary costs associated with the status of pre-existing employees as civil servants. DB AG was given further aid by being allowed to set the accounting book value of the rolling stock as zero. Partial vertical separation was introduced: the operating activities (passenger and freight) and infrastructure management (network, stations and traction power) functions were split into separate units of DB.

In 1996 the regionalisation law assigned the Bundesländer as Public Transport Authorities (PTAs) receiving dedicated funding from the state. The PTAs are responsible for ensuring a “sufficient” transport offer on their territory. Initially, they were given the option of tendering regional rail services. However, tendering became obligatory in 2011, albeit 19% of train-km remain untendered in 2018, due to ongoing direct awarded contracts. Regions plan and finance the offer, decide on tariffs and conclude public service contracts with the railway companies.

Industry structure

Figure 22. Reform of German regional passenger rail

	Public			Private		
Planning (initiative)	National X	Region / city Y	Local			
Service delivery	X			Direct award (Y)	Tendering Y	Open entry

Notes: X = before reform; Y = after reform; multiple Xs or Ys on a given line suggests a hybrid model. (Y) reflects the long transitional period, during which some directly awarded contracts continue to operate, as noted in the text above.

Outcomes

The rail offer has grown significantly, with a 24.8% increase in train-kilometres (1996 - 2016), while the overall number of passenger-kilometres has grown 50%, and the average occupancy level per train has risen 20% (Mofair, NEE, VPI, 2017). The quality of rolling stock has improved for all tendered services. Total passenger rail cost fell slightly between 1998 and 2015 (4.5%), while cost per passenger-kilometre and per train-kilometre fell substantially over the same period (-31% and -20% respectively). There is however an imbalance in terms of profitability between the different operators as DB kept the most profitable directly awarded contracts. This will be subject to change following the expiry of the current contracts in the next few years, as the new contracts will be awarded via a tender process.

Information provision has been standardised, with timetable sharing and a comprehensive online platform for route planning being developed by DB using information shared by all other operators. For the users the tariff is independent from the operator (the national tariff applies on all regional trains and there are multimodal tariffs at PTA level in almost all regions).

Assessment

The reform is generally considered to be a success as services were extended, quality improved and cost has been controlled. However, the reform remains incomplete, while the former separation between operation and infrastructure has been reversed. Moreover, the regulator is weak, allowing financial transfers within DB between the monopolistic sector (infrastructure) and the competitive sector. Importantly, it will also take much longer than originally expected until all the services are tendered (thirty years instead of the ten years originally envisaged).

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Italy

Modes: High-speed rail

Location: Italy

Timeframe: 2012 onwards

Motivations for reform:

- Align with the rail competition model advocated by the European Union
- Reduce subsidy costs of the railway system
- Allow competition in service delivery to encourage lower fares and product innovation

Background to the reform

At the beginning of the 1980s, the Italian railways were a strong double monopoly (i.e. monopolists in the supply of railway services and monopolists in the demand for many assets). Ferrovie dello Stato (FS), the national railway company had become a conglomerate benefiting from generous public subsidies. Reform, was undertaken in several steps.

The first stage of reform involved the corporatisation of FS in 1992 as a fully state-owned, joint-stock company. Infrastructure and services were separated in 1998 and assigned to Rete Ferroviaria Italiana (RFI) and Trenitalia respectively, both owned by FS Holding. FS was then restructured to achieve a financial recovery through efforts to increase labour productivity and revenues, and to optimise assets in order to increase traffic. Through greater cost control and raising passenger fares the organisation's financial position improved, however, traffic did not increase.

Nature of the reform

Italian railway regulation was reformed in response to EU reforms requiring the opening of rail services to competition. However, this occurred well in advance of many other EU Member countries. An open access regime has been in force in respect of long-distance passenger services since 2001, well before it this became a requirement of EU law. However, in practice, before delivering an internal license, Italian regulation (Law 388/2000) requires that equivalent rights be made available to Italian firms in the foreign country where the railway undertaking (RU) to be licensed is based, according to the reciprocity principle.

In practice, while open entry was feasible from 2001, no practical change occurred in the Italian market before the entrance of the new competitor NTV in 2012. NTV's entry was enabled by the combination of a favourable regulatory environment, the existence of spare capacity and a favourable access pricing regime.

NTV provides services under the brand name Italo, and is modelled on the "low cost" airline model, in that it focuses on minimised fixed costs, digital distribution, outsourcing and staff incentives for productivity). Italo runs HSR services on the main HSR trunk network between Naples and Bologna, with branches to Venice and Turin.

Figure 23. Reform of high-speed rail in Italy

	Public			Private		
Planning (initiative)	National XY	Region/city	Local			
Service delivery	X			Direct award	Tendering	Open entry Y

Notes: X = before reform; Y = after reform; multiple Xs or Ys on a given line suggests a hybrid model

Outcomes

The entry of NTV into the market has led to more HSR supply, with the company adding 45% to the total HSR supply (train-kilometres) in its first year of operations, without there being any corresponding reduction in HSR supply by Trenitalia. Other key indicators are:

HSR passenger numbers grew by 44% between 2008 and 2013 despite the effects of the economic crisis. By contrast, total rail traffic has not increased, with total passenger-kilometres remaining below the peak levels experienced before the crisis (48.7 million in 2013 vs. 50.2 million in 2006). Thus, the increase in HSR passenger-kilometres implies a substantial demand shift away from regular-speed regional trains, in terms of market share.

The share of HSR in total rail transport has almost doubled, from 14.7% to 28.7% in the last ten years. This has driven a modest increase in the modal share of rail (from 5.5% in 2009 to 6.3% in 2013). Rail's modal share has increased much more substantially in some key corridors such as Rome-Milan (from 36% to 65%) as train gained significantly in competitiveness vis à vis air and car travel on these routes.

HSR prices decreased within a few months of NTV's entrance in the market, with an average reduction of 30% per passenger between 2011 and 2012.

The quality and variety of services have improved. This has included the introduction of free wifi, on-board entertainment and working facilities. New high-speed trains have been introduced by Trenitalia (up to 360 km/h) to offer faster services and gain a competitive advantage. Several stations have been heavily renovated or extended (e.g. Roma Tiburtina, Milano Porta Garibaldi).

Competition lifted service levels on the whole HSR system. Trenitalia remains the main operator, but it has improved its services while growing its revenues.

Assessment

The entry of a new passenger rail operator on the Italian HSR market can be considered a success as it has increased train supply, passenger numbers and their satisfaction by lowering prices and providing new and improved services and more train connections. This open access competition also reveals the capacity of the rail industry (including incumbents) to innovate and improve competitiveness. This case provides some evidence that the on-track competition that is proposed as part of the European liberalisation railway policy (recently approved Fourth Rail Package) is feasible and capable of delivering efficiency improvements in the presence of certain market conditions such as spare capacity and a historical operator with sub-optimal efficiency and service delivery.

The quality of the arbitrations made by the rail regulator, the substantial public financing for infrastructure and the deliberate choice of a low fee regime for access to the network seem to have been determining factors for the success of this suite of reforms. This resulted in a substantial increase in tax-payer support for high-speed rail services.

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Japan (Tokyo)

Modes: Urban passenger rail

Location: Tokyo

Timeframe: 1995 - 2015

Motivations for reform:

- Improved co-ordination between a large number of operators
- Adapting infrastructure to an ageing population
- Enhancing connectivity and inclusiveness in the network

Industry structure

Figure 24. Reform of Tokyo urban passenger rail

	Public			Private		
Planning (initiative)	National Y	Region/city	Local	XY		
Service delivery				Direct award	Tendering	Open entry XY

Notes: X = before reform; Y = after reform; multiple Xs or Ys on a given line suggests a hybrid model

Reforms:

Two key areas of reform can be identified in the Tokyo urban rail system. The first focuses on attempts to improve the integration of the system, which is run by more than 20 different private operators. The second focuses on improving the accessibility of the system for people with limited mobility.

Connectivity

Efforts to improve connectivity between different operators' systems commenced in 1956, when the Council for Urban Transport first promoted direct through rail operations between suburban rail and metros. Direct through operations are those whereby rail carriages move directly from the suburban system onto the metro system, so that commuters are not required to change trains. According to Kato (2016), this reform has been implemented very gradually, with the large capital costs required to achieve interoperability between systems (e.g. tunnelling costs, aligning signalling systems) being a major constraint. However, by 2010, it was in place in respect of about 35% of Tokyo's urban rail network.

A second initiative, with similar aims, was adopted in 2005. This was the Act to enhance the Convenience of Urban Railways. One of two key initiatives in this Act was Smoothing Mobility in Rail Stations (SMRS). This involved reducing transfer times between the rail systems of different operators by improving connections within existing railway stations. It was predicated on the separation of infrastructure from operations and provided for the national and local governments to each fund one third of the cost of these improved connections, with the remaining one third to be financed by the operator and recovered

from additional access charges paid by operators. These charges are determined via a calculation of the additional profits earned by operators as a result of the improved connections.

The Act requires the local government to establish a consultative body consisting of local stakeholders, including the rail operators, the infrastructure constructor/owner, and local government for SMRS projects. This requirement is similar to that of the Barrier-Free Act (see below).

Accessibility

The rapid ageing of the Japanese population has given rise to a substantial focus on ensuring the accessibility of the rail infrastructure system. The key legislation adopted in this area is the Barrier-Free Act of 2000. The national government introduced the Act to progressively remove physical obstacles for people with mobility impairments who would otherwise be unable to use the system unaided. The Act sets out specific accessibility standards and requires that these be complied with whenever new rail stations are constructed or significant renovations are undertaken to existing ones. The requirements initially applied to stations with a throughput of more than 5 000 passengers per day, but were broadened to include all stations with more than 3 000 passengers per day in 2011.

To support the construction of these facilities subsidy schemes were introduced. Under the current scheme (from 2011), the national and local governments each provide subsidies to rail companies of up to one-third of the total cost. To be eligible for funds relevant local governments are required to set up a council of local stakeholders which collects opinions from the public to inform the investment plan.

Outcomes:

Connectivity

Kato (2016) concludes that much progress has been made in improving connectivity between different rail operations, but identifies several key barriers to better performance. The first is that, despite the substantial subsidies provided, the necessary investments by private operators may not be profitable. Secondly, this profitability issue is exacerbated by an operating environment characterised by a shrinking population, which tends to favour the adoption of conservative investment approaches. Third, operators may fear losing existing customers by increasing connectivity. Fourth, the highly urban environment in which connections must be built implies substantial costs, engineering challenges and risks. Kato concludes that the Barrier Free Act is superior to the Convenience of Urban Railways legislation in that it provides stronger private incentives for investments in improving connectivity.

Accessibility

As of March 2010, 78% of rail stations whose daily passengers numbered 5 000 or more had installed barrier-free facilities (MLIT, 2012). Targets were revised in 2011 so that 100% of rail stations whose daily passengers number 3 000 or more must satisfy the technical standard. As of March 2015, most of these stations have installed barrier-free facilities (96.6%, 89.4%, 97.0%, and 95.1% of the total in Saitama, Chiba, Tokyo, and Kanagawa prefectures respectively; MLIT, 2015). The Barrier-Free Act can be considered as a success as it has been able to provide companies with incentives to support the government's policy goals.

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Korea (Seoul)

Modes: Bus

Location: Seoul (South Korea)

Timeframe: 2004 onwards

Motivations for reform:

- Increase the use of public transport
- Improve service co-ordination
- Improve safety
- Increase reliability

Industry structure

Figure 25. Reform of Seoul bus system

	Public			Private		
Planning (initiative)	National	Region / city Y	Local	XY		
Service delivery				Direct award	Tendering Y	Open entry X

Notes: X = before reform; Y = after reform; multiple Xs or Ys on a given line suggests a hybrid model

Nature of the reforms

The bus operating system in Seoul was run on a commercial basis by private operators until 2000 under long-term concessions. However during their operations private bus companies accumulated significant deficits due to falling passenger satisfaction (and hence demand) as a result of poor service quality and irregular frequency. Rising costs for both labour and fuel increased the financial pressure facing the operators, while rising congestion in Seoul increased travel times, making the bus system still less attractive.

Initially, the city government's response was to introduce subsidies for the private bus companies. However, it soon became apparent that this was not a viable long-term solution. In 2004, the government decided to introduce quasi-public bus operations, while restructuring its public transportation system. Before the reform, private operators had concessions for individual bus lines. After the reform, the operation shifted to semi-public tendered contracts, whereby the operator and the local government jointly determined route adjustments (to redesign the overall bus network so that it becomes more hub and spoke, to implement an exclusive median bus lane, to reform the fare system to make metro/bus connectivity more seamless, to implement a smartcard system and the construction of public transport interchanges.

Under the new system, responsibilities were divided as follows:

- Seoul city government: management of bus routes, fare and service level; financial support; evaluation of performance; decisions on incentives and penalties for performance.
- Association of bus companies: joint committee for revenue management, revenue settlement
- Korea Smart Card Company: operation of smart card, fare collection and settlement system; provision of performance and revenue information
- Bus Policy Citizen Committee: deliberation and decision of fare and revenue management, financial support, route adjustment, etc.

Today, the city of Seoul is responsible for fare collection, while the joint committee of revenue management apportions it across bus companies based on the number of buses owned by each company and the operating distance. The joint committee benchmarks the performance of each operator against a standard cost model and estimates the expected profits based on the efficiency measures that fall within the control of each company.

Outcomes

The purpose of the quasi-public system is to combine the merits of the public system and the efficiency of private management. Since the reforms were enacted, modal shares for public transport have progressively increased: trips by subway represent 39% of the total and bus trips 27%. However, financial performance has not improved significantly as the standardised costs are driven by growing labour costs and environmental charges; the city continues to provide around EUR 200 million in subsidies to bus companies per year. Bus route modifications determined by the Policy Committee have been resisted by operators that view their routes as private property rather than rights concessioned by the community. In order to overcome the remaining challenges, the Korean Government is currently considering the creation of a transport metropolitan authority for Seoul.

Assessment

The reform can be considered to be a success, though opinions differ. Ridership and revenue increased in spite of fare increases and short term disruptions due to wholesale changes to routes, fares and payments, yet overall cost per service-kilometre seems to have deteriorated. Higher driver wages seem to be a primary explanation of the indifferent productivity outcome of the reform package.

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Spain (Barcelona region)

Modes: Metro and bus

Location: Barcelona

Timeframe: 2011 onwards

Motivations for reform:

- Improve co-ordination
- Encourage innovation
- Increase reliability
- Improve flexibility to address different geographic needs

Industry structure

Figure 26. Metro and bus reform in Barcelona

	Public			Private		
Planning (initiative)	National	Region / city XY	Local X			
Service delivery	XY			Direct award X	Tendering XY	Open entry

Notes: X = before reform; Y = after reform; multiple Xs or Ys on a given line suggests a hybrid model

Nature of reform

The Barcelona Metropolitan Area (AMB) is the administrative body for the metropolitan area of Barcelona, which was established through the Law 31/2010 of the Catalan Parliament. The Transport Department of the AMB is in charge of transport planning and choosing operators for bus and metro transport in the city of Barcelona and 36 surrounding municipalities. Public transport services in the primary urban area of Barcelona are provided through a direct award contract with the public operator TMB.

In the rest of the municipalities, several competitive tendering procedures have been launched for the private provision of regular urban and interurban public transport services. The vehicles are provided by the Transport Authority but the installations (depots, offices, etc.) are provided by the operators. AMB decides upon service supply and routes, and allows minor service modifications (proposed by AMB or by the operator). Operators are given some incentive to grow patronage above their bid's forecast through a share in additional revenue and similarly incur a part of the cost of any revenue shortfalls. Qualitative incentives of up to 5.5% of the operational costs also affect the total revenues received by the operator. Incentives take into account various quality indicators, including punctuality, bus quality, bus-stop quality, dynamic information quality, as well as perceived quality and passengers' satisfaction.

Several profitable services are operated under mostly tendered concessions: these are the private Airport connection (Aerobús) and one of the two tourist routes (the Barcelona City Tour). A second tourist bus, Bus Turístic, is operated by TMB.

Outcomes

The urban bus services operated by TMB directly carried 182 million passengers in 2017, with user satisfaction scores (out of 10) averaging 7.5. Their operating costs were EUR 6.70 per bus-kilometre, requiring a EUR 360 million subsidy.

The urban bus services operated by TMB directly carried 202 million passengers in 2015, 2016 and 2017. The private services contracted in the municipalities carried 74 million passengers, with user satisfaction scores (out of 10) averaging around 7.8. Their operating costs ranged from EUR 3.50 to EUR 5.50 per bus-kilometre, requiring a EUR 100 million subsidy.

The private services concessions (airport and tourist services) offered 37 million vehicle-kilometres in 2015, 37.4 million in 2016 and 37.7 million in 2017. There were 83.1 million passenger journeys in 2015, 86.6 million in 2016 and 90 million in 2017.⁷

Assessment

Retaining and extending the planning scope of the TMB allows it to coordinate public transport services, branding, information and ticketing across a wide area. It also gives the authority the flexibility to implement a range of different industry structures in different segments, with different roles for the public and private sectors. Currently the publicly operated bus services appear to be somewhat less operationally efficient than the privately tendered services. However, the different operating contexts (urban versus peri-urban and regional) mean that their cost data are not strictly comparable.

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Switzerland

Modes: Regional passenger rail

Location: Switzerland

Timeframe: 1996 - onwards

Motivations for reform:

- Increase the use of public transport
- Align with EU legislation
- Increase service reliability
- Improve efficiency of public subsidy provision

Industry structure

Figure 27. Reform of Swiss regional passenger rail

	Public			Private		
Planning (initiative)	National XY	Region / city Y	Local			
Service delivery	XY			Direct award	Tendering	Open entry

Notes: X = before reform; Y = after reform; multiple Xs or Ys on a given line suggests a hybrid model

Nature of reform

The Swiss passenger rail system is jointly governed by public authorities, rail companies and travellers. Three relatively gradual steps have been taken to reform the system in the past two decades. The first step, in 1996, transformed the relationship between the public authorities and the national railway operating company Swiss Federal Railways (SBB): public authorities began to pay only for services they chose. Regional authorities (Cantons) also gained authority to select transport services themselves (supervised by the Federal Office of Transport). These services were paid for at an established cost and unplanned deficits were no longer covered by the State. At the same time, SBB's monopoly on Swiss regional passenger rail service provision was removed: legally, competition is possible, but in practice there have been no instances of new entry.

The second stage in the reform process occurred in 1999, when the Railway Reform 1 was introduced to align Swiss law with European Legislation. It removed the last direct State authority over SBB's operations, making it fully independent of government, operating instead under multi-year service contracts. The government took over SBB's accumulated debts as part of this initial reform, in order to ensure its financial sustainability as an independent entity.

The Railway Reform 2 package of further reform initiatives was intended to adopt the first and second EU railway packages into Swiss law and was presented to Parliament in 2005. However, following its

initial rejection, the Government split the package into separate measures. A decade later, these had still only been partially implemented (Desmaris, 2014).

Outcomes

SBB increased train-kilometres by 55.4% between 1994 and 2005, one of the biggest supply increases in Europe.

Patronage (passenger-kilometres) similarly increased by 51.6% between 1995 and 2011, almost twice the rate of increase of the previous 15 years.

Public subsidies steadily decreased from CHF 725 million in 1993 to CHF 591 million in 2013. Subsidies per train-kilometre fell by 23.5%, from 10.2 to 7.8 Swiss Francs, in real terms over the period.

Significant improvements in the quality of passenger rail services were achieved, including better linking together all constituent parts of the Swiss public transport network and a service frequency level that is the highest in the world (basically every 30 minutes and 15 minutes on the busiest routes, in peak hours), setting Switzerland ahead of Japan.

Speed was increased following implementation of the broad government investment and modernisation program called Rail 2000, which involved major upgrades of the Swiss network (e.g. construction of a new double track line in the tunnel from Zürich to Thalwil and a new high-speed rail track between Bern and Olten with an operating speed of 200 km/h).

Assessment

The Swiss railway reform appears to have reached its stated objectives. Switzerland's approach to improve the railway system offering and efficiency prescribed a form of governance requiring cooperation between the actors, rather than submitting it to competition. It imposed performance pressure on the national incumbent rail operator, and more generally on all public transport companies, through a contractual agreement and the delegation of planning authority to the regions. Nevertheless, the chosen high quality rail transport has a major financial, political and managerial cost for the community. The high contributions asked from tax-payers puts significant pressure on the government (to maintain high quality) and on the main operator SBB (whose services are regularly evaluated). The sustainability of such a model is uncertain due to the search for constant savings and productivity gains in times where traffic increase is steady which requires important infrastructure and service quality levels.

Moreover, it would not be an easy model to replicate in other national contexts. In the matter of railways, progress might be slow, gradual and highly path-dependent. This does not exclude incremental changes.

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The Netherlands

Modes: Bus, tram, metro and part of regional passenger rail

Location: The Netherlands

Timeframe: 2000 onwards

Motivations for reform:

- Increase the use of public transport (and modal share) to reduce congestion
- Reduce public subsidies
- Bring innovation to enhance service quality for users

Industry structure

Figure 28. Reform of the Dutch public transport system

	Public			Private		
Planning (initiative)	National	Region / city Y	Local	X		
Service delivery				Direct award X	Tendering Y	Open entry

Notes: X = before reform; Y = after reform; multiple Xs or Ys on a given line suggests a hybrid model

Nature of reform

Before the reform, there was a system in which operators (predominantly owned by public authorities) proposed service plans to the regulatory authorities, who assigned subsidies to them. The reform of 2001 involved a change in national law which required regional transport authorities to develop the service proposals. This change was intended to ensure that public transport was embedded in general transport and land-use policy. In addition, the delivery of local and regional public transport services was henceforth to be based on a competitive tendering regime (concessions), although the law did not specify the exact approach to be applied. This system was however not applied to the national rail services nor to the three largest cities, who continued to have a municipal operator. The exemption of the major cities was initially seen as temporary, but has not been revisited.

The past fifteen years of experience with contracting and competitive tendering in Dutch public transport have seen the development of a broad spectrum of contracting formats which vary in a number of respects. These include whether contracts are offered on a gross or net cost basis, what service incentives are included, the length of the contracts (within defined limits), the level of service design freedom provided to the operator and, importantly, the selection and awarding procedure.

Outcomes

Overall ridership remained stable in the decade after the adoption of the reform, although there was some growth in urban areas, offset by declines in rural areas. The modal share of public transport has

remained static since the reforms, with about 12% of trips and 4% of passenger-kilometres being covered by public transport. Revenues increased due to fare increases. Operating costs remained roughly static for metro, but decreased 21% for rural bus services between 2005 and 2009, with higher cost effectiveness in tendered concessions. There is no clear picture of the total amount of subsidies allocated by transport authorities, although the total funding provided to regional authorities (which is used both to fund public transport and for other public purposes) grew substantially over 2005-12, suggesting that subsidies are likely to have increased.

Service-kilometres increased by 13% between 2000 and 2010, although most of this increase occurred during the first round of contracts 2001 – 2004, with subsequent reductions in subsidies limiting the gains obtained in subsequent tendering periods. Untendered concessions showed slightly below-average increases in service-kilometres (8% between 2000 and 2009). The combination of static ridership and increased service-kilometres necessarily meant that Vehicle occupancy rates decreased. This occurred despite the fact that the fleet was extensively renewed for better quality (i.e. generalisation of comfortable low floor buses and improvement of vehicle environmental standards).

Integration was maintained in terms of ticketing and information (national integrated passenger information system) however, fare integration decreased but it was one of the aims of the reform to enable more decentralised tailored fare regimes.

Overall consumer satisfaction improved, and to a larger extent in tendered concessions.

Assessment

The reforms do not appear to have achieved their identified objectives. While a modest increase in service-kilometres was achieved, there was no increase in the modal share of public transport and no significant change in ridership (passenger-kilometres). Moreover, analysis of specific impacts on ridership over the period shows that the effects of the reforms were minimal in relation to other factors: population and employment growth were found to have added 5% to ridership and the use of a Student Travel Pass to have added 4%, while these gains were offset by a 9% reduction due to the fare increases. The picture regarding subsidies is unclear, but suggestive of an increase in their real level, rather than the decline anticipated. Several lessons appear out of the experience from the last years. First of all: there is no panacea. Each type of contracting leads to different challenges and problems. Some problems from the start of the regime seem to have been overcome while other issues have perhaps not yet been fully resolved. The current regime delivers good public transport and the successes, mistakes and disappointments have led to learning while the resulting diversity of approaches provides a considerable potential for further knowledge sharing.

Further reading

van de Velde, D. and Savelberg, F. (2016) "Competitive Tendering in Local and Regional Public Transport in the Netherlands", ITF Discussion Paper 2016-12, OECD

United Kingdom (England outside London)

Modes: Bus

Location: United Kingdom outside London

Timeframe: 1985-1986 onwards

Motivations for reform:

- Reduce public subsidies
- Bring innovation and enhance service quality through private competition
- Political ideology

Industry structure

Figure 29. Reform of United Kingdom bus system (ex-London)

	Public			Private		
Planning (initiative)	National X	Region / city	Local Y	Y		
Service delivery	X			Direct award	Tendering Y	Open entry Y

Notes: X = before reform; Y = after reform; multiple Xs or Ys on a given line suggests a hybrid model

Nature of reform

From 1930 to 1980, the bus market in England was based on a system of national vehicle licensing regulations, including vehicle quality and quantity regulation (service frequency). Network planning was done at a national level and bus operators tended to be publicly owned. To reduce the industry's dependency on the public sector and to introduce greater competition, the bus market in England outside of London was privatised and deregulated (all price and quantity controls were removed outside London) through the 1980 and 1985 Transport Acts. Since deregulation, bus operators have been able to design and develop commercial services on their own and set their own fares. Competition on route (or in the market) was permitted. In the urban areas, all previously publicly operated bus companies were privatised. Government involvement was limited to local governments providing a rebate for lost revenues associated with concessionary travel and tendering subsidised services to 'gap fill' the network where private-initiative services were deemed by local authorities not to provide sufficient service levels. The national government also provides a fuel rebate to operators and subsidises the uptake of low-emissions vehicles.

The reforms were controversial from the outset and, following a change of government in 1997, the Labour government introduced a type of reregulation in 2000, which allowed for bus franchises to be let in the form of a Quality Contract Scheme (QCS), provided that legislated consultation and public interest criteria were met. However, no area ever introduced such a scheme, largely due to concerns about the complexity of the process and a lack of protection from legal challenge on the part of incumbent private

bus operators (UK Parliament, 2018).⁸ The first decision of the QCS Board on an application to establish a QCS was given in 2015 and ruled against the proposal.⁹

Following the apparent failure of the QCS provisions to provide an effective mechanism for change, new enabling legislation was developed to provide for a move back to bus franchising where local authorities wish. This has been promoted as part of a wider agenda of devolution of government powers. After a long gestation, beginning in 2010, the Bus Services Act finally came into effect in December 2017 and enables local authorities with an elected mayor to either introduce franchising or to establish a new partnership arrangement called an Enhanced Partnership. Seven local authorities became eligible to adopt one of these schemes following mayoral elections held in 2017 and 2018.¹⁰ The Act also seeks to facilitate integrated ticketing and improved accessibility and information. The Government has also published new regulations and guidance in relation to the Act (UK Parliament, 2018).

Outcomes

In the early years after deregulation between 1985 and 2000, bus mileage increased by about 25%-30%, but ridership dropped by 29%. This resulted in a fall in service effectiveness (ridership per service), which almost completely offset the effect of cost savings (of over 40%) on profitability. Fares rose above inflation, negatively affecting low income groups. Public spending, formerly acting to support lower fares and higher service levels, fell (by 69% in metropolitan areas). Rapid changes in services proved difficult for passengers to follow and deficient co-ordination of information was a major flaw of the deregulated model. White (2008) identified the key determinants of bus use in UK metropolitan areas as being real fares, service level and car ownership.¹¹ The reform also prevented local authorities from planning for large scale network improvement due to the prohibition of government competition with private commercial services. There were some initial examples of on-route competition including races to bus stops to compete for passengers but smaller operators were quickly out-competed by the bigger players and an initial large number of small bus companies reformed into a small number of large players (the five largest operators hold 83% of the metropolitan markets).

Since 2004-05, bus mileage has been relatively stable, but there are disparities between local areas. Ridership has also been relatively stable in the past decade, but this performance has varied substantially across the country. The share of passengers holding concession cards has increased with the introduction by national government of free off-peak trips for the elderly and the disabled. Operating costs have increased by 20% overall since 2004-2005 with a strong increase in fares in metropolitan areas (+27%) and a smaller increase in other areas (+7%) over the same period. Subsidy levels increased again, 40% of the industry's revenue is constituted of subsidies from local authorities and the national government.

Over the longer term, real bus fares in all parts of the UK have increased substantially in the post-reform period. However, the following graph shows that, for metropolitan areas, increases in London have been substantially smaller than those in the rest of the country (increasing by 136%, cf 191% between 1995 and 2017).

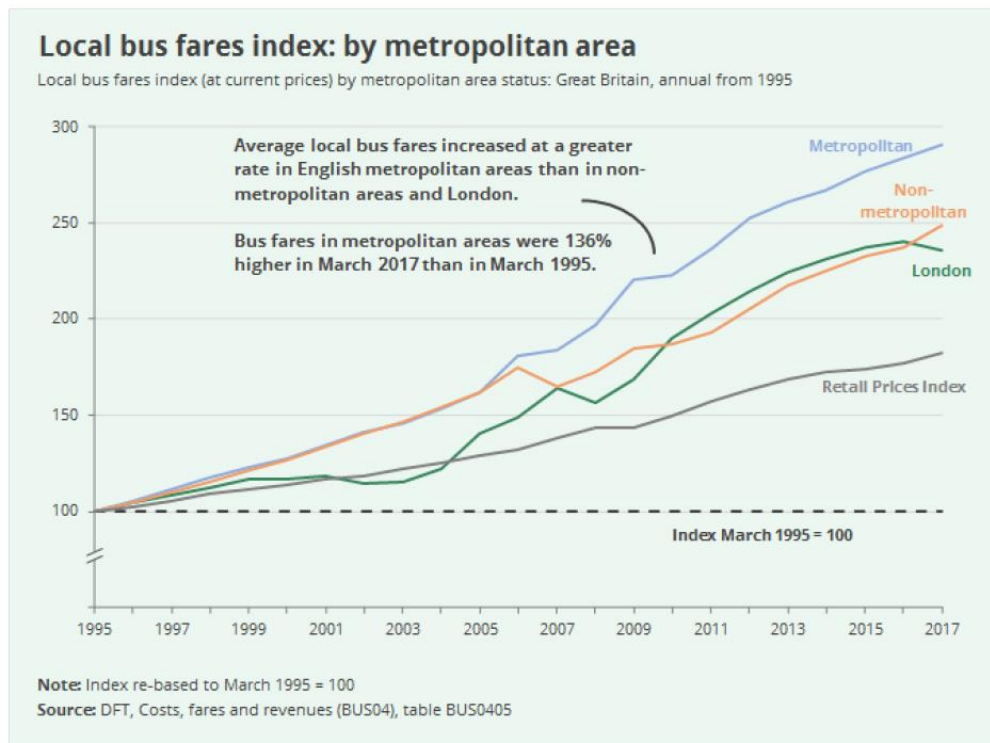
⁸ UK Parliament (2018). Bus Services Act 2017. Commons Briefing Papers CBP-7545. House of Commons Library, 16 August 2018.

⁹ <https://www.gov.uk/government/news/qcs-board-publishes-report-on-tyne-and-wear-scheme>

¹⁰ These were Tees Valley, Greater Manchester, Liverpool City Region, West Midlands, Cambridgeshire and Peterborough, West of England and Sheffield City Region.

¹¹ White, P. (2008). "Factors affecting the decline of bus use in the metropolitan areas". University of Westminster. https://westminsterresearch.westminster.ac.uk/download/d37dc841f63d7481724c2967901c490e853f17155b44d6990510b7ba7ab63bba/150167/White_2008_final.pdf [Access 20 August 2019].

Figure 30. Local bus fare index – United Kingdom



Source: House of Commons (2018)

Public subsidies for bus services outside London have risen from GBP 626 billion in 1997/98 to approximately GBP 1.313 billion in 2016/17, with most of the additional funding going to non-metropolitan areas (up from GBP 284 million to GBP 825 million, compared with a rise from GBP 342 million to GBP 488 million for metropolitan areas outside London (UK Government Statistical Data Set. Bus 0502).¹²

There is still little integration of fares and information and when fares are integrated between different operators, commuters generally have to pay a premium. This is often a significant issue due to the large number of companies operating within a given local area – for example 30 bus companies were operating services within Greater Manchester in 2018. Reductions in funding of “subsidised services” of 37% in the four years to 2014-15 led to significant numbers of bus routes being closed.¹³

Relatively little evidence was found of industry-led innovation and the government still intervenes with subsidies to incentivise smart ticketing and accessibility enhancements audio visual location (93% of buses are now equipped with both). CCTV has been integrated in most buses (81%) and some buses of free Wi-Fi on board. It is possible for bus operators to enter into voluntary statutory partnerships with local authorities to agree on certain vehicle standards or service levels in exchange for concessions such as dedicated bus lanes.

Currie (2016) concludes that the UK experience shows that complete deregulation of urban transit markets can save money but at a considerable cost to ridership and service quality. The more positive

¹² <https://www.gov.uk/government/statistical-data-sets/bus05-subsidies-and-concessions#table-bus0502> .

¹³ Ibid, House of Commons (2018).

outcomes in London provide a stark contrast to the deregulated model and strongly suggest that competition ‘for the market’ approaches provide a better balance between competitive pressures and the need to protect ridership and service quality concerns. The strong current interest of several local authorities (e.g. Greater Manchester, West Midlands) in adopting the franchising provisions of the Bus Services Act appears to support this conclusion.

Further reading

Currie, G. (2016) "Deregulation, Franchising, Outsourcing and Corporatisation in Local Public Transport: International Experience", ITF Discussion Paper 2016-10, OECD

Ganeshan, S. (2016) "Deregulation of England’s bus industry outside of London in the 1980s". Presentation to ITF Working Group on Public Transport.

UK Parliament (2018). Bus Services Act 2017. Commons Briefing Papers CBP-7545. House of Commons Library, 16 August 2018.

Taupham G., Perraudin F., (2018) Back in the driving seat: councils sense new hope for their beleaguered buses, *The Guardian*, 6th January 2018 <https://www.theguardian.com/politics/2018/jan/06/buses-beleaguered-councils-back-driving-seat>

Rosell, J., “Urban bus contractual regimes in small-and medium-sized municipalities: Competitive tendering or negotiation?”, *Transport Policy* 60 (2017) pp. 54-62.

Rye, T., Wretstrand, A., (2014), “Converging structures? Recent regulatory change in bus-based local public transport in Sweden and England”, *Research in Transportation Economics* 48 (2014) pp. 24-32.

White, P. (2008). “Factors affecting the decline of bus use in the metropolitan areas”. University of Westminster.

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United Kingdom (London)

Modes: Bus

Location: London

Timeframe: 1994-1995 onwards

Motivations for reform:

- Reduce public subsidies
- Bring innovation and enhance service quality through private competition
- Political ideology

Industry structure

Figure 31. Bus reform in London

	Public			Private		
Planning (initiative)	National X	Region / city Y	Local			
Service delivery	X			Direct award	Tendering Y	Open

Notes: X = before reform; Y = after reform; multiple Xs or Ys on a given line suggests a hybrid model

Reforms

Bus regulation followed a different path in London to the rest of England. Economic and demographic growth experienced in the capital prevents like-for-like comparison with the rest of the country but the concessioning model adopted has proved successful and the negative aspects of reforms elsewhere in England have been avoided. Bus ridership in London has doubled since the reforms were enacted in 1995-96, rising fares notwithstanding, and buses account for the highest share of public transport in the Greater London (21% mode share). Integrated governance for transport policy across the metropolitan area under the government authority Transport for London (TfL) is likely to have favoured higher patronage, both by promoting integrated ticketing with underground and surface rail services using a common payment card and by introducing complementary policies such as higher parking charges and the introduction of a congestion charge for private cars.

The bus system is privately operated but publicly planned and regulated in detail through TfL's subsidiary, London Bus Services, which also owns bus stops and provides user information services. Planning involves modelling of demand and adjustment of routes annually. The emphasis is currently on making the best use of existing capacity rather than adding capacity, with buses being transferred from central to more peripheral areas where demand is expected to rise. Buses carry common branding but are run by 30 operators, 75% of services by six large operators. Bus operators develop timetables, subject to approval by TfL, employ staff and hold assets including buses and garages. TfL collects all revenue from bus operations and sets mileage for contracted operators in annual business plans, which

forecast revenues and operating costs. TfL spent GBP 2.15 billion in contracted bus services in 2017, 75% of which was funded by fares and the rest through taxes and commercial income (ITF, 2018).

TfL awards contracts to operate the buses through open tenders. Concessions are short, five years with an option to extend for two years if reliability performance requirements are exceeded. 20% of the network is tendered each year with an invitation to tender issued regularly every two to three weeks. Routes are tendered individually but routes in the same area are often grouped to facilitate transitions between operators. The invitations to tender include a detailed description of the services to be delivered, including service frequency, vehicle type and minimum performance standards. The vehicles used range from 40 capacity minibuses to 87 capacity double deck buses. The operator is free to choose the manufacturer but must comply with vehicle specifications (ITF, 2018).

London Bus Services uses a pre-qualification evaluation system to maintain an approved list of operators eligible to tender. Bidders can submit sealed bids for single routes or a combination of the routes on offer. This allows small operators to compete whilst keeping open the possibility of bids for a package of routes from a larger operator reaping economies of scale. Contracts are awarded to the lowest bidder after consideration of qualitative factors such as the introduction of new vehicles or provision of extra off-peak services which might outweigh the best economic value parameter (Amaral, 2012).

Gross cost contracts are used together with quality performance incentives. TfL carries demand risk but incentives to attract riders (absent in gross cost contracts) are created through bonuses and penalties and, in particular, the option to extend concessions by two years if performance standards are exceeded. This combination has proved more successful than the net cost contracts used between 1995 and 1998 (ITF 2018).

Performance standards include indicators of reliability of service that for high frequency routes are calculated as excess wait times based on observed intervals between busses. This aims to ensure passengers never have to wait longer than 1.5 times the timetabled frequency of service. Bonuses and penalties are applied for every 0.1 minute excess wait time achieved under or over the standard defined in the contract. The bonuses are 50% higher than the penalties. For low frequency routes punctuality is applied directly in the incentive regime, with TfL monitoring actual departure times compared to the timetable. Bonuses are capped at 15% of the contract prices and penalties at 10%. The thresholds used for determining contract extensions are set somewhat higher than these minimum reliability standards. Penalties are also applied for mileage not operated due to factors under the control of the operators such as striking bus staff or vehicle failures. Driver and vehicle quality is monitored using “mystery shopper” surveys and independent contractors employed for regular mechanical checks on vehicles. Regular audits are used to ensure compliance with contract conditions and check the accuracy of reporting revenue and lost mileage and safety is monitored through visits to depots and obligatory reporting of crashes and incidents (ITF, 2018).

Outcomes

Currie (2016) notes that, while London’s bus system recorded similar declines in unit costs to those of the deregulated part of the UK bus industry in the first decade after the implementation of reform, it did so while achieving an increase in ridership, in contrast with a large fall in the deregulated industry. Moreover, the savings were invested in improving service levels.

Since the privatisation of buses, ridership has doubled. There has been some levelling off since 2008-09, which could be explained by the development of cycling infrastructure and rising congestion.

Fares have been steadily rising above inflation since 2005. These have risen faster than fares in England overall but lower than those paid by passengers in the other metropolitan districts. Overall revenues from passenger fares have been growing, while government support has been roughly constant over the past decade, in contrast to the substantial rises in the rest of the United Kingdom.

Bus-kilometres have steadily increased over the period, in part enabled by hypothecated revenues from the Congestion Charge scheme. Subsidy per journey (excluding national government grants and concessionary travel subsidies) increased steadily until 2009/10, but began declining thereafter, as passenger numbers continued to increase.

There is a high level of integration between public transport services and modes. This is possible as TfL is in charge of network design for each mode (except for most surface heavy rail), offers multi-modal fare integration through the Oystercard system (with flat fares for trips of any length) and provides comprehensive information systems. TfL has also brought up the vehicle emissions and access standards by contributing directly to the costs for operators of updating their fleets.

The reform is considered to be a success. In terms of growing passenger numbers and improving the passenger experience, London has done very well, although the congestion charge and parking policy in London are likely to have been significant contributors to the success of the competitive tendering model by making other travel modes less attractive. The passage of the Bus Safety Act 2017 for services outside London and the evident desire of many local authorities to move toward a franchise system along the lines adopted in London also underscores the success of this model relative to the deregulated alternative adopted in the rest of England, notwithstanding the differences in context.

Further reading:

Amaral, M. (2012), "How to ensure effective regulation?" Paper delivered at the 2012 EU Rail Policy Conference, Brussels, 25 November 2012.

ITF (2018) Policy Directions for Establishing a Metropolitan Transport Authority for Korea's Capital Region.

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Annex B. Working Group participants

Working Group participant affiliations were provided at the time the meetings took place.

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Reforming Public Transport Planning and Delivery

This report examines the difference in which public transport planning is undertaken and services are delivered. The report focuses primarily on urban public transport markets, with some consideration given to intercity markets. Case studies and examples address bus, tram, metro and urban or regional rail. It discusses how well different models of transport organisation deliver value for money, encourage and harness innovation, and help systems prepare for the challenges and opportunities on the horizon. Recommendations highlight the key main factors for successful reform of public transport systems.

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