CHAPTER 7

Towards a More Optimal Passenger Transport System for South Africa: Design of Public Transport Operating Subsidies

By: Ghalieb Dawood and Mathetha Mokonyama

7.1 Institutional/Contextual Background

South Africa’s transport policy provides for the state allocation of a public transport subsidy, as a “socially necessary” service, in a manner that ensures transparency. However, the long-term aim, stated in the 1996 White Paper on National Transport Policy (DoT, 1996), is to reduce the state’s subsidisation costs, dependent on a more effective and efficient public transport system being developed. The policy also states that where public transport subsidies are granted based on welfare considerations, or to promote public transport, they should be applied through mechanisms that provide incentives for increased efficiency.

Despite the above policy provisions, very little has changed in the public transport domain since 1996. Expenditure on public transport subsidies continues to increase without any proportionate benefits to the public. The minibus taxi industry keeps making a case for transport subsidies to be extended to cover taxis, without any clear response from government. Further complicating the fragmented subsidy framework is the addition of public transport modes such as Gautrain and Bus Rapid Transit (BRT) to the network, each with their own subsidy requirements.

The departure point for the investigation is the critical gap between the requirements of a national transport policy and the current public transport subsidy framework, as well as its implementation. The principal aim of the investigation is to design and recommend an appropriate public transport subsidy framework for South Africa, which aligns the actual transport operations with transport policy provisions. The investigation also identifies the fiscal implications of adopting the recommendations.

The administration of transport subsidies spans across all three spheres of government – national, provincial and local – with most of the funds being channelled from the national fiscus. Any recommendations emanating from the research are therefore subject to South Africa’s intergovernmental relations framework, thus warranting the involvement of the Financial and Fiscal Commission (the Commission).

The investigation is limited to public transport services, particularly relating to operational subsidies. While public transport subsidies tend to be institutionally ring-fenced, the investigation reviews the pool of subsidies in its entirety.

7.1.1 Findings from previous research

Previous research by the Commission acknowledged the progressiveness of the South African transport policy but highlighted the lack of policy implementation (attributing this to vested interests across many stakeholders to maintain the status quo, the complexity of the required interventions and the disabling institutional setups) and questioned whether existing studies are optimally used (FFC, 2010).
Public transport subsidies in South Africa are closely related to the political history of the country and were historically provided for two reasons: to cushion the cost of transport resulting from relatively long travel distances to and from work, as a result of spatial apartheid policies; and to make transport in the urban areas, particularly metropolitan areas, more affordable (DoT, 2006). Parallel to the development of the subsidised public transport services, in the late 1970s, the less-formal minibus taxi services emerged to serve the growing travel demand that could not be adequately served by the limited spatial coverage of subsidised bus and train services (McCaul, 1990). Owing to their extensive spatial coverage, minibus taxis have since captured the largest proportion of the travel demand, and tend to compete directly with the subsidised passenger transport modes. Nonetheless, minibus taxis do not receive any operational subsidies from government, although they do receive indirect subsidy in the form of capital investment in ranking facilities and the road network.

DoT (1994) concluded that a sustainable subsidy framework must:
- incentivise operator productivity;
- target low-income users;
- be structured to reduce the need for subsidy in the future;
- be affordable at a macroeconomic level; and
- contain losses resulting from administrative inefficiencies, fraud and corruption.

Furthermore, in the case of subsidies channelled through operators, monitoring of operations is necessary, to ensure that operators comply with contract conditions and that their claims are correct.

User-side subsidies were seen as expensive to administer and should be introduced only after a comprehensive welfare information system has been implemented.

The White Paper on National Transport Policy questions the effectiveness of the subsidy framework and calls for its reform (DoT, 1996). It also supports the provision of public transport subsidies in order to address critical social needs for a more equitable society, especially where operations cannot be provided on full commercial principles. However, as stated previously, it makes provision to seek a longer-term solution that would result in the reduction of public transport subsidies. Studies by the Department of Transport (DoT) have also found that current subsidies are not sustainable because of rising costs and declining passenger numbers, and that the subsidy framework is inequitable, ineffective and entrenches past apartheid planning policies (DoT, 1998; 2006).

Before the adoption of the White Paper on National Transport Policy, operators had perpetual lifelong operating rights. The competition was mainly between minibus taxis and bus services. The White Paper then introduced regulated competition with tendering as the main mechanism for providing public transport services. Since the adoption of the White Paper, the DoT commissioned a number of studies to review the public transport subsidy policy framework, with the intent of improving the framework and its implementation (DoT, 1998; DoT, 2003b; DoT, 2004; DoT, 2006). Some of the key recommendations made in these studies that are relevant to the current investigation were that:

- Subsidies should move gradually towards the unemployed poor, pensioners, learners in rural areas and isolated communities across the country, including the usage of taxis specifically in rural areas.
- Subsidised buses must be accessible to passengers with special needs, such as those with disabilities.
- Subsidised public transport services operating in parallel to each other should be identified and addressed.
- Historic commitment to support rail deficits and subsidised bus services to ex-homelands and “Group Areas Act townships” should no longer be the main rationale for subsidy policy.
- Full responsibility for municipal public transport should be devolved to the metropolitan and specified urban municipalities, together with the appropriate grants for infrastructure to initiate the new municipal public transport networks.
• Public transport funding streams should be consolidated.

• Entry as an operator should be on the basis of tendered contracts. Subsidies required for welfare considerations, or to promote public transport, should be through mechanisms that provide incentives for efficiency within the framework of transport plans.

• Support should only be provided for services, whether existing or planned, that are included in approved transport plans and form part of an integrated network of services.

• Subsidies allocated under the “relief of distance burden” rationale should be continued but gradually reduced and, eventually, limited to commuting trips of 40km or less.

• A phased, intergovernmental programme for rationalising and coordinating the subsidisation of urban transport and housing should be formulated and implemented.

• In the medium to longer term, provincial and/or local funding should directly supplement transport subsidy levels through appropriate means, to partially replace national funding.

• In the long term, operators should compete for the provision of subsidised rail and road-based public transport services, through competitive tendering processes. Tendering processes should make provision for the participation of historically disadvantaged enterprises and individuals. Passenger rail services, as part of the recommended public transport system at local level, should be subsidised through concessioning.

• Conditions specified in rationalisation plans prepared as part of integrated transport plans should be used as the subsidy qualification criteria.

• An indirect subsidy should prioritise the provision and maintenance of road infrastructure along roads used for public transport.

• Only scheduled formalised public transport services or services that adhere to minimum service levels should attract subsidies.

• Minibus taxis could be subsidised, if such services are provided in terms of contracts or similar agreements with government or agents thereof, and where a minimum frequency or level of service is specified.

The above recommendations have largely remained unimplemented, confirming the conclusions from past Commission research on the lack of transport policy implementation.

The National Development Plan (NDP), which is South Africa’s 2030 strategic vision and action plan, acknowledges the above historical problems with the country’s passenger transport system (NPC, 2011). It recognises the relatively long public transport commuting distances and even suggests an explicit link between poverty and access to transport. The NDP cautions against adopting transport solutions that are not aligned with the country’s priorities, which include the promotion of spatial and social inclusiveness, and the reduction of the distance burden. The NDP supports providing subsidies to low income commuters and creating movement corridors that connect settlements occupied by rural migrants and urban service centres. Given that the transport sector contributes significantly to anthropogenic greenhouse gas (GHG) emissions, and that the NDP has set bold targets for GHG emission reduction, transport subsidies should also incentivise GHG emission reduction.
7.1.2 Why public transport subsidies are necessary

Globally, public transport subsidies have historically been provided for two main reasons:

(i) To make the services more affordable for the poor, and

(ii) To incentivise a modal shift to public transport, particularly because competing private transport users do not pay for their full cost of transport (Serebrisky et al., 2009) and modal shift can help reduce GHG.

Public transport subsidies have also been justified in terms of the Mohring effect, which states that optimal frequencies increase as demand for public transport increases, thus diminishing waiting times or schedule-delay costs for all users (Gomez-Lobo, 2011). In terms of the Mohring effect, additional demand for public transport introduces marginal costs that, without subsidies, will result in increased fares for the original passengers.

There is no general agreement on how to measure the affordability of public transport. Some approaches, as in South Africa, set a limit on the proportion of income that should be used for public transport, above which public transport is deemed unaffordable. In some cases, affordability is defined in terms of the ability of a household to pay for a predefined number of necessary trips to survive and also run a household (Serebrisky et al., 2009).

Supply-side subsidies, which are provided through the operator, usually have a neutral or regressive impact, while demand-side subsidies, which are provided directly to users, are usually not effective in improving the livelihoods of the poor (Serebrisky et al., 2009). For poverty alleviation, it is best to move away from supply-side subsidies and integrate the transport subsidies with the existing welfare system, thereby empowering households to prioritise on how and where to spend money (Serebrisky et al., 2009). Targeted subsidies can take the form of concessionary fares (where special groups of people such as the elderly pay discounted fares), travel vouchers, special employer benefits, or through cross-subsidisation by higher-class travellers.

7.1.3 Lessons learnt elsewhere about public transport subsidies

Historically public transport was provided as government-owned and controlled services. A variation of this arrangement included instituting a monopolised government-owned operating entity. Progressively, contractual relationships were established between authorities and operators, especially between the state and private operators, who were allowed to provide additional capital resources. Over time, competitive tendering for providing subsidised services was introduced, with the aim of driving costs down, particularly labour costs. This was shown to lower public transport costs (Costello and Teeling, 2003).

Two forms of competitive contracting regimes emerged. These options vary on the basis of the nature of risk sharing between the operator and the contracting authority (Shaw et al., 1996):

- Gross cost contracts – the revenue risk is carried by the authority
- Net cost contracts – the operator carries both revenue and cost risks.

Within a network context, net cost contracts have a negative impact on service integration efforts, as competitors operating in the network are not interested in entering into cooperative agreements. This is because, with net cost contracts, operators focus more on reducing their own risks and pay less attention to overall network requirements.

In South Africa, the incumbent operator has the right to refuse the awarding of a new contract to another operator, if the bid price difference is within 10% of the incumbent operator’s price. This practice has the potential to make the environment uncompetitive.
After comparing contracts across different countries, Shaw et al. (1996) comes to the conclusion that the authority needs to evaluate the total cost of the contract prior to selecting a contracting mechanism. This includes contract monitoring requirements and takes into account the likelihood of attracting a critical mass of bidders to enable costs to be minimised. The authority also needs to understand the nature of the demand in the area and the inherent incentives within the contract. A combination of elastic demand and net contracts thus tends to be effective, whereas a combination of an elastic demand and gross contracts without built-in operator performance incentives tends to result in lower passenger numbers and long-term costs for the authority. Costello and Teeling (2003) propose an approach where authorities need to introduce gross contracts first in order to minimise uncertainties, and then move gradually to net cost contracts.

The competitive tendering processes focus overwhelmingly on costs and less on systematic service quality assessments. In response to this, Hensher and Prioni (2002) developed and proposed a service quality index that measures the effectiveness of a service quality-oriented competitive tendering. Performance-based contracting is more attractive because it secures maximum social surplus to the community for a given amount of subsidy, whereas competitive tendering typically focuses on minimising costs to government rather than on delivering specific quality outcomes (Hensher and Stanley, 2002). With performance-based contracting, individual operators are offered a subsidy per vehicle kilometre for providing minimum service levels. They are also offered an incentive subsidy payment per passenger trip for passenger numbers above trip numbers associated with minimum service levels. These service levels are subject to social and environmental criteria. Performance-based contracts allow operators to continuously configure public transport services in order to have the best value for money, but subject to the approval of the authority.

In developing and transitional economies (including South Africa), problems in implementing contracting systems can be classified as (Gwilliam, 2005):

- **The uncommitted reformer**: The adoption of new contracting approaches is because traditional systems have failed, rather than the authorities believing in the merits of the franchising system. This is demonstrated by dual systems, where private sector operators are subjected to stringent market-based rules, whereas public sector operators have more lenient rules and regulations.

- **Protection of vested interests**: Countries make a commitment to reform but still find it politically convenient to protect the vested interests of incumbent operators. Governance systems that combine transport operations and policy functions aggravate the situation because of the need to protect the public operating entity’s interests. In some countries, operators reportedly enjoy political support and are therefore able to influence the awarding of contracts.

- **Unrealistic expectations of market processes**: Governments tend to have completely unrealistic or inappropriate expectations of what the market can achieve and how it can be exploited. As a result, reform is accompanied by an unrealistic risk burden being placed on the operators, such as stringent fare restrictions and short-term contracts, restricting the vehicle types to non-versatile vehicles and compelling the operator to make large investments in an uncertain environment.

Based on typical problems found in public transport contracts, Gwilliam (2005) identifies some solutions from international case studies. First, political commitment to the reform is essential, which in turn improves the credibility of contracts. Second, regulatory instruments must be properly drafted in order to prevent selective enforcement and “harassment” of certain operators by the enforcement agencies. Third, the administrative agency responsible for the contracts must be expert and trustworthy, and must not have any business links with any operator. Around the world, the protection of the incumbent parastatals, in particular, has been a major impediment to effective reform. Lastly, in order to preserve revenue for the contracted operators, illegal operators who undermine the contracted operators must be removed from the network.
7.2 Research Methods

The investigation is aimed at recommending a transport policy responsive subsidy framework for South Africa and has the following objectives:

- To review the current public transport subsidy framework, assessing its effectiveness in relation to national transport policy.
- To identify measures that have previously been put in place by government to rationalise the allocation of public transport subsidies, and reasons why such measures have been ineffective.
- To design and recommend a subsidy framework that would be effective in supporting the national transport policy.
- To provide an implementation plan for the recommendations.

The investigation comprised three key tasks:

- Review and benchmark the current subsidy framework based on published information;
- Develop and evaluate the subsidy framework; and
- Solicit stakeholder inputs.

7.3 Findings

7.3.1 The current subsidy framework

Current public transport operational subsidies are based on the historic practice of providing some financial relief to households, particularly workers displaced by apartheid policies. The subsidies are supply-side oriented, targeted at bus and rail commuters, mainly for trips with at least one leg ending in urban areas. Rail services also receive direct capital subsidies (government owns the rail assets), while limited subsidised peak and off-peak services are provided mainly for the small number of services dedicated for learners. In addition, provincial education and health departments provide limited subsidies for some specific user categories, for instance, subsidies targeted at “farm schools” in areas where schools are located more than 8km from residential areas. Minibus taxis are not subsidised but in some cases provide agreed contracted scheduled services, which support the tendered subsidised bus contracts.

National and provincial departments of transport manage most of the subsidies. However, some municipalities have long-standing business interests in municipal-owned and controlled bus services, which are subsidised only by the municipalities through a deficit subsidy (to bridge the shortfall between operational expenses and fare income). Subsidies are paid per mode of transport and no integrated strategy for allocating subsidies is in operation.

Figure 59 summarises how subsidy funds are allocated across the different spheres of government and other government entities.
The total subsidy amounts to over R17.4-billion per annum and increases annually based on inflation and other factors, such as escalation in capital, labour and fuel costs. Escalation of interim contract costs is calculated and reimbursed annually, whereas tendered contracts are adjusted monthly. Table 80 provides a breakdown in terms of geographical areas and subsidy types.

### Table 80: Categories and amounts of public transport subsidies in South Africa

<table>
<thead>
<tr>
<th>Transport subsidy type</th>
<th>Geographical area</th>
<th>Expenditure (R million)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transport subsidy paid by the DoT and referred to as Public Transport Operations Grant</td>
<td>Eastern Cape</td>
<td>174</td>
</tr>
<tr>
<td></td>
<td>Free State</td>
<td>193</td>
</tr>
<tr>
<td></td>
<td>Gauteng</td>
<td>1 626</td>
</tr>
<tr>
<td></td>
<td>KwaZulu-Natal</td>
<td>808</td>
</tr>
<tr>
<td></td>
<td>Limpopo</td>
<td>261</td>
</tr>
<tr>
<td></td>
<td>Mpumalanga</td>
<td>439</td>
</tr>
<tr>
<td></td>
<td>Northern Cape</td>
<td>39</td>
</tr>
<tr>
<td></td>
<td>North West</td>
<td>81</td>
</tr>
<tr>
<td></td>
<td>Western Cape</td>
<td>696</td>
</tr>
<tr>
<td>Transport subsidy paid, by municipalities who own and operate services, directly from the municipal budgets</td>
<td>City of Johannesburg</td>
<td>420</td>
</tr>
<tr>
<td></td>
<td>City of Tshwane</td>
<td>144</td>
</tr>
<tr>
<td></td>
<td>City of Ekurhuleni</td>
<td>44</td>
</tr>
<tr>
<td></td>
<td></td>
<td>161</td>
</tr>
<tr>
<td>Gautrain</td>
<td>Gauteng</td>
<td>831</td>
</tr>
<tr>
<td>Taxi recapitalisation (capital)</td>
<td>Country wide</td>
<td>407</td>
</tr>
</tbody>
</table>
63 Employed people amount to about 13.5 million, therefore 10% of workers amounts to 1.35 million. Total learners using bus and taxi is 740 000. It is assumed that work trips and education trips make up the bulk of subsidised transport modes.

Source: Based on DoT (2012a); DoT (2012b); National Treasury (2012); RSA (2012)

<table>
<thead>
<tr>
<th>Transport subsidy type</th>
<th>Geographical area</th>
<th>Expenditure (R million)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Passenger Rail Agency of South Africa (operational)</td>
<td>Country wide</td>
<td>3 527</td>
</tr>
<tr>
<td>Scholars transport</td>
<td>Eastern Cape</td>
<td>210</td>
</tr>
<tr>
<td></td>
<td>Free State</td>
<td>36</td>
</tr>
<tr>
<td></td>
<td>Gauteng</td>
<td>165</td>
</tr>
<tr>
<td></td>
<td>KwaZulu-Natal</td>
<td>134</td>
</tr>
<tr>
<td></td>
<td>Limpopo</td>
<td>147</td>
</tr>
<tr>
<td></td>
<td>Mpumalanga</td>
<td>324</td>
</tr>
<tr>
<td></td>
<td>Northern Cape</td>
<td>93</td>
</tr>
<tr>
<td></td>
<td>North West</td>
<td>200</td>
</tr>
<tr>
<td></td>
<td>Western Cape</td>
<td>203</td>
</tr>
<tr>
<td>Subsidy paid to bus contract directly from provincial funds</td>
<td>Limpopo</td>
<td>338</td>
</tr>
<tr>
<td></td>
<td>Eastern Cape</td>
<td>156</td>
</tr>
<tr>
<td></td>
<td>North West</td>
<td>414</td>
</tr>
<tr>
<td>Public Transport Infrastructure and Systems Grant (includes some operational aspects as well as capital)</td>
<td>Selected cities implementing Integrated Rapid Public Transport Networks</td>
<td>4 988</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>17 259</strong></td>
</tr>
</tbody>
</table>

The Passenger Rail Agency of South Africa (PRASA) receives a shortfall subsidy from national government, based on a reported 546.4 million passenger trips per annum, which includes PRASA-operated bus services (National Treasury, 2012). The PRASA subsidy amounts to an estimated R6.28 per passenger trip, which is equivalent to a one-way 12km minibus taxi trip at the current average minibus taxi fare of 50 cents/km.

The total transport subsidy amount in Table 78 is equivalent to about R30 per month for every person living in South Africa. However, not everyone travels, and not everyone who travels uses subsidised public transport services. In the absence of figures that estimate the number of beneficiaries of public transport subsidies in the country, Figure 60 shows the proportion of people who use different modes of transport for work trips: about 10% of work trips and about 5% of learners (DoT, 2003a) use subsidised modes of transport (rail and bus). Therefore, for each beneficiary, the estimated subsidy is an average of R690 per month, or about 1 380km of “free travel” per month (69km per day for a 20-day month) by minibus taxi (at a rate of 50 cents/km).

The total subsidy amounts to over R17.4-billion per annum and increases annually based on inflation and other factors, such as escalation in capital, labour and fuel costs. Escalation of interim contract costs is calculated and reimbursed annually, whereas tendered contracts are adjusted monthly.

Table 80 provides a breakdown in terms of geographical areas and subsidy types.
The current subsidy framework also has a number of design shortcomings. Operationally, the system is fragmented. For example, there is no coherent policy on concessionary fares, and the framework is not linked to other state welfare programmes such as social housing programmes. Also, the current interim bus contracts, which make up the bulk of the bus contracts, are based on permits issued under the provisions of the Road Transport Act (No. 14 of 1977). In terms of the Act, bus operators applied for a permit from the former local road transport boards in order to operate a subsidised bus route. The permits were perpetual, and the subsidy was paid based on the difference between the economic fare deemed to be affordable to customers and the ticket price. This “economic fare system” included the operator’s costs and profit margin, multiplied by the number of tickets sold. Currently, the majority (over two-thirds of budget) of government-subsidised bus services still fall under interim contract arrangements. Furthermore, the spatial allocation of subsidies has remained virtually the same, and very little spatial restructuring has been implemented since the end of the enforcement of apartheid policies.

To address these internal inefficiencies, in 1988 the government tested and introduced the tendered and negotiated contract system. The first tendered bus contracts for the provision of subsidised bus services were implemented from 1991 onward. However, National Treasury issued directives to limit the growth of bus subsidies to below the inflation rate, which led to a moratorium on the approval of additional routes or tickets until the full implementation of competitive tendering or negotiated contracts, which is currently well behind schedule.

In 2008/2009, bus operators instituted a court action against government over unpaid subsidies. The DoT argued that it was unable to pay fully subsidised buses because it had received less appropriations than requested from the fiscus, which over time resulted in accumulated shortfalls (DoT, 2009). Since then, the position of bus operators has not changed, and in 2013 the operators were of the opinion that the current subsidy framework holds them “to ransom” because they are effectively pressured by government and communities to expand services without equivalent extra funding (SABOA, 2013). Furthermore, operational costs increase at a much higher rate than subsidy increases, which results in industry practices that include overloading, poor fleet maintenance and...
The current subsidy framework is clearly not sustainable, but the desire for change coexists with a strong inertia that maintains the status quo.

7.3.2 Profiling of existing and potential beneficiaries

A transport subsidy framework that is user responsive requires an improved understanding of the targeted beneficiary. To identify the role of subsidies in alleviating the travel cost burden, this section examines household transport.

Households spend R235.7-billion per annum on public and private transport, which is equivalent to 12% of GDP (Stats SA, 2012). Household expenditure on public transport alone amounts to R38.8-billion per annum, which is equivalent to 2% of GDP. If expenditure by households and the state are added together, the total spent on public transport operations in the country amounts to R55.4-billion, which is equivalent to 3% of GDP and about 7% of South Africa’s national tax revenue (excluding municipal and provincial taxes). In comparison, the amount spent by the state on social grants is over six times that spent on transport subsidies.

Low income households tend to spend a large proportion of their income on transport. Figure 61 shows household expenditure on transport (private and public) and public transport only across household income deciles, as a proportion of the annual average household income and as a proportion of household expenses.
The significance of Figure 61 is that, while transport may be a relatively small proportion of expenses, it represents over 50% of household income for the lowest income households, indicating that many of the households have household expenses beyond their income. This finding is consistent with other research that found low income households in South Africa tend to have expenses that are higher than their incomes (Nunez et al., 2008; Nagdee, 2004).

Figure 62 shows the average subsidy per passenger trip and the number of trips for each province. Generally, the higher the number of passengers, the lower the subsidy per trip, implying that increased travel demand has the tendency to lower the subsidy unit costs.

The notable exception is Gauteng, where the comparatively high number of trips does not translate to a lower subsidy per trip. This may be because of the Mohring effect of increased marginal costs of larger networks (as explained in Section 7.1.2). Based on the same dataset, the relationship between the subsidy and travel demand is made clearer in Figure 63, where the subsidy is shown to reduce with increased demand. At this stage, bus kilometres cannot be incorporated in the calculations because the DoT does not report on this metric. Therefore, the conclusions drawn from Figures 62 and 63 assume that the route distances across the provinces are comparable.

Using household income deciles and average income per decile, Table 81 estimates the affordable distance per household based on a 10% affordability threshold.
As Table 81 shows, affordable travel distances range from 1 189km per household per annum for low income households to 151 193km per household per annum for high income households. However, there is no policy target for equitable minimum kilometres that a household should travel. If such a target existed, then the required subsidy per household would simply be equivalent to the kilometre shortfall between the minimum required distance and the affordable distance.

**Table 81: Estimation of policy-based affordable kilometres per household income decile**

<table>
<thead>
<tr>
<th>Income decile</th>
<th>Average annual household income (R)</th>
<th>10% household income (R)</th>
<th>Affordable travel distance per annum (km)(^{44})</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>4 757</td>
<td>476</td>
<td>1 189</td>
</tr>
<tr>
<td>2</td>
<td>13 426</td>
<td>1 343</td>
<td>3 357</td>
</tr>
<tr>
<td>3</td>
<td>20 324</td>
<td>2 032</td>
<td>5 081</td>
</tr>
<tr>
<td>4</td>
<td>28 242</td>
<td>2 824</td>
<td>7 061</td>
</tr>
<tr>
<td>5</td>
<td>38 345</td>
<td>3 835</td>
<td>9 586</td>
</tr>
<tr>
<td>6</td>
<td>52 907</td>
<td>5 291</td>
<td>13 227</td>
</tr>
<tr>
<td>7</td>
<td>77 570</td>
<td>7 757</td>
<td>19 393</td>
</tr>
<tr>
<td>8</td>
<td>125 327</td>
<td>12 533</td>
<td>31 332</td>
</tr>
<tr>
<td>9</td>
<td>229 558</td>
<td>22 956</td>
<td>57 390</td>
</tr>
<tr>
<td>10</td>
<td>604 773</td>
<td>60 477</td>
<td>151 193</td>
</tr>
</tbody>
</table>

\(^{44}\) Affordable travel = 10% of income divided by 50 cents/km. This is the average fare charged by unsubsidised minibus taxis.
In the absence of empirical measurements, Figure 64 is an attempt to estimate the actual number of kilometres travelled by households in each income decile for both motorised and non-motorised transport. The motorised transport profile is estimated from household fuel expenditure (reported in Stats SA, 2012), with in addition an assumed step function for non-motorised kilometres cascading down from 10km per day to 1km per day for income deciles 1 and 10 respectively. Based on this profile, the estimated average minimum number of kilometres travelled by households is 8 000km per annum, which is 6.7 times the kilometres deemed to be affordable to the lowest income decile in Table 81. Crudely, based on the affordability criterion in the White Paper if all travel were public transport based, 50% of households from income deciles 1 to 5 travel more kilometres than they can afford.

Figure 64: Estimation of kilometres travelled per household income decile

Figure 65 shows the relative spatial coverage of the different public transport modes in the country. The graduated colours indicate the intensity of passenger demand in each area normalised to the highest demand areas. For example, the intensity range 0.07–0.15 represents an intensity of demand of 7%–15% in the areas of highest demand in the country.

Figure 65 shows clearly that rail has the minimum spatial coverage, and minibus taxis have the widest coverage. Moreover, minibus taxis have more higher-intensity areas than all the other modes.

Figure 66 illustrates the same map in the province of Gauteng and shows that minibus taxis play a greater mass transit role than the other modes.
Figure 65: Spatial coverage and intensity of use for different public transport modes

Figure 66: Gauteng spatial coverage and intensity of use for different public transport modes

Source: DoT (2003a)
Based on the survey of Metrorail train services in Gauteng (PRASA, 2008), Table 82 shows the transport modes used by train users before boarding and after disembarking from the train. The bulk of passengers walk to and from train stations, but a significant proportion use minibus taxis. The lack of functional integration between the modes means that passengers have to pay separately for both the minibus taxi and the train service. In order to save costs, train users often walk long distances.

Table 82: Transport modes used by train users to connect to train services

<table>
<thead>
<tr>
<th>Mode used before boarding train</th>
<th>Mode of transport</th>
<th>Number of passengers</th>
<th>Modal split</th>
<th>Mode used after disembarking from train</th>
<th>Mode of transport</th>
<th>Number of passengers</th>
<th>Modal split</th>
</tr>
</thead>
<tbody>
<tr>
<td>Walk</td>
<td></td>
<td>65 916</td>
<td>81.2%</td>
<td>Walk</td>
<td></td>
<td>65 815</td>
<td>81.1%</td>
</tr>
<tr>
<td>Taxi</td>
<td></td>
<td>10 113</td>
<td>12.5%</td>
<td>Taxi</td>
<td></td>
<td>11 109</td>
<td>13.7%</td>
</tr>
<tr>
<td>Unspecified</td>
<td></td>
<td>2 794</td>
<td>3.4%</td>
<td>Unspecified</td>
<td></td>
<td>3 274</td>
<td>4.0%</td>
</tr>
<tr>
<td>Train</td>
<td></td>
<td>1 296</td>
<td>1.6%</td>
<td>Car</td>
<td></td>
<td>335</td>
<td>0.4%</td>
</tr>
<tr>
<td>Car</td>
<td></td>
<td>509</td>
<td>0.6%</td>
<td>Train</td>
<td></td>
<td>311</td>
<td>0.4%</td>
</tr>
<tr>
<td>Bus</td>
<td></td>
<td>307</td>
<td>0.4%</td>
<td>Bus</td>
<td></td>
<td>233</td>
<td>0.3%</td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td>256</td>
<td>0.3%</td>
<td>Other</td>
<td></td>
<td>114</td>
<td>0.1%</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>81 191</td>
<td>100%</td>
<td>Total</td>
<td></td>
<td>81 191</td>
<td>100%</td>
</tr>
</tbody>
</table>

Source: PRASA (2008)

People from low income households tend to have significantly longer travel times than those from higher income households. This is evident in Figure 67, which illustrates the relationship between travel time to work and household income. Commuters from lower income households tend to spend more time travelling, which is possibly because of longer travel distances and/or the relatively poor efficiency of the modes used.

Figure 67: Illustration of the relationship between travel time to work and household income
7.3.3 Proposed subsidy framework

The subsidy framework must be consistent with policy and be easy to implement. As sustainable transport policy seeks to create a balance between social, economic and environmental goals, a desirable transport subsidy framework for South Africa must:

(i) address social equity associated with structural poverty;
(ii) incentivise the productivity of public transport operations; and
(iii) encourage a modal shift from private to public transport, which will assist in the reducing greenhouse gas emissions and promote the attractiveness of the service to all users.

The model can generically be formulated as follows for a specific period:

\[
Subsidybill = [KA_{\text{MUL}} C_r (1-0)N_C] \beta \frac{MS_e}{MS_b}
\]

\(KA_{\text{MUL}}\) (km) = Policy kilometre apportionment to designated travellers. This is obtainable from summing all the network kilometres used by designated travellers in a specific period.

\(C_r\) (R/km) = Per km fare charged to passengers

\(\theta\) (Ratio with no units) = Expected operations cost recovery ratio

\(N\) (km) = Operational kilometres

\(C_u\) (R/km) = Unit cost of operations expressed in terms or R/km

\(MS_e\) (Ratio without units) = Modal split in the base year expressed, for the base year, as a ratio between passenger kilometres in the area and vehicle kilometres

\(MS_c\) (Ratio without units) = Current modal split expressed, in the current year, as a ratio between passenger kilometres in the area and vehicle kilometres

\(\beta\) (Scaling factor without units) = Modal split policy incentive factor. \(\beta = \frac{MS_c}{MS_e} - \frac{MS_b}{MS_e}\) for the assessment period < 1. The value of this parameter is determined by the authority and would be expected to be an increasing function of the ratio \(\frac{MS_c}{MS_e}\).

The social component of the model allocates subsidy based on a specified number of free kilometres per month to designated travellers, particularly recipients of social grants. In order to estimate the basic kilometres associated with designated travellers, benchmarking with the current welfare system payouts is necessary. Old age and disability grants are currently R1260/month, the foster care grant R800/month, and child support grant R290/month (SASSA, 2013). Based on the White Paper provisions, a transport subsidy equivalent to 10% of these welfare payouts would be required. For example, with the disability grant, 250km per month is equivalent to 10% of the grant for a fare rate of 50 cents/km. Government paid about R105-billion per annum to social grant recipients, who numbered over 16 million as of June 2013 (SASSA, 2013). Applying the transport policy target of 10% of income implies that over R10-billion would be required just to support the social equity.
The economic component of the model relates the subsidy to the productivity of the service in terms of contracted cost recovery. In a typical city (City of Tshwane), where a municipal-owned bus service travels about eight million kilometres every year, and assuming a cost recovery rate of 30% (usually worse), with operational costs of R30/km, the subsidy bill related to service productivity amounts to about R168-million. The complex relationship between population density, network size and travel patterns makes it difficult to extrapolate this figure to the rest of South Africa. However, extrapolation based on population size alone results in the economic component of the subsidy amounting to about R35-billion.\(^{65}\)

The environmental component incentivises increased public transport demand relative to private travel and, when implemented, should be sufficiently attractive to operators. The amount of subsidy required for this component depends on the authority’s policy on emission control and affordability of the incentives. Indications are that the subsidy required would be in the order of R45-billion, which is more than 2.6 times the current subsidy bill. However, it should be noted that the current subsidy supports a tiny proportion of the population and is not strictly aligned to transport policy.

Table 83 summarises the various scenario permutations for the proposed framework in respect of the total subsidy bill. The base scenario is estimated and, relative to the base scenario, parameters associated with the social, productivity and environmental components of the model are changed. While the permutation shows some sensitivity, in practice many of the variables change concurrently in a non-linear manner. A more dynamic modelling platform, such as a systems dynamics model, would be more suitable for such scenario computations.

The proposed framework’s fundamental assumption is that public transport is implemented and functions as an integrated network, and therefore does not distinguish between the subsidised modes. The failure to have a subsidised public transport system that functions as an integrated network would essentially perpetuate the status quo. Implementing the framework would require an authority both to design a network that achieves the desired access and mobility objectives and to monitor continuously the network and operations. It will also be very important to separate operations from planning and regulation.

### 7.3.4 Proposed implementation plan

The implementation plan for the proposed public transport subsidy framework requires the following:

- Stakeholder mapping and consultation
- Institutional relationships and the roles of the institutions required to implement the recommendations
- Legal requirements
- Resource requirements
- Transition management
- Implementation time-frames
- Cost implications for different stakeholders.

#### Stakeholder mapping and stakeholder consultation

Written comments should be solicited from the key stakeholders, i.e. National Treasury, the DoT, provinces and municipalities. Although the proposed new framework is in line with transport policy, it is a fundamental change from the status quo. National Treasury’s interest will be to ensure value for money and affordability to the fiscus. Apart from affordability aspects, the DoT will want to ensure that the proposed framework is consistent with transport policy. Provinces and municipalities are more likely to be concerned with the practical aspects of implementing the framework. Other role-players to consult are the public transport operator associations, and PRASA, and care should be taken to ensure that vested interests do not impede service delivery interests.
Table 83: Example subsidy framework scenario permutations

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Social equity</th>
<th>Service productivity</th>
<th>Environmental</th>
<th>Subsidy bill (R)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number of designated travellers (million)</td>
<td>Distance apportioned to designated traveller (km)</td>
<td>Per km fare (R/km)</td>
<td>Social equity subsidy per annum (R billion)</td>
</tr>
<tr>
<td>Probable baseline</td>
<td>16</td>
<td>1 250</td>
<td>0.5</td>
<td>10</td>
</tr>
<tr>
<td>10% reduced cost recovery</td>
<td>16</td>
<td>1 250</td>
<td>0.5</td>
<td>10</td>
</tr>
<tr>
<td>10% increase in social grant beneficiaries</td>
<td>17.6</td>
<td>1 250</td>
<td>0.5</td>
<td>11</td>
</tr>
<tr>
<td>10% improvement in passenger kilometres relative to vehicle kilometres</td>
<td>16</td>
<td>1 250</td>
<td>0.5</td>
<td>10</td>
</tr>
<tr>
<td>10% increase in service coverage</td>
<td>16</td>
<td>1 250</td>
<td>0.5</td>
<td>10</td>
</tr>
</tbody>
</table>
**Legal requirements**

After making refinements based on stakeholder inputs, the framework will have to follow a parliamentary process, which may culminate in gazetting for public inputs. It will be essential to ensure that the framework promotes and does not violate any constitutional provisions. Ultimately, planning authorities (mainly municipalities) would need to adopt the framework in their integrated transport plans, for implementation in their areas of jurisdiction.

**Resource requirements**

From an institutional setup perspective, no special resources are needed to implement the framework. However, the implementation of the framework will probably result in the increase of the subsidy bill. Practical application of the framework would also require trained personnel within the implementing agencies.

**Transition management**

Transitioning from the current to the new subsidy framework will require phased implementation in order to minimise risks. The regulatory authority will need to have full control of the network, and public transport services will have to be fully provided in line with an approved transport plan for the area.

**Implementation time-frames**

The implementation of the proposed plan will probably take at least two years, unless it is fast-tracked using special mechanisms. The first year would largely be focused on consultations and refining the framework. During the second year, the planning and regulatory institutions would need to be aligned to the framework, as well as budgeting for implementation. Parallel to this, an integrated ticketing system will need to be implemented in areas where the roll-out of the subsidy system will begin.

**Implementation cost implications**

The implementation of the proposed subsidy framework is likely to result in a significantly increased subsidy bill because of the larger network and number of beneficiaries, and in turn increased fiscal expenditure on transport. Apart from operational costs, the implementation of the framework will require capital expenditure on supporting.
7.4 Conclusion

The White Paper (DoT, 1996) considers public transport as a “socially necessary” service that therefore requires support through appropriations, grants or subsidies, in order to achieve equitable distribution of resources or act as an incentive to provide access to services that facilitate socio-economic development. This study investigated the status quo of the public transport subsidy, with the aim of identifying shortcomings of the current system, and proposing interventions, in the form of a subsidy framework, for implementation.

Current public transport operational subsidies are based on the historic practice of providing some financial relief to households, particularly workers that were historically displaced by apartheid policies. However, the transport policy does not envisage subsidies as simply a financial relief mechanism, but as an instrument for sustainably transforming the public transport system in the country. While the current transport policy is progressive, the lack of policy implementation has led to unsustainable practices. Rationalisation plans, as part of municipal integrated transport plans, have yielded few results, mainly because vested interests want to protect the status quo.

No single public transport subsidy framework exists that will work for all circumstances, but some good-practice principles have been established. Demand-side subsidies (user-focused) work better than supply-side subsidies. Subsidies are also more sustainable if implemented within a framework where the regulatory authority has full control of the network, and operations are institutionally separated from regulations.

The currently subsidy system is relatively expensive, as the large amount spent benefits very few people. The fragmented administration of the transport subsidy exacerbates the situation: it is common to find many different parties independently administering subsidies within one municipality – for example, municipal buses, scholar transport, PRASA and province-subsidised buses. Fundamental changes are proposed in order to align the framework with policy. Although these changes will result in a larger subsidy bill, the number of beneficiaries will increase and the subsidy will be aligned to the country’s transport policy provisions. In the short term, however, implementation will necessitate the use of existing resources which may in turn imply a reduced subsidised network.

The proposed transport subsidy framework has three components: (i) social equity, which addresses constraints associated with structural poverty; (ii) service productivity, which incentivises the productivity of public transport operations; and (iii) environmental impact, which incentivises a modal shift from private to public transport. The framework’s fundamental assumption is that public transport is implemented and functions as an integrated network that does not distinguish between the subsidised modes. Implementing the framework would require an authority to design a network that achieves the desired access and mobility objectives. A phased approach to implementing the framework is proposed, linked to the availability of financial resources.

7.5 Recommendations

• The investigation has shown that the current subsidy framework is not aligned with transport policy. Beneficiaries of the system are currently limited to rail and bus, which have very limited network coverage compared to minibus taxis. Nonetheless, the framework to be implemented must transcend modes and focus on network-level service delivery. Continued perpetuation of the status quo has been shown in the investigation to be ineffective.

It is recommended that the Department of Transport (the custodians of national transport policy) formulates and implements a transport subsidy framework, which explicitly incorporates social welfare, service productivity and environmental management, which are the three aspects endorsed by national transport policy.

• Recommendations, from previous studies commissioned by the DoT, for realigning the subsidy framework to national transport policy have not been implemented.

It is recommended that the DoT use the findings of this study as input into the recommended policy implementation process.
7.6 References


DoT. 2006. Subsidy analysis and reform options with regard to current public transport services. Pretoria: DoT.


